GX-Force Program Unit/Interface Design Document

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FUNCTION	SUBJECT	DESCRIPTION	INPUT	PROCESS	OUTPUT
req[1-1-1-1]	10 msec interrupt processing for gas operation	Perform 10 msec interrupt processing for gas operation	None	1. Invokes intermittent process of flammable sensor for 10 msec. 2. Call 10 msec interruption processing of oxygen sensor.	None
req[1-1-1-2]	All gas concentration calculation processing	Perform all gas concentration calculation processing	Device status information	1. If the parameter range and the main battery are not abnormal, execute the following processing 2 to 6. 2. If the flammable sensor is valid, the flammable gas concentration calculation process is called. 3. Call concentration calculation processing. 4. Call concentration calculation processing for display. 5. During measurement, during DISP mode, during gas test, determine which alarm event. 6. During the measurement, if it is in the DISP mode, the average value of the peak value, the STEL value, and the TWA value is updated. 7. If there is an abnormality in the flammable sensor, turn off the power.	None
req[1-1-1-3]	Concentration calculation	Perform concentration calculation	Type of gas measured by the sensor	1. If the O2 sensor is valid, the oxygen gas concentration calculation process is called. 2. If the flammable sensor is valid, the flammable gas concentration calculation process is called. 3. If the toxicity sensor 1 is valid, the hydrogen sulfide gas calculation processing is called according to the type of the measurement gas. 4. If the toxicity sensor 2 is valid, the hydrogen compensation carbon monoxide concentration calculation processing and the carbon monoxide concentration . calculation processing are called according to the type of the measurement gas.	None
req[1-1-1-4]	10 msec interrupt of flammable sensor	Perform 10 msec interrupt of flammable sensor	Warm air time count	1. When the warm up time count is 0 or more, the warm up time count is subtracted.	Warm air time count
req[1-1-1-5]	Calculation of flammable gas concentration	Select the mode of flammable gas calculation	Flammable sensor ON/OFF setting Flammable sensor error flag Flammable mode flag Flammable sensor A/D update counter The latest Flammable sensor output Flammable sensor output one time ago Flammable warm up counter Flammable differential mode return counter Oxygen sensor ON/OFF setting Oxygen sensor error flag Oxygen sensor concentration AIR calibration flag	1. When the oxygen sensor is active and the concentration is 20. 0% or more, if the current mode is over mode, cancel over mode. 2. If the combustible sensor output is updated and is not in the over mode, the following processes 2 to 12 are executed. 3. Calculate the sensor output difference between the previous and current times. 4. When the combustible warm up counter is not 0, set the warm up mode. 0, execute the following processing 5 to 11. 5. In the case where the transition mode is the display mode or less and the flammable difference mode return counter is 4 or more,the following processing is performed. If not applicable, set to output mode and transition to "12" processing. 6. If the sensor output is greater than or equal to the differential mode transition threshold, execute the following processing 7 to 14. If it is less than, to implement the processing of "10". 7. When the sensor output is equal to or larger than the over mode transition threshold, the following processes 8 to 14 are executed. If it is less than, to implement the processing of the "9". 8. When the oxygen sensor is effective and the concentration is 20. 0% or more, set to the output mode and shift to "11" processing. If it does not apply, set to over mode and transition to processing of "11". 9. Set to the output mode and execute the process of "11". 10. When zero tracking setting is ON Set to differential mode. Set to output mode when OFF. 11. In the case of the differential mode, the processing in the difference mode is performed and the following processing is performed. 12. In the transition from "11" to the warm up mode or the output mode, the output mode processing is executed and the following processings 13 to 14 are executed. 13. If 13 is true, the oxygen sensor is valid and 20. 0%/measurement mode or display mode is not satisfied or when the inflammable concentration over flag is applied during OFF/AIR calibration, the processing in the function is terminated. 14. In the case of the over mode, perform flammability protection processing.	Flammable mode flag
req[1-1-1-6]	Flammable output mode calculation	Calculate the sensor output for calculating the flammable output mode	Flammable temperature compensation coefficient Flammable sensor output Flammable AIR calibration output Flammable differential mode return counter	1. Place the zero point temperature compensation coefficient on the current sensor output. 2. The zero point is negative from the output obtained by "1" to calculate the span output. 3. When the span output is less than or equal to the difference threshold value, the differential mode return counter is reset. When it exceeds the difference threshold, the difference mode return counter is incremented up to the counter upper limit.	Flammable differential mode return counter
req[1-1-1-7]	Flammable concentration calculation processing	Calculate the concentration of Flammable gas	Suppress ON/OFF setting Full scale value 1 digit value Mode transition state Zero point temperature compensation value Span temperature compensation value The latest flammable sensor output Presence or absence of solvent of calibration gas type Fix number Replacement coefficient 100% for calculation LEL = ppm value 100% for display LEL = ppm value	1. When suppress mode is ON and the transition mode is less than display mode, set the value of zero suppress with a value of 2 to 5% of full scale. If it does not apply 0 for the zero suppression value. 2. Calculate temperature compensation coefficient of zero point and span. 3. Perform processing from 4 to 6 on both A element B element. 4. Temperature compensation is applied to the current sensor output as the output of the zero point of the reference temperature. 5. In comparison with the AIR calibration value, in the following cases, the negative flag is turned off to calculate the span output. When it exceeds, the negative flag is turned on and the span output is calculated with the absolute value. 6. Multiply span output by temperature compensation coefficient and compensate for temperature compensation coefficient of reference temperature. 7. When the calibration gas is a solvent gas, calculate using the span output of the A element. If it is not solvent gas, use the one with the larger span output. 8. Consider fix value. 9. If the transition mode is less than or equal to the display mode, multiply the span coefficient by the read replacement coefficient. If it exceeds the display mode, multiply by the rewriting coefficient of the calibration gas. 10. Calculate the current percentage of 0 - FS = 0 - 100% with span output ÷ span coefficient (after replacement coefficient added). 11. When the transition mode is below display mode, calibration curve processing for replacement. When the display mode is exceeded, calibration curve processing for calibration gas. 12. When the transition mode is less than display mode, convert to ppm using calculation LEL value for replacement. When it exceeds the display mode, convert it to ppm using calculation LEL value for calibration gas. 13. When the transition mode is less than the display mode, convert to LEL using the display LEL value for replacement. When it exceeds the display mode, convert it to LEL using the display LEL value for calibration gas. 14. If the calculated concentration exceeds 120% of the full scale, it is fixed to 120%. 15. Zero sub process. 16. Digit rounding processing. 17. When the concentration is positive, compare the concentration value with the full scale value and set the over flag, then turn off the negative over flag. 18. When the concentration is negative, the over flag is turned off, the concentration is compared with -10% of FS, and the negative over flag is calculated. If the negative over flag is ON and the long energy mode is ON, the negative over flag and the negative flag are turned off and the concentration is doubled. 19. When the negative flag is ON, change the concentration to 10% plus 1 digit of full scale.	Concentration of Flammable sensor Flammable sensor over flag Flammable sensor negative flag Flammable sensor over-negative flag
req[1-1-1-8]	Acquisition of combustible sensor warm-up flag	Acquire combustible sensor warm-up flag	None	1. In the warm-up mode, turn on the flammable sensor warming up flag. 2. Return flammable sensor warming up flag.	Warming up flag
req[1-1-1-9]	Settings during combustible warm-up	Set combustible warm-up settings	ON/OFF setting flag	1. Substitute the ON/OFF setting flag for the flammable sensor warming up flag.	Flammable sensor warming up flag
req[1-1-2-1]	NC span point temperature compensation coefficient calculation processing	Perform NC span point temperature compensation coefficient calculation processing	Temperature value	1. Calculate span point temperature compensation coefficient from current temperature (quadratic equation).	Temperature compensation factor
req[1-1-2-2]	NC zero point temperature compensation coefficient calculation processing	Perform NC zero point temperature compensation coefficient calculation processing	Temperature value	1. Calculate the difference between the reference temperature and the current temperature. 2. From the temperature difference, calculate the zero point temperature compensation coefficient.	Temperature compensation factor
req[1-1-2-3]	NC100ms value temperature compensation coefficient calculation processing	Perform NC100ms value temperature compensation coefficient calculation processing	Temperature value	1. Calculate NC100ms temperature compensation coefficient from current temperature (quadratic equation).	Temperature compensation coefficient
req[1-1-3-1]	Absolute humidity calculation	Perform absolute humidity calculation	NC sensor 100ms A/D value	1. Add the temperature compensation coefficient to the NC100ms value. 2. Calculate absolute humidity from NC100ms value (quadratic equation). 3. If the current temperature is less than the reference temperature or the temperature at zero adjustment is less than the reference temperature, set the absolute humidity to 0.	Absolute humidity
req[1-1-3-2]	NC zero point humidity compensation coefficient calculation processing	Perform NC zero point humidity compensation coefficient calculation processing	Absolute humidity	1. Calculate NC zero point humidity compensation coefficient from current absolute humidity	NC zero point humidity compensation coefficient
req[1-1-3-3]	NC span humidity compensation coefficient calculation processing	Perform NC span humidity compensation coefficient calculation processing	Absolute humidity	1. Calculate NC span humidity compensation coefficient from current absolute humidity (linear equation).	NC span humidity compensation coefficient
req[1-1-4-1]	Calculation of display concentration	Calculate display concentration	Sensor status information Real concentration negative flag Actual concentration FS over flag Real concentration negative over flag Current actual concentration value	1. In the case of a sensor abnormality, turn off the display density minus flag, the display density over flag, the display density minus over flag and set the display density value to 0. If it is not abnormal, execute the following processes 2 to 7. 2. When the real concentration negative flag is ON, the display concentration over flag is turned off. 3. When the real concentration negative over flag is ON, turn on the display concentration negative over flag and the display concentration negative flag and set the display concentration value to -10% -1 digit of F. S. 4. When the real concentration negative over flag is OFF, the display concentration negative over flag is turned off and the display concentration negative flag is turned on. The display concentration value is set to the same value as the actual concentration value. 5. When the real concentration negative flag is OFF, the display concentration negative flag is turned off, the display concentration negative over flag is turned off. 6. When the actual concentration over flag is ON, the display concentration over flag is turned on and the display concentration value is made FS + 1 digit. 7. When the actual concentration over flag is OFF, the display concentration over flag is turned off and the display concentration value is set to the same value as the actual concentration value.	Display concentration negative flag Display concentration FS over flag Display concentration negative over flag Present display concentration value

req[1-1-6-1]	Count of energization time of NC sensor element	(10 msec reading) of the energizing time of the NC sensor element	Element energization flag of NC sensor Long energy setting Flammable sensor protection flag	1. If the energization time count is not 0, the energization time count is counted down. 2. When the energization time count is 0, the following processes 3 to 8 are executed. 3. Sets the energization time count according to the element energization flag of the NC sensor and resets the element energization flag. 4. When the element energization flag is 1000 msec for B element, the energization time count is changed according to ON/OFF of long energy setting. 5. When the element energization flag is OFF and the long energy setting is OFF, the energization time count is rounded off to the standard OFF time. 6. When the flammable sensor protection flag is ON, the energization time count is set to 0 and the element energization flag is turned off. 7. When the flammable sensor ON/OFF flag is OFF, the energization time count is set to 0 and the element energization flag is turned off. 8. In accordance with the element energization flag, the corresponding port setting process is called.	Element energization flag of NC sensor
req[1-1-6-2]	Flammability protection setting call	Perform setting of flammable protection setting	None	1. Return flammable sensor protection flag.	Flammable sensor protection flag
req[1-1-6-3]	Read the energization flag of the NC sensor	Read the energization flag of the NC sensor	None	1. Return the element energization flag of the NC sensor.	Element energization flag of NC sensor
req[1-1-6-4]	Flammability protection setting	Perform flammable protection settings	ON/OFF setting flag	1. Substitute the ON/OFF setting flag for the flammable sensor protection flag.	Flammable sensor protection flag
req[1-1-6-5]	Setting the Flammable Protection Allowed Flag	Setting the Flammable Protection Allowed Flag	ON/OFF setting flag	1. Substitute the ON/OFF setting flag for the flammable protection allowed flag.	Flammable protection allowed flag
req[1-1-7-1]	NC sensor element port operation	Perform NC sensor element port operation	Element specification value	1. Perform port setting according to element specification value.	None
req[1-1-7-2]	NC sensor high concentration contact flag setting	Perform NC sensor high concentration contact flag setting	Element energization flag	1. The flag is turned ON when all the following conditions are met. (1) Element energization flag is 1, 2, 4 or 5 (2) NC voltage difference is outside the threshold range (3) The combustible main flag is OFF, the warm-up main flag is OFF, and the NC protection_permission flag is ON	Flammable protection sub flag
req[1-1-7-3]	Acquisition of AIR delay count when flammable sensor protection is OFF	Acquire the AIR delay count when flammable sensor protection is OFF	None	1. Return warming time count.	Warm air time count
req[1-1-7-4]	Acquire flammable sensor protection flag	Acquire flammable sensor protection flag	Flammable sensor mode	1. In the over mode, turn on the flammable sensor protection flag. 2. Return flammable sensor protection flag.	Flammable sensor protection flag
req[1-1-7-5]	Flammable sensor protection flag setting	Perform flammable sensor protection flag setting	Flammable sensor mode Type of gas measured by the sensor Sensor status information Actual concentration value Real concentration negative flag	1. In the case of the over mode, execute the following processing 2 to 4. 2. In the case of AIR calibration, the warm up count is set to 15 sec and the sensor mode is set to the warm up mode. 3. The warm up count is set to 15 sec and the sensor mode is set to the warm up mode. 4. If there is no oxygen sensor, set warm up count to 15 sec and set sensor mode to warm air mode ".	Warm air time count Flammable sensor mode
req[1-1-7-6]	Flammable protection mode processing	Perform flammable protection mode processing	Full scale value Gas Digit	1. Set the warm up time count to 0. 2. Set the actual concentration over flag to ON 3. Actual concentration negative flag and real concentration negative over flag are turned off. 4. Set the actual concentration to FS + 1 digit.	Warm air time count Real concentration over flag Real concentration negative flag Real concentration negative over flag Actual concentration
req[1-2-1-1]	EC sensor concentration calculation	Perform EC sensor concentration calculation	EC sensor A/D value Zero coefficient Temperature value Span coefficient Span fix Calibration curve Y data Calibration curve X data Calibration curve number Full scale value Gas Digit	1. Obtain suppression value. 2. Add the A/D value to the integrated output value for 1 minute. 3. If the A/D value is less than the zero coefficient, turn on the minus flag. 4. Apply the zero coefficient to the A/D value. 5. Perform temperature compensation for A/D value. 6. Calculate the full scale value concentration ratio from the A/D value and perform calibration curve processing. 7. Calculate actual concentration value from concentration ratio and full scale value. 8. Perform zero suppression processing and digit rounding on actual concentration values. 9. When the actual concentration is above the full scale, turn on the over flag. 10. When the actual concentration is 120% or more of the full scale, the value is rounded to 120% of the full scale. 11. When the minus flag is ON, the over flag is turned off, and when the actual concentration is higher than 10% of the full scale, the minus over flag is turned on.	1 minute output integrated value Real concentration negative flag Zero tracking prohibition flag Current actual concentration value Actual concentration FS over flag Real concentration negative over flag
req[1-2-1-2]	Sensor A/D value acquisition processing	Perform sensor A/D value acquisition processing	Gas channel Gas number	1. Return the A/D value corresponding to the gas channel. 2. If the channel is H2S, return the A/D value according to the gas number.	A/D value
req[1-2-1-3]	Span A/D calculation processing	Perform span A/D calculation processing	Gas channel EC sensor A/D value Sensor output direction Zero coefficient	1. The following processes 2 to 4 are carried out according to the sensor output direction. 2. Apply the zero coefficient to the sensor A/D value 3. When the sensor A/D value is in the plus direction, turn off the real concentration minus flag. 4. When the sensor A/D value is in the minus direction, turn on the real concentration minus flag.	Span A/D value Real concentration negative flag Zero tracking prohibition flag
req[1-2-1-4]	Calculate concentration of hydrogen cancellation carbon monoxide	Perform hydrogen cancellation carbon monoxide concentration calculation	Suppress ON/OFF flag CO sensor A/D value Zero coefficient Temperature value Span coefficient Full scale value Gas Digit	1. Suppress setting is ON, when not in maintenance mode, zero suppression value is set. 2. Add the A/D value to the integrated output value for 1 minute. 3. Apply a zero coefficient to the A/D value. 4. Apply temperature compensation to span coefficient. 5. Calculate the full scale value concentration ratio from the A/D value and apply calibration curve processing. 6. Regularity check of the span coefficient matrix is carried out, and if it is regular, the following processes 8 to 11 are carried out. 7. Obtain the span coefficient inverse matrix and find the actual concentration from the A/D value and the inverse matrix. 8. Perform zero suppression processing and digit rounding on actual concentration values. 9. When the actual concentration is above the full scale, turn on the over flag. 10. When the actual concentration is 120% or more of the full scale, the value is rounded to 120% of the full scale. 11. When the minus flag is ON, the over flag is turned off, and when the actual concentration is higher than 10% of the full scale, the minus over flag is turned on.	1 minute output integrated value Real concentration negative flag Zero tracking prohibition flag Current actual concentration value Actual concentration FS over flag Real concentration negative over flag
req[1-2-1-5]	Inverse matrix calculation processing	Perform inverse matrix calculation processing	2 * 2 matrix	1. Generate an identity matrix. 2. Find inverse matrix by sweeping method.	Inverse matrix
req[1-2-1-6]	Confirming whether inverse matrix exists	Confirm whether inverse matrix exists	2 * 2 matrix	1. Generate a three-dimensional matrix from a matrix. 2. Calculate the product of diagonal parts. 3. If a determinant exists, calculate the determinant. 4. Return determinant.	Determinant
req[1-2-1-7]	Interference elimination sensor calculation value correction processing	Performs interference elimination sensor calculation value correction processing	CO concentration after hydrogen compensation WE 1 CO concentration WE 2 CO concentration	1. Perform bubble sort on CO concentration. 2. When the concentration after hydrogen compensation is the largest, the second largest concentration is returned. 3. When the concentration after hydrogen compensation is the smallest, it returns the second smallest concentration. 4. Otherwise, return the concentration after hydrogen compensation.	Corrected concentration
req[1-2-1-8]	Oxygen gas concentration calculation	Perform oxygen gas concentration calculation processing	O2 sensor A/D value Zero coefficient Temperature data at zero point calibration Temperature value Span coefficient Span fix Calibration curve Y data Calibration curve X data Calibration curve number Full scale value Gas Digit	1. When not in maintenance mode, set zero suppression value. 2. Add the A/D value to the integrated output value for 1 minute. 3. If the A/D value is less than or equal to the span coefficient, turn off the negative flag and turn on the zero tracking prohibition flag. 4. When the A/D value is above the span coefficient, turn on the negative flag. 5. Apply span coefficient to A/D value. 6. Apply temperature compensation to A/D value. 7. Apply the zero coefficient to the span coefficient. 8. Calculate the output per 1% from the span coefficient. 9. Perform calibration curve processing to A/D value. 10. Calculate the actual concentration value from the A/D value and the output per 1%. 11. Perform zero suppression processing and digit rounding on actual concentration values. 12. When the actual concentration is above the full scale, turn on the over flag. 13. When actual concentration is 120% or more of full scale, value is rounded to 120% of full scale. 14. When the negative flag is ON, the over flag is turned off, and if the actual concentration is higher than 10% of the full scale, the negative over flag is turned on.	1 minute output integrated value Real concentration negative flag Zero tracking prohibition flag Current actual concentration value Actual concentration FS over flag Real concentration negative over flag
req[1-2-2-1]	Span temperature compensation coefficient calculation processing	Perform span temperature compensation coefficient calculation processing	Gas channel Calibration curve number Temperature value	1. From the temperature compensation coefficient table corresponding to the gas channel and the calibration curve number, the compensation value at the current temperature is calculated.	Span temperature compensation coefficient
req[1-2-2-2]	Zero temperature compensation coefficient calculation processing	Perform zero temperature compensation coefficient calculation processing	Gas channel Calibration curve number temperature	1. From the temperature compensation coefficient table corresponding to the gas channel and the calibration curve number, the compensation value at the current temperature is calculated.	Zero temperature compensation coefficient
req[1-2-2-3]	Calculation of sensitivity ratio (temperature compensation coefficient) of current temperature (span temperature compensation coefficient)	Calculation of the sensitivity ratio (temperature compensation coefficient) of the current temperature (span temperature compensation coefficient) is performed	Temperature	1. Calculate the temperature compensation coefficient from temperature. 2. Return temperature compensation coefficient.	Temperature compensation factor
req[1-2-2-4]	Interference elimination sensor zero point temperature correction processing	Perform interference elimination sensor zero point temperature correction processing	Sensor output Thermistor ambient temperature	1. If the ambient temperature of the thermistor is out of the range of the table, truncate the value. 2. Calculate the intermediate value of the table and calculate the temperature characteristic compensation value. 3. Correct the temperature at the zero point of each sensor output. 4. Calculate the temperature compensation value at the zero point.	Zero point temperature compensation value
req[1-2-2-5]	Span temperature compensation coefficient calculation processing	Perform span temperature compensation coefficient calculation processing	Temperature	1. From temperature, calculate the temperature compensation coefficient (quadratic equation).	Temperature compensation factor
req[1-2-5-1]	10 msec interrupt for oxygen calculation processing	Perform 10 msec interrupt processing for oxygen calculation processing	Maximum value of peak for rapid change processing Minimum value of peak for rapid change processing The A/D value of the EC sensorRapid change processing in progress flag Initial count of rush response change processing Late-second count of rush change processing Flag on which upper or lower haste change	1. When the following conditions 2 to 5 are satisfied, the rush change process is stopped. 2. Hasty change processing is being executed. 3. Rapid change process initial count is 1. 4. The A/D value of the EC sensor is greater than or equal to the peak MIN value for rapid processing. 5. I am detecting the bottom. 6. When the rapid change process is being executed, the following processes 7 to 8 are executed. 7. Forcibly stop the urgent change 8. Update peak value.	Rapid change processing in progress flag Initial count of rush response change processing Late-second count of rush change processing
req[1-2-5-2]	Sudden pressure change detection processing	Perform sudden pressure change detection processing	Current concentration Minus sign	1. When the current concentration is negative, the current concentration is multiplied by -1. 2. If the previous concentration is 20. 9% or higher and the current concentration is lower than 20. 9%, the result is down detected. 3. In cases other than initials, measurement, display mode, make the result undetected.	Detection result
req[1-2-5-3]	Forced stop processing for sudden pressure change	Perform forced stop processing for sudden pressure change	Maximum value of peak for rapid change processing Minimum value of peak for rapid change processing The A/D value of the EC sensor Rapid change processing in progress flag Flag on which upper or lower haste change detected	1. In the case where the following conditions 2 to 4 are satisfied, the rapid change processing is stopped. 2. Immediate change processing is in the latter term. 3. I'm detecting the top. 4. It is beyond the peak for rapid change in the full scale direction.	None

req[1-2-5-4]	Sudden pressure change processing peak value update processing	Performs peak value update processing for sudden pressure change	Rapid change processing in progress flag Maximum value of peak for rapid change processing Minimum value of peak for rapid change processing The A/D value of the EC sensor	1. When the following conditions 2 to 3 are satisfied, the peak value of the rapid change is updated with the current value. 2. Hasty change flag is initial execution. 3. When the rampant change peak value is larger than the current A/D value.	None
req[1-2-5-5]	Sudden pressure change start processing	Performs sudden pressure change start processing	Flag on which upper or lower haste change detected The A/D value of the EC sensor	1. In the case of downward detection, the initial count of rush change processing is set to 0. 8 sec. 2. In the case of the upper detection, the initial count of the rapid change processing is set to 3. 0 sec. 3. Set the latter period count of rush change processing to 5. 0 sec. 4. Set the executing process of the urgent change processing to the initial execution. 5. Update rapidly changing PEAK with current value.	Downward pressure quick change Initial execution time Upper pressure change initial execution time Maximum value of peak for rapid change processing Minimum value of peak for rapid change processing Rapid change processing in progress flag
req[1-2-5-6]	Sudden pressure change stop processing	Performs sudden pressure change stop processing	None	1. Initialize the initial count of rush change processing. 2. Initialize the late count of rush change processing. 3. Make the rush change processing in progress flag unexecuted.	Hasty change initial execution time Hasty change initial execution time Rapid change processing in progress flag
req[1-3-1-1]	Calibration curve processing of gas concentration	Perform calibration curve processing of gas concentration	Calibration curve Y data pointer Calibration curve X data pointer 0 to 100% output ratio	1. If the output ratio exceeds 100%, return the output ratio as it is. 2. From the output ratio and the calibration curve Y data, a corresponding portion of the calibration curve is searched. 3. Calculate the slope between the points of the calibration curve from the corresponding calibration curve Y data, X data, and correct the output ratio. 4. Return the corrected output ratio.	0 to 100% output ratio
req[1-3-1-2]	Interference elimination sensor calibration curve processing	Perform interference elimination sensor calibration curve processing	Sensor output channel Gas display value (% F. S.)	1. From the gas display value, search the calibration curve table for the corresponding portion. 2. Calculate the intermediate value of the table and calculate the calibration curve correction value.	Calibration curve correction value
req[1-3-1-3]	NC sensor calibration curve processing	Perform NC sensor calibration curve processing	Calibration curve number Calibration curve Y data Change rate before correction	1. Based on the pre-correction change rate, the corresponding calibration curve data is searched. 2. Calculate the post-correction change rate from the calibration curve data.	Corrected change rate
req[1-3-2-1]	Inverse calibration curve processing of gas concentration	Perform inverse calibration curve processing of gas concentration	Calibration curve Y data pointer Calibration curve X data pointer 0 to 100% output ratio	1. If the output ratio exceeds 100% or is lower than 0%, it returns the output ratio as it is. 2. From the output ratio and the calibration curve X data, a corresponding part of the calibration curve is searched. 3. Calculate the slope between the points of the calibration curve from the corresponding calibration curve Y data, X data, and correct the output ratio. 4. Return the corrected output ratio.	0 to 100% output ratio
req[1-3-2-2]	NC sensor calibration curve reverse processing	Perform NC sensor calibration curve reverse lookup processing	Calibration curve number Calibration curve Y data Pre-correction concentration	1. Search the corresponding calibration curve data from the uncorrected concentration. 2. Calculate post-correction concentration from calibration curve data.	Corrected concentration
req[1-4-1-1]	Flammable difference mode calculation	Calculate flammable difference mode	Temperature value A/D value of NC sensor Zero coefficient	1. Set the address to NC 2. Calculate the difference between the current temperature and the temperature at zero calibration. 3. If the temperature difference is negative, convert the temperature difference to absolute value. 4. Calculate the NC zero point temperature compensation coefficient.	Zero coefficient
req[1-4-1-2]	EC tracking processing	Perform zero tracking processing of the EC sensor	Gas channel Concentration before zero tracking Negative flag before zero tracking ON/OFF setting flag of zero tracking Offset concentration for zero tracking Concentration data for zero tracking deend 30 seconds count timer for tracking Gas setting Alarm point setting lower limit value	1. When the mode is not measurement mode and display mode, zero tracking ON/OFF setting of zero tracking turn off the flag. 2. When the mode is the measurement mode or the display mode and the tracking function is ON, the following processes 3 to 10 are executed. 3. Increment counters for 30 seconds. 4. Consider ± of concentration value. 5. Calculate the current display value. 6. Shift the zero tracking deend concentration. 7. Calculate the average value over 30 seconds. 8. Substitute the average value for the zero tracking deend concentration. 9. Calculate the average difference every 30 seconds. 10. The offset value is divided from the true concentration to calculate the display value.	30 seconds cumulative concentration for averaging calculation for 30 seconds for trackingConcentration data for zero tracking deend
req[1-4-1-3]	EC tracking reset processing	Reset the zero tracking of the EC sensor	Cumulative concentration for calculation of average value for 30 seconds for zero tracking 30 seconds count timer for zero tracking Offset concentration for zero tracking	1. Reset the average calculation counter. 2. Reset the count timer for 30 seconds for zero tracking. 3. Reset offset offset for zero tracking. 4. Initialize concentration data for zero tracking deend.	Cumulative concentration for calculation of average value for 30 seconds for zero tracking 30 seconds count timer for zero tracking Offset concentration for zero tracking Concentration data for zero tracking deend
req[1-4-1-4]	Zero tracking execution flag acquisition	Perform zero tracking execution flag acquisition processing on plus side	Gas channel Gas number	1. The zero tracking execution flag of each gas channel is acquired. 2. Return zero tracking execution flag.	Zero tracking execution flag
req[1-4-1-5]	Positive side zero tracking slope confirmation density acquisition	Perform positive side zero tracking slope confirmation density acquisition	Gas channel Gas number	1. The positive side zero tracking slope confirmation density of each gas channel is acquired.	Positive side zero tracking slope confirmation density
req[1-5-1-1]	Suppress value acquisition processing	Perform suppression value acquisition processing	Gas channel Gas number ON/OFF setting flag Zero sub count value for 2 ch	1. Suppress setting is on, not in maintenance mode, acquire zero suppression value for each channel. 2. Returns the acquired suppress value .	Suppress value
req[1-5-1-2]	Export Control Concentration Acquisition Processing	Perform export control concentration acquisition processing	Gas channel Gas number	1. Acquire export control concentration for each channel. 2. Returns the acquired export control concentration.	Export control concentration
req[1-6-1-1]	Update PEAK value of flammable sensor to current value	Update PEAK value of flammable sensor to the current value	Fault status Gas concentration Minus flag	1. When the sensor is normal, the following processes 2 to 6 are carried out. 2. Update minimum value. 3. Acquire the current concentration value. 4. Get the current flag. 5. Get the current time. 6. Update maximum value.	Minimum gas concentration Maximum gas concentration Minus flag
req[1-6-1-2]	Update PEAK value to current value	Update PEAK value to current value	Fault status Gas concentration Minus flag	1. When the sensor is normal, the following processes 2 to 6 are carried out. 2. Update minimum value. 3. Acquire the current concentration value. 4. Get the current flag. 5. Get the current time. 6. Update maximum value.	Minimum gas concentration Maximum gas concentration Minus flag
req[1-6-1-3]	PEAK value update processing	Perform PEAK value update processing	Peak update prohibition flag Fault status Minus flag Gas concentration	1. When the peak update prohibition flag is ON and the sensor is normal, the following processes 2 to 6 are executed. 2. Update minimum value. 3. Acquire the current concentration value. 4. Get the current flag. 5. Get the current time. 6. Update maximum value.	Minimum gas concentration Maximum gas concentration Minus flag
req[1-7-1-1]	PEAK value display processing	Perform PEAK value display processing	Gas setting Fault status Minus flag Gas concentration Full scale value	1. When the following conditions 2 to 5 are satisfied, set the PEAK value to the minimum value and set the minus flag of the minimum value. 2. Setting is ON. 3. H2 Cancel is not CO. 4. The sensor is normal. 5. It is oxygen. 6. When the following conditions 7 to 10 are satisfied, set the PEAK value to the maximum value and set the minus flag of the maximum value. 7. Setting is ON. 8. H2 Cancel is not CO. 9. The sensor is normal. 10. Not oxygen. 11. Assign gas name / unit corresponding to display of PEAK value. 12. Create character data corresponding to display of PEAK value.	None
req[1-8-1-1]	Peak clear	Perform peak clear	None	1. Set the time buffer. 2. Check operating system events.	None
req[1-8-1-2]	PEAK clear HOLD display processing	Perform PEAK clear HOLD display processing	None	1. Create character data corresponding to PEAK clear HOLD.	None
req[1-8-1-3]	PEAK clear RELEASE display processing	PerformPEAK clear RELEASE display processing	None	1. Create character data corresponding to PEAK clear RELEASE.	None
req[1-9-1-1]	Average value STEL value TWA value update processing	Perform average value STEL value TWA value update processing	Present display concentration value Real concentration negative flag Present display concentration value 1 minute timer count Average processing times since startup Zero tracking ON/OFF flag 1 minute Sample count 1 minute integrated value 1 minute average integrated value Average update prohibition flag	1. If it is not an invalid concentration, the following processes 2 to 12 are carried out. 2. When the average update prohibition flag is OFF and the minus flag OFF, the display concentration is added to the integration value for 1 minute. 3. When the average update prohibition flag is ON, the zero tracking prohibition flag is set to ON. 4. 1 Add the number of samples. 5. 1 minutes If the timer count is 1 minute, carry out the following. 6. Add the average processing times from startup. 7. Calculate the integrated value for 1 minute and the average value for 1 minute from the number of samples. 8. 1 Add the average value for 1 minute to the average integrated value. 9. Calculate the average value from the start from the average processing count from startup and the average integrated value per minute. 10. Calculate STEL value and TWA value. 11. Set the integrated value, number of samples, 1 minute timer count to 0.	1 minute integrated value Zero tracking prohibition flag 1 minute Sample count Average processing times since startup 1 minute average integrated value Average value from startup
req[1-9-1-2]	60 minute integration buffer shift processing	Perform 60 minute integration buffer shift processing	Gas channel	1. Shift the 60 minute integration buffer by 8 hours. 2. Clear the latest 60 minute integration buffer with zeros.	60 minute integration buffer
req[1-10-1-1]	STEL calculation processing	Perform STEL calculation processing	STEL value calculation buffer update location count STEL value calculation buffer 1 minute integrated value 1 minute Sample count Gas Digit Gas channel number	1. Perform the following processing on gas with gas channel number. 2. Update the average value for 1 minute to the buffer indicated by the STEL value calculation buffer update location count. 3. Calculate the STEL value from the STEL value calculation buffer (perform digit rounding together). 4. If the update location count exceeds 14. return the count to 0.	STEL value STEL value calculation buffer

req[1-11-1-1]	STEL value display processing	Perform STEL value display processing	Gas setting Fault status STEL alarm point STEL value Full scale value	1. When the following conditions 2 to 6 are satisfied, STEL is displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. The sensor is normal. 5. STEL alarm is ON. 6. STEL value is larger than full scale value. 7. When the following conditions 8 to 12 are satisfied, '----' is displayed. 8. Setting is ON. 9. H2 Cancel is not CO. 10. The sensor is normal. 11. STEL alarm is ON. 12. STEL value is smaller than full scale value. 13. Assign gas name / unit corresponding to display of STEL value. 14. Create character data corresponding to display of STEL value.	None
req[1-12-1-1]	TWA calculation processing	Perform TWA calculation processing	1 minute average integrated value Gas Digit Gas channel number	1. The TWA value is calculated from the average integrated value for 1 minute for the gas of the gas channel number.	TWA value
req[1-13-1-1]	TWA value display processing	Display TWA value display processing	Gas setting Fault status TWA alarm point TWA value Full scale value	1. When the following conditions 2 to 6 are satisfied, TWA is displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. The sensor is normal. 5. TWA alarm is ON. 6. TWA value is larger than full scale value. 7. When the following conditions 8 to 12 are satisfied, '----' is displayed. 8. Setting is ON. 9. H2 Cancel is not CO. 10. The sensor is normal. 11. TWA alarm is ON. 12. TWA value is smaller than full scale value. 13. Assign gas name / unit corresponding to display of TWA value. 14. Create character data corresponding to display of TWA value.	None
req[1-14-1-1]	ALARM 1 H calculation processing	Perform ALARM 1 H calculation processing	1 minute average integrated value Gas Digit Gas channel number	1. Calculate 1 H integrated value from average integrated value for 1 minute for gas of gas channel number.	1H integrated value
req[1-15-1-1]	Integrated value display processing	Perform Integrated value display processing	Gas setting Fault status TWA value	1. When the following conditions 2 to 6 are satisfied, the integrated value is displayed. 2. Setting is ON. 3. The sensor is normal. 4. TWA value is larger than full scale value. 5. When the following conditions 6 to 8 are satisfied, '----' is displayed. 6. Setting is ON. 7. The sensor is normal. 8. TWA value is smaller than full scale value. 9. Assign gas name / unit corresponding to display of TWA value. 10. Create character data corresponding to display of TWA value.	None
req[2-1-4-1]	Alarm event initialization processing	Initialize the alarm event flag	None	1. Initialize the alarm flag.	None
req[2-1-4-2]	Alarm reset processing	Perform alarm reset processing	None	1. Turnon the alarm reset flag. 2. Turnoff the new alarm occurrence flag.	Alarm reset flag New alarm occurrence flag
req[2-1-5-1]	Acquire warning flag	Acquire warning flag	Alarm retention status	1. Return alarm latching status of each sensor.	Alarm retention status
req[2-1-5-2]	Alarm event judgment	Perform alarm event judgment	Alarm function flag Type of gas measured by the sensor Alarm status	1. When the alarm function flag is ON, the following processes 2 to 6 are executed. 2. If the sensor is valid and not a sensor error, implement the following. 3. Determine the presence or absence of an alarm. 4. Substitute an alarm flag. 5. If the sensor is invalid or sensor error, set alarm status and alarm holding status to 0. 6. Turnoff the reset flag.	Alarm status Alarm retention status Alarm reset flag
req[2-1-5-3]	Alarm deend processing	Perform alarm deend processing	Gas number 1st alarm point 2nd alarm point 3rd alarm point STEL alarm point TWA alarm point OVER alarm point Negative OVER alarm point Display concentration Display concentration negative flag Display concentration over flag Display concentration Negative over flag STEL concentration TWA concentration Accumulated concentration Integration warning flag	1. If the current concentration is not an invalid value, the following processes 2 to 7 are executed. 2. When the current concentration is positive, if the concentration value exceeds each alarm point, the alarm status is set. 3. If the STEL concentration exceeds the STEL alarm point, the alarm status is set. 4. If the TWA concentration exceeds the TWA alarm point, the alarm status is set. 5. When the integral alarm flag is ON, if the integrated concentration exceeds the integral alarm point, the alarm status is set. 6. When the display concentration over flag is ON, the alarm status is set. 7. When the display concentration negative over flag is ON, the alarm status is set.	Alarm status
req[2-1-5-4]	Alarm flag assignment processing	Perform alarm flag assignment processing	Alarm status Alarm retention status Auto reset latching flag Alarm reset flag	1. The alarm status is compared with the alarm latching status, and when there is a new alarm, the new alarm occurrence flag is turned on. 2. When auto reset setting or alarm reset flag is ON, set alarm status to alarm latching status, 3. When the self-maintenance setting is set and the alarm reset flag is OFF, the alarm status is substituted into the alarm holding status.	New alarm occurrence flag Alarm retention status
req[2-1-5-5]	Gas alarm confirmation processing	Perform gas alarm confirmation processing	Gas alarm condition	1. Turnon the result when gas warning annouuncement or temperature alarm reporting. 2. Return results.	result
req[2-1-5-6]	Gas alarm confirmation processing	Perform gas alarm confirmation processing	Sensor gas measurement type Alarm retention status	1. Perform the following processes 2 and 3 for all sensors. 2. When the sensor is valid, carry out the following. 3. If there is an alarm holding status, return on.	Alarm status check result
req[2-1-5-7]	Alarm confirmation processing other than man down alarm	Perform alarm confirmation processing other than Man down alarm	Device status information	1. When a warning other than the man down warning is confirmed, turn on the result. 2. Return results.	Results of alarm check other than man down
req[2-2-1-1]	Alarm point setting change gas check if ESCAPE display is displayed	Alarm point setting change gas Confirm if ESCAPE display is displayed	Item Number	1. When the item number is the maximum value + 1, turn on the result. 2. Returns the judgment result.	judgment result
req[2-2-1-2]	Alarm point setting gas change check if reset is displayed	Alarm point setting gas change check if reset is displayed	Item Number	1. When the item number is the maximum value, turn on the result. 2. Returns the judgment result.	judgment result
req[2-2-1-3]	Alarm point setting display processing	Perform alarm point setting display processing	Item Number ON/OFF setting of integrating alarm	1. Display WARNING, ALARM, ALARM H, STEL in this order. 2. When totalization alarm is ON, ALARM 1 H is displayed. 3. When Totalizing alarm is OFF, TWA is displayed.	None
req[2-2-1-4]	Alarm point setting gas selection menu display processing	Perform alarm point setting gas selection menu display processing	Item Number	1. If the item number is smaller than the maximum value, create display characters for alarm point settings. 2. If the item number is the maximum value, create display characters for default alarm point settings. 3. Otherwise, create a display character for ESCAPE.	None
req[2-2-1-5]	Alarm point setting end processing	Perform alarm point setting end processing	Alarm point edit variable Gas setting	1. End the setting in the order of 1. 1 st alarm point, 2 nd alarm point, 3 rd alarm point, STEL alarm point, TWA alarm point.	Item Number Up / down change of numerical value Alarm point
req[2-2-1-6]	Alarm point setting start processing	Perform alarm point setting start processing	Alarm point	1. Start setting in the order of 1. 1 st alarm point, 2 nd alarm point, 3 rd alarm point, STEL alarm point, and TWA alarm point.	Item Number Up / down change of numerical value Alarm point edit variable
req[2-2-1-7]	Alarm point setting gas selection menu start processing	Perform alarm point setting gas selection menu start processingg	Gas setting	1. Set item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[2-2-1-8]	Alarm point set value change processing	Perform alarm point set value change processing	Alarm point set value 1st, 2nd, 3rd alarm settable upper limit value 1st, 2nd, 3rd alarm point setting lower limit value STEL alarm settable upper limit value STEL Alarm point setting lower limit value TWA alarm point setting upper limit value TWA alarm point setting lower limit value Digit	1. 1st, 2nd, 3rd Acquire alarm settable upper limit value 2. 1st, 2nd, 3rd Alarm point setting Accept the lower limit value to be acquired 3. Acquire the STEL alarm point setting upper limit value 4. Acquire STEL alarm point setting lower limit value 5. Acquire TWA alarm point setting upper limit value 6. Acquire TWA alarm point settable lower limit value 7. Set the alarm point setting upper limit value and alarm point setting lower limit value of O2. 8. Set alarm point setting upper limit value and alarm point setting lower limit value of gas other than O2.	Alarm point edit variable Alarm point set value
req[2-2-1-9]	Alarm point setting gas selection menu change gas	Alarm point setting gas selection menu change gas	Up / down change of numerical value Gas setting	1. If the up / down change setting of the numerical value is OFF, change the gas. 2. When numerical up / down change setting is ON, set to ESCAPE.	Up / down change of numerical value
req[2-2-1-10]	Alarm point change alarm type change processing	Perform alarm point change alarm type change processing	Item Number Change selection	1. If the item number is 0 or 1, enable 3rd alarm selection. 2. When the item number is 0 - 3, make it selectable up to the TWA alarm.	judgment result
req[2-3-1-1]	Latching auto reset setting display processing	Perform latching auto reset setting display processing	None	1. Create a display of the ON/OFF setting menu corresponding to the self-holding automatic restoration setting.	None
req[2-3-1-2]	Latching auto reset setting end processing	Perform latching auto reset setting end processing	Item Number	1. Put item number in item number. 2. Turnon FRAM write start flag.	Alarm action
req[2-3-1-3]	Latching auto reset setting start processing	Perform latching auto reset setting start processing	Alarm action	1. Insert alarm action in item number.	Item Number
req[2-3-1-4]	Latching auto reset setting ON/OFF selection processing	Perform latching auto reset setting ON/OFF selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[2-3-1-5]	Alarm self-maintenance auto reset check processing	Perform alarm self-maintenance auto reset check processing	None	1. Return alarm action.	Alarm action
req[2-6-1-1]	Alarm silence flag setting process	Perform alarm silence flag setting process	ON/OFF setting of alarm silence flag	1. Assign ON/OFF to the alarm silence flag.	Alarm silence flag
req[2-6-1-2]	Alarm silence setting start processing	Perform alarm silence setting start processing	Alarm silence setting	1. Insert alarm silence setting in item number.	Item Number
req[2-6-1-3]	Alarm silence setting end processing	Perform alarm silence setting end processing	Item Number	1. Put item number in item number. 2. Turnon FRAM write start flag.	Alarm silence setting
req[2-6-1-4]	Alarm silence setting display processing	Perform alarm silence setting display processing	None	1. Create a display of the ON/OFF setting menu corresponding to the alarm silence setting.	None
req[2-6-1-5]	Alarm silence setting ONOFF selection process	Perform alarm silence setting ONOFF selection process	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[3-1-2-1]	Initial sensor fault display	Perform initial sensor fault display	Device status information Type of gas measured by the sensor Sensor status information	1. Do not let the screen flicker when sensor circuit fault, all sensors are disabled. 2. In the case of sensor FAIL during measurement, FAIL is displayed on the abnormal sensor display and FAIL SENSOR display is made at the bottom of the screen. 3. In the case of the initial time sensor FAIL, FAIL 081 is displayed.	None
req[3-1-2-2]	Fault display	Fault display	Device status information Sensor status information	1. In case of battery FAIL, display FAIL BATTERY. 2. In case of RTC error, display FAIL CLOCK. 3. In case of other abnormalities, display FAIL SYSTEM. 4. Display numbers corresponding to each abnormality. 5. In the case where it does not correspond to the above, if the sensor is abnormal, FAIL SENSOR is displayed.	None

req[3-1-5-1]	Reset of fault alarm	Perform reset of fault alarm	ON/OFF flag	1. The ON/OFF flag is set to the fault alarm flag.	Failure alarm flag
req[3-1-5-2]	Initialize gas related abnormality flag	Initialize gas related abnormality flag	Sensor status information	1. Initialize sensor abnormality.	Sensor status information
req[3-1-5-3]	Initial reset resetable alarm reset processing	Perform initial reset resetable alarm reset processing	None	1. Cancel the flash abnormality of the equipment status information, clock abnormality, backup battery fault.	Device status information
req[3-1-5-4]	Resettable alarm cancellation processing	Perform Resettable alarm cancellation processing	None	1. Resets flash abnormality of device status information, clock abnormality, backup battery abnormality, pump abnormality, flow rate abnormality.	Device status information
req[3-2-1-1]	FRAM error flag ON processing	Performs FRAM error flag setting processing	None	1. Call FRAM error flag ON processing.	None
req[3-2-1-2]	Range check of FRAM (Check the effective value)	Perform range check of FRAM (check the effective value)	Device status information Type of gas measured by the sensor	1. If the device status is FRAM error, return NG. 2. If the device status is not FRAM abnormality, execute processes 2 to 4 below. 3. When each sensor is valid, check the range of the alarm point and the range of the concentration calculation parameter 4. If the range check result is NG, turn on the FRAM error flag and set the range check result to NG. 5. Return the range check result.	Range check result
req[3-2-1-3]	1 sec interrupt processing for self diagnosis	Perform 1 sec interrupt processing for self diagnosis	24 hour count timer	1. Add 24 hour counting timer. 2. If the 24-hour count timer has passed 24 hours, initialize the timer and turn on the self-diagnosis flag for 24 hours.	24 hour count timer 24 hour self-diagnostic flag
req[3-2-1-4]	Self-diagnosis treatment after 24 hours	Perform self-diagnosis processing after 24 hours	24 hour self-diagnostic flag	1. When the 24-hour self-diagnosis flag is ON, perform the following processes 2 to 10. 2. Turnoff self-diagnosis flag for 24 hours. 3. Call ROM check start processing. 4. Call the SUM calculation start process of the sensor MCU. 5. Perform "RAM check start processing" 6. If FRAM updating is not underway, the following processes 7 to 10 are executed. 7 Call the RAM check process of the nonvolatile record setting part every 24 hours. 8. When the RAM check result is OK, the RAM abnormality flag OFF process is called. 9. When the RAM check result is NG, the RAM abnormality flag ON process is called. 10. Call FRAM update flag ON processing.	24 hour self-diagnostic flag
req[3-2-1-5]	FRAM abnormality flag ON processing	Performs FRAM error flag setting processing	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the FRAM error flag is turned off. 2. When the ON/OFF setting flag is ON, the FRAM error flag is set ON and the error code substitution process is called.	FRAM error flag
req[3-2-1-6]	RAM abnormality flag ON processing	Performs RAM abnormality flag setting processing	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the RAM abnormality flag is turned off. 2. When the ON/OFF setting flag is ON, the RAM abnormality flag is turned on and the error code substitution process is called.	RAM error flag
req[3-2-1-7]	1st alarm point range check	Perform 1st alarm point range check	Gas number Gas table pointer	1. If 1st alarm point is OFF concentration, OK is returned. 2. Call the range check processing with the lower limit as the minimum value of the alarm point and the upper limit as the 2nd alarm point. 3. In the case of oxygen, call the range check process with the lower limit set as the 2nd alarm point and the upper limit as the L warning maximum value.	Range check result
req[3-2-1-8]	2nd alarm point range check	Perform 2nd alarm point range check	Gas number Gas table pointer	1. When the 2nd alarm point is OFF concentration, OK is returned. 2. Call the range check processing with the lower limit as the 1st alarm point and the upper limit as the 3rd alarm point. 3. In the case of oxygen, call the range check processing with the lower limit as the L warning minimum value and the upper limit as the 1st alarm point.	Range check result
req[3-2-1-9]	3rd alarm point range check	Perform 3rd alarm point range check	Gas number Gas table pointer	1. If the 3rd alarm point is OFF concentration, OK is returned. 2. Call the range check processing with the lower limit set as the 2nd alarm point and the upper limit as the alarm point maximum value. 3. In the case of oxygen, call the range check processing with the lower limit as the H alarm minimum value and the upper limit as the H alarm maximum value.	Range check result
req[3-2-1-10]	Range check (alarm point)	Perform a range check (alarm point)	Gas number	1. Call 1st, 2nd, 3rd, STEL, TWA range check processing of the specified gas number. 2. Return the range check result.	Range check result
req[3-2-1-11]	Range check (concentration calculation parameter)	Perform a range check (concentration calculation parameter)	Gas number	1. Call full-scale, digit, zero coefficient, span coefficient range check processing of the specified gas number. 2. Return the range check result.	Range check result
req[3-2-1-12]	Digit range check	Perform digit range check	Gas number Gas table pointer Gas Digit	1. NG is returned if the digit does not match the gas default value.	Range check result
req[3-2-1-13]	Range check (FLOAT)	Perform a range check (FLOAT)	Check number Check value upper limit Check value lower limit	1. If the check value is larger than the check value upper limit or less than the check value lower limit, NG is returned.	Range check result
req[3-2-1-14]	Full scale range check	Perform full scale range check	Gas number Gas table pointer Full scale value	1. NG is returned if the full scale value does not match the gas default value.	Range check result
req[3-2-1-15]	Range check (U_LNG)	Perform a range check (U_LNG)	Check number Check value upper limit Check value lower limit	1. If the check value is larger than the check value upper limit or less than the check value lower limit, NG is returned.	Range check result
req[3-2-1-16]	Span coefficient range check	Perform span coefficient range check	Gas number Gas table pointer	1. The range is checked with the lower limit value as the span coefficient minimum value and the upper limit value as the span coefficient maximum value.	Range check result
req[3-2-1-17]	STEL alarm point range check	STEL Alarm point Perform range check	Gas number Gas table pointer	1. When the STEL alarm point is OFF concentration, OK is returned. 2. Call the range check processing with the lower limit as the STEL alarm minimum value and the upper limit as the STEL alarm point maximum value.	Range check result
req[3-2-1-18]	TWA alarm point range check	Perform TWA alarm point range check	Gas number Gas table pointer	1. When the TWA alarm point is OFF concentration, OK is returned. 2. Call the range check processing with the lower limit as the TWA alarm minimum value and the upper limit as the TWA alarm point maximum value.	Range check result
req[3-2-1-19]	Zero coefficient range check	Perform zero coefficient range check	Gas number Gas table pointer	1. Check the range with the lower limit value as the zero coefficient minimum value and the upper limit value as the zero coefficient maximum value.	Range check result
req[3-2-1-20]	RAM error flag ON processing	Performs RAM error flag setting processing	Successful check	1. When the check result is OK, the RAM abnormality flag is turned off. 2. If the check result is NG, turn on the RAM error flag.	RAM error flag
req[3-2-1-21]	RAM check process at startup	Perform RAM check processing at startup	None	1. Initialize the OUTPUT value with success 2. Initialize the RAM check phase flag 3. Initialize the RAM check retry counter 4. Call the RAM check start process 5. Perform the following processes 6 to 7 for the number of times that the used RAM area can be checked 3 times or more. 6. Call the RAM check process 7. If the result of the RAM check process is success or failure, exit the loop process of process 5. 8. If the result of the RAM check process is unsuccessful, the OUTPUT value will be unsuccessful.	Successful check
req[3-2-1-22]	ROM check end confirmation processing	Perform ROM check end confirmation processing	ROM check phase	1. Returns OFF if the ROM check phase has ended. 2. Return on if the ROM check phase is not finished.	ROM check end result check result
req[3-2-1-23]	ROM check processing	Perform ROM check processing	ROM check phase ROM check SUM area phase	1. If the ROM check phase is not OFF, the following processes 2 to 6 are executed. 2. When the ROM check phase is finished, the SUM values are compared In case of SUM mismatch, turn on the ROM error bit. 3. If the ROM check phase is not finished, carry out the following. 4. ROM check When the SUM area phase is started, initialize the SUM value. 5. Calculate the SUM value for the area and add ROM check SUM area phase. 6. ROM check When the SUM area phase ends, the ROM check phase is finished.	ROM check phase ROM check SUM area phase SUM value ROM abnormality flag
req[3-2-1-24]	ROM check process at startup	Perform ROM check process at startup	None	1. Call ROM check start processing. 2. Perform ROM check for each ROM area.	None
req[3-2-1-25]	ROM check start processing	Perform ROM check start processing	None	1. Initialize the ROM check phase. 2. ROM check Initialize SUM area phase.	ROM check phase ROM check SUM area phase
req[3-2-1-26]	RAM check processing at startup	Perform RAM check processing at startup	None	1. Initialize the OUTPUT value with success 2. Stop the RAM parity error function 3. Call the RAM check start process 4. Perform the following processes 5 to 6 for the number of times that the used RAM area can be checked 3 times or more. 5. Call the RAM check process 6. If the result of the RAM check process is success or failure, exit the loop process of process 4. 7. If the result of the RAM check process fails, the OUTPUT value fails.	Successful check
req[3-2-1-27]	Partial calculation processing of ROMSUM	Perform partial calculation processing of ROMSUM	Start address End address Base SUM value	1. The SUM value from the start address to the end address is added to the base SUM value. 2. Return base SUM value.	Base SUM value
req[3-2-1-28]	ROMSUM assignment processing	Perform ROMSUM assignment processing	None	1. Returns the SUM calculation result of ROM.	Result of calculation of SUM value of ROM
req[3-2-1-29]	SUM check in progress flag	Acquire SUM check in progress flag	None	1. Return ROM check phase.	ROM check phase
req[3-2-1-30]	ROM check processing	Perform ROM check processing	ROM check phase	1. When the ROM check phase is started, the SUM value is initialized. 2. If the ROM check phase is not finished, carry out the following. 3. Compute the SUM value and set the ROM check phase to the next phase. 4. When the ROM check phase is completed, the SUM values are compared. 5. In case of a match, OK is returned. 6. In case of mismatch, return NG. 7. Returns 2 if the ROM check phase is not the end.	ROM check result
req[3-2-1-31]	SUM check in progress flag start substitution processing	Perform the SUM check in progress flag start substitution processing	None	1. Set ROM check phase to start.	ROM check phase
req[3-2-1-32]	FAIL check processing	Perform FAIL check processing	Check type Device status information	1. Perform the following processing 2 to 6 corresponding to the confirmation type. 2. If device status is abnormal or sensor abnormality, ON is returned. 3. If the equipment status is battery abnormality, return on. 4. If the equipment status is a system fault, return on. 5. If the device status is a resettable alarm, return on.	Result of FAIL check
req[3-2-2-1]	Backup battery abnormality flag setting processing	Perform backup battery error flag setting processing	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the backup battery abnormality flag is turned off. 2. When the ON/OFF setting flag is ON, the backup battery abnormality flag is turned on and the error code substitution process is called.	Backup battery fault flag
req[3-2-2-2]	CLOCK error flag setting processing	Perform CLOCK error flag setting processing	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the CLOCK abnormality flag is turned off. 2. When the ON/OFF setting flag is ON, the CLOCK abnormality flag is set ON and the error code substitution process is called.	CLOCK abnormality flag
req[3-2-2-3]	Check date and time (check unlikely calendar value)	Check date and time (check unlikely calendar value)	Year Month Day Time Minute Seconds	1. If the year is over 2099 years it will return an error. 2. If the month is not 1 to 12. it will return an error. 3. If the day is anything other than 1 to 31 it will return an error. 4. If the hour is 24 or more, it returns an error. 5. If minutes are non-0 to 59. it returns an error. 6. If seconds are non-0 to 59. an error is returned.	Date and time check result
req[3-2-2-4]	Confirm whether it is a leap year	Confirm whether it is a leap year	Year	1. If the specified year is a leap year, OK is returned. (Year divisible by 4 and divisible by 100, year divisible by 4 · 100 · 400)	Leap year confirmation result
req[3-2-2-5]	Acquire two date and time of RTC and check whether the error is less than 60 seconds	Get two RTC dates and times and check if the error is less than 60 seconds	Date and time data 1 Date and time data 2	1. Convert each datetime data to seconds. 2. If the difference between the date and time data is less than 60 seconds, OK is returned. 3. If the difference between the date and time data is 60 seconds or more, NG is returned.	Error check result

req[3-2-3-1]	Circuit voltage error flag ON processing	Perform circuit voltage error flag ON processing	ON/OFF flag	1. When the ON/OFF flag is OFF, the circuit voltage error flag is turned off. 2. When the ON/OFF flag is ON, the circuit voltage error flag is turned on and the error code substitution process is called.	Circuit voltage error flag
req[3-2-3-2]	Processing every 250msec for circuit reference voltage control	Processing every 250msec for circuit reference voltage control	None	1. Get the circuit voltage error flag. 2. If the circuit voltage error flag is abnormal, set the circuit voltage error.	None
req[3-2-3-3]	HCV voltage diagnosis invalid flag initialization processing	Perform HCV voltage diagnosis invalid flag initialization processing	None	1. Assign the initial value to the HCV voltage diagnosis invalid flag.	HCV voltage diagnosis invalid flag
req[3-2-3-4]	HCV voltage diagnosis invalid flag setting processing	Perform HCV voltage diagnosis invalid flag setting processing	None	1. Assign invalid to the HCV voltage diagnosis invalid flag.	HCV voltage diagnosis invalid flag
req[3-2-3-5]	Circuit voltage diagnosis processing	Perform circuit voltage diagnosis processing	None	1. Perform the following processing when the 24bitA/D initial AD acquisition flag is OFF. 2. Get the A/D value of each circuit voltage (SV, MV, ECV1, ECV2, ECV3, HCV, PZF). 3. If each circuit voltage (SV, MV, ECV1, ECV2, ECV3, HCV, PZF) is out of the threshold range, set an abnormal flag.However, if the HCV voltage diagnosis invalid flag is valid, the voltage diagnosis is not performed.	Circuit voltage abnormal flag
req[3-2-3-6]	Circuit voltage error setting processing	Perform circuit voltage error setting processing	None	1. Set the circuit voltage error flag.	Circuit voltage abnormal flag
req[3-2-4-1]	Check thermistor fault every 1 sec	Perform thermistor fault check every 1 sec	None	1. When the temperature sensor of the sensor MCU is in error, turn on the thermistor abnormality flag.	None
req[3-2-4-2]	Sensor circuit fault flag ON processing	Perform sensor circuit error flag setting processing	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the sensor circuit abnormality flag is turned off. 2. When the ON/OFF setting flag is ON, the sensor circuit abnormality flag is turned on and the error code substitution process is called.	sensor circuit fault flag
req[3-2-4-3]	Thermistor abnormality flag ON processing	Perform a thermistor error flag setting process	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the thermistor error flag is turned off. 2. When the ON/OFF setting flag is ON, the thermistor abnormality flag is turned on and the error code substitution process is called.	Thermistor error flag
req[3-2-4-4]	Substitution of sensor MCU status flag	Acquire sensor MCU status flag	None	1. Return sensor MCU status flag.	Sensor MCU status flag
req[3-2-4-5]	Error check processing of temperature sensor of RL78	Perform error check processing of temperature sensor of RL78	RL78 temperature sensor A/D value	1. RL78 If the temperature sensor A/D value is out of the threshold, return NG.	Error check result
req[3-2-4-6]	Temperature sensor self-diagnosis permission processing of RL78	Perform temperature sensor self-diagnosis permission processing of RL78	None	1. Turnon self-diagnosis permission flag.	Self-diagnosis permission flag
req[3-2-5-1]	Sensor fault check every 1 sec	Perform sensor fault check every 1 sec	Type of gas measured by the sensor	1. When the flammable sensor is valid or the flammable sensor is broken, substitute the error code of the sensor FAIL.	None
req[3-2-5-2]	Substitution of calibration system error flag	Perform substitution of calibration system error flag	ON/OFF flag Gas number Failure content Sensor status information Type of gas measured by the sensor	1. For each case of fault contents AIR calibration, SPAN calibration, BUMP, the following processing is performed. 2. When the ON/OFF flag is OFF, the calibration abnormality flag is turned off. 3. When the ON/OFF flag is ON, execute the following. 4. If the sensor is valid and there is no sensor trouble, carry out the following. 5. Turnon the calibration abnormality flag and call the fault detail code substitution process.	Sensor status information
req[3-2-5-3]	Substitution of sensor fault flag	Substitute the sensor fault flag	Gas number Failure number Type of gas measured by the sensor Sensor status information	1. If the sensor is valid and there is no sensor trouble, carry out the following. 2. During measurement, during DISP mode, sensor error is set as sensor status. 3. Otherwise, set the initial sensor error to the sensor status. 4. Call error code substitution processing.	Sensor status information
req[3-2-5-4]	Flammable sensor self-diagnosis permission processing	Perform flammable sensor self-diagnosis permission processing	None	1. Turnon flammable sensor self-diagnosis permission flag.	Flammable sensor self-diagnosis permission flag
req[3-2-5-5]	Flammable sensor disconnection detection	Perform flammable sensor disconnection detection	Flammable sensor A/D value Flammable sensor self-diagnosis permission flag	1. When the flammable sensor self-diagnosis permission flag is ON, the following processes 2 to 3 are executed. 2. When the flammable sensor A/D value is above the check threshold, OK is returned. 3. When the flammable sensor A/D value is less than or equal to the check threshold value, NG is returned. 4. Returns sensor disconnection detection result.	Sensor disconnection detection result
req[3-2-5-6]	Sensor FAIL confirmation processing	Perform sensor FAIL confirmation processing	Type of gas measured by the sensor Sensor status information	1. Perform the following for all sensors. 2. If the sensor is valid, carry out the following. 3. Returns ON if sensor status is not initial abnormality and sensor error.	Sensor FAIL check result
req[3-2-5-7]	All sensors Initial sensor abnormality confirmation processing	Perform all sensors Initial sensor abnormality confirmation processing	Type of gas measured by the sensor Sensor status information Device status information	1. Perform the following for all sensors. 2. If the sensor is valid and the sensor status is not initial abnormality, it returns ON. 3. If the device status is abnormal on the sensor circuit, return off.	Results of all sensor initial abnormality check
req[3-2-5-8]	Initial sensor abnormality confirmation processing	Perform initial sensor abnormality confirmation processing	Type of gas measured by the sensor Sensor status information Device status information	1. When the equipment status is abnormal sensor circuit, ON is returned. 2. If the sensor is valid for all sensors and the sensor status is initial fault, it returns ON.	Initial sensor error check result
req[3-2-6-1]	Acquisition processing of EC connection check in progress flag	Perform acquisition processing of EC connection check in progress flag	None	1. Return EC connection checking flag.	EC connection checking flag
req[3-2-6-2]	Obtaining the difference A/D of EC connection check	Obtaining the difference A/D of EC connection check	A/D channel	1. Return the difference A/D value.	Difference A/D value
req[3-2-6-3]	Every 10 msec processing of EC connection check	Perform every 10 msec processing of EC connection check	EC connection checking flag Concentration calculation buffer update stop count	1. When the EC connection check middle flag is active, the EC connection checking flag is added 2. When the EC connection checking flag is the last, the EC connection checking flag is turned off and the EC connection check calculation enabling flag is turned on. 3. When EC connection checking flag starts pulse operation, call EC connection checking port ON processing. 4. If the concentration calculation buffer update halt count is non-0, the concentration calculation buffer update stop count is subtracted.	EC connection checking flag EC connection check calculation enabling flag Concentration calculation buffer update stop count
req[3-2-6-4]	At EC connection check, A/D acquisition processing stop flag for concentration calculation	Acquire at the EC connection check, the A/D acquisition processing stop flag for concentration calculation is acquired	A/D channel Concentration calculation buffer update stop count	1. If the concentration calculation buffer update stop count is non-0 and the sensor check target channel, stop ON is returned.	Stop flag
req[3-2-6-5]	A/D acquisition processing of EC connection check	Perform A/D acquisition processing of EC connection check	A/D channel A/D value PGA value EC connection checking flag	1. When the EC connection check middle flag is active, the A/D value is substituted into the EC connection check buffer.	EC connection check buffer
req[3-2-6-6]	Start processing of EC connection check (H2S/CO)	Perform start processing of H2S/CO of EC connection check	H2S/CO flag EC connection checking flag	1. When the EC connection check middle flag is OFF, execute the following according to the H2S/CO flag. 2. Call the A/D buffer clear processing of EC connection check. 3. Set buffer update update stop count for concentration calculation. 4. Turnon the EC connection checking flag.	EC connection checking flag Concentration calculation buffer update stop count
req[3-2-6-7]	Differential A/D calculation processing of EC connection check	Difference A/D calculation processing of EC connection check is performed	EC connection check calculation enabling flag EC connection check buffer	1. When the EC connection check calculation permission flag is ON, execute the following. 2. Call the 2. 24 bit A/DmV conversion processing and calculate the EC connection check A/D difference value. 3. Turn EC connection check calculation enable flag OFF.	EC connection check A/D difference value EC connection check calculation permission
req[3-2-6-8]	Clear the A/D buffer for EC connection check	Clear the A/D buffer for EC connection check	Object sensor	1. Clear EC connection check buffer of target sensor/	EC connection check buffer
req[3-2-6-9]	ON/OFF of EC connection check port	Turn ON/OFF the port of EC connection check	Object sensor ON/OFF flag	1. Set the ON/OFF flag to the connection check port of the target sensor.	None
req[3-2-6-10]	EC connection check RAM data initialization processing	Perform EC connection check RAM data initializationprocessing	None	1. Initialize all RAM used for connection check.	None
req[3-2-6-11]	PGA fixation flag of EC connection check A/D	Acquire PGA fixation flag of EC connection check A/D	AD channel EC connection check execution flag Flag setting for fixation of each channel	1. Confirm channel. 2. For flammables, turn off the flag. 3. For oxygen, if the connection check flag = ON and if the const flag = ON for fixation flag, turn on the flag. 4. For other gases, if the connection check flag = ON and if the const flag = ON for fixation flag, turn on the flag.	Flag for fixation
req[3-2-6-12]	EC initial sensor check start processing	Perform EC initial sensor check start process	None	1. Set EC sensor check retry count. 2. Call EC sensor check start processing.	EC sensor check retry count
req[3-2-6-13]	10 msec interruption processing of EC connection check	Perform 10 msec interruption processing of EC connection check	Count for sensor check start EC sensor check A/D comparison start timing count EC sensor check start timing count EC sensor check retry count	1. If the sensor check start count is non-0, the sensor check start count is subtracted. 2. When the sensor check start count is 0, the sensor check start process is called. 3. EC sensor check A/D comparison start timing If the count is non-0, execute the following. 4. EC sensor check A/D comparison start timing When the count is 1. it calls the A/D check processing of the sensor. 5. If the A/D check result is an error, subtract the retry count. 6. When the retry count is 0, the EC sensor check result is made abnormal. 7. When the retry count is other than 0, the EC sensor check start timing count is set to 0. 8. EC sensor check A/D comparison start timing count .	Count for sensor check start EC sensor check A/D comparison start timing count EC sensor check start timing count EC sensor check retry count
req[3-2-6-14]	1 sec interruption processing of EC connection check	Perform 1 sec interruption processing of EC connection check	EC sensor check start timing count EC sensor check retry count	1. If the EC sensor check start timing count is non-0, the EC sensor check start timing count is subtracted. 2. When EC sensor check start timing count is 0 and gas alarm is not in progress, EC sensor check start process is called. 3. When the EC sensor check retry count is 0, EC sensor check retry count is set. 4. Set EC sensor check start timing count.	EC sensor check start timing count EC sensor check retry count
req[3-2-6-15]	EC sensor check start process at startu	Perform EC sensor check start processing at startup	None	1. Set the sensor check start count.	Count for sensor check start
req[3-2-6-16]	EC sensor check A/D confirmation processing	Perform EC sensor check A/D confirmation processing	Object sensor Type of gas measured by the sensor Sensor status information Sensor output	1. If the target sensor is valid and the sensor is not abnormal, carry out the following. 2. If the sensor output is lower than the threshold, return error flag.	Sensor check error flag
req[3-2-6-17]	EC sensor check start processing	Perform EC sensor check start process	Object sensor	1. Set check start flag of EC sensor. 2. Check EC sensor Set A/D comparison start timing count.	EC sensor check A/D comparison start timing count
req[3-2-6-18]	EC sensor check abnormality substitution process	PerformEC sensor check abnormality substitution processing	Sensor error flag Type of gas measured by the sensor	1. When the sensor is valid for the sensor error sensor, set the trouble code of each sensor.	None
req[3-2-6-19]	Acquire EC connection check start flag	Acquire EC connection check start flag	Gas type flag	1. Returns the EC connection check start flag according to the gas type flag.	EC connection check start flag
req[3-2-6-20]	EC connection check start flag setting processing	Perform EC connection check start flag setting processing	Gas type flag Check start flag	1. The check start flag is set to the EC connection check start flag corresponding to the gas type flag.	EC connection check start flag
req[3-2-7-1]	Battery voltage abnormality flag ON processing	Perform battery voltage abnormality flag setting processing	ON/OFF flag	1. When the ON/OFF flag is OFF, the battery voltage abnormality flag is turned off. 2. When the ON/OFF flag is ON, the battery voltage abnormality flag is turned on and the error code substitution process is called.	Battery voltage abnormality flag
req[3-2-9-1]	Low flow rate flag ON processing	Perform low flow rate flag setting processing	ON/OFF flag	1. When the ON/OFF flag is OFF, the low flow rate flag is turned off. 2. When the ON/OFF flag is ON, the low flow rate flag is turned on and the error code substitution process is called.	Low flow rate flag
req[3-2-10-1]	Pump error flag ON processing	Perform pump error flag setting processing	ON/OFF flag	1. When the ON/OFF flag is OFF, the pump error flag is turned off. 2. When the ON/OFF flag is ON, the pump error flag is turned on and the error code substitution process is called.	Pump error flag
req[4-1-1-1]	BUMP result concentration acquisition	Acquire BUMP result concentration	Gas number	1. Return BUMP result concentration.	BUMP result concentration
req[4-1-1-2]	Acquisition process of SDM serial used for BUMP	Perform acquisition process of SDM serial used for BUMP	Pointer to set	1. Create character data corresponding to SDM serial number.	None
req[4-1-1-3]	Setting processing of SDM serial used for BUMP	Perform setting process of SDM serial used for BUMP	Pointer to set	1. Create character data corresponding to SDM serial number.	None

req[4-1-1-4]	BUMP alarm necessary judgment processing	Determine whether BUMP alarm is necessary	Address of current gas data Fault status Calibration ON/OFF after bump fault	1. When the bumpable gas is used and the BUMP test is necessary, the judgment result is turned on. 2. When bumpable gas is used and span calibration is necessary, turn the judgment result ON. 3. Returns the judgment result.	judgment result
req[4-1-1-5]	Confirm whether BUMP gas setting can be selected (for ZIPC)	Confirm whether BUMP gas setting can be selected	None	1. Return gas or confirmation process that can be displayed.	judgment result
req[4-1-1-6]	BUMP test result deend processing	Perform BUMP test result deend processing	None	1. When it is a gas that can be BUMPed, a BUMP test OK / NG deend process is performed. 2. Record the result of BUMP execution. 3. Record BUMP of logger function.	None
req[4-1-1-7]	BUMP test time end confirmation processing	Confirm whether BUMP test time is over	Bump test count timer	1. If the bump test count timer is not 0, turn on the result. 2. When the bump test count timer is 0, turn off the result. 3. Return results.	result
req[4-1-1-8]	BUMP test gas concentration display processing	Perform BUMP test gas concentration display processing	Item Number Gas setting Proof group	1. In case of the ESCAPE display, "ESCAPE" is displayed. 2. If it is one of the AUTO calibration groups, character data corresponding to the AUTO calibration group is created.	None
req[4-1-1-9]	BUMP result display processing	Perform BUMP result display processing	Item Number Fault status Calibration ON/OFF after bump fault	1. Create character data corresponding to BUMP result.	Concentration character
req[4-1-1-10]	BUMP test in progress display processing	Perform BUMP test in progress display processing	Fault status	1. Create character data corresponding to BUMP test. 2. Convert the corresponding numerical value to character data during BUMP test. 3. Flash the time.	Concentration character Blinking time
req[4-1-1-11]	BUMP gas setting selected Group acquisition processing	Perform acquisition processing of BUMP gas setting selected group	None	1. Return item number.	Item Number
req[4-1-1-12]	BUMP test time acquisition processing	Acquire the BUMP test time	Bump time seconds	1. Calculate bump test count timer from bump time seconds.	Bump test count timer
req[4-1-1-13]	BUMP test start processing	Perform BUMP test start processing	Gas setting Proof group	1. If the gas setting is valid and the group being selected is the same as the group selected, turn the result on. 2. Break when the result is ON. 3. Set item number. 4. Turnoff up / down numerical value setting. 5. Set BUMP result concentration to OFF concentration.	Item Number Up / down change of numerical value BUMP result concentration
req[4-1-1-14]	BUMP gas setting selection processing	Perform BUMP gas setting selection processing	Item Number Up / down change of numerical value	1. If the up / down numeric value change setting is OFF and not the ESCAPE display, select the group. 2. If there is a setting gas in the group, set the BUMP gas. 3. When numerical up / down change setting is ON, set it to ESCAPE.	Item Number
req[4-1-1-15]	BUMP gas setting selection next item selection processing	Perform BUMP gas setting selection next item selection processing	Item Number	1. If the BUMP gas setting selection is not the ESCAPE display, select the group. 2. If there is a setting gas in the group, set the BUMP gas.	Item Number
req[4-1-1-16]	BUMP result display selection processing	Perform BUMP result display selection processing	Calibration ON/OFF after bump fault Item Number	1. When BUMP calibration is necessary and BUMP calibration is ON, the flag is turned on. 2. When BUMP calibration is necessary and BUMP calibration is OFF, the flag is turned off.	Item Number
req[4-1-1-17]	BUMP test Executable gas or confirmation processing	BUMP test Performs confirmation processing for gas that can be executed	Gas setting Calibration concentration Fault status Proof group	1. When all of the following conditions 2 to 5 are satisfied, the execution result is set to ON. 2. Gas setting is valid. 3. Calibration concentration is ON. 4. The sensor is normal. 5. The selected group matches the set group. 6. Return execution result.	Executability result
req[4-1-1-18]	BUMP test OK/NG deend processing	Perform BUMP test OK / NG deend	Gas number Calibration concentration Bump tolerance Concentration value Minus flag	1. In the case of O2, the following processes 2 to 4 are performed. 2. Calculate the difference in calibration concentration from 20. 9. 3. Calculate acceptable concentration. 4. Substitute the calibration concentration. 5. When the concentration value is lower than the allowable upper limit value, the concentration value is positive, and the concentration is positive and equal to or higher than the allowable lower limit value, OK is returned. 6. If the concentration value is higher than the allowable upper limit value and the concentrationvalue is more than the allowable lower limit value and the concentration is negative, OK is returned. 7. In the case of not being oxygen, calculate the allowable concentration and substitute the calibration concentration. 8. When the concentration value is lower than the allowable upper limit value, the concentration value is positive, and the concentration is positive and equal to or higher than the allowable lower limit value, OK is returned 9. If the concentration value is higher than the allowable upper limit value and the concentrationvalue is more than the allowable lower limit value and the concentration is negative, OK is returned.	judgment result
req[4-1-1-19]	BUMP execution result record processing	Perform Perform recording processing of BUMP execution result	Gas number judgment result Concentration value Minus flag Over flag Minus over flag	1. BUMP result concentration, BUMP result minus flag, BUMP result over flag, BUMP result minus over flag are acquired. 2. When the BUMP is successful, the following processes 3 to 7 are executed. 3. Substitute current time. 4. Substitute concentration at BUMP execution. 5. Turnoff the BUMP fault flag. 6. Acquire the SDM serial used for BUMP. 7. Turnon FRAM write start flag. 8. If BUMP fails, set the BUMP fault flag to ON.	BUMP result concentration BUMP result minus flag BUMP result over flag BUMP result minus over flag
req[4-1-2-1]	BUMP flammable limit display necessity judgment processing	BUMP Determine whether flammable restriction indication is necessary	Calibration ON/OFF after bump fault Fault status Gas setting Flammable sensor mode	1. When all of the following conditions 2 to 6 are satisfied, the judgment result is turned on. 2. It is a gas that can be bumped. 3. Calibration ON/OFF setting after bump fault is ON. 4. Bump calibration is successful. 5. The combustible gas setting is CH4 or i-C4H10. 6. In flammable limit. 7. Returns the judgment result.	Judgment result
req[4-1-2-2]	BUMP calibration processing for communication	Perform BUMP calibration processing for communication	Gas setting Calibration concentration Fault status	1. When all of the following conditions 2-4 are satisfied, the judgment of the BUMP test and the result of the BUMP execution are recorded. 2. Gas setting is valid. 3. Calibration concentration is ON. 4. The sensor is normal. 5. Record BUMP of logger function.	Calibration result
req[4-1-2-3]	Confirm necessity of BUM calibration	Confirm necessity of BUMP calibration	Fault status	1. When the bumpable gas is used, if the BUMP test is necessary, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[4-1-2-4]	BUMP calibration setting confirmation processing	Confirm processing of BUMP calibration presence / absence setting	Calibration ON/OFF after bump fault	1. When the calibration ON/OFF setting after the bump fault is ON, the confirmation result is turned on. 2. When the calibration ON/OFF setting after bump fault is OFF, turn off the confirmation result. 3. Return the confirmation result.	Check result
req[4-1-2-5]	BUMP calibration time end confirmation processing	Perform BUMP calibration time end confirmation processing	Bump calibration count timer	1. When the bump calibration count timer is not 0, turn on the confirmation result. 2. When the bump calibration count timer is 0, turn off the confirmation result. 3. Return the confirmation result.	Check result
req[4-1-2-6]	BUMP calibration execution display processing	Perform BUMP calibration execution display processing	None	1. Create character data corresponding to BUMP proofreading execution.	None
req[4-1-2-7]	BUMP calibration start processing	Perform BUMP calibration start processing	None	1. Start BUMP calibration.	None
req[4-1-2-8]	BUMP calibration time acquisition processing	Acquire the BUMP calibration time	Calibration time after bump fault seconds Bump time seconds	1. Calculate the bump calibration count timer from calibration time seconds after bump fault and bump time seconds.	Bump calibration count timer
req[4-1-2-9]	BUMP calibration result recording processing	Perform BUMP calibration result recording processing	Gas number Concentration value Minus flag Over flag Minus over flag	1. The gas number is added to the address of the current gas data. 2. Acquire results 3 to 6 below. 3. BUMP result concentration. 4. BUMP result minus flag. 5. BUMP result over flag. 6. BUMP result minus over flag.	BUMP result concentration BUMP result minus flag BUMP result over flag BUMP result minus over flag
req[4-1-2-10]	BUMP/CAL success confirmation process after BUMP	Perform BUMP/CAL success confirmation process after BUMP	Bump permission flag Post-bump calibration settings Fault status	1. A failure flag is set when a bumpable gas and a BUMP failed gas fails calibration. The failure flag is also set when calibration after BUMP failure is OFF.	BUMP/CAL success flag
req[4-1-2-11]	Initial possible confirmation processing after BUMP/CAL success	Perform initial possible confirmation processing after BUMP/CAL success	BUMP/CAL flag	1. Assign OK to the initial possible flag. 2. If the following conditions are met, NG is substituted for the initial possible flag. Gas setting is ON, calibration concentration is other than OFF and cylinder setting is other than A 3. If the result of 2. is not NG, if the initial setting after successful bump or the initial setting after successful calibration is OFF, substitute NG for the initial possible flag.	Initial possible flag
req[4-1-2-12]	BUMP calibration execution start processing	Perform BUMP calibration execution start processing	Group number Gas setting Proof group Fault status AUTO calibration end flag	1. Turnoff AUTO calibration in progress flag. 2. When the following conditions 3 to 4 are satisfied, the AUTO calibration end flag is set to ON. 3. The proof group matches the argument specification. 4. BUMP test failed. 5. Set the AUTO calibration concentration value. 6. Set the SDM serial used for AUTO calibration.	AUTO calibration running flag AUTO calibration end flag
req[4-1-3-1]	BUMP condition BUMP calibration ON/OFF setting display processing	BUMP condition Display processing of BUMP calibration ON/OFF setting is performed	None	1. Create ON/OFF setting menu display.	None
req[4-1-3-2]	BUMP condition BUMP calibration ON/OFF setting end processing	BUMP condition Performs ending processing of BUMP calibration ON/OFF setting	Item Number	1. Enter item number into BUMP condition BUMP calibration ON / OFF setting. 2. Turnon FRAM write start flag.	Calibration ON/OFF after bump fault
req[4-1-3-3]	BUMP condition BUMP calibration ON/OFF setting start processing	BUMP condition Start processing of BUMP calibration ON/OFF setting	Calibration ON/OFF after bump fault	1. BUMP condition BUMP calibration ON/OFF setting in item number.	Item Number
req[4-1-3-4]	BUMP condition BUMP calibration ON/OFF setting display item selection processing	BUMP condition BUMP calibration ON/OFF setting Display item selection process	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[4-1-4-1]	BUMP condition BUMP calibration time setting display processing	BUMP condition Display process of setting BUMP calibration time	None	1. BUMP condition Create character data corresponding to BUMP calibration time setting. 2. BUMP condition Convert BUMP calibration time setting numerical value to character data.	Maintenance character flashing
req[4-1-4-2]	BUMP condition BUMP threshold setting display processing	Display processing of BUMP condition BUMP threshold setting is performed	None	1. BUMP condition Creates character data corresponding to BUMP threshold setting. 2. BUMP condition Convert BUMP threshold value setting to character data.	Maintenance character flashing
req[4-1-4-3]	BUMP condition BUMP time setting display processing	Display process of BUMP condition BUMP time setting	None	1. BUMP condition Creates character data corresponding to BUMP time setting. 2. BUMP condition Convert BUMP time setting numerical value to character data.	Maintenance character flashing
req[4-1-4-4]	BUMP condition BUMP calibration time setting end processing	BUMP condition Performs BUMP calibration time setting end processing	Item Number	1. Put bump tolerance in item number. 2. Turnon FRAM write start flag.	Calibration time after bump fault seconds

req[4-1-4-5]	BUMP condition BUMP threshold setting end processing	BUMP condition Performs ending process of BUMP threshold setting	Item Number	1. Insert calibration time seconds after bump fault into item number. 2. Turnon FRAM write start flag.	Bump tolerance
req[4-1-4-6]	BUMP condition BUMP time setting end processing	BUMP condition Performs end processing of BUMP time setting	Item Number	1. Put bump time seconds in item number. 2. Turnon FRAM write start flag.	Bump time seconds
req[4-1-4-7]	BUMP condition BUMP calibration time setting start processing	BUMP condition Start processing of setting BUMP calibration time	Calibration time after bump fault seconds	1. Insert calibration time seconds after bump fault into item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[4-1-4-8]	BUMP condition BUMP threshold setting start processing	BUMP condition Start processing of BUMP threshold setting	Bump tolerance	1. Put bump tolerance in item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[4-1-4-9]	BUMP condition setting mode menu start processing	Start processing of the BUMP condition setting mode menu	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[4-1-4-10]	BUMP condition BUMP time setting start processing	Start processing of BUMP condition BUMP time setting	Bump time seconds	1. Put bump time seconds in item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[4-1-4-11]	BUMP condition BUMP calibration time setting display item selection processing	BUMP condition BUMP calibration time setting display item selection process	BUMP Calibration time setting possible value	1. When BUMP calibration time settable value matches item number, put BUMP calibration time settable value in item number in item number.	Item Number
req[4-1-4-12]	BUMP condition BUMP threshold setting display item selection processing	BUMP condition BUMP threshold setting display item selection processing is performed	BUMP threshold setting possible value Up / down change of numerical value	1. If the BUMP threshold setting possible value matches the item number, put the BUMP threshold setting possible value in the item number in the item number.	Item Number
req[4-1-4-13]	BUMP condition setting mode menu item selection processing	Perform item selection processing of BUMP condition setting mode menu	None	1. Insert numerical increase / decrease processing into BUMP condition setting mode menu item.	Item Number
req[4-1-4-14]	BUMP condition BUMP time setting display item selection processing	BUMP condition BUMP time setting Display item selection process	BUMP time configurable value Up / down change of numerical value	1. If the BUMP time settable value matches the item number, put the BUMP time settable value in the item number in the item number.	Item Number
req[4-1-4-15]	BUMP condition setting mode menu display processing	Display processing of the BUMP condition setting mode menu is performed	Item Number	1. BUMP condition setting mode Create character data corresponding to the menu.	Maintenance letter
req[4-1-5-1]	BUMP error flag OFF	turn off the BUMP error flag	None	1. Substitute the calibration system error flag.	None
req[4-2-1-1]	Alarm test ON/OFF confirmation processing of SDMor manufacturing facility	Perform alarm test ON/OFF check process of SDMor manufacturing facility	SDM alarm test count	1. If SDM alarm test count is 0, it returns OFF. 2. If the SDM alarm test count is not 0, return the SDM alarm test type.	judgment result
req[4-2-1-2]	Alarm test reset	Perform alarm test reset	Buzzer type ON/OFF setting flag	1. Set alarm point display on SDM alarm test type.	None
req[4-2-1-3]	Alarm test ON/OFF processing of SDM or manufacturing facility	Perform alarm test ON/OFF processing of SDM or manufacturing facility	Buzzer ON/OFF setting flag Vibration motor ON/OFF setting flag LED ON/OFF setting flag	1. Control ON/OFF setting of buzzer. 2. Control ON/OFF setting of vibration motor. 3. Control ON/OFF setting of LED. 4. When the buzzer ON/OFF setting flag, the vibration motor ON/OFF setting flag, and the LED ON/OFF setting flag are all OFF, the SDM alarm test count is set to 0. 5. When at least one of the buzzer ON/OFF setting flag, the vibration motor ON/OFF . setting flag, and the LED ON/OFF setting flag is ON, the maximum time of SDM alarm test count is placed in SDM alarm test count. .	None
req[4-2-1-4]	Alarm point display alarm warning stop processing	Stop processing of alarm announcement	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, the alarm is stopped. 2. When the ON/OFF setting flag is OFF, an alarm is issued.	None
req[4-2-1-5]	ON/OFF acquisition processing of gas test flag	Acquire ON/OFF setting of gas test flag	None	1. Returns the flag as to whether it is transitioning to the gas test mode.	Flag indicating whether transition to gas test mode
req[4-2-1-6]	ON/OFF processing of gas test flag	Perform ON/OFF processing of gas test flag	ON/OFF setting flag	1. Place the ON/OFF setting flag in the flag as to whether it is shifting to the gas test mode.	Flag indicating whether transition to gas test mode
req[5-1-1-1]	Carry out air calibration	Carry out air calibration	None	1. Set the time buffer. 2. When the port is the corresponding channel, confirm the operation system event.	Argument of auto zero before start of measurement
req[5-1-1-2]	AIR calibration concentration display processing	Perform Perform AIR calibration concentration display processing	None	1. Create a concentration display for maintenance. 2. Create display characters for AIR calibration.	None
req[5-1-1-3]	AIR calibration success display processing	Perform AIR calibration success display processing	None	1. Create character data corresponding to successful AIR proofreading.	None
req[5-1-1-4]	AIR calibration HOLD AIR display processing	Perform AIR calibration HOLD AIR display processing	None	1. Create character data corresponding to AIR calibration HOLD AIR.	None
req[5-1-1-5]	AIR calibration RELEASE display processing	Perform AIR calibration RELEASE display processing	None	1. Create character data corresponding to AIR calibration RELEASE.	None

req[5-1-1-6]	EC sensor AIR calibration processing	Perform EC sensor AIR calibration processing	Gas channel Maximum value of AIR coefficient Minimum value of AIR coefficient Temperature value	1. Acquire the A/D value of the sensor. 2. Correct the temperature at zero point and change to the reference temperature. 3. When the output of the current sensor is within the AIR threshold value, the following processes 4 to 7 are executed. 4. Set current sensor output to AIR value. 5. Acquire temperature data at zero point calibration. 6. Reset zero tracking of EC sensor. 7. Turnon FRAM write start flag. 8. Make the calibration result OK. 9. Turnoff zero tracking. 10. Return calibration result.	Address of current gas data FRAM data address for gas data Zero coefficient Temperature data at zero point calibration Zero tracking Calibration result
req[5-1-1-7]	Hydrogen cancellation carbon monoxide AIR calibration process	Perform hydrogen cancellation carbon monoxide AIR calibration processing	Maximum value of AIR coefficient Minimum value of AIR coefficient Temperature value	1. H2 Cancel Acquire the A/D value of CO and H2S. 2. Correct the temperature at zero point. 3. If it is within the threshold of AIR calibration, carry out AIR calibration of H2cancellation CO. 4. Return calibration result.	Zero coefficient Temperature data at zero point calibration Zero tracking Calibration result
req[5-1-1-8]	Oxygen AIR calibration processing	Perform oxygen AIR calibration processing	Maximum value of AIR coefficient Minimum value of AIR coefficient The A/D value of the EC sensor Temperature value	1. Set the address to O2. 2. Calculate the span temperature compensation temperature coefficient of the current temperature. 3. When the current sensor output is within the AIR threshold value, AIR calibration of O2 is performed. 4. Turnoff zero tracking. 5. Return calibration result.	Address of current gas data FRAM data address for gas data Zero coefficient Temperature data at zero point calibration Calibration result
req[5-1-1-9]	Flammable AIR calibration processing	Perform flammable AIR calibration processing	Maximum value of AIR coefficient Minimum value of AIR coefficient A/D value of NC sensor Temperature value	1. Set the address to NC. 2. Calculate the NC zero point temperature compensation coefficient. 3. If the output of the current sensor is within the AIR threshold, AIR calibration of flammable gas is performed. 4. Return calibration result.	Address of current gas data FRAM data address for gas data Zero coefficient Temperature data at zero point calibration Calibration result
req[5-1-1-10]	AIR error flag OFF processing	Perform AIR error flag OFF processing	None	1. Turnoff the AIR calibration abnormality flag.	None
req[5-1-1-11]	AIR calibration processing	Perform AIR calibration processing	AIR calibration running flag AIR calibration retry flag AIR calibration retry counter for NC Delay counter for AIR calibration end Gas setting	1. When the AIR calibration executing flag is ON, AIR calibration of flammable gas, O2, H2S, CO, CO2 is performed. 2. When the AIR calibration retry flag is OFF and the delay counter for ending the AIR calibration is 0, the AIR calibration of the log function is recorded. 3. Turnoff the AIR calibration executing flag. 4. When the AIR calibration end delay counter is not 0, the AIR calibration end delay counter is counted down.	AIR calibration retry counter for NC AIR calibration retry flag Delay counter for AIR calibration end AIR calibration running flag
req[5-1-1-12]	AIR calibration execution start flag acquisition processing	Acquire the AIR calibration execution start flag	None	1. Returns the AIR calibration executing flag.	AIR calibration running flag
req[5-1-1-13]	AIR calibration execution start processing	Perform AIR calibration execution start processing	Gas setting Fault status AIR calibration retry flag	1. If the gas setting is valid and the initial sensor disconnection and sensor disconnection have not occurred, turn on the AIR calibration retry flag. 2. Initialize counter for AIR calibration retry NC. 3. Set the delay counter for AIR calibration end to 3.	AIR calibration running flag AIR calibration retry flag AIR calibration retry counter for NC Delay counter for AIR calibration end
req[5-1-1-14]	AIR calibration display flag acquisition processing	Acquire the AIR calibration display flag	None	1. Returns the AIR calibration display flag.	AIR calibration indication flag
req[5-1-1-15]	AIR calibration display flag setting processing	Perform setting process of AIR calibration disply flag	ON/OFF setting flag	1. Insert the ON/OFF setting flag in the AIR calibration display flag.	AIR calibration indication flag
req[5-1-2-1]	AIR calibration fault display processing	Perform AIR calibration fault display processing	Gas setting Fault status	1. If the setting is ON and zero calibration error, gas name · unit is substituted.	Flashing concentration
req[5-1-2-2]	Check if there is no AIR calibration error	Confirm whether there is no abnormality in AIR calibration	Fault status	1. When the AIR calibration abnormality flag is ON, make the confirmation result abnormal. 2. Return the confirmation result.	Check result
req[5-2-2-1]	Demand zero ON/OFF setting display processing	Perform display process of demand zero ON/OFF setting	None	1. Create display of ON/OFF setting menu corresponding to Demand Zero ON/OFF setting.	None
req[5-2-2-2]	Demand zero ON/OFF setting end processing	Perform end processing of demand zero ON/OFF setting	Item Number	1. Insert item number into demand zero ON/OFF setting. 2. Turnon FRAM write start flag.	Demand Zero ON/OFF
req[5-2-2-3]	Demand zero ON/OFF setting start processing	Perform start processing of demand zero ON/OFF setting	Demand Zero ON/OFF	1. Put the demand zero ON/OFF setting in the item number.	Item Number
req[5-2-2-4]	Demand zero ON/OFF setting ON/OFF selection processing	Perform selection process of demand zero ON/OFF setting	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-2-2-5]	Acquire ON/OFF setting of demand zero	Acquire ON/OFF setting of demand zero	None	1. Return ON/OFF setting of demand zero.	ON/OFF of demand zero
req[5-3-1-1]	Auto zero execution confirmation display	Perform confirmation display of auto zero execution	None	1. Create character data corresponding to auto zero execution confirmation display.	None
req[5-3-1-2]	Auto zero ON/OFF check processing	Perform ON/OFF setting confirmation processing of auto zero	None	1. Returning auto zero ON/OFF setting.	Auto zero ON/OFF
req[5-3-2-1]	Auto zero ON/OFF setting display processing	Perform display processing of auto zero ON/OFF setting	None	1. Create ON/OFF setting menu display corresponding to auto zero ON/OFF setting.	None
req[5-3-2-2]	Auto zero ON/OFF setting end processing	Perform end processing of the auto zero ON/OFF setting	Item Number	1. Insert item number into auto zero ON/OFF setting. 2. Turnon FRAM write start flag.	Auto zero ON/OFF
req[5-3-2-3]	Auto zero ON/OFF setting start processing	Perform start processing of auto zero ON/OFF setting	Auto zero ON/OFF	1. Insert auto zero ON/OFF setting in item number.	Item Number
req[5-3-2-4]	Auto zero ON/OFF setting ON/OFF selection processing	Perform selection process of auto zero ON/OFF setting	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-4-1-1]	Setting before auto calibration in progress concentration display	Perform setting before auto calibration in progress concentration display	None	1. Set the group to be used for AUTO calibration.	None
req[5-4-1-2]	Check whether auto calibration group can be selected	Perform check whether auto calibration group can be selectedd	Gas number OFF concentration check Confirmation group number Gas setting Proof group	1. When the following conditions 2 to 4 are satisfied, the confirmation result is made OK. 2. Gas setting is effective. 3. The calibration group matches the confirmation group number. 4. The setting of the calibration concentration is not OFF_VAL. 5. Return the confirmation result.	Check result
req[5-4-1-3]	Auto calibration group selection value confirmation processing	Perform auto calibration group selection value confirmation processing	None	1. Return the auto calibration group selection value.	Auto calibration group selection value
req[5-4-1-4]	Confirm whether auto calibration group can be selected (for ZIPC)	Perform Confirm whether auto calibration group can be selected	None	1. AUTO Returns confirmation processing as to whether the calibration group can be selected.	Result of selection confirmation result
req[5-4-1-5]	Concentration display processing during auto calibration	Perform concentration display processingduring auto calibration	None	1. When calibration is executable, display the concentration value and gas name. 2. AUTO Creates character data corresponding to the calibration in progress.	None
req[5-4-1-6]	Auto calibration gas concentration display	Perform Auto calibration gas concentration display	Item Number Gas setting Proof group	1. AUTO Create character data corresponding to the calibration gas concentration.	None
req[5-4-1-7]	Auto calibration success display processing	Perform Auto calibration success display processing	None	1. AUTO Create character data corresponding to successful proofing.	None
req[5-4-1-8]	Auto calibration success in progress display processing	Auto calibration success in progress display processing	None	1. AUTO Creates corresponding character data while proofreading is being executed successfully.	None
req[5-4-1-9]	Gas concentration display after auto calibration	Perform gas concentration display after auto calibration	None	1. When calibration is executable, display the concentration value and gas name. 2. AUTO Create character data corresponding to gas concentration after proofreading.	None
req[5-4-1-10]	Auto calibration execution processing	Perform Auto calibration execution processing	None	1. Set the group to be used for AUTO calibration. 2. Perform AUTO calibration execution start processing.	None

req[5-4-1-11]	Auto calibration mode menu start processing	Perform auto calibration mode menu start processing	Gas settingProof group	1. If the setting is ON and the selected group is the same as the group being selected, set the result to ON. 2. Set item number. 3. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-4-1-12]	Auto calibration group selection processing	Perform Auto calibration group selection processing	Item Number Up / down change of numerical value	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[5-4-1-13]	Auto calibration group selection Next item selection processing	Perform auto calibration group selection Next item selection processing	Item Number	1. If the AUTO calibration group selection is greater than the ESCAPE display, set cylinder A. select the group.	Item Number
req[5-4-1-14]	EC sensor auto calibration processing	Perform EC sensor Auto calibration process	Gas channel Calibration concentration value Full scale value Digit Direction of gas change Zero coefficient Maximum value of span coefficient Minimum span coefficient Temperature value	1. Acquire the A/D value of the sensor. 2. Correct the temperature at zero point and change to the reference temperature. 3. When the output of the current sensor is within the span threshold value, EC sensor AUTO calibration is executed. 4. Returns the judgment result.	Address of current gas data FRAM data address for gas data Temperature data at span point calibration judgment result
req[5-4-1-15]	Hydrogen cancellation carbon monoxide auto calibration processing	Perform hydrogen cancellation carbon monoxide Auto calibration process	Calibration gas Calibration concentration value Full scale value Maximum value of span coefficient Minimum span coefficient Temperature value	1. H2 Cancel Acquire the A/D value of CO and H2S. 2. Correct the temperature at zero point. 3. Calculate the span output at the current temperature. 4. Calculate the span temperature compensation coefficient. 5. Calculate the sensitivity of the reference temperature. 6. When it is within the threshold of SPAN calibration, AUTO calibration of H2 cancellation CO is carried out. 7. Returns the judgment result.	Span coefficient Temperature data at span point calibration judgment result
req[5-4-1-16]	Oxygen auto calibration processing	Perform oxygen Auto calibration process	Calibration concentration The A/D value of the EC sensor Zero coefficient Full scale value Temperature value	1. Set the address to O2. 2. Calculate the difference between the zero point output and the current sensor output. 3. Calculate the span temperature compensation coefficient of the AIR point. 4. Calculate the span temperature compensation coefficient of the SPAN point. 5. If the output of the current sensor is within the threshold of the zero point, AUTO calibration of O2 is performed.	Address of current gas data FRAM data address for gas data Temperature data at span point calibration judgment result
req[5-4-1-17]	Flammable auto calibration processing	Perform flammable Auto calibration process	A/D value of NC sensor Zero coefficient Ppm equivalent to LEL Full scale value Digit Ppm value corresponding to LEL used for concentration calculation Span correction number Full scale value against representative gas % LEL concentration ratio Maximum value of span coefficient Minimum span coefficient Measurement gas type group Temperature value	1. Set the address to NC. 2. Calculate the NC zero point temperature compensation coefficient. 3. Calculate the NC span point temperature compensation coefficient. 4. If calibration gas is NO solvent gas or if either element is OK, calibration gas is solvent gas and A element is OK AUTO calibration of flammable gas is performed. 5. Returns the judgment result.	Address of current gas data FRAM data address for gas data Temperature data at span point calibration Flammable sensor mode Span coefficient judgment result
req[5-4-1-18]	Auto calibration execution start processing for communication command	Perform Auto calibration execution start processing for communication command	Gas setting Calibration concentration value Fault status AUTO calibration running flag AUTO calibration end flag	1. Turnoff AUTO calibration in progress flag. 2. If the following conditions 3 to 4 are satisfied, turn on the AUTO calibration end flag and turn off the UP calibration flag. 3. The gas setting is valid and the calibration concentration is not OFF. 4. The sensor is normal. 5. AUTO Sets the calibration concentration value. 6. Set the SDM serial used for AUTO calibration.	AUTO calibration end flag UP calibration flag AUTO calibration running flag
req[5-4-1-19]	Acquisition processing of group used for auto calibration	Acquire processing of group used for auto calibration	None	1. Return the group to use for calibration.	Group to use for calibration
req[5-4-1-20]	Acquisition processing of SDM serial used for auto calibration	Acquire processing of SDM serial used for auto calibration	None	1. Acquire the SDM serial number.	None
req[5-4-1-21]	Auto error flag OFF processing	Perform Auto error flag OFF processing	None	1. Turnoff the SPAN calibration abnormality flag.	None
req[5-4-1-22]	Setting processing of group used for auto calibration	Perform the group setting process used for auto calibration	ON/OFF setting flag	1. Insert the ON/OFF setting flag into the group to be used for calibration.	Group using calibration time
req[5-4-1-23]	Setting processing of SDM serial used for auto calibration	Perform setting process of SDM serial used for auto calibration	None	1. Acquire the SDM serial number.	None
req[5-4-1-24]	Auto calibration processing	Perform auto calibration processing	AUTO calibration running flag AUTO calibration end flag AUTO Calibration concentration value	1. When the AUTO calibration in progress flag is ON, perform AUTO calibration of flammable gas, O2, H2S, CO, CO2. 2. When the AUTO calibration end flag is OFF, the SPAN calibration of the logger function is recorded. 3. Turnoff AUTO calibration in progress flag.	AUTO calibration end flag AUTO calibration running flag
req[5-4-1-25]	Auto calibration execution start flag acquisition processing	Acquire the auto calibration execution start flag	None	1. Return AUTO Calibration Executing Flag.	AUTO calibration running flag
req[5-4-1-26]	Auto calibration execution start processing	Perform auto calibration execution start processing	Gas setting Calibration concentration Proof group Fault status AUTO calibration running flag AUTO calibration end flag	1. Turnoff AUTO calibration in progress flag. 2. If the following conditions 3 to 5 are satisfied, turn on the AUTO calibration end flag and turn off the UP calibration flag. 3. The gas setting is valid and the calibration concentration is not OFF. 4. The proof group matches the argument specification. 5. The sensor is normal. 6. AUTO Sets the calibration concentration value. 7. Set the SDM serial used for AUTO calibration.	AUTO calibration end flag UP calibration flag AUTO calibration running flag
req[5-4-2-1]	Auto calibration concentration change processing	auto Performs calibration concentration change processing	None	1. AUTO Create character data corresponding to calibration concentration change.	None
req[5-4-2-2]	Auto calibration concentration change gas selection display	Perform auto calibration concentration change gas selection display processing	Item Number	1. When gas is selected, create a display character for the gas name. 2. When ESCAP is selected, create a display character for ESCAPE.	None
req[5-4-2-3]	Auto calibration concentration change end processing	Perform auto calibration concentration change end processing	Item Number	1. Insert item number into calibration concentration. 2. Turnoff up / down numerical value setting. 3. Turnon FRAM write start flag.	Calibration concentration Up / down change of numerical value
req[5-4-2-4]	Auto calibration concentration change start processing	Perform auto calibration concentration change start processing	Calibration concentration value	1. Put the calibration concentration in the item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-4-2-5]	Auto calibration concentration change gas selection start processing	Perform Auto calibration concentration change gas selection start processing	Gas setting	1. Break when the gas setting is valid. 2. Set item number. 3. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-4-2-6]	Auto calibration concentration value change	Auto Change the calibration concentration value	Calibration maximum value Calibration minimum value Digit	1. Set maximum value, minimum value, digit. 2. Include increment / decrement of numerical value in item number.	Item Number
req[5-4-2-7]	Auto calibration concentration gas change	Auto Change calibration concentration change gas	Item Number Up / down change of numerical value Gas setting	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[5-4-2-8]	Auto calibration concentration value setting processing for communication	Perform auto calibration concentration value setting processing for communication	Gas number Calibration concentration value	1. Insert the calibration concentration value into the communication AUTO calibration concentration value.	AUTO calibration concentration value for communication
req[5-4-2-9]	Auto calibration concentration setting processing	Perform auto calibration concentration setting processing	Calibration processing flag Calibration concentration value Gas setting AUTO calibration concentration value for communication	1. When calibration is performed from the detector body, acquire the calibration concentration. 2. When calibration is executed from the command, acquire the AUTO calibration concentration value for communication.	AUTO Calibration concentration value
req[5-4-2-10]	Auto calibration concentration change confirm ESCAPE display	Confirm whether auto calibration shows concentration change ESCAP display	Item Number	1. When the item number is the maximum, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-4-3-1]	Confirm if gas that may be displayed	Confirm if gas can be displayed	Gas number OFF concentration Confirmation group number Gas setting Proof group Calibration concentration value	1. When the following conditions 2 to 4 are satisfied, the confirmation result is made OK. 2. Gas setting is effective. 3. Group matches argument. 4. The setting of the calibration concentration is not OFF_VAL. 5. Return the confirmation result.	Check result
req[5-4-3-2]	Group change gas selection display	Perform group change gas selection display	Item Number	1. When gas is selected, create a display character for the gas name. 2. When ESCAP is selected, create a display character for ESCAPE.	None
req[5-4-3-3]	Group change display	Perform group change display processing	Item Number Group number	1. Create character data corresponding to group change.	Concentration character Flashing concentration
req[5-4-3-4]	Group change end processing	Perform group change end processing	Item Number	1. Insert item number into calibration group. 2. Turnoff up / down numerical value setting. 3. Turnon FRAM write start flag.	Proof group Up / down change of numerical value
req[5-4-3-5]	Group change gas selection start processing	Perform group change gas selection start processing	Gas setting	1. Break when the gas setting is valid. 2. Set item number. 3. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-4-3-6]	Group change start processing	Perform start processing of group change	Item Number	1. Insert item number into calibration group. 2. Turnoff up / down numerical value setting.	Proof group Up / down change of numerical value
req[5-4-3-7]	Group change gas change	Change group change gas	Item Number Up / down change of numerical value Gas setting	1. If the up / down change setting of the numerical value is OFF, execute the following processing 2 to 3. 2. If the item number is larger by 1 than the maximum value, the item number is initialized. 3. If the item number is smaller than the value obtained by adding 1 to the maximum value, 1 is added to the item number.	Item Number
req[5-4-3-8]	Group value change	Change group values	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[5-4-4-1]	Auto calibration error display	Perform auto calibration error display	Fault status	1. When calibration is executable, display the concentration value and gas name. 2. AUTO Create character data corresponding to calibration error.	Flashing concentration
req[5-4-4-2]	Check whether there is span calibration error	Confirm whether there is no abnormality in span calibration	Proof group Fault status	1. If the calibration group matches the designation and the AIR calibration abnormality flag is ON, the result is made abnormal. 2. Return results.	result
req[5-5-1-1]	Calibration expiration operation setting display processing	Perform calibration expiration operation setting display processing	Item Number	1. Create character data corresponding to calibration expired operation setting.	Maintenance character flashing
req[5-5-1-2]	Calibration expiration operation setting end processing	Perform processing for end calibration expiration operation setting	Item Number	1. Insert the item number into the calibration expiration check method. 2. Turnon FRAM write start flag.	Calibration time limit check method
req[5-5-1-3]	Calibration expiration operation setting start processing	Start calibration expiration operation setting processing	Calibration time limit check method	1. Insert the calibration expiration check method into the item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-5-1-4]	Calibration time limit setting mode menu start processing	Perform start process of the calibration expiration setting mode menu	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-5-1-5]	Calibration expiration operation setting display item selection processing	Perform calibration expiration operation setting selection item selection processing	None	1. Select calibration expiration operation setting display item for increment / decrement processing of numerical value.	Item Number
req[5-5-1-6]	Calibration time limit setting mode menu item selection processing	Perform calibration time limit setting mode menu items are selected	Item Number Up / down change of numerical value	1. Select the calibration expiration setting mode menu item for increasing / decreasing the numerical value.	Item Number
req[5-5-1-7]	Calibration time limit setting mode menu display processing	Perform display processing of the calibration time limit setting mode menu	Item Number	1. Create character data corresponding to the calibration expiration setting mode menu.	Maintenance letter

req[5-5-1-8]	Calibration time limit function ON/OFF confirmation processing	Perform calibration time limit function ON/OFF confirmation processing	ON/OFF of display of calibration expiration Destination setting	1. If the calibration expiration display function is ON and it is not domestic specification, turn on the result. 2. If the calibration time limit display function is OFF or domestic specification, turn off the result. 3. Return results.	result
req[5-5-3-1]	Calibration (BUMP) calculation process of the number of remaining days	Perform calibration (BUMP) expiration remaining days calculation processing	Final expiration Due Days	1. Output final expiration. 2. Insert the current time. 3. Perform difference and calculate remaining number of days. 4. Return the remaining number of days.	Remaining days
req[5-5-3-2]	Calibration expiration check processing	Perform calibration expiration check processing	Gas setting Fault status	1. Enter the maximum number of remaining days. 2. H2 Cancellation If not CO, calculate the remaining number of days. 3. Return the remaining number of days.	Remaining days
req[5-5-3-3]	Calibration time limit function expiration confirmation processing	Perform calibration time limit function expiration check processing	None	1. If the result of the calibration expiration check processing is 0, the BUMP expiration flag is set to ON. 2. If the result of the calibration expiration check processing is other than 0, turn off the BUMP expiration flag.	Calibration expiration flag
req[5-5-3-4]	Calibration time limit function expired operation acquisition processing	Acquire calibration time limit function expired operation	None	1. Return calibration time limit check method.	Calibration time limit check method
req[5-5-3-5]	Calibration time limit function expired acquisition processing	Calibration time limit function Acquire expiration	None	1. Return the calibration expiration flag.	Calibration expiration flag
req[5-5-4-1]	Calibration expired Do not do anything display	Make a display indicating that the calibration expired and nothing is done	None	1. Proofreading expires Creates character data corresponding to not doing anything.	None

req[5-5-4-2]	Display of calibration expiration remaining days	Display the calibration expiration remaining days	None	1. Calculate remaining days. 2. When the current number of days is larger than the maximum number of remaining days, '---' is displayed. 3. If the current number of days is larger than the maximum number of remaining days, it is displayed as the remaining number of days. 4. Create character data corresponding to the number of days remaining for calibration. 5. Convert the numerical value corresponding to the calibration due date remaining to character data.	None
req[5-5-4-3]	Display prohibition of proofreading expiration	Display prohibition of proofreading expiration	None	1. Create character data corresponding to prohibited expiration prohibition.	None
req[5-5-4-4]	Calibration expiration confirmation display	Display calibration expiration confirmation	None	1. Create character data corresponding to calibration expiration confirmation.	None
req[5-5-5-1]	Calibration expiration ON/OFF setting display processing	Display processing of the calibration expiration ON/OFF setting is performed	None	1. Create display of ON/OFF setting menu corresponding to calibration time limit ON/OFF setting.	None
req[5-5-5-2]	Calibration time limit ON/OFF setting end processing	Perform processing for ending calibration due date ON/OFF setting	Item Number	1. Insert item number into ON/OFF setting of display of calibration expiration. 2. Turnon FRAM write start flag.	ON/OFF setting of display of calibration time limit
req[5-5-5-3]	Calibration time limit ON/OFF setting start processing	Start calibration time limit ON/OFF setting processing	ON/OFF setting of display of calibration time limit	1. Insert the ON/OFF setting of the display of the calibration expiration into the item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-5-5-4]	Calibration time limit ON/OFF setting display item selection processing	Calibration expiration ON/OFF setting Display item selection process	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-5-6-1]	Calibration expiration setting display processing	Perform calibrsation expiration days setting display processing	None	1. Create character data corresponding to calibration expiration setting. 2. Convert the numerical value corresponding to the calibration expiration setting into character data. 3. Flash maintenance letters.	Maintenance character flashing
req[5-5-6-2]	Calibration expiration days setting end processing	Perform processing for end the calibration expiration setting	Item Number	1. Put the item number in the calibration expiration setting value. 2. Turnon FRAM write start flag.	Calibration expiration setting value
req[5-5-6-3]	Calibration expiration setting start processing	Perform start processing of calibration expiration setting	Calibration expiration setting value	1. Insert the calibration expiration setting value in the item number. 2. Turnoff up / down numerical value setting.	Item Number
req[5-5-6-4]	Calibration expiration days setting display item selection processing	Perform calibration expiration days setting display item selection processing	None	1. Select the calibration expiration setting display item for increasing / decreasing the numerical value.	Item Number
req[5-5-6-5]	Concentration substitution processing after calibration	Perform concentration substitution processing after calibration	Minus flag Over flag Concentration value Full scale value Digit	1. When the minus flag is ON, the concentration after final calibration is set to 0. 2. When the minus flag is OFF and the over flag is ON, the value obtained by adding the full scale value and the digit to the post-calibration concentration is inserted. 3. Record the final standard value concentration.	Concentration value after final calibration
req[5-5-6-6]	Pre-calibration concentration substitution processing	Perform concentration substitution process before calibration	Minus flag Over flag Concentration value Full scale value Digit	1. When the minus flag is ON, the final pre-calibration concentration is set to 0. 2. When the minus flag is OFF and the over flag is ON, the value obtained by adding the full scale value and the digit to the pre-calibration concentration is inserted. 3. Record the final standard value concentration.	Concentration value before final calibration
req[5-6-1-1]	BUMP time limit function ON/OFF confirmation process	Perform BUMP time limit function ON/OFF confirmation processing	BUMP expiration display function	1. When the BUMP time limit display function is ON, turn on the result. 2. When the BUMP time limit display function is OFF, turn off the result. 3. Return results.	result
req[5-6-2-1]	BUMP expired operation setting display processing	Display processing of BUMP expired operation settings	Item Number	1. Create character data corresponding to BUMP expired operation setting. 2. Flash maintenance letters.	Maintenance character flashing
req[5-6-2-2]	BUMP expired operation setting end processing	Perform end processing of BUMP expired operation setting	Item Number	1. Insert item number into bump expiration operation. 2. Turnon FRAM write start flag.	Bump expiration behavior
req[5-6-2-3]	BUMP expired operation setting start processing	Perform start processing of BUMP expired operation setting	Bump expiration behavior	1. Put bump expiration action in item number 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-6-2-4]	BUMP time limit setting mode menu start processing	Perform start processing of the BUMP time limit setting mode menu	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-6-2-5]	BUMP expired operation setting display item selection processing	Perform BUMP expired operation setting display item selection processing	None	1. Select BBUMP expired operation setting display item for numerical increase / decrease processing.	Item Number
req[5-6-2-6]	BUMP time limit setting mode menu item selection processing	Perform BUMP time limit setting mode menu item selection processing	None	1. Select BUMP expiration setting mode menu item for increasing / decreasing numeric value.	Item Number
req[5-6-2-7]	BUMP time limit setting mode menu display processing	Display processing of the BUMP time limit setting mode menu is performed	Item Number	1. Create character data corresponding to the BUMP time limit setting mode menu.	Maintenance letter
req[5-6-3-1]	BUMP expiration check processing	Perform BUMP expiration check processing	Bump expiration check gas Gas setting Fault status	1. Enter the maximum number of remaining days. 2. H2 Cancellation If not CO, calculate the remaining number of days. 3. Return the remaining number of days.	Remaining days
req[5-6-3-2]	BUMP expiration function expiration check processing	Perform BUMP expiration function expiration check processing	None	1. When the result of the BUMP expiration check processing is 0, the BUMP expiration flag is set to ON. 2. When the result of the BUMP expiration check processing is other than 0, the BUMP expiration flag is set OFF.	BUMP Expired flag
req[5-6-3-3]	BUMP time limit function expired operation acquisition processing	Perform BUMP time limit function expired operation acquisition processing	None	1. Return bump expired behavior.	Bump expiration behavior
req[5-6-3-4]	BUMP time limit function expired acquisition processing	BUMP time limit function Acquires expiration	None	1. Return BUMP expiration flag	BUMP Expired flag
req[5-6-3-5]	BUMP deadline BUMP/CAL success flag assignment process	BUMP deadline BUMP/CAL success flag assignment process	Gas number	1. Substitute ON for the BUMP/CAL success flag for the BUMP deadline.	BUMP deadline BUMP/CAL success flag
req[5-6-3-6]	BUMP expiration check confirmation process	BUMP expiration check confirmation process	Gas setting Fault status	1. Enter the maximum number of remaining days. 2. H2 Cancellation If not CO, calculate the remaining number of days. However, if the number of remaining days is 0 and the BUMP/CAL success flag for BUMP deadline is ON, 1 day will be set as the remaining number of days. 3. Return the remaining number of days.	BUMP expired flag
req[5-6-4-1]	BUMP expired display nothing	BUMP Displays that expiration does nothing	None	1. BUMP creates character data corresponding to not doing anything expired.	None
req[5-6-4-2]	Display BUMP expiration remaining days	Display BUMP expiration remaining days	None	1. Calculate remaining days. 2. When the current number of days is larger than the maximum number of remaining days, '---' is displayed. 3. If the current number of days is larger than the maximum number of remaining days, it is displayed as the remaining number of days. 4. Create character data corresponding to BUMP due date remaining. 5. Convert the numerical value corresponding to the BUMP due date remaining to character data.	None
req[5-6-4-3]	BUMP expiration prohibition display	Perform BUMP expiration prohibition display	None	1. Create character data corresponding to BUMP expiration prohibition.	None
req[5-6-4-4]	BUMP expiration confirmation display	Display BUMP expiration confirmation	None	1. Create character data corresponding to BUMP expiration confirmation.	None
req[5-6-5-1]	BUMP time limit ON/OFF setting display processing	Perform BUMP time limit ON/OFF setting display processing	None	1. Create character data corresponding to BUMP time limit ON/OFF setting.	None
req[5-6-5-2]	BUMP time limit ON/OFF setting end processing	Perform BUMP time limit ON/OFF end display processing	Item Number	1. Insert item number into bump time limit ON/OFF setting. 2. Turnon FRAM write start flag.	Bump time ON/OFF setting
req[5-6-5-3]	BUMP time limit ON/OFF setting start process	Perform BUMP time limit ON/OFF start display processing	Bump time ON/OFF setting	1. Insert bump time limit ON/OFF setting in item number.	Item Number
req[5-6-5-4]	BUMP time limit ON/OFF setting display item selection processing	Perform BUMP time limit ON/OFF setting display item selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-6-6-1]	BUMP expiration date setting display processing	Perform display processing of BUMP expiration date setting	None	1. Create character data corresponding to BUMP expiration date setting. 2. Convert the numerical value corresponding to the BUMP expiration date setting to character data. 3. Flash maintenance letters.	Maintenance character flashing
req[5-6-6-2]	BUMP expiration date setting end processing	Perform BUMP expiration date setting end processing	Item Number	1. Insert item number into bump expiration setting value. 2. Turnon FRAM write start flag.	Bump time limit setting value
req[5-6-6-3]	BUMP expiration date setting start process	Perform BUMP expiration date setting start processing	Bump time limit setting value	1. Put the bump time limit setting value in the item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-6-6-4]	BUMP expiration date setting display item selection processing	Perform BUMP expiration date setting display item selection processing	None	1. Select BUMP expiration date setting display item for increasing / decreasing numerical value.	Item Number
req[5-6-6-5]	Concentration substitution process after BUMP	Perform concentration substitution processing after BUMP	Gas number Specified concentration at bump Minus flag Over flag Concentration value Full scale value Digit Calibration concentration value	1. When the minus flag is ON, the concentration in the final bump test is set to 0. 2. When the minus flag is OFF and the over flag is ON, the value obtained by adding the full scale value and the digit to the final bump test concentration is inserted. 3. Record the final standard value concentration.	Concentration value at final bump test Final specification value concentration
req[5-7-1-1]	Maintenance announcement function ON/OFF confirmation processing	Perform maintenance announcement function ON/OFF confirmation processing	Maintenance announcement display ON/OFF Destination setting	1. If the Maintenance announcement function is on and domestic specifications, turn on the result. 2. If the maintenance letter announcement function is OFF, not the domestic specification, turn off the result. 3. Return results.	result

req[5-7-2-1]	Maintenance announcement expired operation setting display processing	Perform maintenance display expiration operation setting display processing	Item Number	1. Maintenance announcement Creates character data corresponding to expired operation settings. 2. Flash maintenance letters.	Maintenance character flashing
req[5-7-2-2]	Maintenance announcement mode menu display processing	Perform maintenance announcement mode menu display processing	Item Number	1. Character data is set with the value of item number as a condition. 2. Create character data corresponding to the maintenance announcement mode menu.	Maintenance letter
req[5-7-2-3]	Maintenance announcement expired operation setting end processing	Maintenance announcement expiration operation Perform setting end processing	Item Number	1. Insert the item number into the maintenance announcement expiration operation. 2. Turnon FRAM write start flag.	Maintenance announcement Expired operation
req[5-7-2-4]	Maintenance announcement expired operation setting start processing	Maintenance announcement expiration operation Perform setting start processing	Maintenance announcement Expired operation	1. Maintenance Announcement Enter expiration action in item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-7-2-5]	Maintenance announcement setting mode menu start processing	Perform maintenance notification setting mode start menu processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-7-2-6]	Maintenance announcement expired operation selection processing	Perform maintenance setting information expiration operation setting selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[5-7-2-7]	Maintenance announcement mode menu item selection processing	Maintenance announcement Mode Perform menu item selection processing	Item Number Up / down change of numerical value	1. Include increment / decrement of numerical value in item number. 2. When the up / down change setting of the numerical value is ON, the item number is counted down. 3. When the numerical up / down change setting is OFF, the item number is counted up.	Item Number
req[5-7-3-1]	Maintenance announcement expiration check processing	Perform maintenance notice expiration check processing	Maintenance notice check gas Gas setting Fault status	1. Enter the maximum number of remaining days. 2. H2 Cancellation If not CO, calculate the remaining number of days. 3. Return the remaining number of days.	Remaining days
req[5-7-3-2]	Maintenance announcement function expired operation acquisition processing	Maintenance announcement function perform expiration behavior acquisition processing	None	1. Maintenance announcement Return expired behavior.	Maintenance notice Operation at expiration
req[5-7-3-3]	Maintenance notice remaining number calculation process	Perform the maintenance day remaining number calculation process	Deadline Number of days	1. Output final expiration. 2. Insert the current time. 3. Perform difference and calculate remaining number of days. 4. Return the remaining number of days.	Remaining days
req[5-7-3-4]	Maintenance announcement function expiration confirmation processing	Maintenance announcement function Perform expiration confirmation processing	None	1. If the remaining number of days is 0 day, set the maintenance expiration flag to ON. 2. If the number of remaining days is not 0 day, turn off the maintenance expiration flag.	Maintenance expiration flag
req[5-7-3-5]	Maintenance announcement function expired acquisition processing	Maintenance announcement function Perform expiration acquisition processing	None	1. Return Maintenance Expired Flag.	Maintenance expiration flag
req[5-7-4-1]	Maintenance expired display nothing	Perform Maintenance expired display nothing	None	1. Mentee expires Creates character data corresponding to not doing anything.	None
req[5-7-4-2]	Maintenance expiration remaining days display	Perform maintenance expiration remaining days display	None	1. Calculate the remaining number of days remaining. 2. When the current number of days is larger than the maximum number of remaining days, '----' is displayed. 3. If the current number of days is larger than the maximum number of remaining days, it is displayed as the remaining number of days. 4. Create character data corresponding to the maintenance days remaining days. 5. Convert the numerical value corresponding to the number of remaining maintenance days into character data.	None
req[5-7-4-3]	Maintenance expiration prohibition display	Perform Maintenance expiration prohibition display	None	1. Create character data corresponding to maintenance expiration prohibition.	None
req[5-7-4-4]	Maintenance expiration confirmation display	Display maintenance expiration confirmation	None	1. Create character data corresponding to maintenance expiration confirmation.	None
req[5-7-5-1]	Maintenance announcement ON/OFF setting display processing	Perform maintenance announcement ON/OFF setting display processing	None	1. Create ON/OFF setting menu display.	None
req[5-7-5-2]	Maintenance announcement ON/OFF setting end processing	Perform maintenance announcement ON/OFF setting end processing	Item Number	1. Insert item number into ON/OFF setting of Maintenance announcement display. 2. Turnon FRAM write start flag.	ON/OFF setting of Maintenance announcement display
req[5-7-5-3]	Maintenance announcement ON/OFF setting start processing	Perform maintenance announcement ON/OFF setting start processing	ON/OFF setting of Maintenance announcement display	1. Insert the ON/OFF setting of the maintenance announcement display in the item number.	Item Number
req[5-7-5-4]	Maintenance announcement ON/OFF setting display item selection processing	Perform maintenance announcement ON/OFF setting display item selection processing	None	1. Set ON/OFF setting menu display Create process into item number.	Item Number
req[5-7-6-1]	Maintenance announcement days setting display processing	Perform the maintenance announcement days setting display process	None	1. Creates display of ON/OFF setting menu corresponding to maintenance announcement number setting and creates character data. 2. Flash maintenance letters.	Maintenance character flashing
req[5-7-6-2]	Maintenance notice reset display processing	Maintenance announcement Perform reset display processing	None	1. Create character data corresponding to maintenance announcement reset.	None
req[5-7-6-3]	Maintenance announcement days setting end processing	Perform maintenance end announcement setting end processing	Item Number	1. Insert item number in Maintenance announcement display days. 2. Turnon FRAM write start flag.	Maintenance announcement display days
req[5-7-6-4]	Maintenance notice reset end processing	Maintenance announcement Performs reset end processing	None	1. Reset Maintenance announcement Date and Time.	None
req[5-7-6-5]	Maintenance announcement days setting start processing	Perform maintenance start announcement setting start processing	Maintenance announcement display days	1. Insert maintenance announcement display days into item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-7-6-6]	Maintenance announcement days setting display item selection processing	Perform maintenance announcement Days Setting Display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[5-7-6-7]	Maintenance announcement date and time reset processing	Perform maintenance announcement date and time reset processing	Date and time for maintenance announcement	1. Set the year, month, day to 0. 2. Set the FRAM write start flag to ON.	None
req[5-7-6-8]	Maintenance announcement user start reset processing	Perform maintenance announcement user start reset processing	Date and time for maintenance announcement	1. Acquire date and time data. 2. Reset year, month, day to current value if the year, month, day of the maintenance announcement date and time are all 0. 3. Turnon FRAM write start flag.	Date and time for maintenance announcement
req[5-7-6-9]	Maintenance announcement renewal processing	Perform maintenance notice update date update processing	Gas number	1. Acquire date and time data. 2. Reset year, month, day to current value. 3. Turnon FRAM write start flag.	Date and time for maintenance announcement
req[5-8-1-1]	Confirm existence of integrating alarm	Confirm existence of integrating alarm	ON/OFF setting of integrating alarm Gas setting	1. When the integral alarm is ON and the setting is ON, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-1-2]	Confirm existence of flammable gas	Confirm existence of flammable gas	Presence or absence of confirmation of methane / isobutane Gas setting	1. When the setting is ON, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-1-3]	Confirm existence of toxic gas	Confirm existence of toxic gas	Gas setting STEL alarm point TWA alarm point	1. When the setting is ON, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-1-4]	Confirm whether 2ch is selected when 3ch is H2 can CO with gas combination channel change	Confirm whether 2ch is selected when 3ch is H2 can CO with gas combination channel change	Item Number Gas setting	1. If the setting channel is 2 ch and 3 ch is H2 cancel CO, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-1-5]	Check gas combination channel change or ESCAPE display	Check gas combination channel change or ESCAPE display	Item Number	1. When the item number is the maximum value, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-1-6]	Gas combination channel selection display processing	Display process of gas combination channel selection is performed	Item Number Gas setting	1. If the item number is smaller than the maximum value, set display GAS_COMB and display " ---- ". 2. If the item number is greater than or equal to the maximum value, set display ESCAPE.	None
req[5-8-1-7]	Gas combination setting display processing	Perform gas combination setting display processing	None	1. Create character data corresponding to gas combination setting.	None
req[5-8-1-8]	Gas combination setting end processing	Perform gas combination setting end processing	Item Number	1. Set gas data of nonvolatile memory. 2. Gas data of concentration calculation data is set. 3. For sensors with 0ch to 3ch, reset RL78 communication setting. 4. Turnon FRAM write start flag.	None
req[5-8-2-1]	Assignment of ON/OFF setting of gas	Perform assignment processing of ON/OFF setting of gas	None	1. Return gas ON/OFF setting.	Gas ON/OFF setting
req[5-8-2-2]	Assignment of ON/OFF setting of gas	Perform assignment processing of ON/OFF setting of gas	None	1. Return gas ON/OFF setting.	Gas ON/OFF setting
req[5-8-2-3]	Set gas ON/OFF setting	Perform setting process of ON/OFF setting of gas	ON/OFF setting flag	1. When ON/OFF setting flag is OFF, turn ON/OFF setting of gas OFF. 2. When ON/OFF setting flag is ON, turn ON/OFF setting of gas ON.	Gas ON/OFF setting flag
req[5-8-2-4]	Assigning ON/OFF of gas of RL78	Performs substitution processing of ON/OFF of gas of RL78	None	1. Acquire gas ON/OFF setting of RL78.	None
req[5-8-3-1]	Gas combination channel selection start processing	Perform gas combination channel selection start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-8-3-2]	Gas combination setting start processing	Perform gas combination setting start processing	Gas setting	1. Insert gas setting in item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-8-3-3]	Change selection channel of gas combination channel	Change selection channel of gas combination channel	Item Number Up / down change of numerical value	1. Include increment / decrement of numerical value in item number. 2. When the up / down change setting of the numerical value is ON, the item number is counted down. 3. When the numerical up / down change setting is OFF, the item number is counted up.	Item Number
req[5-8-3-4]	Gas combination set value change processing	Perform change process of gas combination set value	Item Number Up / down change of numerical value	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[5-8-4-1]	Zero tracking setting display ON/OFF setting display processing	Perform zero tracking setting display ON/OFF setting display processing	None	1. Create a display of the ON/OFF setting menu corresponding to the zero tracking setting display ON/OFF setting.	None
req[5-8-4-2]	Zero tracking setting display ON/OFF setting end processing	Perform zero tracking setting display ON/OFF setting end processing	Item Number	1. Insert item number in whether to display zero tracking ON/OFF setting in USER. 2. Turnon FRAM write start flag.	Whether zero tracking ON/OFF setting is displayed in USER
req[5-8-4-3]	Zero tracking setting display ON/OFF setting start processing	Perform zero tracking setting display ON/OFF setting start processing	Whether zero tracking ON/OFF setting is displayed in USER	1. Put in the item number whether to display the zero tracking ON/OFF setting in USER.	Item Number
req[5-8-4-4]	Zero tracking setting display ON/OFF setting ON/OFF selection processing	Perform zero tracking setting display ON/OFF setting ON/OFF selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-8-4-5]	Zero tracking ON/OFF setting gas selection display	Zero tracking ON/OFF setting Performs gas selection display	None	1. When gas is selected, character data corresponding to zero tracking ON/OFF setting gas selection is created. 2. If gas is not selected, create character data corresponding to zero tracking ON/OFF setting gas selection.	Item Number
req[5-8-4-6]	Zero tracking ON/OFF setting display processing	Perform zero tracking ON/OFF setting display processing	Item Number	1. Create character data corresponding to zero tracking ON/OFF setting. 2. Flash character data. 3. Assign gas name / unit corresponding to zero tracking ON/OFF setting.	Flashing concentration
req[5-8-4-7]	Zero tracking ON/OFF setting gas selection start processing	Zero tracking ON/OFF setting Performs gas selection start processing	Gas setting	1. Set item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-8-4-8]	Zero tracking ON/OFF setting start processing	Perform zero tracking ON/OFF setting start process	ON/OFF setting of zero tracking	1. Insert the ON/OFF setting of zero tracking in item number.	Item Number
req[5-8-4-9]	Zero tracking ON/OFF setting gas change	Zero tracking ON/OFF setting Performs gas change processing	Item Number Up / down change of numerical value Gas setting	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number

req[5-8-4-10]	Zero tracking ON/OFF setting display item selection processing	Perform zero tracking ON/OFF setting Display item selection processing	None	1. Accept the numerical value of 1. 1 or 0 and put the ON/OFF swapping process in the item number.	Item Number
req[5-8-4-11]	Zero tracking ON/OFF setting end processing	Perform zero tracking ON/OFF setting end processing	Gas setting Item Number	1. Insert item number into ON/OFF setting of zero tracking. 2. Turnon FRAM write start flag.	ON/OFF setting of zero tracking
req[5-8-5-1]	Suppress setting display ON/OFF setting display processing	Perform Suppress setting display ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to suppression setting display ON/OFF setting.	None
req[5-8-5-2]	Suppress setting display ON/OFF setting end processing	Perform Suppress setting display ON/OFF setting end processing	Item Number	1. Enter item number in USER to display suppression ON/OFF setting. 2. Turnon FRAM write start flag.	Whether suppression ON/OFF setting is displayed in USER
req[5-8-5-3]	Suppress setting display ON/OFF setting start processing	Perform Suppress setting display ON/OFF setting start processing	Whether suppression ON/OFF setting is displayed in USER	1. Input item whether to display suppression ON/OFF setting in USER.	Item Number
req[5-8-5-4]	Suppress setting display ON/OFF setting ON/OFF selection processing	Perform Suppress setting display ON/OFF setting ON/OFF selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[5-8-5-5]	Zero suppression ON/OFF setting gas change ESCAP display is confirmed	Zero subs ON/OFF setting gas change ESCAP display or confirm	Item Number	1. When the item number is the maximum value, turn on the confirmation result. 2. Return the confirmation result.	Check result
req[5-8-5-6]	Zero suppression ON/OFF setting gas selection display	Perform zero suppression ON/OFF setting gas selection display	Item Number	1. When gas is selected, copy the variable related to the zero subs ON/OFF setting. 2. If gas is not selected, create character data corresponding to the zero subs ON/OFF	None
req[5-8-5-7]	Zero suppress ON/OFF setting display processing	Perform zero suppress ON/OFF setting display processing	Item Number	1. Create character data corresponding to zero subs ON/OFF setting. 2. Flash character data. 3. Assign gas name / unit corresponding to zero subs ON/OFF setting.	Flashing concentration
req[5-8-5-8]	Zero suppression ON/OFF setting gas selection start processing	Perform zero suppression ON/OFF setting gas selection start processing	Gas setting	1. Set item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[5-8-5-9]	Zero suppress ON/OFF setting selection start processing	Perform zero suppress ON/OFF setting selection start processing	Suppress ON/OFF setting	1. Insert suppression ON/OFF setting in item number.	Item Number
req[5-8-5-10]	Zero suppression ON/OFF setting gas change	Perform zero suppression ON/OFF setting gas change	Item Number Up / down change of numerical value Gas setting	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[5-8-5-11]	Zero suppression ON/OFF setting display item selection processing	Perform zero suppression ON/OFF setting display item selection processing	None	1. Accept the numerical value of 1. 1 or 0 and put the ON/OFF swapping process in the item number.	Item Number
req[5-8-5-12]	Zero suppress ON/OFF setting end processing	Perform zero suppress ON/OFF setting end processing	Gas setting Item Number	1. Insert item number in suppression ON/OFF setting. 2. Turnon FRAM write start flag.	Suppress ON/OFF setting
req[6-1-1-1]	Count setting for backlight at USB disconnection	Performs backlight count setting process at USB disconnection	ON/OFF setting flag	1. When the ON/OFF setting flag is ON, the USB disconnection count is set to 3 minutes and the PC disconnection flag set is set ON. 2. When the ON/OFF setting flag is OFF, the USB disconnection count is set to 0 minute and the PC disconnection flag set is set OFF.	USB cut count
req[6-1-1-2]	Forcibly turn off the backlight	Perform forced OFF processing of backlight	ON/OFF setting flag	1. Insert the ON/OFF setting flag into the backlight forced OFF flag.	Backlight forced OFF flag
req[6-1-1-3]	LCD backlight timer reset processing	Perform LCD backlight timer reset processing	None	1. Initialize LCD backlight timer.	None
req[6-1-1-4]	Clear LCD display data	Clear display data of LCD	None	1. LCD_NORMAL Clears display data.	None
req[6-1-1-5]	LCD back lighting processing	Perform LCD back lighting processing	Backlight timer USB cut count Stealth setting Backlight forced OFF flag	1. When measurement is in progress or in display mode, execute the following processing 2 to 4. 2. When the backlight timer is 0, the backlight ON/OFF setting flag is turned off. 3. When the backlight timer is not 0, turn on the backlight ON/OFF setting flag. 4. If gas alarm is in progress, turn the backlight ON and reset the LCD backlight timer. 5. In the case of the communication mode, stop the fault alarm announcement or the fault alarm. 6. In the case of the stealth mode setting or the backlight forced off setting, turn off the backlight ON/OFF setting flag. 7. Lights the backlight of LCD_NORMAL.	None
req[6-1-1-6]	Backlight forced lighting process for SDM	Set the Backlight Forced On flag for SDM	None	1. Set SDM Backlight Forced On Flag ON.	Backlight forced lighting flag for SDM
req[6-1-2-1]	Backlight time setting display processing	Perform backlight time setting display processing	Item Number	1. Convert the numerical value corresponding to backlight time setting to character data and copy the variable. 2. Flash character data.	Maintenance character flashing
req[6-1-2-2]	Backlight time setting end processing	Perform backlight time setting end processing	Item Number	1. Insert item number in backlight lighting time. 2. Turnon FRAM write start flag.	Backlight lighting time
req[6-1-2-3]	Backlight time setting start processing	Perform backlight time setting start processing	Backlight lighting time	1. Put the backlight lighting time in the item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[6-1-2-4]	Backlight time setting display item selection processing	Perform backlight time setting display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-2-2-1]	Operation sound ON/OFF setting display processing	Perform operation sound ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to operation sound ON/OFF setting	None
req[6-2-2-2]	Operation sound ON/OFF setting end processing	Perform operation sound ON/OFF setting end processing	Item Number	1. Insert item number into key operation sound ON/OFF setting. 2. Turnon FRAM write start flag.	Key operation sound ON/OFF setting
req[6-2-2-3]	Operation sound ON/OFF setting start processing	Perform operation sound ON/OFF setting start processing	Key operation sound ON/OFF setting	1. Put key operation sound ON/OFF setting in item number.	Item Number
req[6-2-2-4]	Operation sound ON/OFF setting display item selection processing	Operation sound ON/OFF setting Display item selection processing is performed	None	1. Accept the numerical value of 1. 1 or 0 and put the ON/OFF swapping process in the item number.	Item Number
req[6-3-1-1]	1 sec interruption of the confirmation beep	Perform 1 sec interruption processing of the confirmation beep	1 second count for beeps Confirmation beep time setting	1. If the beeper 1 second count is 0 and the confirmation beep time setting is 0 in the measurement or display mode, the beep use 1 second count is set to 30. 2. During measurement or display mode, if the 1-second beep count is not 0 count down the 1-second beep count.	1 second count for beeps
req[6-3-1-2]	Confirmation beep operation start processing	Perform confirmation beep operation start processing	Confirmation beep selection	1. If the confirmation is only LED lighting, only buzzer sound, either LED lighting or buzzer sound, turn on the corresponding short buzzer. 2. If the confirmation is BUMP / CAL, if either of the following conditions 3 to 4 is satisfied, turn on the short buzzer corresponding to BUNP / CAL. 3. The BUMP time limit function is on and it has expired. 4. The calibration time limit function is on and it has expired.	None
req[6-3-1-3]	Active flag update process for NCI deadline	Update the active flag related to the NCI deadline	Confirmation beep setting Bump deadline function setting Bump expired flag Calibration deadline function setting Calibration expired flag	1. Set the local flag to OFF. 2. When the confirmation beep setting is [BUMP / CAL] or [BUMP / CAL / ALARM] perform the following processing 3 to 5. 3. If the bump expiration function is ON and the bump is expired, set the local flag to ON. 4. If the calibration expiration function is ON and calibration is expired, set the local flag to ON. 5. If the local flag is ON, set the NCI active flag to ON.	NCI active flag
req[6-3-1-4]	Active flag update process for NCI alert	Update the active flag for NCI alert	Confirmation beep setting Gas setting Failure status Alarm status	1. Set the local flag to OFF. 2. If the following conditions 3 to 5 are satisfied, set the local flag to ON. 3. The confirmation beep setting is [ALARM ALERT] or [BUMP / CAL / ALARM]. 4. Gas setting is ON and not broken. 5. Alarm has been issued. 6. NCI active flag if the local flag is ON.	NCI active flag
req[6-3-1-5]	NCI active flag bump calibration update process	Update NCI's active flag to bump calibrated	Gas channel History download setting Selected gas active flag	1. Perform 2 if the selected gas active flag is not OFF. 2. If the history download setting is ON, the process 3 is performed. In the case of OFF, the processing of 4 is performed. 3. Change selected gas's active flag to bumped. 4. Change selected gas active flag to OFF.	Selected gas active flag
req[6-3-1-6]	NCI Active Flag History Downloaded	Update NCI's active flag to history downloaded	Active flag for all five gas species	1. Perform 2 on the active flag of all five gas species. 2. If the active flag has already been bumped, set the active flag to OFF.	Active flag for all five gas species
req[6-3-1-7]	NCI active flag ON processing	Update NCI's active flag to ON	Gas number	1. Perform 2 on the active flag of all five gas species. 2. In case of valid gas type (number), process 3. 3. If the selected gas type (number) is not an H2 compensated CO sensor, set the active flag to ON.	Active flag for all five gas species
req[6-3-2-1]	BEEP selection setting display processing	Perform BEEP selection setting display processing	Item Number	1. Create character data corresponding to BEEP selection setting. 2. Flash character data.	Maintenance character flashing
req[6-3-2-2]	BEEP time setting display processing	Perform BEEP time setting display processing	Item Number	1. Create character data corresponding to BEEP time setting. 2. Convert numeric value corresponding to BEEP time setting to character data. 3. Flash character data.	Maintenance character flashing
req[6-3-2-3]	BEEP selection setting end processing	Perform BEEP selection setting end processing	Item Number	1. Put the item number in the confirmation beep selection. 2. Turnon FRAM write start flag.	Confirmation beep selection
req[6-3-2-4]	BEEP time setting end processing	Perform BEEP time setting end processing	Item Number	1. Put the item number in the confirmation beep time setting. 2. Turnon FRAM write start flag.	Confirmation beep time setting
req[6-3-2-5]	BEEP setting mode menu start processing	Perform BEEP setting mode menu start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[6-3-2-6]	BEEP selection setting start processing	Perform BEEP selection setting start processing	Confirmation beep selection	1. Confirmation Beep selection in item number. 2. Change the number up and down.	Item Number Up / down change of numerical value
req[6-3-2-7]	BEEP time setting start processing	Perform BEEP time setting start processing	Confirmation beep time setting	1. Confirmation beep time setting in item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[6-3-2-8]	BEEP setting mode menu item selection processing	Perform BEEP setting mode menu item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-3-2-9]	BEEP selection setting display item selection processing	Perform BEEP selection setting display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-3-2-10]	BEEP time setting display item selection processing	Perform BEEP time setting display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-3-2-11]	BEEP setting mode menu display processing	Perform BEEP setting mode menu display processing	Item Number	1. Create character data corresponding to BEEP setting mode.	Maintenance letter
req[6-3-2-12]	NCI active flag forced stop processing	Set the NCI active flag to OFF	None	1. Perform 2 on the active flag of all five gas species. 2. Set the active flag to OFF.	Active flag for all five gas species
req[6-4-1-1]	Lunch break ON/OFF setting display processing	Perform lunch break ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to lunch break ON/OFF setting.	None
req[6-4-1-2]	Lunch break ON/OFF setting end processing	Perform lunch break ON/OFF setting end processing	Item Number	1. Insert item number into lunch break ON/OFF setting. 2. Turnon FRAM write start flag.	Lunch break ON/OFF setting
req[6-4-1-3]	Lunch break ON/OFF setting start processing	Perform launch break ON/OFF setting start process	Lunch break ON/OFF setting	1. Insert lunch break ON/OFF setting in item number.	Item Number
req[6-4-1-4]	Lunch break ON/OFF setting display item selection processing	Perform lunch break ON/OFF setting display item selection processing	None	1. Create display of ON/OFF setting menu corresponding to lunch break ON/OFF setting.	Item Number
req[6-4-1-5]	Acquisition processing of lunch break ON/OFF setting	Acquire processing of lunch break ON/OFF setting	None	1. Return lunch break ON/OFF setting.	Lunch break ON/OFF setting

req[6-4-2-1]	FRAM lunch break data is divided into specified bytes and written	Divide FRAM lunch break data into designated bytes and write	Numerical value of surface (A side B side) Structure size of lunch break Number of writes	1. Insert the inverted value of FRAM_DATA in fram_back. 2. Initialize pointer. 3. Specify the side to be written. 4. Write data. 5. In addition, if there is a remainder less than M_FRAM_STACK_SIZE, write data. 6. Writing the write count. 7. Return data write.	judgment result
req[6-4-2-2]	FRAM lunch break data update execution processing	Perform FRAM launch break data update execution processing	FRAM setting data size Number of writes FRAM lunch break SUM calculation result	1. Substitute FRAM setting data size. 2. Substitute the program number. 3. Copy the program number. 4. Check SUM Update. 5. Reverse the A / B side of the rewriting surface. 6. When it is the A side, write on the A side. 7. When it is the B side, write on the B side. 8. If the face is unknown, write on both sides.	For face setting (lunch break) judgment result
req[6-4-2-3]	FRAM write processing of lunch break data	Perform FRAM write processing of lunch break data	Main unit error status minimum value Maximum value Minus flag Occurrence time The integrated value of the average value every 60 seconds Average value over all measurement time Integrated value from the start of measurement TWA value	1. If both ROM / RAM / FRAM are normal and measurement is in progress or in display mode, execute the following processing 2 to 8. 2. Put the current concentration in the minimum and maximum values. 3. Insert the current flag into the minus flag of the minimum value and the minus flag of the maximum value. 4. Enter current time in occurrence time. 5. Initialize the integrated value of the average value every 60 seconds. 6. Initialize the average value over all measurement time. 7. Initialize the integrated value from the start of measurement. 8. Initialize TWA value. 9. Returns FRAM launch break data update execution processing.	minimum value Maximum value Minus flag Occurrence time The integrated value of the average value every 60 seconds Average value over all measurement time Integrated value from the start of measurement TWA value
req[6-4-3-1]	Resume execution confirmation display	Display the resume execution confirmation	None	1. Acquire timeout time. 2. Convert to seconds. 3. Create character data corresponding to resume execution confirmation. 4. Convert the numerical value corresponding to resume execution confirmation into character data.	None
req[6-4-3-2]	Resume execution error display	Display resume execution error	None	1. Create character data corresponding to resume execution abnormality.	None
req[6-4-3-3]	Resume invalid display	Display resume invalid	None	1. Create character data corresponding to invalid resume.	None
req[6-4-3-4]	Resume execution display	Display the resume execution	None	1. Create character data corresponding to resume execution.	None
req[6-4-3-5]	Save ON/OFF flag of resume	Resume ON/OFF setting flag save processing	ON/OFF flag of resume	1. Put the ON/OFF setting flag in the resume ON/OFF flag.	ON/OFF flag of resume
req[6-4-4-1]	FRAM lunch break data LOAD processing	Perform FRAM lunch break data LOAD processing	Write name number Surface setting (for lunch break)	1. Read FRAM lunch break data 2 sides. 2. Match write process. 3. Compare which side is the latest. 4. Write on the old side. 5. If you do not know which side is the latest, write on both sides. 6. Return judgment result.	judgment result
req[6-4-4-2]	FRAM read processing of lunch break data	Perform FRAM read processing of lunch break data	OK / NG flag of whether it was able to read normally	1. OK / NG flag on whether FRAM can be normally read is set to OK. 2. If the FRAM lunch break data is readable, the OK / NG flag of whether FRAM can be normally read is set to NG.	OK / NG flag of whether it was able to read normally
req[6-4-4-3]	Lunch break status acquisition processing	Acquire lunch break status processing	None	1. Return OK / NG flag of whether it was able to read normally.	OK / NG flag of whether it was able to read normally
req[6-4-4-4]	Write lunch break data to processing buffer	Writes lunch break data to processing buffer	Whether to execute lunch break or not ON/OFF flag OK / NG flag of whether it was able to read normally minimum value Maximum value Minus flag Occurrence time The integrated value of the average value every 60 seconds Average value over all measurement time Integrated value from the start of measurement	1. If the resume of lunch break is on and data can be normally read out of FRAM, execute the following processing 2 to 4. 2. Put the current concentration in the minimum and maximum values. 3. Insert the current flag into the minus flag of the minimum value and the minus flag of the maximum value. 4. Enter current time in occurrence time. 5. Initialize the integrated value of the average value every 60 seconds. 6. Initialize the average value over all measurement time. 7. Initialize the integrated value from the start of measurement. 8. Initialize TWA value.	minimum value Maximum value Minus flag Occurrence time The integrated value of the average value every 60 seconds Average value over all measurement time Integrated value from the start of measurement TWA value
req[6-5-1-1]	Confirm ON/OFF of ID display setting	Confirm ON/OFF of ID display setting	None	1. Return ID display ON/OFF setting.	ID display ON/OFF setting
req[6-5-1-2]	ID display ON/OFF setting display processing	Perform ID display ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to ID display ON/OFF setting.	None
req[6-5-1-3]	ID display ON/OFF setting end processing	Perform ID display ON/OFF setting end processing	Item Number	1. Insert item number into ID display ON/OFF setting. 2. Turnon FRAM write start flag.	ID display ON/OFF setting
req[6-5-1-4]	ID display ON/OFF setting start processing	Perform ID display ON/OFF setting start processing	ID display ON/OFF setting	1. Insert ID display ON/OFF setting in item number.	Item Number
req[6-5-1-5]	ID display ON/OFF setting ON/OFF selection processing	Perform ID display ON/OFF setting ON/OFF selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[6-5-2-1]	Station ID setting display processing	Perform Station ID setting display processing	None	1. Create character data corresponding to station ID setting. 2. Flash character data.	Maintenance character flashing
req[6-5-2-2]	Station ID setting end processing	Perform Station ID end display processing	Item Number	1. Place the item number in the selected position of the station ID. 2. Turnon FRAM write start flag.	Station ID selection position
req[6-5-2-3]	Station ID setting start processing	Perform Station ID start display processing	Station ID selection position	1. Put the selection position of the station ID in the item number. 2. Turnoff up / down numerical value setting.	Item Number
req[6-5-2-4]	Station ID setting display item selection processing	Perform Station ID setting display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-5-3-1]	User ID setting display processing	Perform User ID setting display processing	None	1. Create character data corresponding to user ID setting. 2. Flash character data.	Maintenance character flashing
req[6-5-3-2]	User ID setting end processing	Perform User ID setting end processing	Item Number	1. Place the item number in the selection position of the user ID. 2. Turnon FRAM write start flag.	User ID selection position
req[6-5-3-3]	User ID setting start processing	Perform User ID setting start processing	User ID selection position	1. Insert selection position of user ID in item number. 2. Turnoff up / down numerical value setting.	Item Number
req[6-5-3-4]	User ID setting display item selection processing	Perform User ID setting display item selection processing	None	1. Include increment / decrement of numerical value in item number.	Item Number
req[6-6-1-1]	FRAM default success confirmation processing	Perform FRAM default success confirmation processing	None	1. Returns the default execution result.	Default execution result
req[6-6-1-2]	FRAM default end confirmation processing	Perform FRAM default end confirmation processing	Default request flag	1. If the default request flag is not defaulted, return off. 2. If the default request flag is the default abnormal end, return off.	judgment result
req[6-6-1-3]	Default processing of FRAM's CHK_DATA area	Perform default processing of FRAM's CHK_DATA area	Structure to set up	1. Default processing of FRAM data for gas_calc. c. 2. Default processing of FRAM data for data_detector. c.	None
req[6-6-1-4]	FRAM default processing	Perform FRAM default processing	Structure to set up	1. Default processing of FRAM's CHK_DATA area. 2. Default processing of FRAM data for data_logger. c.	None
req[6-6-1-5]	FRAM default start processing	Perform FRAM default start processing	None	1. Insert FRAM data initialization into default request flag.	None
req[6-6-1-6]	FRAM main loop default processing	Perform FRAM main loop default processing	Default request flag	1. Perform default processing corresponding to the default phase.	None
req[6-6-1-7]	Default processing of FRAM data for station ID data	Perform Default processing of FRAM data for station ID data	None	1. Perform default processing of FRAM data for station ID data.	None
req[6-6-1-8]	Default processing of FRAM data for user ID data	Perform default processing of FRAM data for user ID data	None	1. Default processing of FRAM data for user ID data.	None
req[6-6-1-9]	Address setting processing of FRAM data for main body data	Perform address setting of FRAM data for body data	Address setting of FRAM data for main body data	1. Perform address setting of FRAM data for main body data.	None
req[6-6-1-10]	Default processing of FRAM data for gas data	Perform default processing of FRAM data for gas data	Address setting of FRAM data for main body data	1. Default processing of FRAM data for gas data.	None
req[6-6-1-11]	Default confirmation display processing	Display default confirmation processing	None	1. Create character data corresponding to default confirmation.	None
req[6-6-1-12]	Default abnormal end display processing	Display default abnormal end processing	None	1. Create character data corresponding to default abnormal end.	None
req[6-6-1-13]	Default normal completion display processing	Display default normal completion processing	None	1. Create character data corresponding to default normal end.	None
req[6-6-1-14]	Default running display processing	Perform default running display processing	None	1. Create character data corresponding to default execution.	None
req[6-6-1-15]	Default processing of logger function	Perform default processing of logger function	None	1. If logger is defaulted, make the result running. 2. If logger is not defaulted, the result is ended. 3. Return results.	result
req[6-6-2-1]	Default processing of ID_DATA area of FRAM	Perform default processing of ID_DATA area of FRAM	None	1. Default processing of FRAM_USER_ID data. 2. Default processing of FRAM_ST_ID data.	None
req[6-6-2-2]	Logger default	Perform logger default processing	None	1. Clear the status of logger data. 2. Acquire the result of FLASH status byte read processing. 3. In the state where FLASH can be written, erase the specified block of FLASH. 4. In the case where the FLASH can not be written, execute the following processing 5 to 12. 5. Set FALSH size to erase incomplete address. 6. Set FRAM data for data_logger. c to the default state. 7. Initialize the logger function. 8. Turnoff the power of the logger error state. 9. Record the default value. 10. Turnon FRAM write start flag. 11. Initial value of record count in page is set to 2. 12. Store the current state in the command processing in progress flag. 13. Return processing status.	Status of logger data Erase incomplete address In-page record count Command processing flag Processing state
req[6-6-2-3]	Logger function initialization	Initialize the logger function	Data logger control flag FRAM measurement log count Address of the next writing position from the top of the page Number of channels General purpose buffer Overwrite implemented flag	1. Initialize the following items 2 to 13 in order. 2. Logger activation instructed flag. 3. Command processing flag. 4. Lunch Break. 5. Current state and previous records. 6. Last calibration date and time. 7. Alarm event pointer. 8. Fault event sector pointer. 9. Calibration history sector pointer. 10. Power ON/OFF sector pointer. 11. Setting change sector pointer.	None
req[6-7-1-1]	DISP setting display ON/OFF setting display processing	Perform DISP setting display ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to DISP setting display ON/OFF setting.	None

req[6-7-1-2]	DISP setting display ON/OFF setting end processing	Perform DISP setting display ON/OFF setting end processing	Item Number	1. Insert item number into DISP mode setting item ON/OFF setting. 2. Turnon FRAM write start flag.	DISP mode setting item ON/OFF setting
req[6-7-1-3]	DISP setting display ON/OFF setting start processing	Perform DISP setting display ON/OFF setting start processing	DISP mode setting item ON/OFF setting	1. Insert DISP mode setting item ON/OFF setting into item number.	Item Number
req[6-7-1-4]	DISP setting display ON/OFF setting display item selection processing	Perform DISP setting display ON/OFF setting display item selection processing	None	1. Accept the numerical value of 1. 1 or 0 and put the ON/OFF swapping process in the item number	Item Number
req[6-8-1-1]	Password numerical value change processing	Perform password numeric value change processing	Password increase / decrease	1. Input password increment / decrement processing.	Input password
req[6-8-1-2]	Password increase/decrease change processing	Perform password increase / decrease change processing	Password increase / decrease	1. If password increase / decrease is ON, turn password increase / decrease OFF. 2. If password increase / decrease is OFF, turn on password increase / decrease.	Password increase / decrease
req[6-8-1-3]	Password input end judgment	Perform password input end judgment	Password input middle digit	1. If the password digit being entered matches the password input end digit number, the result is ended. 2. Return results.	result
req[6-8-1-4]	Input password	Perform processing when password input is necessary	Input password Password type Password number	1. In a mode requiring a password, when entering the correct password, the mode is entered. 2. When an incorrect password is input, an error screen is displayed. 3. Return the password result.	Password result
req[6-8-1-5]	Password error display processing	Perform display processing at the time of password error	None	1. Create character data corresponding to password error.	None
req[6-8-1-6]	Acquisition processing of password type	Perform password type acquisition processing	None	1. Return password type.	Password type
req[6-8-1-7]	Confirm existence of password reset	Confirm existence of password reset	None	1. Return a password return.	Password return
req[6-8-1-8]	Password input screen	Perform password input screen	Input password Password input middle digit	1. Create character data corresponding to the screen you are entering the password. 2. Set character data.	Maintenance letter Maintenance character flashing
req[6-8-1-9]	Password input deend processing	Perform password input deend processing	Password input middle digit	1. If the password digit being entered is larger than the password input return digit number, lower the digit of the input password. 2. If the password digit being entered is smaller than the password input end digit, increase the digit of the password being entered.	Password input middle digit
req[6-8-1-10]	Initial password processing	Perform password initial processing	Password type	1. Initialize each digit of the password.	Input password Password increase / decrease Password type Password return
req[6-8-2-1]	User password ON/OFF setting confirmation processing	Perform user password ON/OFF setting confirmation processing	None	1. Return item number.	Item Number
req[6-8-2-2]	User password value setting digit down processing	Perform user password value setting digit down processing	Item Number	1. If the item number is 0, turn on the result. 2. If the item number is other than 0, count down the item number and turn off the result. 3. Return results.	Item Number result
req[6-8-2-3]	User password value setting digit up processing	Perform user password value setting digit up processing	Item Number	1. If the item number is 3, turn on the result. 2. If the item number is other than 3, count up the item number and turn off the result. 3. Return results.	Item Number result
req[6-8-2-4]	User password ON/OFF setting display processing	Perform user password ON/OFF setting display processing	None	1. Create ON/OFF setting menu display corresponding to USER password ON/OFF setting.	None
req[6-8-2-5]	User password value setting display processing	Perform user password value setting display processing	Editing variables	1. Create character data corresponding to USER password value setting. 2. Create character data.	Maintenance letter
req[6-8-2-6]	User password ON/OFF setting end processing	Perform user password ON/OFF setting end processing	Item Number	1. Insert item number into user password ON/OFF setting. 2. Turnon FRAM write start flag.	User password ON/OFF setting
req[6-8-2-7]	User password value setting end processing	Perform user password value setting end processing	Editing variables	1. Set user password number.	User password number
req[6-8-2-8]	User password ON/OFF setting start processing	Perform user password ON/OFF setting start processing	User password ON/OFF setting	1. Put the user password ON/OFF setting in the item number.	Item Number
req[6-8-2-9]	User password value setting start processing	Perform user password value setting start processing	User password number	1. Initialize item number. 2. Set the number of digits of the password. 3. Turnoff up / down numerical value setting.	Item Number Editing variables Up / down change of numerical value
req[6-8-2-10]	User password ON/OFF setting selection processing	Perform user password ON/OFF setting selection processing	None	1. Accept the numerical value of 1. 1 or 0 and put the ON/OFF swapping process in the item number.	Item Number
req[6-8-2-11]	User password value setting selection processing	Perform user password value setting display selection processing	None	1. Insert numerical increase / decrease processing into editing variables.	Editing variables
req[6-8-2-12]	Acquisition of user password ON/OFF setting	Acquire ON/OFF setting of maintenance password	None	1. USER Password ON/OFF setting is returned.	USER Password ON/OFF setting
req[6-8-3-1]	Acquisition of maintenance passwordON/OFF setting	Acquire maintenance password ON/OFF setting	None	1. Returns ON/OFF setting of MAINTE password.	MAINTE Password ON/OFF setting
req[6-8-4-1]	Maintenance password value setting digit down processing	Perform maintenance password value setting digit down processing	Item Number	1. If the item number is 0, turn on the result. 2. If the item number is other than 0, count down the item number and turn off the result. 3. Return results.	Item Number result
req[6-8-4-2]	Maintenance password value setting digit up processing	Perform maintenance password value setting digit up processing	Item Number	1. If the item number is 3, turn on the result. 2. If the item number is other than 3, count up the item number and turn off the result. 3. Return results.	Item Number result
req[6-8-4-3]	Maintenance password ON/OFF setting display processing	Perform maintenance password ON/OFF setting display processing	None	1. MAINTE Create ON/OFF setting menu display corresponding to password ON/OFF setting.	None
req[6-8-4-4]	Maintenance password value setting display processing	Perform maintenance password value setting display processing	Editing variables Item Number	1. MAINTE Create character data corresponding to password value setting. 2. Change the numerical value corresponding to MAINTE password value setting to character (SHORT) data.	Maintenance letter Maintenance character flashing
req[6-8-4-5]	Maintenance password ON/OFF setting end processing	Perform maintenance password ON/OFF setting end processing	Item Number	1. Insert item number into Maintenance password ON/OFF setting. 2. Turnon FRAM write start flag.	Maintenance password ON/OFF setting
req[6-8-4-6]	Maintenance password value setting end processing	Perform maintenance password value setting end processing	Editing variables	1. Set the 4-digit maintenance password number.	Maintenance password number
req[6-8-4-7]	Maintenance password ON/OFF setting start processing	Perform maintenance password ON/OFF setting start processing	Maintenance password ON/OFF setting	1. Put the maintenance password ON/OFF setting in the item number.	Item Number
req[6-8-4-8]	Maintenance password value setting start processing	Perform maintenance password value setting start processing	Maintenance password number	1. Initialize item number. 2. Set the 4-digit maintenance password number. 3. Turnoff up / down numerical value setting.	Item Number Up / down change setting of numerical value Editing variables
req[6-8-4-9]	Maintenance password ON/OFF setting selection processing	Perform maintenance password ON/OFF setting selection processing	None	1. Put ON/OFF replacement processing in item number.	Item Number
req[6-8-4-10]	Maintenance password value setting selection processing	Perform maintenance password value setting display selection processing	None	1. MAINTE Include increase / decrease process of numerical value corresponding to password value setting in editing variable.	Editing variables
req[6-9-1-1]	Acquisition of password protection ON/OFF setting	Acquire password protection ON/OFF setting	None	1. Return ON/OFF setting of password protection.	Password protection ON/OFF
req[6-10-1-1]	FRAM factory default update execution processing	Perform FRAM factory default update execution processing	FRAM setting data size Number of writes FRAM data SUM calculation result	1. Substitute FRAM setting data size. 2. Substitute the program number. 3. Copy the program number. 4. Check SUM Update.	Number of writes
req[6-10-1-2]	FRAM factory default update processing	Perform FRAM factory default update processing	Main unit error status	1. When ROM and FRAM are normal, update FRAM to factory default state. 2. If FRAM can not be factory-set, turn on FRAM error flag.	judgment result
req[6-10-1-3]	Factory setting storing in progress display processing	Perform factory setting storing in progress display processing	None	1. Creates character data corresponding to the factory setting recording.	None
req[6-10-1-4]	Factory setting storage display 1 processing	Perform factory setting storage display 1 processing	None	1. Creates character data corresponding to factory setting record display 1.	None
req[6-10-1-5]	Factory setting storage display 2 processing	Perform factory setting storage display 2 processing	None	1. Creates character data corresponding to factory setting record display 2.	None
req[6-10-1-6]	Factory setting storing processing	Perform factory setting storing processing	None	1. Set FRAM to factory condition. 2. Reset alarm point.	None
req[6-10-2-1]	FRAM factory shipped data LOAD processing	Perform FRAM factory shipped data LOAD processing	Expansion destination address Start address of factory shipping area Read size	1. FRAM Load factory data 2 faces. 2. Match write process. 3. Compare which side is the latest. 4. Write on the old side. 5. If you do not know which side is the latest, write on both sides. 6. Returns the judgment result.	judgment result
req[6-10-2-2]	Read factory default data (alarm point) of FRAM	Read factory default data of FRAM	1st alarm point 2nd alarm point 3rd alarm point STEL alarm point TWA alarm point	1. Read factory default data of FRAM.	None
req[6-10-2-3]	Factory default settings of FRAM	Load factory default settings of FRAM	None	1. Retrieve backup of current setting. 2. FRAM Load factory default settings.	judgment result
req[6-10-2-4]	Confirm reading of factory default data (alarm point) of FRAM	Perform reading confirmation processing of factory default data (alarm point) of FRAM	Full scale value Digit unit 1st alarm point 2nd alarm point 3rd alarm point STEL alarm point TWA alarm point 1st, 2nd, 3rd alarm point setting lower limit value 1st, 2nd, 3rd alarm settable upper limit value	1. Confirm reading of FRAM factory shipment data. 2. If the gas setting is changed, turn off the alarm reset ON/OFF setting flag.	None
req[6-10-2-5]	Factory default restore display processing	Perform factory default restore display processing	None	1. Create character data corresponding to factory reset.	None
req[6-10-2-6]	Factory default setting restore display 1 processing	Perform factory default setting restore display 1 processing	None	1. Creates character data corresponding to factory setting backward display 1.	None
req[6-10-2-7]	Factory default setting restore display 2 processing	Perform factory default setting restore display 2 processing	None	1. Create character data corresponding to factory default setting return display 2.	None
req[6-10-2-8]	Factory default setting restore processing	Perform factory default setting restoration processing	None	1. Read FRAM setting at factory shipment. 2. Record alarm point for resetting. 3. Turnon FRAM write start flag.	None
req[6-11-1-1]	Power ON hold processing	Perform power ON hold processing	None	1. Maintain power ON state.	Power port
req[6-11-2-1]	Acquisition of battery low voltage power OFF flag	Acquire battery low voltage power OFF flag	None	1. Returns the power OFF flag of battery low voltage.	Power off flag of low battery voltage
req[6-11-2-2]	TURN OFF	Display "TURN OFF"	None	1. Create character data corresponding to "TURN OFF" display.	None
req[6-11-2-3]	Create all turn-off display	Create all turn-off display	None	1. Returns setting process of all turned off display data.	None

req[6-11-2-4]	Processing display initialization processing	Processing display initialization processing	None	1. Set the pump stop flag to false. 2. Set the purging flag to false. 3. Set the purge count timer to 0.	Pump stop flag Purging flag Purge count timer
req[6-11-2-5]	Create TURNOFF display	Perform display creation processing at TURNOFF	None	1. Clear LCD display data. 2. Set the display type to turn off. 3. Show turn off.	None
req[6-11-2-6]	Pump purge display processing	Pump purge display processing	None	1. Set the display type to purge. 2. Show purge and remaining purge time.	None
req[6-11-2-7]	Purging flag setting process	Purging flag setting process	Request flag	1. Assign the request flag to the purging flag.	Purging flag
req[6-11-2-8]	Purging flag acquisition process	Purging flag acquisition process	None	1. Return purging flag.	Purging flag
req[6-11-2-9]	Purge count timer setting process	Purge count timer setting process	None	1. Assign the maximum purge time (30 seconds) to the purge count timer.	Purge count timer
req[6-11-2-10]	Purge time end confirmation process	Purge time end confirmation process	Purge count timer	1. Returns false if the purge count timer is non-zero, and true if it is zero.	Purge completion flag
req[6-11-2-11]	10msec interrupt processing for processing display	10msec interrupt processing for processing display	Purge count timer	1. Decrement the purge count timer if it is non-zero.	Purge count timer
req[6-11-2-12]	PowerOff display ON/OFF forced off flag acquisition processing	Acquire forced OFF flag of PowerOff display ON/OFF	None	1. Turnoff Return display forced OFF flag.	turn off display forced OFF flag
req[6-11-2-13]	Process of acquiring flag of PowerOff display ON/OFF	Acquire the flag of PowerOff display ON/OFF	turn off indication flag	1. When the turn off display flag is ON and the turn off display forced OFF flag is ON, the result is turned off. 2. When the turn off display flag is ON and the turn off display forced OFF flag is OFF, the result is turned on. 3. When the turn off indication flag is OFF, the result is turned off. 4. Return results.	result
req[6-11-2-14]	Judgment processing of PowerOff display	Perform PowerOff display judgment processing	A buffer to store the determined key eventturn off indication flag	1. When the key event is other than the power key, execute the following processing 2 to 3. 2. Initialize the confirmation count of turn off indication. 3. Turnoff indicator flag. 4. When the key event is the power key and the confirmation count of the turn off indication is larger than 3, the turn off indication flag is turned on.	Confirmation count of turn off indication turn off indication flag
req[6-11-2-15]	Process of acquiring PowerOff display flag	Acquire PowerOff display flag	None	1. Return turn off indication flag.	turn off indication flag
req[6-11-2-16]	Key activation long press time reset processing	Perform key activation long press time reset processing	None	1. Initialize key press time.	Key press time
req[6-11-2-17]	Forced OFF flag setting processing of PowerOff display ON/OFF	Perform forced OFF flag setting processing of PowerOff display ON/OFF	None	1. When the ON/OFF setting flag is OFF, turn off the turn off display forced OFF flag. 2. When the ON/OFF setting flag is ON, turn on the turn off display forced OFF flag.	turn off display forced OFF flag
req[6-11-2-18]	Power OFF processing	Perform power OFF processing	Power off execution flag Forced power OFF execution flag FirmUpdate flag	1. When USB status confirmation processing is OFF, the FRAM writing start flag is OFF or the forced power OFF OFF execution flag is ON, execute the following processing 2 to 4. 2. Stop SPI of dedicated function. 3. Stop IIC of SCI6. 4. Stop UART of SCI9. 5. Stop interrupt. 6.Stop the MCU power supply voltage monitoring function 7. When the FirmUpdate flag is ON, USB communication function is stopped.	Power port
req[6-11-2-19]	ON processing of the power OFF flag	turn on the power OFF flag	None	1. Turnon the power OFF execution flag.	Power off execution flag
req[6-11-2-20]	ON processing of the power OFF flag	turn on forced power OFF flag	None	1. Turnon the forced power OFF execution flag.	Forced power OFF execution flag
req[6-11-2-21]	Acquisition processing of the power OFF flag	Perform acquisition processing of the power OFF flag	None	1. Return the power OFF flag.	Power OFF flag
req[7-1-1-1]	Communication processing initialization processing	Perform communication processing initialization processing	None	1. Assign initial values to the receive buffer. 2. Assign initial values to the transmit buffer. 3. Assign the initial value to the receive data counter. 4. Assign an initial value to the end character save buffer. 5. Assign the initial value to the receive completion flag. 6. Assign initial values to the communication operation flags. 7. Initialize the UART5 driver.	Receive buffer Transmit buffer Receive data counter End character save buffer Receive completion flag Communication operation flag
req[7-1-1-2]	Communication processing device startup processing	Perform communication processing device startup processing	None	1. Start the UART5 driver. 2. Set the communication operation flag to ON.	Communication operation flag
req[7-1-1-3]	Communication processing device stop processing	Perform communication processing device stop processing	None	1. Stop the UART5 driver. 2. Set the communication operation flag to OFF.	Communication operation flag
req[7-1-1-4]	Communication reception data analysis Transmission data creation processing	Perform communication reception data analysis Transmission data creation processing	Communication operation flag Reception completion flag	1. When the communication operation flag is ON and the reception completion flag is ON, the following processing is performed. 2. Check the SUM value of the received data. 3. Copy the command part of the receive buffer to the transmit buffer. 4. Execute command processing and get the number of transmitted data. 5. Send the data in the send buffer. 6. Set the initial value to the received data counter. 7. Set the reception completion flag to OFF.	Received data counter Reception completion flag
req[7-1-1-5]	Communication reception data acquisition processing	Perform communication reception data acquisition processing	Received data Communication operation flag	1. If the communication operation flag is ON, perform the following processing. 2. Store the received data in the receive buffer and increment the received data counter. 3. If the receive data counter is greater than the maximum counter value, clip to the maximum counter value. 4. If the received data is the end character, set the received data to the end character save buffer and set the reception completion flag to ON.	Receive buffer Received data counter End character save buffer Reception completion flag
req[7-1-1-6]	Communication reception error processing	Perform communication reception error processing	None	1. Assign initial values to the receive buffer. 2. Assign the initial value to the received data counter.	Receive buffer Received data counter
req[7-1-1-7]	Received data SUM value confirmation processing	Perform received data SUM value confirmation processing	Receive buffer pointer Receive data size	1. Initialize the command top flag. 2. Initialize the SUM buffer. 3. Start SUM calculation when the received data is STX, and end SUM calculation when the received data is ETX. 4. If the calculated SUM value and the received SUM value match, assign normal to the result flag, and if they do not match, assign abnormal to the result flag. 5. Return the result flag.	Result flag
req[7-1-1-8]	USB communication partner confirmation process	Perform USB communication partner confirmation process	None	1. If the USB connection confirmation port is ON, set the result flag to indicate that there is a communication partner, and if it is OFF, set the result flag to indicate that there is no communication partner. 2. Return the result flags.	Result flag
req[7-1-1-9]	USB communication mode no-partner warning processing	Perform USB communication mode no-partner warning processing	None	1. Decrement if the no communication partner counter is non-zero. 2. If the USB connection confirmation port is ON, set the maximum value (3 minutes) to the no communication partner counter. 3. If the no-communication partner counter is 0, request the alarm of the failure buzzer, and if it is not 0, request the stop of the failure buzzer.	None
req[7-1-1-10]	Communication device start/stop status acquisition process	Perform communication device start/stop status acquisition process	None	1. Return the communication operation flag.	Communication operation flag
req[7-1-1-11]	Communication device transmission status acquisition processing	Perform communication device transmission status acquisition processing	None	1. Get UART5 transmission status. 2. If the UART5 transmit state is non-zero, assign true to the result flags, otherwise assign false to the result flags. 3. Return result flags.	Result flag
req[7-1-1-12]	Communication transmission data setting processing	Perform communication transmission data setting processing	Transmission buffer pointer Send data size	1. Assign the transmit data end character to the transmit buffer. 2. Obtain the data size to calculate the SUM value and calculate the SUM value. 3. Convert the SUM value to 2-byte ASCII. 4. Assign the SUM value to the specified position in the transmit buffer. 5. Assign a terminator to the specified position in the send buffer. 6. Calculate the transmission data size. 7. Send send data.	None
req[7-1-1-13]	SUM calculation process	Perform SUM calculation process	SUM calculation target buffer pointer Buffer size	1. Initialize the SUM value storage buffer. 2. Calculate the SUM value by accumulating the buffer data to be calculated. 3. Return the SUM value.	SUM value
req[7-1-1-14]	Communication command judgment processing	Perform command deend processing of communication	Assignment properties received data Subcommand	1. Obtain command table. 2. If the SUM check is normal, the command table is looped to the end. 3. Returns the command judgment result.	received data
req[7-1-1-15]	SUM calculation processing for transmission of communication	Perform SUM calculation processing for transmission of communication	received data Receive data size Subcommand	1. Add received data by received data size. 2. Calculate the difference between received data added with 0x00U. 3. Return the value obtained by 2.	SUM value
req[7-1-1-16]	end processing of response frame of communication	Terminate the response frame of communication	received data Receive data size	1. Acquire data end. 2. Get SUM value. 3. Get transfer endpoint.	Data end SUM value Transfer end
req[7-1-1-17]	SUM calculation processing of received data of communication	Perform SUM calculation of received data of communication	buffer	1. Calculate the SUM value of the received data.	SUM value
18	Communication command: Gas information	Perform communication command processing for gas information	received data Receive data size Subcommand	1. Get the gas number with the W command, execute the following processing 2 to 4, then transmit it. 2. Processing for setting gas data of nonvolatile memory. 3. Gas data setting processing of concentration calculation data. 4. RL78 communication setting reconfiguration processing. 5. With the R command, character data corresponding to the gas information is created. 6. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-19]	Communication command: Gas table information	Perform communication command processing for gas table information	received data Receive data size Subcommand	1. With the R command, character data creation processing and concentration data on gas table information are converted to ASCII. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-20]	Communication command: Flammable reading setting	Perform communication command processing for flammable reading setting	received data Receive data size Subcommand	1. W command sets NC sensor reading gas data and transmits it. 2. Convert HEX data to ASCII data with R command. 3. Returns the end of the response frame.	Receive data size End of response frame
21	Communication command: Setting for each alarm function gas type	Perform communication command processing for alarm point setting	received data Receive data size Subcommand	1. Convert concentration data to ASCII with W command. 2. In the reading process, when each alarm is OFF, character data corresponding to each alarm is created. 3. In the reading process, when each alarm is ON, convert the concentration data to ASCII. 4. Returns the end of the response frame.	Alarm point Receive data size End of response frame
req[7-1-1-22]	Communication command: Alarm point setting range	Perform communication command processing for the alarm point settable range	received data Receive data size Subcommand Alarm point setting lower limit value Alarm point setting upper limit value	1. W command to write the lower limit value and upper limit value of the alarm point. 2. Using the R command, read the lower limit and upper limit of the alarm point. 3. Returns the end of the response frame.	Receive data size End of response frame Alarm point setting lower limit value Alarm point setting upper limit value
req[7-1-1-23]	Communication command: STEL setting range	Perform communication command processing for the STEL settable range	received data Receive data size Subcommand STEL Alarm point setting lower limit value STEL alarm settable upper limit value	1. W command writes the lower limit value and upper limit value of the STEL alarm. 2. Read the lower limit value and the upper limit value of the STEL alarm with the R command. 3. Returns the end of the response frame.	Receive data size End of response frame STEL Alarm point setting lower limit value STEL alarm settable upper limit value

req[7-1-1-24]	Communication command: TWA settable range	Perform communication command processing for the TWA settable range	received data Receive data size Subcommand TWA alarm point setting lower limit value TWA alarm point setting upper limit value	1. W command to write the lower limit value and upper limit value of TWA alarm. 2. Read the lower limit and upper limit of TWA alarm with R command. 3. Returns the end of the response frame.	Receive data size End of response frame TWA alarm point setting lower limit value TWA alarm point setting upper limit value
req[7-1-1-25]	Communication command: CAL concentration	Perform communication command processing for CAL concentration	received data Receive data size Subcommand	1. Acquire calibration concentration with W command. 2. In the R command, change the numeric value to character data. 3. Returns the end of the response frame.	Calibration concentration Receive data size End of response frame
req[7-1-1-26]	Communication command: CAL concentration setting possible range	Perform communication command processing for the CAL concentration setting possible range	received data Receive data size Subcommand	1. W command writes the lower limit value and the upper limit value of the calibration concentration. 2. Read the lower limit value and upper limit value of the calibration concentration with the R command. 3. Returns the end of the response frame.	Lower limit of calibration concentration Upper limit of calibration concentration Receive data size End of response frame
req[7-1-1-27]	Communication command: CAL group	Perform communication command processing for the CAL group	received data Receive data size Subcommand	1. Acquire proof group with W command. 2. In the R command, change the numeric value to character data. 3. Returns the end of the response frame.	Proof group Receive data size End of response frame
req[7-1-1-28]	Communication command: Final calibration history	Perform communication command processing on final calibration history	received data Receive data size Subcommand	1. Execute the following processes 2 to 4 with the R command. 2. Change numeric value to character data. 3. Acquire concentration before final calibration. 4. Acquire concentration after final calibration. 5. Returns the end of the response frame.	Concentration value before final calibration Concentration value after final calibration Receive data size End of response frame
req[7-1-1-29]	Communication command: Final calibration history SDM serial	Perform communication command processing for the final calibration history SDM serial	received data Receive data size Subcommand	1. With the R command, character data corresponding to the final calibration history SDM serial is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-30]	Communication command: Final BUMP history	Perform communication command processing for the final BUMP history	received data Receive data size Subcommand	1. Execute the following processes 2 to 4 with the R command. 2. Change numeric value to character data. 3. Acquire concentration at final bump test. 4. Acquire final standard value concentration. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-31]	Communication command: Final BUMP history SDM serial	Perform communication command processing for the final BUMP history SDM serial	received data Receive data size Subcommand	1. With the R command, character data corresponding to the final BUMP history SDM serial is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-32]	Communication command: Maintenance announcement date and time	Perform communication command processing for maintenance announcement date and time	received data Receive data size Subcommand	1. Write the maintenance announcement date and time with W command. 2. Read the maintenance announcement date and time with the R command. 3. Returns the end of the response frame.	Maintenance announcement date and time Receive data size End of response frame
req[7-1-1-33]	Communication command: AIR calibration processing	Perform communication command processing for AIR calibration processing	received data Receive data size Subcommand	1. If AIR calibration is not executed with W command, execute AIR school. 2. In the R command, the span coefficient, the temperature value of the combustible sensor and the temperature value of the oxygen sensor are acquired. 3. When the following conditions 4 to 6 are satisfied with the C command, it is regarded as a zero calibration error. 4. AIR calibration is not executed. 5. Gas setting is valid. 6. Zero calibration is abnormal. 7. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-34]	Communication command: Auto calibration processing	Perform communication command processing for AUTO calibration processing	received data Receive data size Subcommand	1. If AUTO calibration is not executed with the W command, execute the following processing 2 to 4. 2. Acquire the SDM serial number. 3. Set the calibration concentration. 4. Perform AUTO calibration. 5. Using the R command, obtain the serial number that was used correctly and the temperature value of the inflammable sensor. 6. When the following conditions 4 to 6 are satisfied with the C command, it is regarded as a zero calibration error. 7. AUTO calibration is not executed. 8. Gas setting is valid. 9. Zero calibration is abnormal. 10. Returns the end of the response frame.	Setting of calibration concentration Receive data size End of response frame
req[7-1-1-35]	Communication command: Sensor - battery replacement date and time	Perform communication command processing for Sensor - battery replacement date and time	received data Receive data size Subcommand	1. Write sensor replacement date and time and battery replacement date and time with W command. 2. Read sensor replacement date and time and battery replacement date and time with R command. 3. Returns the end of the response frame.	Sensor exchange date and time Battery replacement date and time Receive data size End of response frame
req[7-1-1-36]	Communication command: Main serial number	Perform communication command processing on main serial number	received data Receive data size Subcommand	1. W command to write the main serial number. 2. Read main serial number with R command. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-37]	Communication command: Main temporary serial number	Perform communication command processing for main temporary serial number	received data Receive data size Subcommand	1. Write the provisional main serial number with W command. 2. Using the R command, read the temporary serial number of the main MCU. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-38]	Communication command: User ID	Perform communication command processing for user ID	received data Receive data size Subcommand	1. W command to write the user ID. 2. Execute the following processing 3 to 4 with the R command. 3. Let NULL character be a space. 4. Read user ID. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-39]	Communication command: Station ID	Perform communication command processing for station ID	received data Receive data size Subcommand	1. W command to write the station ID. 2. Execute the following processing 3 to 4 with the R command. 3. Let NULL character be a space. 4. Read station ID. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-40]	Communication command: SPE No	Perform communication command processing for SPE No	received data Receive data size Subcommand	1. Write SPE No with W command. 2. Read SPE No with R command. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-41]	Communication command: Destination setting	Perform communication command processing for destination setting	received data Receive data size Subcommand	1. Write the destination setting with W command. 2. Read the destination setting with the R command. 3. Returns the end of the response frame.	Destination setting Receive data size End of response frame
req[7-1-1-42]	Communication command: Backlight lighting time	Perform communication command processing for backlight lighting time	received data Receive data size Subcommand	1. Set the backlight lighting time with the W command. 2. Read the set backlight lighting time with the R command. 3. Returns the end of the response frame.	Backlight ON time setting Receive data size End of response frame
req[7-1-1-43]	Communication command: Suppress setting	Perform communication command processing for suppression setting	received data Receive data size Subcommand	1. With W command, set display of suppression ON/OFF and suppression ON/OFF. 2. With the R command, ON/OFF of set suppression and ON/OFF display of suppression are read. 3. Returns the end of the response frame.	Suppress ON/OFF setting Suppress ON/OFF display setting Receive data size End of response frame
req[7-1-1-44]	Communication command: Zero tracking setting	Perform communication command processing for zero tracking setting	received data Receive data size Subcommand	1. Set ON/OFF of zero tracking and ON/OFF of zero tracking by W command. 2. With the R command, ON/OFF of the set zero tracking and ON/OFF of the zero tracking are read. 3. Returns the end of the response frame.	ON/OFF setting of zero tracking ON/OFF display setting of zero tracking Receive data size End of response frame
req[7-1-1-45]	Communication command: Long life ON/OFF	Perform communication command processing for long life ON/OFF setting	received data Receive data size Subcommand	1. Set ON/OFF of long-life mode with W command. 2. Read the set long-life mode with the R command. 3. Returns the end of the response frame.	ON/OFF setting of long life mode Receive data size End of response frame
req[7-1-1-46]	Long life function display ON/OFF processing	Perform setting processing of the long life function display ON/OFF function	received data Receive data size Subcommand	1. Set the long life function display ON/OFF with W command. 2. Convert ON / OFF of the set long life function display to '0', '1' with R command. 3. Returns the end of the response frame.	Long life function display ON/OFF setting Receive data size End of response frame
req[7-1-1-47]	Communication command: Flammable LEL Numerical value	Perform communication command processing for flammable LEL value	received data Receive data size Subcommand Flammable gas data	1. Execute the following processing 2 ~ with the W command. 2. Setting flammable LEL numerical value. 3. Set LEL value for flammable gas data. 4. Read the set flammable LEL value with the R command. 5. Returns the end of the response frame.	Setting flammable LEL numerical value Ppm equivalent to LEL Receive data size End of response frame
req[7-1-1-48]	Communication command: Flammable sensor mode confirmation	Perform communication command processing for flammable sensor mode confirmation	received data Receive data size Subcommand	1. Read the flammable sensor mode with the R command. 2. Returns the end of the response frame.	End of response frame
req[7-1-1-49]	Communication command: Margin value display ON/OFF	Communication command processing is performed on the margin value display ON/OFF setting	received data Receive data size Subcommand	1. Set ON/OFF of margin value display by W command. 2. By using the R command, the displayed margin value display is read. 3. Returns the end of the response frame.	ON/OFF setting of password protection Receive data size End of response frame
req[7-1-1-50]	Communication command: Alarm operation	Perform communication command processing for alarm operation setting	received data Receive data size Subcommand	1. Set alarm action with W command. 2. Read set alarm action with R command. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-51]	Communication command: Integration alarm ON/OFF	Perform communication command processing for integration alarm ON/OFF setting	received data Receive data size Subcommand	1. Set ON/OFF of integrating alarm with W command. 2. Read set integrated alarm with R command. 3. Returns the end of the response frame.	ON/OFF setting of integrating alarm Receive data size End of response frame
req[7-1-1-52]	Communication command: Alarm function ON/OFF	Perform communication command processing for alarm function ON/OFF setting	received data Receive data size Subcommand	1. Set Warning function ON/OFF with W command. 2. Read the set alarm function with the R command. 3. Returns the end of the response frame.	Alarm function ON/OFF setting Receive data size End of response frame
req[7-1-1-53]	Communication command: Stealth setting	Perform communication command processing for stealth setting	received data Receive data size Subcommand	1. Set stealth function and stealth motor function with W command. 2. Read the set stealth function and stealth motor function with the R command. 3. Returns the end of the response frame.	Stealth function Stealth motor function Receive data size End of response frame
req[7-1-1-54]	Communication command: Confirmation beep setting	Perform communication command processing for confirmation beep setting	received data Receive data size Subcommand	1. Use the W command to set the confirmation beep selection and the confirmation beep time. 2. Convert the set confirmation beep selection to '0', '1', '2', '3' with the R command and read the confirmation beep time. 3. Returns the end of the response frame.	Confirmation beep selection setting Confirmation beep time setting Receive data size End of response frame
req[7-1-1-55]	NCI history download process	Perform history downloaded processing to NCI active flag	received data Receive data size Subcommand	1. Use R command to set history down and set ACK. 2. Returns the end of the response frame.	History down toe setting Receive data size End of response frame
req[7-1-1-56]	NCI history download function setting process	Set up the NCI history download function	received data Receive data size Subcommand	1. Set the history download function ON/OFF with W command. 2. Convert ON/OFF of the set history download function to '0' and '1' with R command. 3. Returns the end of the response frame.	History download function ON/OFF setting Receive data size End of response frame
req[7-1-1-57]	NCI active flag acquisition processing	Perform setting processing of NCI active flag	received data Receive data size Subcommand	1. Set the value of NCI active flag with W command. 2. Convert the set NCI active flag value to '0', '1', '2' with R command. 3. Returns the end of the response frame.	NCI active flag setting for all components Receive data size End of response frame
req[7-1-1-58]	Communication command: Calibration expiration days	Performs communication command processing on the calibration expiration days	received data Receive data size Subcommand	1. Use the W command to set the calibration expiration days. 2. Read the set calibration expiration date with the R command. 3. Returns the end of the response frame.	Calibration expiration days Receive data size End of response frame
req[7-1-1-59]	Communication command: Calibration expiration ON/OFF	Perform communication command processing for calibration due date ON/OFF setting	received data Receive data size Subcommand	1. Use the W command to set the calibration expiration ON/OFF. 2. Read the set calibration expiration with the R command. 3. Returns the end of the response frame.	Setting of calibration expiration ON/OFF Receive data size End of response frame
req[7-1-1-60]	Communication command: Calibration expired operation	Perform communication command processing for calibration expiration operation	received data Receive data size Subcommand	1. Use the W command to set the calibration expiration check method. 2. Convert the set calibration expiration checking method to '0', '1', '2' with the R command. 3. Returns the end of the response frame.	Calibration time limit check method Receive data size End of response frame
req[7-1-1-61]	Communication command: BUMP expiration days	Perform communication command processing for BUMP expiration days	received data Receive data size Subcommand	1. Set bump expiration days by W command. 2. Read the set bump expiration days with the R command. 3. Returns the end of the response frame.	Bump expiration days Receive data size End of response frame

req[7-1-1-62]	Communication command: BUMP time limit ON/OFF	Perform communication command processing for BUMP time limit ON/OFF setting	received data Receive data size Subcommand	1. Set bump time limit ON/OFF with W command. 2. Use the R command to read the set bump time limit. 3. Returns the end of the response frame.	ON/OFF setting of bump time limit Receive data size End of response frame
req[7-1-1-63]	Communication command: BUMP expired operation	Perform communication command processing for BUMP expired operation	received data Receive data size Subcommand	1. Set bump expiration operation with W command. 2. Read the set bump expiration operation with the R command. 3. Returns the end of the response frame.	Bump expiration behavior Receive data size End of response frame
req[7-1-1-64]	Communication command: Maintenance announcement setting	Perform communication command processing for maintenance announcement setting	received data Receive data size Subcommand	1. Use the W command to set the following items 2 to 6. 2. Maintenance announcement display days. 3. Maintenance announcement display ON/OFF setting. 4. Maintenance announcement Expired operation. 5. Maintenance notice check gas. 6. Read the set items with the R command. 7. Returns the end of the response frame.	Maintenance announcement display days Maintenance announcement display ON/OFF setting Maintenance announcement Expired operation Maintenance notice check gas Receive data size End of response frame
req[7-1-1-65]	Communication command: BUMP test condition setting	Perform communication command processing for BUMP test condition setting	received data Receive data size Subcommand	1. Use the W command to set the following items 2 to 6. 2. Bump time seconds. 3. Bump tolerance. 4. Calibration time after bump fault seconds. 5. Calibration ON/OFF after bump fault. 6. Read the set items with the R command. 7. Returns the end of the response frame.	Bump time seconds Bump tolerance Calibration time after bump fault seconds Calibration ON/OFF after bump fault Receive data size End of response frame
req[7-1-1-66]	Communication command: ID display ON/OFF	Perform communication command processing for ID display ON/OFF setting	received data Receive data size Subcommand	1. Set ON/OFF of ID display with W command. 2. By using the R command, ON/OFF of the set ID display is converted to '0', '1'. 3. Returns the end of the response frame.	ON/OFF setting of ID display Receive data size End of response frame
req[7-1-1-67]	Communication command: Lunch break ON/OFF	Perform communication command processing for lunch break ON/OFF setting	received data Receive data size Subcommand	1. Use W command to set lunch break ON/OFF. 2. With the R command, ON/OFF of the set lunch break is converted to '0', '1'. 3. Returns the end of the response frame.	Lunch break ON/OFF setting Receive data size End of response frame
req[7-1-1-68]	Communication command: Key operation sound ON/OFF	Perform communication command processing for key operation sound ON/OFF setting	received data Receive data size Subcommand	1. Set ON/OFF of key operation sound with W command. 2. By using the R command, ON/OFF of the set key operation sound is converted to '0', '1'. 3. Returns the end of the response frame.	Set key operation sound ON/OFF Receive data size End of response frame
req[7-1-1-69]	Communication command: DISP setting item ON/OFF	Perform communication command processing for DISP setting item ON/OFF	received data Receive data size Subcommand	1. Set ON/OFF of DISP setting item with W command. 2. With the R command, ON/OFF of the set DISP setting item is converted to '0', '1'. 3. Returns the end of the response frame.	ON/OFF setting of DISP setting item Receive data size End of response frame
req[7-1-1-70]	Communication command: Auto zero ON/OFF	Perform communication command processing for auto zero ON/OFF	received data Receive data size Subcommand	1. Use the W command to set the auto zero ON/OFF. 2. With the R command, turn ON/OFF of the set auto zero into '0', '1'. 3. Returns the end of the response frame.	Auto zero ON/OFF setting Receive data size End of response frame
req[7-1-1-71]	Communication command: Demand zero ON/OFF	Perform communication command processing for demand zero ON/OFF	received data Receive data size Subcommand	1. Set ON/OFF of demand zero with W command. 2. Convert ON/OFF of set demand zero to '0', '1' with R command. 3. Returns the end of the response frame.	ON/OFF setting of demand zero Receive data size End of response frame
req[7-1-1-72]	Communication command: Automatic start ON/OFF after successful BUMP/CAL	Perform communication command processing for automatic start ON/OFF after successful BUMP/CAL	received data Receive data size Subcommand	1. Set ON/OFF of automatic start after successful BUMP/CAL with W command. 2. Convert ON/OFF of set automatic start after successful BUMP/CAL to '0', '1' with R command. 3. Returns the end of the response frame.	ON/OFF setting of automatic start after successful BUMP/CAL Receive data size End of response frame
req[7-1-1-73]	Communication command: Pump stop screen display ON/OFF	Perform communication command processing for pump stop screen display ON/OFF	received data Receive data size Subcommand	1. Set ON/OFF of pump stop screen display with W command. 2. Convert ON/OFF of set pump stop screen display to '0', '1' with R command. 3. Returns the end of the response frame.	Pump stop screen display ON/OFF setting Receive data size End of response frame
req[7-1-1-74]	Communication command: Alarm silence ON/OFF	Perform communication command processing for alarm silence ON/OFF	received data Receive data size Subcommand	1. Set ON/OFF of alarm silence with W command. 2. Convert ON/OFF of set alarm silence to '0', '1' with R command. 3. Returns the end of the response frame.	Alarm silence ON/OFF setting Receive data size End of response frame
req[7-1-1-75]	Communication command: User password setting	Perform communication command processing for USER password setting	received data Receive data size Subcommand	1. Use the W command to set the USER password. 2. Read the set USER password with the R command. 3. Returns the end of the response frame.	USER password Receive data size End of response frame
req[7-1-1-76]	Communication command: Maintenance password setting	Perform communication command processing for maintenance password setting	received data Receive data size Subcommand	1. Set MAINTE password with W command. 2. Read the set MAINTE password with the R command. 3. Returns the end of the response frame.	USER password Receive data size End of response frame
req[7-1-1-77]	Communication command: Password protection ON/OFF	Perform communication command processing for password protection ON/OFF setting	received data Receive data size Subcommand	1. Set password protection ON/OFF with W command. 2. Use the R command to convert the ON/OFF of the set password protection to '0', '1'. 3. Returns the end of the response frame.	ON/OFF setting of password protection Receive data size End of response frame
req[7-1-1-78]	Communication command: Interval trend cycle	Perform communication command processing for interval trend cycle	received data Receive data size Subcommand	1. Set the interval trend cycle with the W command. 2. Read the set interval trend cycle with the R command. 3. Returns the end of the response frame.	Interval trend cycle Receive data size End of response frame
req[7-1-1-79]	Communication command: Overwrite ON/OFF	Perform communication command processing for overwrite ON/OFF setting	received data Receive data size Subcommand	1. Set overwrite ON/OFF with W command. 2. By using the R command, ON/OFF of the set overwrite is converted to '0', '1'. 3. Returns the end of the response frame.	Overwrite ON / OF setting Receive data size End of response frame
req[7-1-1-80]	Communication command: Time	Perform communication command processing for time	received data Receive data size Subcommand	1. Record the current date and time with W command. 2. Use the R command to get the current date and time. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-81]	Communication command: Main program number	Perform communication command processing for main program number	received data Receive data size Subcommand	1. With the R command, character data corresponding to the main program number is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-82]	Communication command: Subprogram number	Perform communication command processing for subprogram number	received data Receive data size Subcommand	1. With the R command, character data corresponding to the sub program number is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-83]	Communication command: Get gas table version number	Perform communication command processing for get gas table version number	received data Receive data size Subcommand	1. With the R command, character data corresponding to the gas table version number is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-84]	Communication command: Main program SUM value	Perform communication command processing for main program SUM value	received data Receive data size Subcommand	1. With the R command, character data corresponding to the SUM value of the main program is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-85]	Communication command: Main program version number	Perform communication command processing on main program version number	received data Receive data size Subcommand	1. With the R command, character data corresponding to the main program version number is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-86]	Communication command: Gas table SUM value	Perform communication command processing on Gas table SUM value	received data Receive data size Subcommand	1. With the R command, character data corresponding to the Gas table SUM value is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-87]	Communication command: Default processing	Perform communication command processing for default processing	received data Receive data size Subcommand	1. With the W command, FRAM default. 2. In the C command, if FRAM default end confirmation processing is OFF, put ACK in the buffer. 3. When FRAM default end confirmation processing is ON, put SUB in the buffer. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-88]	Communication command: Data update processing for FRAM setting	Perform communication command processing for data update processing for FRAM setting	received data Receive data size Subcommand	1. With the W command, turn on the FRAM write start flag. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-89]	Communication command: FRAM memory dump processing	Perform communication command processing for FRAM memory dump processing	received data Receive data size Subcommand	1. Using the R command, obtain the result of LOAD processing for FRAM data communication dump. 2. When the result is OK, the HEX data for dump is converted to ASCII data. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-90]	Communication command: FLASH memory dump processing	Perform communication command processing for FLASH memory dump processing	received data Receive data size Subcommand	1. Convert ASCII data to HEX) data with R command. 2. When the data size is smaller than 256, execute the following processing 3 to 4. 3. Read specified byte to FLASH. 4. Binary processing in progress flag set. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-91]	Communication command: Data logger check data write processing	Perform communication command processing for data logger check data writing processing	received data Receive data size Subcommand	1. Deploy test data of logger function with W command. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-92]	Communication command: Data logger data clear processing	Perform communication command processing for data logger data clear processing	received data Receive data size Subcommand	1. Clear the logger function data logger with W command. 2. In the C command, if the data logger clear end confirmation processing of the logger function is OFF, put ACK in the buffer. 3. When data logger clear end confirmation processing of logger function is ON, put SUB in the buffer. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-93]	Communication command: Data logger power event clear processing	Perform communication command processing for data logger power event clear processing	received data Receive data size Subcommand	1. With the W command, clear the power logger of the logger function 2. In the C command, if the logger clear end confirmation processing of the logger function is OFF, put ACK in the buffer 3. Power supply of logger function When log clear clear end processing is ON, put SUB in the buffer. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-94]	Communication command: Data logger start stop processing	Perform communication command processing for data logger start stop processing	received data Receive data size Subcommand	1. Execute the following processing 2 to 6 with the W command. 2. Update the PEAK value to the current value. 3. Initialize accumulated area, average value. 4. Initialize STEL value and TWA value. 5. Turnoff the resume flag. 6. Start logger measurement. 7. Returns the end of the response frame.	Accumulation area Average value STEL value TWA value Receive data size End of response frame
req[7-1-1-95]	Communication command: Factory setting save reset processing	Performs communication command processing for factory setting save reset processing	received data Receive data size Subcommand	1. Use the W command to record factory settings and reset alarm points. 2. Use the R command to read the factory default settings and reset alarm points. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-96]	Communication command: Saving and restoring processing of alarm point for resetting	Perform communication command processing for Saving and restoring processing of alarm point for resetting	received data Receive data size Subcommand	1. Record alarm point for reset with W command. 2. Read alarm point for reset by R command. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-97]	Communication command: Lunch break save reset processing	Perform communication command processing for lunch break save reset processing	received data Receive data size Subcommand	1. Record lunch break with W command. 2. With the R command, read the launch break and write the launch break data to the processing buffer. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-98]	Communication command: Power OFF processing	Perform communication command processing for power OFF processing	received data Receive data size Subcommand	1. With the W command, turn on the power OFF flag. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-99]	Communication command: BUMP execution (concentration specification)	Perform communication command processing for BUMP execution	received data Receive data size Subcommand Fault status	1. Perform the following processing 2 to 8 with the W command. 2. Get serial number. 3. Acquire tolerance rate. 4. Acquisition of concentration. 5. BUMP success result. 6. Concentration value at BUMP. 7. Get current date and time. 8. Restore backup. 9. Returns the end of the response frame.	Tolerance rate Concentration value BUMP success result Concentration value at BUMP Receive data size End of response frame

req[7-1-1-100]	Communication command: Fast bump record	Perform communication command processing for fast bump recording	received data Receive data size Subcommand	1. Perform the following processing 2 to 8 with the W command. 2. Acquire the SDM serial number. 3. Acquire the calibration concentration. 4. Acquire result concentration. 5. Acquire success / fault result of fast bump. 6. Substitute concentration values for fast bumps. 7. When fast bump is being performed, turn on execution feasibility flag. 8. If the fast bump is successful, put a bump record in FRAM. 9. Put the current time in bump date and time. 10. Acquire the bump test concentration. 11. Acquire bump result concentration. 12. Acquire the SDM serial to be used for the bump. 13. Record BUMP of logger function. 14. Send date to SDM. 15. Get the current date and time. 16. Returns the end of the response frame.	Calibration concentration value Result concentration value Fast bump success / fault result Executability flag Bump test concentration value Bump result concentration value Receive data size End of response frame
req[7-1-1-101]	Communication command: SDM display processing	Perform communication command processing for SDM display processing	received data Receive data size Subcommand	1. With the W command, set the EX command flag of the command for SDM and receive the EX command data for SDM. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-102]	Communication command: FW rewrite start processing (main)	Perform communication command processing for FW rewrite start processing (main)	received data Receive data size Subcommand	1. Execute the following processes 2 with the W command. 2. Update mode flag set processing. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-103]	Communication command: FW rewrite start processing (sub)	Perform communication command processing for FW rewrite start processing (sub)	received data Receive data size Subcommand	1. W command starts FW rewriting of the sensor MCU. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-104]	Communication command: SensorMCU FW rewritable status acquisition	Perform communication command processing for sensorMCU FW rewritable status acquisition	received data Receive data size Subcommand	1. Execute the following processes 2 and 3 with the S command. 2. Sensor MCU FW update mode acquisition processing. 3. Sensor MCU FW update start process. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-105]	Communication command: SensorMCU FW rewrite processing	Perform communication command processing for SensorMCU FW rewrite processing	received data Receive data size Subcommand	1. With the S command, after erase block, create a response. 2. With the W command, after rewrite block and calculate SUM value, create a response. 3. With the E command, after comparison sum value, create a response. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-106]	Communication command: FW rewrite operation mode	Perform communication command processing for FW rewrite operation mode	received data Receive data size Subcommand	1. With the R command, character data corresponding to the FW rewrite mode is created. 2. Returns the end of the response frame.	FW rewrite operation mode Receive data size End of response frame
req[7-1-1-107]	Communication command: FW rewrite start processing (main)	Perform communication command processing for FW rewrite start processing (main)	received data Receive data size Subcommand	1. Execute the following processes 2 and 3 with the S command. 2. ON processing of the power OFF flag and update flag. 3. FirmUpdate flag set processing. 4. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-108]	Communication command: pump drive/stop processing	Perform communication command processing for pump drive/stop processing	received data Receive data size Subcommand	1. With the W command, after setting the pump Lo/Hi, pump drive ON/OFF, create a response. 2. With the R command, after reading status of the pump Lo/Hi, pump drive ON/OFF, create a response.	Pump Lo/Hi status Pump drive ON/OFF status Receive data size End of response frame
req[7-1-1-109]	Communication command: pressure sensor adjustment value setting processing	Perform communication command processing for pressure sensor adjustment value setting processing	received data Receive data size Subcommand	1. With the W command, after setting the pressure sensor offset value, create a response. 2. With the R command, after reading the pressure sensor offset value, create a response. 3. Returns the end of the response frame.	Pressure sensor offset value Receive data size End of response frame
req[7-1-1-110]	Communication command: Flow reduction threshold setting process	Perform communication command processing for flow reduction threshold setting process	received data Receive data size Subcommand	1. With the W command, after setting the flow reduction threshold, create a response. 2. With the R command, after reading the flow reduction threshold, create a response. 3. Returns the end of the response frame.	Flow reduction threshold Receive data size End of response frame
req[7-1-1-111]	Communication command: Concentration + status	Perform communication command processing for concentration + status	received data Receive data size Subcommand	1. Execute the following processes 2 to 4 with the R command. 2. Obtain battery voltage icon. 3. Obtaining battery voltage status. 4. Create character data corresponding to battery voltage. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-112]	Communication command: Concentration	Perform communication command processing on concentration	received data Receive data size Subcommand Gas setting Fault status Minus flag	1. With the R command, character data corresponding to the concentration is created. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-113]	Communication command: Peak concentration	Perform communication command processing for peak concentration	received data Receive data size Subcommand minimum value Maximum value Minus flag Gas setting Fault status	1. Execute the following processes 2 to 5 with the R command. 2. In the case of O2, the minimum value is placed in the peak concentration value and the minus flag of the minimum value is placed in the peak flag. 3. For cases other than O2, put the maximum value in the peak concentration value and put the minus flag of the maximum value in the peak flag. 4. In case of sensor abnormality, create a character string corresponding to sensor abnormality. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-114]	Communication command: A/D value	Perform communication command processing for the A/D value	received data Receive data size Subcommand	1. Read the A/D values of the battery and all sensors with the R command. 2. Returns the end of the response frame.	Battery A/D value A/D value of all sensors Receive data size End of response frame
req[7-1-1-115]	Communication command: Device connection check	Perform communication command processing for device connection check	received data Receive data size Subcommand	1. Use the R command to check the connection status of the device. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-116]	Communication command: Alarm test	Perform communication command processing for alarm test	received data Receive data size Subcommand	1. W command stops warning if '0' is in buffer. 2. If the buzzer flag is greater than 2, set alarm 1 H alarm and issue an alarm. 3. With the R command, put the result of alarm test ON / OFF setting confirmation processing of SDM or manufacturing facility into the buzzer flag. 4. Change numeric value to character data. 5. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-117]	Communication command: Alarm check (for SDM)	Perform communication command processing for alarm check	received data Receive data size Subcommand	1. With the S command, after setting the alarm lamp, buzzer, vibration motor ON/OFF, create a response. 2. Set the alarm test ON/OFF of SDM or manufacturing equipment with E command. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-118]	Communication command: Obtain key operation status	Perform communication command processing for obtaining operation status	received data Receive data size Subcommand	1. In the loading process, buffer the flags of the MODE and AIR keys. 2. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-119]	Communication command: LED light check	Perform communication command processing for LED light check	received data Receive data size Subcommand	1. With the S command, after setting the light ON, create a response. 2. With the E command, after setting the light OFF, create a response. 3. Returns the end of the response frame.	Receive data size End of response frame
req[7-1-1-120]	Main processing after receiving SCI5 command	Perform main processing after receiving SCI5 command	Reception completion flag	1. Perform 2 and 3 when the reception completion flag is ON. 2. Perform command processing. 3. Send the send data.	None
req[7-1-2-1]	Create UPDATA display	Perform display creation processing at UPDATA	None	1. Clear LCD display data. 2. Display it as UP DATA.	None
req[7-1-2-2]	FirmUpdate flag set	Perform FirmUpdate flag set processing	None	1. Turnon the FirmUpdate flag.	FirmUpdate flag
req[7-1-2-3]	FirmUpdate mode flag set	Perform FirmUpdate mode flag set processing	None	1. Set the FirmUpdate mode flag to ON.	FirmUpdate mode flag
req[7-1-2-4]	FirmUpdate mode flag acquisition	Perform FirmUpdate mode flag acquisition processing	None	1. Return the FirmUpdate mode flag	FirmUpdate mode flag
req[7-1-2-5]	LED processing for FW rewrite display	Perform LED processing for FW rewriting display	LED count LED Mode	1. Set the LED process under the following conditions 2 to 5. 2. Update standby time. 3. Updating. 4. Upon successful completion of update. 5. On update error.	LED count Output latch
req[7-1-2-6]	FW rewrite LED error blink	Perform FW rewriting LED error blinking processing	None	1. Once LED turns off, error blinking is carried out. 2. LED error Start flashing.	LED Mode
req[7-1-2-7]	Key check processing	Perform key check processing	Power OFF count	1. If the state of the sample key is 1, turn on the power. 2. If the status of the sample key is 0, turn off the power. 3. If you press and hold for a long time, perform the following processing 4 to 5. 4. Turnoff LED. 5. Set update status to idle state.	Update status
req[7-1-2-8]	FW rewrite processing in progress 1 msec interrupt	Interrupt processing is performed for 1 ms during FW rewrite processing	None	1. Allow interrupts. 2. Call 1 msec timer interrupt processing. 3. When the 10 msec count is 0, set the 10 msec count to 10 and key check processing. 4. Call timer processing.	None
req[7-1-2-9]	AccessWindow setting	Perform the Accesswindow setting	None	1. Set access window. 2. Confirm the end of the access window setting.	Start address End address
req[7-1-2-10]	FW rewrite processing	Perform FW rewrite processing	None	1. Reset the watchdog timer. 2. Initialize FW rewrite RAM. 3. Maintain power on. 4. Disable interrupt. 5. Relocate variable vector table to RAM. 6. Set interrupt handling for SCI 5. 7. Enable CMI 1 interrupt in ICU. 8. Start CMI1 count. 9. Resetting the variable vector table address. 10. Allow interrupts. 11. Deploy FTI processing code to RAM. 12. Set FRDY1 callback function and interrupt priority level. 13. Start communication. 14. Perform main loop processing. 15. Perform LED processing.	Output port Update status LED Mode
req[7-1-2-11]	FW rewrite processing in progress 10 msec interrupt	Interrupt processing is performed for 10 ms during FW rewrite processing	None	1. Call key check processing. 2. Call timer processing.	None
req[7-1-2-12]	FLASH open	Perform FLASH open	None	1. Substitute the FLASH open result. 2. Return the result flags.	Result flag
req[7-1-2-13]	FLASH close	Perform FLASH close	None	1. Assign the FLASH close result. 2. Return the result flags.	Result flag
req[7-1-2-14]	FLASH erase block	Perform FLASH erase block	Starting block number Number of blocks	1. Initialize the result flags. 2. If the number of blocks is less than the block upper limit, perform the following processing. 3. Do a FLASH block erase and get the result. 4. WDT restart while FLASH status is BUSY	Result flag
req[7-1-2-15]	Startup area switching execution	Perform startup area switching execution	None	1. Initialize the result flags. 2. Execute FLASH startup area switching and get the result. 3. Return result flags.	Result flag

req[7-1-2-16]	Get startup area	Perform get startup area	None	1. Get the FLASH startup area. 2. Return the result flags.	Result flag
req[7-1-2-17]	FLASH check blank	Perform FLASH check blank	FLASH block address Check size	1. If the check size is 0, assign an error to the result flag. 2. In cases other than process 1, if the FLASH blank check succeeds, assign normal to the result flag. WDT restarts while FLASH status is BUSY. 3. Return result flags.	Result flag
req[7-1-2-18]	FLASH write page	Perform FLASH write page	Write buffer Write address Write size	1. If the write buffer is NULL or the write size is 0, assign abnormal to the result flags. 2. For other than process 1, if FLASH is blank, write to FLASH and get the result. 3. Return result flags.	Result flag
req[7-1-2-19]	FLASH read page	Perform FLASH read page	Read buffer Read address Read size	1. If the read buffer is NULL or the read size is 0, assign an error to the result flag. 2. In cases other than process 1, copy the data to the read buffer and assign normal to the result flag. 3. Return result flags.	Result flag
req[7-1-2-20]	Erase with address size	Perform erase with address size	Erase address Erase size	1. Get the erase start block number. 2. Get the erase end block number. 3. Do a block erase and get the result. 4. Return result flags.	Result flag
req[7-1-2-21]	Setting FLASH information	Perform setting FLASH information	FLASH setting information	1. If the FLASH mode is NORMAL, UPDATE, or RESTART, get the FLASH mode and substitute the result. 2. Return the result flags.	Result flag
req[7-1-2-22]	Get FLASH information	Perform get FLASH information	FLASH setting information	1. Initialize the result flags. 2. Get FLASH information. 3. Return result flag.	Result flag
req[7-1-2-23]	Flash access end	Perform flash access end	Event type	1. Initialize the result flags. 2. Resume interrupt processing. 3. Return result flag.	Result flag
req[7-1-2-24]	Suspend interrupt processing	Perform suspend interrupt processing	None	1. Disable interrupts.	None
req[7-1-2-25]	Resume interrupt processing	Perform resume interrupt processing	None	1. Allow interrupts.	None
req[7-1-2-26]	Wait for FLASH write page status acquisition	Perform wait for FLASH write page status acquisition	None	1. WDT restarts while the result of acquiring the FLASH status is BUSY.	None
req[7-1-2-27]	Compare variables in U_CHR address	Perform compare variables in U_CHR address	Pointer address of comparison destination Pointer address of comparison source Comparison size	1. Compare two variables. 2. When the comparison result matches, the comparison result is made coincident. 3 Count up two variables. 4. Return comparison result.	Comparison result
req[7-1-2-28]	Copy variables in address of U_CHR	Perform copy variables in address of U_CHR	Matrix address Characters (numbers) Number of characters (maximum 8 digits) Decimal point	1. Place the source variable in the destination variable. 2. Count up two variables.	None
req[7-1-2-29]	Convert HEX(Byte) data to ASCII data	Perform convert HEX(Byte) data to ASCII data	ASCII data as HEX (Byte) data The number of data	1. Convert HEX data 'A' to 'F' to ASCII data. 2. Count the converted number. 3. Return ASCII data.	Convertion value
req[7-1-2-30]	Convert ASCII data to HEX (Byte) data	Perform convert ASCII data to HEX (Byte) data	ASCII data as HEX (Byte) data The number of data	1. If the size of the ASCII data is 2, convert it to 2 bytes of HEX data. 2. If the size of the ASCII data is 4, convert it to 4-byte HEX data.	None
req[7-1-2-31]	SUM calculation of transmitted data	Perform SUM calculation of transmitted data	Receive buffer Received data counter	1. Calculate the SUM value by adding data equal to the number of counters to the data in the receive buffer. 2. Return the SUM value.	SUM value
req[7-1-2-32]	Received data SUM check	Perform received data SUM check	Receive buffer	1. Add the data from the start data STX to the end data ETX of the receive buffer. 2. Get the received SUM value. 3. Compare the calculated SUM value with the received SUM value to get the result. 4. Return result flag.	Result flag
req[7-1-2-33]	Receive data command processing	Perform receive data command processing	Receive buffer Transmit buffer Terminator save buffer	1. Copy the command part of the receive buffer to the transmit buffer. 2. Calculate the SUM value and if it is normal, execute command processing. 3. If the command processing result is an error, assign NAK to the send buffer. 4. Return command processing result.	Command processing result
req[7-1-2-34]	Termination of response frames	Perform termination of response frames	Receive buffer Transmit buffer Terminator save buffer	1. Assign the end data to the transmit buffer. 2. Calculate the SUM value and assign it to the transmit buffer. 3. Assign a terminator to the transmit buffer. 4. Return the transmission data size.	Transmission data size
req[7-1-2-35]	Device connection confirmation command	Perform device connection confirmation command	Receive buffer Transmit buffer Terminator save buffer	1. For the R command, get the device name. Assign the result to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-36]	FW update command	Perform FW update command	Receive buffer Transmit buffer Terminator save buffer	1. For the W command, get the mode type. Assign the result to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-37]	Action mode command	Perform action mode command	Receive buffer Transmit buffer Terminator save buffer	1. For the R command, get the operating mode. Assign the result to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-38]	Startup area switching command	Perform startup area switching command	Receive buffer Transmit buffer Terminator save buffer	1. For the W command, get the switching result of the startup area. Assign the result to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-39]	Restart command	Perform restart command	Receive buffer Transmit buffer Terminator save buffer	1. For S command, execute the mode switching process and get the result. Assign the result to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-40]	FW update preparation command	Perform FW update preparation command	Receive buffer Transmit buffer Terminator save buffer	1. For the S command, assign ACK to the send buffer. 2. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-41]	Data transfer command	Perform data transfer command	Receive buffer Transmit buffer Terminator save buffer	1. For the S command, get the rewrite start address, data size, and SUM value, start FLASH erase processing, and get the result. Assign the result to the send buffer. 2. For the W command, get the write address, do a FLASH write and get the result. Assign the result to the send buffer. 3. In the case of the E command, perform end processing and obtain the result. Assign the result to the send buffer. 4. Send the transmit buffer.	Receive data size End of response frame
req[7-1-2-42]	Main loop start preprocessing	Perform main loop start preprocessing	None	1. Start serial communication. 2. Perform main loop processing.	None
req[7-1-2-43]	Mode switching	Perform mode switching	Mode request flag	1. Get the mode switching result. 2. Return the mode switching result.	Mode switching result
req[7-1-2-44]	FW update pre-start processing	Perform FW update pre-start processing	Rewriting start address Data size SUM value buffer	1. If the data size is greater than 0 and the data size is divisible by the rewriting size, perform the following processing. 2. Perform WDT restart. 3. Erase FLASH and get the result. 4. Perform WDT restart. 5. If the result is successful, update the rewrite start address, data size, SUM value buffer, and rewrite data size. 6. Return result flag.	Result flag
req[7-1-2-45]	FW rewrite	Perform FW rewrite	Rewriting start address FW data	1. Rewrite the FLASH memory and get the result. 2. If rewriting is successful, add the write data size. 3. Return the result.	Result flag
req[7-1-2-46]	FW rewrite finished	Perform FW rewrite finished	Receive data size Write data size Received SUM value	1. If the receive data size is less than the write data size, perform 3 and 4. 2. Initialize the result flags. 3. Calculate the SUM value of the rewritten FW. 4. Assign the result of comparing the received SUM value and the calculated SUM value to the result flag. 5. Return result flag.	Result flag
req[7-1-2-47]	LED control	Perform LED control	LED mode flag	1. If the LED mode flag is IDLE, set LED1=ON, LED2=OFF, LED3=OFF. If the LED mode flag is ERASE, set LED1=OFF, LED2=OFF, LED3=ON. If the LED mode flag is WRITE, set LED1=OFF, LED2=LED ON/OFF flag, and	None
req[7-1-2-48]	LED mode set	Perform LED mode set	Mode request flag	1. Assign the mode request flag to the LED mode flag.	LED mode flag
req[7-1-2-49]	Reset flag setting	Perform reset flag setting	Reset request flag	1. Assign the reset request flag to the reset flag.	Reset flag
req[7-1-2-50]	10msec callback	Perform 10msec callback	LED toggle counter	1. Perform the following processing when the LED toggle counter is non-zero. 2. Decrement the LED toggle counter. 3. If the LED toggle counter is 0, toggle the LED ON/OFF flag and set the toggle time (100ms) in the LED toggle counter.	LED ON/OFF flag LED toggle counter
req[7-1-2-51]	FW update main loop	Perform FW update main loop	Reset flag	1. If the reset flag is non-zero, perform FW update reset processing. 2. Perform WDT restart. 3. Perform PC communication processing. 4. Perform LED operation processing.	None
req[7-1-2-52]	FW update reset process	Perform FW update reset process	Reset flag	1. If the reset flag is waiting for transmission completion, check the transmission status of serial communication, and if transmission is completed, set the reset flag to transmission completion.	None
req[7-1-2-53]	FW update end processing	Perform FW update end processing	None	1. Stop serial communication. 2. Turn off the power retention port. 3. Restart WDT.	None
req[7-1-2-54]	Port operation for power retention	Perform port operation for power retention	ON/OFF request flag	1. When the ON/OFF request flag is ON, the power retention port is turned ON, and when it is OFF, the power retention port is turned OFF.	None
req[7-1-2-55]	LED port setting processing	Perform LED port setting processing	LED type ON/OFF request flag	1. If the LED type is LED1, control the left LED according to the ON/OFF request flag. When the LED type is LED2, the center LED is controlled according to the ON/OFF request flag.	None
req[7-1-2-56]	Key port acquisition process	Perform key port acquisition process	Key type	1. If the key type is the POWER key, assign true to the result flag; otherwise, assign false to the result flag.	Result flag
req[7-1-2-57]	Port setting processing for LCD	Perform port setting processing for LCD	Port type ON/OFF request flag	1. If the ON/OFF request flag is ON, turn on the LCD backlight, and if it is OFF, turn off the LCD backlight.	None
req[7-1-2-58]	Serial communication main processing	Perform serial communication main processing	Reception completion flag	1. Perform the following processing when the reception completion flag is ON. 2. Perform command processing. 3. Perform reply processing. 4. Start serial communication.	None
req[7-1-2-59]	Start serial communication	Perform start serial communication	Received data	1. Perform UART5 reception processing. 2. Start UART5 communication processing.	None
req[7-1-2-60]	UART5 Receive buffer setting processing for receiving the next 1 byte	Perform UART5 Receive buffer setting processing for receiving the next 1 byte	Received data	1. Perform UART5 reception processing.	None
req[7-1-2-61]	Serial communication stop	Perform serial communication stop	None	1. Perform UART5 stop processing.	None
req[7-1-2-62]	Check serial transmission status	Perform check serial transmission status	None	1. Get the serial transmission status. 2. Return serial transmission status.	Serial transmission status
req[7-1-2-63]	Get binary reception flag	Perform get binary reception flag	None	1. Return the binary receive flag.	Binary receive flag
req[7-1-2-64]	Serial receive interrupt processing	Perform serial receive interrupt processing	Received data	1. If the received data counter is 0 and the received data is not STX, perform the following processing. 2. Assign the received data to the receive buffer and increment the received data counter. 3. If the received data counter is greater than or equal to the upper limit, substitute the initial values for the received data counter and the FW rewrite command processing flag. 4. If the FW rewrite command processing flag is false and the 92W command is received, substitute true for the FW rewrite command processing flag. 5. If the FW rewrite command processing flag is true, if the received data is the end character, and if the received data counter is the default value, substitute the received data into the terminator save buffer and set the reception completion flag to ON. 6. If the FW rewrite command processing flag is false and the received data is the end character, substitute the received data into the terminator save buffer and set the reception completion flag to ON.	Receive buffer Received data counter FW rewrite command processing flag Terminator save buffer Reception completion flag

req[7-1-2-65]	Reply processing to PC	Perform reply processing to PC	None	1. Perform data transmission processing. 2. Perform data transmission end processing.	None
req[7-1-2-66]	Data transmission end processing	Perform data transmission end processing	None	1. Assign the initial value to the receive counter. 2. Assign the initial value to the receive completion flag. 3. Assign the initial value to the FW rewrite command processing flag.	Receive counter Receive completion flag FW rewrite command processing flag
req[7-1-2-67]	Data transmission process	Perform data transmission process	None	1. Perform UART5 transmission processing.	None
req[7-1-2-68]	Watchdog timer restart	Perform watchdog timer restart	None	1. Restart WDT.	None
req[7-1-2-69]	Sensor MCU 10 msec acquisition processing of switching flag	Acquire sensor MCU 10 msec switching flag	None	1. 10 msec Returns the switching flag.	10 msec switching flag
req[7-1-2-70]	Sensor MCU FW rewriting 10 msec interrupt processing	Perform sensor MCU FW rewriting 10 msec interrupt processing	Count timer	1. When the count timer is not 0, the count timer is counted down. 2. Read the pressed state of the key. 3. Create an event for ZIPC of key.	Count timer
req[7-1-2-71]	Sensor MCU FW rewrite processing	Perform sensor MCU FW rewrite processing	Sensor MCU FW rewrite execution flag Count timer Sensor MCU FW rewrite execution flag Sensor MCU FW rewrite end flag	1. When the sensor MCU FW rewrite execution flag is ON and the FRAM write start flag is OFF, the following processes 2 to 13 are executed. 2. Reset the watchdog timer. 3. Stop SPI of dedicated function. 4. Stop each SCI. 5. Stop IIC of dedicated function. 6. Stop CMT2 interrupt. 7. Reset the watchdog timer. 8. Perform main loop processing. 9. Reset the watchdog timer. 10. When the rewriting program is started, the Reary command for rewriting FW is output. 11. Stop communication. 12. Reset the watchdog timer.	10 msec switching flag Count timer Power port
req[7-1-2-72]	Sensor MCU FW rewrite start processing	Perform sensor MCU FW rewrite start processing	None	1. Turnon sensor MCU FW rewrite end flag.	Sensor MCU FW rewrite end flag
req[7-1-2-73]	Sensor microcomputer FW rewrite mode flag setting processing	Perform sensor microcomputer FW rewrite mode flag setting processing	Request flag	1. Assign the request flag to the FW rewrite mode flag.	FW rewrite mode flag
req[7-1-2-74]	Sensor microcomputer FW rewrite mode flag acquisition processing	Perform sensor microcomputer FW rewrite mode flag acquisition processing	None	1. Return the FW rewrite mode flag.	FW rewrite mode flag
req[7-1-2-75]	BaudRateSet command	Perform BaudRateSet command transmission processing	None	1. Set delay time acquisition ID. 2. Send BaudRateSet command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. If there is no abnormality in the reception end wait processing, the result is normally ended. 5. Return results.	Delay time acquisition ID result
req[7-1-2-76]	BlockBlankCheck command	Perform BlockBlankCheck command transmission processing	Start address End address	1. Set delay time acquisition ID. 2. Send a BlockBlankCheck command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-77]	BlockErase command	Perform BlockErase command transmission processing	Erase address	1. Set delay time acquisition ID. 2. Send a BlockErase command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-78]	CheckSum command	Perform CheckSum command transmission processing	Block header address SUM value	1. Set delay time acquisition ID. 2. Send CheckSum command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-79]	Programming command step.1	Perform programming command (1) command transmission processing	Block header address	1. Set delay time acquisition ID. 2. Programming command (1) Send command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-80]	Programming command step.2	Perform programming command (2) command transmission processing	Data size data Last frame	1. Set delay time acquisition ID. 2. Programming command (2) Send command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-81]	Programming command step.3	Perform programming command (3) command transmission processing	None	1. Set delay time acquisition ID. 2. Programming command (3) Send command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-82]	Reset command	Perform Reset command transmission processing	None	1. Set delay time acquisition ID. 2. Send the Reset command frame. 3. If the result of the reception end wait process is time-out or error, the result is abnormally ended. 4. Return results.	Delay time acquisition ID result
req[7-1-2-83]	Calculating SUM value of 16 bit command	Calculate the SUM value of 16 bit command	amount of data data	1. Calculate SUM value of 16 bit command. 2. Returns the SUM value.	SUM value
req[7-1-2-84]	Calculating SUM value of 8 bit command	Calculate the SUM value of 8 bit command	amount of data data	1. Calculate SUM value of 8 bit command.	SUM value
req[7-1-2-85]	Delete until last block	Perform deletion processing until the last block	address	1. Add the rewritable minimum value to the start block address. 2. When the start block address is larger than the value obtained by adding 1 to the write end address, the result is set to TRUE. 3. Return results.	result
req[7-1-2-86]	ACK check	Perform ACK check processing	The number of data Receive buffer	1. If the receive buffer is ACK, set the result to TRUE. 2. Return results.	result

req[7-1-2-87]	Reception request	Return reception request	Receive buffer Reception amount SCI reception flag of RL78	1. When the SCI reception flag of RL78 is TRUE, the result is set to FALSE. 2. Set the SCI reception flag of RL78 to TRUE. 3. Set the number of data received by SCI9 to 0. 4. Put the reception amount in the received data length of SCI9. 5. Put the receive buffer in the receive buffer address of SCI9. 6. Return results.	SCI reception flag of RL78 Number of data received by SCI9 Receive data length of SCI9 Receive buffer address of SCI9 result
req[7-1-2-88]	Status/frame reception request	Perform status/frame reception request processing	Number of bytes	1. If the reception request processing has failed, the result is abnormally ended. 2. Return results.	result
req[7-1-2-89]	Transmission request	Perform transmission request processing	Transmit buffer Transmission amount SCI reception flag of RL78	1. When the SCI reception flag of RL78 is TRUE, the result is set to FALSE. 2. Set the SCI reception flag of RL78 to TRUE. 3. Put the reception amount in the transmission data length of SCI9. 4. Put the receive buffer in the send buffer address of SCI9. 5. Return results.	SCI reception flag of RL78 SCI reception flag of RL78 Transmission data length of SCI9 Transmit buffer address of SCI9
req[7-1-2-90]	Command/frame transmission request	Perform command/frame transmission request processing	command Number of bytes address SCL transmission flag of RL78	1. Set transmission buffer. 2. Calculate SUM value of 8 bit command. 3. Reset watchdog timer if transmitting.	Transmit buffer
req[7-1-2-91]	Data frame transmission request	Perform data frame transmission request processing	Number of bytes address Last frame SCL transmission flag of RL78	1. If the data byte is 0, set the data byte to 256. 2. Set transmission buffer. 3. Calculate SUM value of 8 bit command. 4. If the last frame is TRUE, put the ASCII_ETX into the send buffer. 5. Reset watchdog timer if transmitting.	Transmit buffer
req[7-1-2-92]	Restart communication driver	Perform restart communication driver	None	1. Stop IIC on SCI9 and stop communication driver. 2. Initialize the setting of SCI9. 3. Set control register. 4. Start UART of SCI9 and start communication driver.	Output port
req[7-1-2-93]	Communication method data transmission	Perform data transmission process of communication method	None	1. Set the TOOL0 pin to LOW. 2. When the number of UART lines is 128, set the TOOL 0 pin to HIGH. 3. Perform nop processing. 4. Reset the watchdog timer.	None
req[7-1-2-94]	Update wait time	Perform update processing of wait time	frequency	1. Set the minimum wait time. 2. Set the time required for data transmission / reception. 3. Set the time taken to receive the next command. 4. Set the time to timeout.	Waiting time
req[7-1-2-95]	Wait processing	Perform wait processing	Waiting time	1. Perform nop processing. 2. Reset the watchdog timer.	None
req[7-1-2-96]	Wait for reception end	Perform reception end wait processing	Timeout ID Waiting time Number of bytes received SCI reception flag of RL78	1. Perform nop processing. 2. Reset the watchdog timer. 3. If the SCI reception flag of RL78 is not TRUE, the result is normally ended. 4. Return results.	None
req[7-1-2-97]	Target power OFF	Sensor unit power OFF	None	1. Stop supplying the SCI line. 2. Suspend the power supply of the sensor unit.	Output port
req[7-1-2-98]	Block rewrite	Perform block rewrite processing	Rewrite data Split data counter Current block top address	1. Calculate SUM value of 16 bit command. 2. Rewrite in the order of 1st frame and 2nd frame. 3. When the 1st frame and 2nd frame can be rewritten normally, the last frame is rewritten. 4. If the rewrite fails in one of the 1st frame, the 2nd frame, and the last frame, set the result to FALSE. 5. Return results.	Split data counter Current block top address Rewrite SUM value result
req[7-1-2-99]	Setting the start block	Perform setting process of start block	Start block address	1. When the start block address is larger than the write end address, the result is set to FALSE. 2. Put the start block address in the current block top address. 3. The divided data counter is set to 1. 4. Return deletion processing until the last block. 5. Return results.	Split data counter Current block top address result
req[7-1-2-100]	Start rewrite program	Start processing of rewriting program	None	1. Set the waiting time to 0. 75. 2. Turnoff the target. 3. Configure each port. 4. Send communication mode data. 5. Restart communication driver. 6. Set delay time acquisition ID. 7. Set the baud rate. 8. Update standby time. 9. Make the result TRUE. 10. Return results.	Delay time acquisition ID
req[8-1-1-1]	Power OFF history record	Perform power OFF history record	Measurement type Erase incomplete address flag Alarm event sector Continuous number of flash write faults Calibration history sector Power ON/OFF sectors Calibration history address Power ONOFF address	1. Set the time buffer. 2. When the power is off, the logger is ended. 3. Record the interval trend trailer. 4. Check the maximum number of alarm event records. 5. Check fault event record maximum number. 6. Check the maximum number of calibration history records. 7. Power ON/OFF setting history Check the maximum number of records. 8. Check the setting change record maximum number.	Concentration data Main unit status Sensor specifications Parameters A/D Operation mode Erase incomplete address flag judgment result
req[8-1-1-2]	Power ON history record	Perform power ON history record	Continuous number of flash write faults	1. Set the time buffer. 2. Set mode elapsed seconds count to 0. 3. Create data. 4. Write to the power ON/OFF setting history area. 5. Cancel the logger error state. 6. Update Ponta of Failure.	Concentration data Main unit status Sensor specifications Parameters A/D value
req[8-1-1-3]	Default processing of FRAM data for data_logger.c	Perform default processing of FRAM data for data_logger. c	FRAM data for data_logger. c	1. Set FRAM data for data_logger. c to the default state.	None
req[8-1-1-4]	Stopped state set	Perform setting of the function stop state	None	1. Set the function stop state.	None
req[8-1-1-5]	Power ON/OFF history creation	Create power ON/OFF history	Created string Power ON/OFF	1. Check the logger pointer status. 2. Confirm logger face information. 3. Set the in-page record count to 2.	In-page record count
req[8-1-1-6]	Power ON/OFF record maximum number check	Check power supply ON/OFF record maximum number	Applicable number Power ON/OFF address Number of power ONOFF data	1. If the number of record keeping is equal to or less than the number of power ON/OFF setting data, check the maximum number of power ON/OFF setting records. 2. Flash erase.	Power ON/OFF sectors
req[8-1-1-7]	Write to power ON/OFF area	Write to the power ON/OFF area	Write data Number of bytes written Number of power ON/OFF data Power ON/OFF address	1. If the maximum number of power ON/OFF settings and the number of power ON/OFF setting data are not equal, write to the power ON/OFF setting area.	Erase incomplete address Number of power ON/OFF data
req[8-1-1-8]	Add to power supply area	Add to power supply area	Write data Number of bytes written Number of power ONOFF data In-page record count Power ONOFF address	1. If the number of power ON/OFF setting data is not the maximum power ON/OFF setting number, write the specified byte to FLASH.	None
req[8-1-1-9]	Logger function power supply log clear clear end processing	Perform logger function power supply log clear end processing	None	1. Return logger power event clear flag.	Logger power event clear flag
req[8-1-1-10]	Logger function power supply log clear processing	Perform logger function power supply log clear processing	Logger power event clear flag	1. When the logger power event clear flag is ON and the power logger has not been cleared, turn off the logger power event clear flag.	Logger power event clear flag
req[8-1-1-11]	Power supply stop processing of logger	Perform power supply stop processing of logger	status	1. If an error does not occur while executing the logger, make the result into execution. 2. If an error occurs during logger execution, update FRAM and end the result as completion. 3. Return results.	result
req[8-1-1-12]	Logger power supply activation processing	Perform logger power supply activation processing	None	1. Record power ON history.	None
req[8-1-1-13]	Power supply for logger function Logger clear start processing	Power supply of logger function perform logger clear start process	None	1. Turn logger power event clear flag ON.	Logger power event clear flag
req[8-1-2-1]	Logger comparison processing	Perform logger comparison processing	Number 1 Number 2 Number of times to compare	1. Compare logger numbers.	judgment result
req[8-1-2-2]	Sector erase processing of logger FLASH	Perform sector erase processing of logger FLASH	Address of logger flash Interval Trend Address Alarm event address Failure event address Calibration history address Setting change address	1. Delete the following addresses 2 to 7 in order. 2. Alarm trend address. 3. Power ONOFF address. 4. Alarm event address. 5. Failure event address. 6. Calibration history address. 7. Setting change address.	Erase incomplete address
req[8-1-2-3]	Logger flash status read processing	Perform status readout process of logger flash	Number of remaining erase blocks Erase block size Erase continuation address	1. Read the status of the logger flash.	Erase continuation address Processing step
req[8-1-2-4]	Confirm whether it is a leap year or not	Confirm whether it is a leap year or not	Christian calendar year data	1. Confirm whether it is a leap year or not.	Plus one day
req[8-1-2-5]	Gas result summary of interval trend	Summarize gas results of interval trend	Gas mode port Output string buffer Number of logger data Average value of concentration data	1. Summarize gas results of interval trend.	Output string

req[8-1-2-6]	Logger confirmation	Confirm each logger	Interval trend cycle Error condition Obtaining the mode status Operation mode General purpose buffer Standby state for this logger state Data logger control flag Measurement start 4K block Logger activation instructed flag Unerased address (flag) Interval stop processing Flash erase, write error occurrence logger classification Error record	1. Set the time buffer. 2. Count up mode elapsed seconds count. 3. When the mode is the operation mode, the following processes 4 to 8 are executed. 4. Get mode status. 5. Copy buffer. 6. Buffer the current mode. 7. Set mode elapsed seconds to 0. 8. Append to power supply area. 9. When the mode is the standby mode, the processing setting in the standby state of the following 10 to 11 is set. 10. Recording standby at power on. 11. Wait for logger to start. 12. When the mode is the logger restart mode, start the logger after stopping. 13. When the logger is running or stopped, set the processing in the following 14 to 18 states and events. 14. At the time of interval. 15. On operation event. 16. At alarm event. 17. On fault event. 18. Sector erase execution standby.	Concentration data Main unit status Sensor specifications Parameters A/D value Operation mode
req[8-1-2-7]	Logger start	Start each logger	Measurement type Lunch Break FRAM measurement log count Number of logger data Average concentration integrated value of interval interval Integrated temperature value Processing time record Peak temperature value for 5 seconds Logical time finally measured periodically processed Automatic recording interval setting value Overwrite implemented flag	1. Update the measurement logger count of FRAM. 2. Initialize the previous alarm status. 3. Initialize the previous fault status. 4. Initialize the number of logger data. 5. Initialize page address. 6. Initialize the number of alarms. 7. Initialize the average concentration integrated value of the interval interval. 8. Acquire the final calibration date and time. 9. Record the time taken for processing. 10. Initialize cycle time at final write. 11. Initialize the average temperature. 12. Set auto recording interval. 13. Create and record an interval header.	Peak value for 5 seconds Cumulative temperature Processing time record
req[8-1-2-8]	Logger stop	Stop each logger	Data logger control flag Address of the next writing position from the top of the page Erase incomplete address Number of alarms being recorded	1. Set the time buffer. 2. Fill the page. 3. Record the alarm trend header. 4. End the interval. 5. After writing the trailer, clear the running status and stop. 6. Return processing step+P884.	Processing step Command processing flag
req[8-1-2-9]	Copy n bytes	Perform n byte copy	Copy destination address Copy source address Number of copied bytes	1. Copy n bytes.	None
req[8-1-2-10]	Header code change	Change header code	Header buffer Correction value	1. Change header code.	General purpose buffer
req[8-1-2-11]	Concentration value or full scale + 1 digit	Perform minus over setting	Port setting Minus flag Concentration value Full scale value	1. If the concentration value is already DDDD value or FEFE value, do not do anything. 2. If the minus flag is ON, it returns minus over. 3. When the minus flag is OFF, it returns over.	Concentration value
req[8-1-2-12]	Logger buffering, page overflow is FLASH, pages less than RAM	Perform logger buffering	Write data Flash address In-page write pointer Alarm being recorded	1. Return specified byte write processing to FLASH.	judgment result
req[8-1-2-13]	Start measurement of interval trend sector erase avoidance	Perform measurement of interval trend starts sector erase avoidance	Measurement start 4K block Interval page pointer Overwrite implemented flag	1. If it is not the last page, move on to the next page. 2. In case of overwrite setting, return to the beginning. 3. In the case of the 2nd page of the block top page including the measurement starting page, wait until it becomes full.	None
req[8-1-2-14]	Gas specification in header	Perform setting process of gas specification in header	mode port buffer Each alarm point	1. If it exceeds 50000 ppm with 1 st alarm, 2 nd alarm, 3 rd alarm, STEL warning, TWA alarm, set it as concentration code. 2. Record the calibration history of the flammable gas and the bump history with the gas name that is not read. 3. Copy variables and create character data. 4. Return output string.	Output string
req[8-1-2-15]	Sensor invalid data of interval trend	Perform processing to return sensor invalid data of interval trend	Interval trend mode Port setting Output string	1. Copy variables. 2. Return initial fault / function OFF data. 3. Return output string.	Output string
req[8-1-2-16]	Sensor OFF data of interval trend	Perform processing to return sensor OFF data of interval trend	Interval trend mode Port setting Output string	1. Copy variables. 2. Return sensor OFF data. 3. Return output string.	Output string
req[8-1-2-17]	Logger header record for trends	Perform logger header recording for trend	data type Continuous number of flash write faults	1. If the data type is an alarm trend, fill the page and write it in the alarm trend header area. 2. Otherwise, write to the interval area.	None
req[8-1-2-18]	Create logger header data	Create each logger header data	Header data data type Lunch Break port	1. Create logger header data of the following data type 2 ~9 2. interval. 3. bar. 4. Alarm trend. 5. Alarm event. 6. Failure event. 7. Proofreading. 8. BUMP. 9. Returns the number of bytes.	Number of bytes
req[8-1-2-19]	Confirm measurement cycle	Perform measurement cycle check	Logical time seconds processed last in the measurement cycle Interval trend cycle Measurement period Processing time record Fault status Gas concentration (for display) 5 seconds peak temperature Gas concentration minus flag	1. Check interval time elapsed 2. When the interval trend cycle is equal to or less than the logical time seconds processed last in the measurement cycle, interval data is recorded or counted up, and the average concentration integration value of the interval interval is initialized. 3. Otherwise, it is added to the average concentration integrated value of the interval.	Cumulative concentration for average concentration of interval interval
req[8-1-2-20]	Interval event recording	Record interval events	Event type Channel Logger control flag Continuous number of flash write faults	1. If the log is not full, create the data and write it to the interval area.	None
req[8-1-2-21]	Interval event creation	Create an interval event	Created string Event type Channel Record elapsed seconds The first data write flag	1. Copy variables and create interval events. 2. Returns the number of output bytes.	Number of output bytes
req[8-1-2-22]	Acquisition of next page of interval	Acquire next page of interval	Interval page pointer Overwrite implemented flag	1. If it is not the last page, move on to the next page. 2. In case of overwrite setting, return to the beginning.	Interval page pointer Erase unexecuted address
req[8-1-2-23]	Fill page in the interval area	Perform page filling in the interval area	Write data Number of bytes to be written Next writing position from the top of the page Logger control flag Erase incomplete address	1. Check remaining amount on page. 2. If it is not full, acquire the next page and turn on the FRAM write start flag.	None
req[8-1-2-24]	Interval trend data recording	Recording interval trend data	Channel Continuous number of flash write faults	1. Create data. 2. Write to the interval area.	None
req[8-1-2-25]	Create interval trend data	Create interval trend data	The first data write flag Invalid (initial malfunction) flag Average concentration of interval interval ON/OFF setting flag	1. Copy variables and create interval trend data. 2. Returns the number of output bytes.	Number of output bytes
req[8-1-2-26]	Interval temperature data creation	Create interval temperature data	Output string Channel Average temperature of interval interval The first data write flag	1. Copy variables and create interval temperature data. 2. Returns the number of output bytes.	Number of output bytes
req[8-1-2-27]	Write to the interval area	Write to the interval area	Write data Number of bytes written Channel Data trigger control flag Number of successive rush write faults Logical time seconds processed last in the measurement cycle Continuous number of flash write faults Erase unexecuted address	1. If the page after writing matches the page size, obtain the next page. 2. Turnon FRAM write start flag. 3. If the successive flash write fault count is 0, turn on the first data write flag. 4. When the number of logger channels is less than the maximum number, record the cycle time at the time of writing. 5. Erase the next page.	Cycle time in average temperature writing time seconds
req[8-1-2-28]	Time buffer set	Perform time buffer set	None	1. Set the time buffer.	None
req[8-1-2-29]	Concentration code over 50000 ppm	Display concentration code when concentration is 50000 ppm or more	concentration	1. If the concentration value is greater than 50000 ppm, return the concentration code. 2. If the concentration value is less than 50000 ppm, return the concentration value.	Concentration code Concentration value
req[8-1-2-30]	Round with digits	Round with digits	concentration port	1. Round with digits. 2. Returns the rounded concentration in digits.	Concentration rounded by digit
req[8-1-2-31]	Logger error state set	Perform logger error state set processing	Error value Logger classification Error record Main unit error status Previous body fault status	1. Distinguish loggers where errors occurred. 2. Erase the flash with the main unit error, and write error. 3. Erase error, Interval overwritten only error, Errors all others. 4. Log an error. 5. Set main unit error status. 6. Get status. 7. Log an error.	Error record Main unit error status Previous body fault status
req[8-1-2-32]	Setting change record maximum number check	Check the setting change record maximum number	Number of setting change data Setting change sector Setting change address	1. If the record keep count is less than or equal to the set change data count, the maximum number of setting change data is checked. 2. Flash erase. 3. Count up successive flash write faults. 4. Delete setting change address to erase incomplete address.	Continuous number of flash write faults Erase incomplete address Number of setting change data Setting change sector
req[8-1-2-33]	Interval stop	Stop the interval	Erase incomplete address	1. When the processing state is 0, forced recording is performed and the processing state is set to 1. 2. When the processing state is 1 and the flash size and the erase incomplete address do not match, the result of the status read processing of the log flash is acquired and the processing state is set to 2. 3. If the processing state is 2 and the measurement type is normal or inert, record the trailer of the interval trend and set the processing state to 3. 4. When the processing state is 3, processing similar to processing state 1 is executed. 5. When the processing state is 4, the page filling and processing state of the interval area is set to 5. 6. When the processing state is 5, processing similar to processing state 1 is executed.	Processing state
req[8-1-2-34]	Trailer record of interval trend	Perform trailer recording of interval trend	data type Continuous number of flash write faults	1. Create data. 2. Write to the interval area.	None

req[8-1-2-35]	Create trailer of interval trend	Create trailer of interval trend	data type Created string Measure same value count Port state preservation Minus flag	1. Copy variables and create interval temperature data. 2. Returns the number of output bytes.	Number of output bytes
req[8-1-2-36]	Interval data storing or counting up	Perform interval data storing or counting up	Forced recording flag Integration number for average concentration of interval interval Cumulative concentration for average concentration of interval interval Invalid flag Continuation judgment of sensor OFF The number of data Automatic recording interval	1. When the integrated concentration for the average concentration for the interval interval is larger than 0, the average concentration of the interval interval is calculated. 2. When the forced recording flag satisfies the following conditions 3 to 5, the average concentration of the interval interval is acquired and the number of data is counted up and the elapse of the automatic recording time is confirmed. 3. Invalid flag is ON. 4. Continuation judgment of sensor OFF is OFF. 5. The number of data is 0. 6. When the number of data is other than 0, record interval trend data. 7. When the forced recording flag is OFF, carry out the following procedures 8 to 9. 8. Acquire the average concentration of the interval interval. 9. Set the number of data to 1. 10. Recording interval trend data. 11. Count up the number of logger data.	Average concentration of interval interval The number of data Number of logger data
req[8-1-2-37]	Logger error condition cancellation	cancel logger error condition	None	1. Cancel the logger error state.	Error condition
req[8-1-2-38]	Return 2 byte integer as CHAR pointer by byte order specification	Return 2 byte integer as CHAR pointer by byte order specification	1 byte integer Return buffer	1. Convert a 2-byte integer to a CHAR pointer in byte order specification and place it in the return buffer. 2. Return return buffer.	Return buffer
req[8-1-2-39]	Convert to days since 1/01/2000	Convert to days since 1/01/2000	Current month	1. Confirm there is no abnormality on the current month. 2. Calculate the number of days in a month. 3. 365 is added to the number of days calculated in 2. 4. Return days.	Return days
req[8-1-2-40]	Find the time difference in seconds	Find the time difference in seconds	Previous value Later value	1. Calculate the number of seconds. 2. Calculate the number of days. 3. Calculate the time difference. 4. Return time difference.	Time lag
req[8-1-2-41]	Convert to seconds since 00:00:00	Convert time to seconds	Value of 00:00:00	1. Acquire seconds. 2. Get minute and convert it to second. 3. Get time and convert to seconds. 4. Returns the sum of 1, 2 and 3.	The number of seconds
req[8-1-2-42]	Convert to seconds since 2000/01/01 00:00:00	Convert to seconds from 2000/01/01 00: 00: 00	Value of 2000/01/01 00: 00: 00	1. To the number of days since 2000/01/01 is multiplied by the value obtained by adding 86400 to the conversion processing to the number of seconds since 00:00:00 in the conversion processing. 2. Return results.	The number of seconds
req[8-1-2-43]	Logger wait state unset	Perform logger wait state unset processing	None	1. Clear the status. 2. Set the standby state to be in the logger state during initialization.	Standby state to enter the logger state
req[8-1-2-44]	Measurement upper limit value data creation for MINUS alarm point	Performs measurement upper limit value data creation processing for MINUS alarm point	Additional header data	1. If there is assignment to the corresponding port number of the channel, the following processes 2 to 4 are executed. 2. Retrieve the assigned number. 3. MINUS alarm point measurement upper limit value as concentration code. 4. Add 2 to the number of data bytes. 5. Returns the number of data bytes.	Number of data bytes
req[8-1-2-45]	Clear PEAK of logger function	Perform PEAK clear processing of logger function	None	1. Clear peak value.	None
req[8-1-2-46]	1 sec cycle confirmation processing of logger function	Perform 1 sec cycle confirmation processing of logger function	None	1. Confirmation at the time of abnormal stop of logger function and action to be taken. 2. Confirm logger.	None
req[8-1-2-47]	Lunch break flag substitution processing of logger function	Perform lunch break flag substitution processing of logger function	ON/OFF setting flag	1. When the ON/OFF setting flag is ON, the lunch break flag is turned on. 2. When the ON/OFF setting flag is OFF, the lunch break flag is turned off.	Lunch break flag
req[8-1-2-48]	Start processing of logger interval	Perform start processing of logger interval	None	1. Start logger.	None
req[8-1-2-49]	Stop processing of logger interval	Perform stop processing of logger interval	None	1. If the logger is stopped, make the result stop. 2. If the logger is not stopped, if you stop the result. 3. Return results.	result
req[8-1-2-50]	Check logger function abnormal stop processing	Perform check logger function abnormal stop processing	Fault status	1. Make the status system malfunctioning. 2. When the following conditions 3 to 5 are satisfied, error count processing is not performed. 3. It is in measurement or display mode. 4. The logger is moving. 5. Roga is a fault to recover. 6. When overwriting. 7. If the error count is greater than or equal to the logger forced startup time during the measurement / display mode, execute the following processing 8 to 13. 8. Reset error count. 9. Update the PEAK value to the current value. 10. Initialize accumulated area, average value. 11. Initialize STEL value and TWA value. 12. Turnoff the resume flag. 13. Start logger measurement.	The integrated value of the average value every 60 seconds Average value over all measurement time Integrated value from the start of measurement TWA value STEL value
req[8-1-2-51]	Operation confirmation processing of logger function	Perform operation confirmation processing of logger function	status	1. If the status is running, make the result run. 2. Return results.	result
req[8-1-4-1]	Alarm storing start	Perform alarm storing start processing	Alarm header page pointer Erase incomplete address Alarm trend address Warning point temporary data pointer Concentration value Minus flag	1. Count up the number of alarms being recorded. 2. Initialize the next writing position from the top of the page. 3. Acquire warning header page pointer. 4. Count up alarm header page pointer. 5. When the alarm header page pointer is the maximum number of alarm headers, the alarm header page pointer is initialized. 6. If the erase incompletion address matches the flash size, execute the following processing 7 to 8. 7. Put alarm trend address in erase incomplete address. 8. Erase the sector of the loga FLASH. 9. Record alarm data. 10. Acquire date and time of release. 11. Calculate data counter after warning. 12. Initialize the pre-alarm data copy counter and pre-alarm data copy page. 13. Acquire warning point temporary data pointer. 14. Initialize peak measurement value for 5 seconds. 15. Initialize the minus flag of the peak measurement value for 5 seconds. 16. Get peak temperature for 5 seconds.	Number of alarms being recorded Next writing position from the top of the page Alarm header page pointer Erase incomplete address Last processed time seconds Data counter after alarm Data copy counter before alarm Data copy page before alarm Warning point temporary data pointer Peak measurement value for 5 seconds Minus flag of peak measurement value for 5 seconds 5 seconds peak temperature
req[8-1-4-2]	Alarm event storing	store alarm event	Number of alarm events Alarm event sector Address of alarm event	1. Create a header. 2. Create data. 3. Write to the alarm event area.	Erase incomplete address
req[8-1-4-3]	Alarm event confirmation	Confirm each alarm event	Alarm holding information Previous alarm status Replacement gas setting value Erase incomplete address Data logger control flag Main unit error status Number of alarms being recorded	1. When the following conditions 2 to 4 are satisfied, an alarm event is recorded. 2. The event that occurred is a new event. 3. It is not a minus alarm. 4. It is an alarm other than CO_H2cancellation. 5. In the case of a minus alarm, only the interval event is recorded. 6. During interval 7 to 8 below, record interval event. 7. At warning return. 8. At temperature warning.	None
req[8-1-4-4]	Create alarm event	Create alarm event	Created string Event type Channel Number of concurrent events	1. Copy variables and create alarm events.	Number of output bytes
req[8-1-4-5]	Alarm event storing maximum number check	Check the alarm event storing maximum number	Number of alarm maintenance events applied Number of alarm events Address of alarm event	1. If the record keep count is less than or equal to the warning event record, check the maximum number of warning event records. 2. Flash erase.	Erase incomplete address Alarm event sector
req[8-1-4-6]	Write to the alarm event area	Write to the alarm event area	Write data Number of bytes written Number of alarm events Address of next write position Number of alarm events for header-less recording Number of concurrent events	1. If the number of alarm event data is not full, write to the alarm event area.	Number of concurrent events Number of alarm events Address of next write position Erase incomplete address
req[8-1-4-7]	End alarm trend header record	Record the alarm trend header at the end	Erase incomplete address	1. Record the alarm trend header at the end.	Processing step
req[8-1-4-8]	Write to the alarm trend header area	Write to the alarm trend header area	Write data Number of bytes written Area No Flash writing failed	1. Write at the end of trend recording or power off.	None
req[8-1-4-9]	Confirm storing cycle after warning	Confirm storing cycle after warning	Alarm being recorded Last processed time seconds Peak temperature value for 5 seconds Gas concentration Peak measurement value for 5 seconds Minus flag of peak measurement value for 5 seconds Number of alarm events	1. When 5 seconds have elapsed, peak initialization is performed for 5 seconds and processing time is recorded. 2. If 5 seconds have not elapsed, check the peak for 5 seconds and calculate the temperature value. 3. When alarm trend recording is completed, record the header.	5 seconds peak temperature
req[8-1-4-10]	Confirm storing cycle before alarm	Confirm storing cycle before alarm	Time in the last measurement cycle processing Gas concentration Gas concentration minus flag Peak temperature value for 5 seconds Peak measured value for 5 seconds before alarm Minus flag of peak measurement value for 5	1. When 5 seconds have elapsed, data is recorded in the continuous storage area. Also, record the peak initialization processing time for 5 seconds. 2. If 5 seconds have not elapsed, check the peak for 5 seconds and calculate the temperature value.	Peak temperature value for 5 seconds before alarm
req[8-1-4-11]	Header record confirmation	Confirm header record	Next writing position from the top of the page Area No Date and time of release Data counter after alarm Number of data copies before alert Pre-data copy page number Data copy position before alarm Pre-alert data code Peak measurement value for 5 seconds Minus flag of peak measurement value for 5 seconds Number of alarms in process	1. Record trend logger headers. 2. Acquire the next writing position from the top of the page. 3. Acquire warning header page pointer. 4. Acquire date and time of release. 5. Acquire data counter after warning. 6. Acquire data copy number before alert. 7. Acquire data copy page number before alert. 8. Acquire data copy position before alert. 9. Acquire data code before alarm. 10. Acquire peak measurement value for 5 seconds. 11. Acquire the minus flag of the peak measurement value for 5 seconds. 12. Count up the number of alarms being processed.	Next writing position from the top of the page Area No Date and time of release Data counter after alarm Number of data copies before alert Pre-data copy page number Data copy position before alarm Pre-alert data code Peak measurement value for 5 seconds Minus flag of peak measurement value for 5 seconds Number of alarms in process

req[8-1-4-12]	Copy data before alarm occurrence to alarm trend area	Copy data before alarm occurrence to alarm trend area	Data copy counter before alarm Warning point temporary data pointer First code when FLASH recording temporary trend	1. Acquire remaining copy count. 2. If the remaining copy count is not less than the trend record, multiply the trend record with the size of the alarm trend record gas part + minus flag. 3. When the report point temporary data pointer is 0, put the value 1st from the length of the alarm provisional data area into the report point temporary data pointer. 4. Update copy number. 5. Acquire the head code when FLASH recording of tentative trend. 6. Fill remaining page of record record. 7. Count up data copy page number before alert.	Warning point temporary data pointer Number of data copy pages before alert
req[8-1-4-13]	Create alarm trend data	Create alarm trend data	Output string Data before and after announcement Invalid flag Setting port Peak measurement value for 5 seconds Peak measured value for 5 seconds before alarm 5 seconds peak temperature 5 seconds before alarming Peak temperature Minus flag of peak measurement value for 5 seconds	1. Create code. 2. Create gas data. 3. Create temperature data. 4. Create minus flag. 5. Adjust to 16 bytes in all.	Number of output bytes
req[8-1-4-14]	Embedding alarm trend area	Embed an alarm trend area	Alarm being recorded Alarm header page pointer Address of the next writing position from the top of the page Number of data counters after warning Alarm trend address	1. If flash write fault is 0, embed page 0x00 with address at the top of the page. 2. If the flash write fault is not 0, fill the page with 0x00 with the address at the top of the page. 3. Count data counters after warning.	None
req[8-1-4-15]	Write to the alarm trend area	Write to the alarm trend area	Write data Number of bytes written Alarm being recorded Alarm header page pointer Address of the next writing position from the top of the page Number of data counters after warning Alarm trend address	1. If flash write fault is 0, embed page 0x00 with address at the top of the page. 2. If the flash write fault is not 0, fill the page with 0x00 with the address at the top of the page. 3. Set the next writing position from the top of the page to 0.	None
req[8-1-4-16]	Data storing to continuous storage area	Data storing to continuous storage area	None	1. Acquire alarm trend data creation processing. 2. Alarm trend record Place the size of the gas part + minus flag in the alert point temporary data pointer. 3. When the report point temporary data pointer matches the length of the alarm provisional data region length, the alert point temporary data pointer is set to 0.	Warning point temporary data pointer
req[8-1-5-1]	Fault event storing	Store fault events	Event type Channel Continuous number of flash write faults	1. Set the number of simultaneous occurrences to 1. 2. Acquire logger header data creation processing. 3. Calculate the limit number of fault events without header. 4. Acquire fault event creation processing. 5. Write to the fault event area. 6. If the successive flash write fault count is greater than 1, perform the following processing 7 to 9. 7. Set the logger error status. 8. Count up the number of fault event data. 9. Turnon FRAM write start flag.	Number of concurrent events Limit on number of fault events without header
req[8-1-5-2]	Fault event confirmation	Confirm fault event	Measurement type status Corresponding port number of channel Fault check Previous fault status Erase incomplete address Number of logger data Main unit error status	1. For initial sensor error, record only during initialization. 2. Record fault events. 3. Record interval events. 4. Record invalid flag and concentration up to sensor abnormality. 5. Record interval events during operation of 6 to 7 below. 6. When returning from flow rate. 7. When returning from pump error.	Invalid flag Previous fault status
req[8-1-5-3]	Failure event creation	Create fault event	Created string Event type Channel Number of concurrent events Breakdown Detail Code Sensor check value of EC sensor	1. Acquire detailed data of faults. 2. Acquire battery voltage. 3. Acquire the A/D value of all sensors and create character data. 4. Set the processing at the time of abnormality with the following indexes 5 to 8. 5. O2 index. 6. H2S index. 7. CO index. 8. EC Index. 9. Returns the number of output bytes.	Number of output bytes
req[8-1-5-4]	Fault event record maximum number check	Check the maximum number of fault event records	Number of fault event data Failure event address	1. If the number of record holding is equal to or less than the number of fault event data, the maximum number of fault event data is checked. 2. Flash erase.	Continuous number of flash write faults Erase incomplete address Number of fault event data Failure event sector
req[8-1-5-5]	Write to the fault event area	Write to the fault event area	Number of fault event data Next writing position Number of concurrent events	1. If the number of fault event data is not full, write to the fault event area 2. Count up successive flash write faults. 3. When the number of simultaneous occurrences is 1, the following processes 4 to 5 are carried out. 4. Count up the number of fault event data. 5. Turnon FRAM write start flag.	Number of concurrent events Continuous number of flash write faults Number of fault event data
req[8-1-6-1]	BUMP test record	Perform recording of BUMP test	Implementation port Success / fault flag Fast bump flag Corresponding port number of channel Limitation of number of calibration history without header Number of concurrent events Continuous number of flash write faults	1. Set the time buffer. 2. Acquire the SDM serial number used for BUMP. 3. Break if there is a corresponding channel on the port. 4. If the BUMP test is successful, obtain the bump test data creation process. 5. In case of the fast bump, acquire the concentration for the fast bump and the bump test data creation processing. 6. Fill the page. 7. Exclude empty data with header only. 8. Writing to the calibration history area.	Concentration data Main unit status Sensor specifications Parameters A/D value Limitation of number of calibration history without header
req[8-1-6-2]	Calibration history record	Record the calibration history	Implementation port Corresponding port number of channel Continuous number of flash write faults	1. Set the time buffer. 2. Break if there is a corresponding channel on the port. 3. If the final calibration date and time are the same, proceed with calibration fault. 4. Acquire the final calibration date and time. 5. Fill the page. 6. Exclude empty data with header only. 7. Writing to the calibration history area.	Concentration data Main unit status Sensor specifications Parameters A/D value Limitation of number of calibration history without header
req[8-1-6-3]	BUMP test data creation	Create BUMP test data	Created string Channel Concentration at bump deend Bump test concentration Success flag Number of concurrent events	1. If the number of simultaneous occurrences is 1, copy the variable. 2. Unify UMP judgment on measurement side.	Number of output bytes
req[8-1-6-4]	Create calibration history	Create calibration history	Created string Channel Pre-calibration concentration Calibrated concentration Success flag Number of concurrent events	1. If the number of simultaneous occurrences is 1, copy the variable. 2. Create calibration history.	Number of output bytes
req[8-1-6-5]	Calibration history record maximum number check	Check the maximum number of calibration history records	Number of calibration data applied Number of calibration history data Calibration history address	1. If the number of record holding is equal to or less than the number of calibration history data, the maximum number of calibration history data is checked. 2. Flash erase.	Erase incomplete address Calibration history sector pointer
req[8-1-6-6]	Write to the calibration history area	Write to the calibration history area	Write data Number of bytes written Number of calibration history data Calibration history address Address of next write position Limitation of number of calibration history without header Number of concurrent events Continuous number of flash write faults	1. If the number of calibration history data is not full, write it in the calibration history area.	Number of concurrent events Erase incomplete address
req[8-1-6-7]	AIR calibration record processing of logger function	Perform AIR calibration record processing of logger function	None	1. Carry out air calibration.	None
req[8-1-6-8]	BUMP storing processing of logger function	Perform BUMP storing processing of logger function	None	1. Record bump test.	None
req[8-1-6-9]	SPAN calibration record processing of logger function	Perform SPAN calibration record processing of logger function	None	1. Record the calibration history.	None
req[8-1-6-10]	Concentration substitution processing for fast BUMP	Perform concentration substitution processing for fast BUP	Gas number Result flag Substitution concentration	1. When the result flag is calibration, the result is set to the calibration concentration for fast bump. 2. When the result flag is a result, the result is set to the result concentration for fast bump. 3. Return results.	Calibration concentration for fast bump Result concentration for fast bump
req[8-1-6-11]	Concentration acquisition processing for fast BUMP	Perform concentration acquisition processing for fast BUMP	Gas number Result flag Calibration concentration for fast bump Result concentration for fast bump	1. When the result flag is calibration, put the substitution concentration in the calibration concentration for fast bump. 2. If the result flag is a result, put the substitution concentration in the result concentration for the fast bump.	result
req[8-1-7-1]	Setting change confirmation processing	Perform setting change confirmation processing	Gas set value Parameter setting value LCD display related setting value Sensor related setting value Alarm related setting value Time limit related setting value BUMP setting setting value ON/OFF related setting value Password related setting value Logger setting value Continuous number of flash write faults Number of setting change data	1. Check the following settings 2 to 11. 2. Gas setting. 3. parameter settings. 4. Settings related to LCD display. 5. Sensor related settings. 6. Alarm related settings. 7. Setting related to expirations. 8. BUMP setting. 9. ON/OFF setting related settings. 10. Password related settings. 11. Logger setting. 12. Set the time buffer. 13. Write to the setting change area.	Concentration data Main unit status Sensor specifications Parameters A/D value Number of setting change data

req[8-1-7-2]	Create setting change data	Create setting change data	Created string	1. Create the setting change data with the following settings 2 to 11. 2. Gas setting. 3. parameter settings. 4. Settings related to LCD display. 5. Sensor related settings. 6. Alarm related settings. 7. Setting related to expirations. 8. Setting BUMP settings. 9. ON/OFF setting related settings. 10. Password related settings. 11. Setting of logger setting.	Number of output bytes
req[8-1-7-3]	Retain logger setting change for comparison	Retain logger setting change comparison	Gas setting parameter settings Settings related to LCD display Sensor related settings Alarm related settings Setting related to expirations Setting BUMP settings ON/OFF setting related settings Password related settings Setting of logger setting	1. Set below 2 to 11 setting Change hold for comparison. 2. Gas setting. 3. parameter settings. 4. Settings related to LCD display. 5. Sensor related settings. 6. Alarm related settings. 7. Setting related to expirations. 8. Setting BUMP settings. 9. ON/OFF setting related settings. 10. Password related settings. 11. Setting of logger setting.	Gas setting parameter settings Settings related to LCD display Sensor related settings Alarm related settings Setting related to expirations Setting BUMP settings ON/OFF setting related settings Password related settings Setting of logger setting
req[8-1-7-4]	Write to the setting change area	Write to the setting change area	Number of setting change data Setting change address	1. If the number of setting change data is not full, write to the setting change area. 2. When the specified byte write process is 0 in FLASH, the following processes 3 to 4 are executed. 3. Count up successive flash write faults. 4. Turnon FRAM write start flag.	Continuous number of flash write faults
req[8-1-7-5]	Logger function setting change confirmation storing processing	Perform logger function setting change confirmation storing processing	None	1. Confirm setting change.	None
req[8-1-8-1]	Snap data display start processing	Perform snap data display start processing	Snap record pointer	1. Initialize item number. 2. Turnoff the numeric up / down change setting. 3. If the snap record pointer is 0, substitute the item number with the maximum number of records, otherwise substitute the snap record pointer. 4. Read the last page of the snap recording to determine whether there is recorded data.	Item Number Up / down change of numerical value Recording data existence flag
req[8-1-8-2]	Snap data display processing	Perform snap data display processing	Recording data existence flag	1. If the recorded data existence flag is ON, the recorded data corresponding to the item number is disolaved. Otherwise, the fact that there is no recorded data is disolaved.	None
req[8-1-8-3]	Snap details display item selection processing	Perform snap details display item selection processing	Recording data existence flag	1. Perform the following processing when the recording data presence/absence flag is ON. 2. Perform single-tone buzzer processing. 3. Toggle the item number between 0 and 1.	Item Number
req[8-1-8-4]	Snap data display item selection processing	Perform snap data display item selection processing	Increase/decrease number	1. Perform the following processing when the recording data presence/absence flag is ON. 2. Perform single-tone buzzer processing. 3. Increase/decrease the mode selection number according to the increase/decrease	Mode selection number
req[8-1-8-5]	Snap data display UP/DOWN selection processing	Perform snap data display UP/DOWN selection processing	Recording data existence flag	1. Perform the following processing when the recording data presence/absence flag is ON. 2. Perform single-tone buzzer processing. 3. Invert the up/down flag.	Up/down flag
req[8-1-8-6]	Snap date and time display processing	Perform snap date and time display processing	Recording pointer	1. Read the snap record of the record pointer position. 2. Read the recording date and time from the header information and assign it to the LCD display buffer.	None
req[8-1-8-7]	Snap concentration display processing	Perform snap concentration display processing	Recording pointer	1. Read the snap record of the record pointer position. 2. Read out the gas information and concentration value from the recorded data and substitute them into the LCD display buffer.	None
req[8-1-8-8]	Snap NO DATA display processing	Perform snap NO DATA display processing	None	1. Assign the character data NO DATA to the LCD display buffer.	None
req[8-1-8-9]	Change the concentration code back to over 50000ppm	Perform	Concentration code Concentration value	1. If the density value is greater than the density code, return the value converted to the original density value. 2. If the density value is less than or equal to the density code, return the density value.	Concentration value
req[8-1-8-10]	Snaplog display processing	Perform	None	1. Create the character data corresponding to the snap record display.	None
req[8-1-8-11]	Snaplog configuration process	Perform	None	1. Set snap logging data.	None
req[8-1-8-12]	Snaplog record display processing	Perform	None	1. Create character data corresponding to snap record display.	None
req[8-1-8-13]	Snaplog record	Perform	None	1. Create the snaplog header data. 2. Create concentration value and alarm status data. 3. Create temperature and sign data. 4. Write to the snap log area and increment the snap record pointer.	None
req[8-1-8-14]	Snaplog read	Perform	Read pointer	1. Get the snap recording position. 2. Calculate the read address from the snap record location. 3. Read the snap record data from the snap area and store it in the buffer. 4. Return read buffer.	Read buffer
req[8-1-8-15]	Confirmation of termination record of snap log area	Perform	None	1. Get the corresponding write pointer from the snap read pointer. 2. Calculate the read address. 3. Read the data in the snap area. 4. Check the header information and return whether or not there is a record.	Record presence/absence flag
req[8-1-8-16]	Create snap data	Perform	Output string Gas channel	1. Substitute the start code into the output string if the gas channel is 0. 2. Assign the concentration value to the output string. 3. Assign the alert status to the output string.	Number of output bytes
req[8-1-8-17]	Write to Snap Region	Perform	Write data Number of bytes written Snap record pointer	1. Compute the write address from the snap record pointer. 2. Clear the snap area. 3. Write to the snap area. 4. Increment the snap record pointer.	Snap record pointer
req[8-1-8-18]	Get corresponding write pointer from snap read pointer	Perform	Read pointer Snap record pointer	1. Compute the corresponding write pointer from the snap read pointer.	Write pointer
req[8-1-8-19]	Logger function snapshot processing	Perform	None	1. Perform snap log recording processing.	None
req[8-1-9-1]	Logger area test writing	Perform logger area test writing	Trend alarm address Alarm event address Calibration history address Failure event address Setting change address	1. Clear the logger. 2. Write the following items 3 to 10 in order to the logger area test. 3. Interval region. 4. Alarm trend area. 5. Area number. 6. Power supply area. 7. Alarm event. 8. Proofreading. 9. Malfunction. 10. setting change. 11. Clear the logger.	None
req[8-1-9-2]	Test data expansion processing of logger function	Perform test data expansion processing of logger function	None	1. Perform logger area test writing.	None
req[8-2-1-1]	Power supply logger	Perform power supply logger clear processing	Data logger control flag Read FLASH status byte	1. Initialize the logger pointer of the power ON/OFF setting of the A side and B side. 2. Initial value of record count in page is set to 2. 3. Clear DATALOGGER_CLEAR.	judgment result
req[8-2-1-2]	Address setting processing of FRAM data for data_logger.c	Perform address setting of FRAM data for data_logger. c	Data address for data logger	1. Perform address setting of FRAM data for data_logger. c.	Address of FRAM_DATA. DATA_LOGGE
req[8-2-1-3]	Alarm temporary trend clear	Initialize alarm temporary trend	None	1. RAM initialization.	None
req[8-2-1-4]	Data logger clear end confirmation processing of logger function	Perform data logger clear end confirmation processing of logger function	None	1. Return logger data clear flag.	Logger data clear flag
req[8-2-1-5]	Data logger clear processing of logger function	Perform data logger clear processing of logger function	Logger data clear flag	1. When the logger data clear flag is ON and the logger is not cleared, turn off the logger data clear flag.	Logger data clear flag
req[8-2-1-6]	Logger initialization processing	Perform logger initialization processing	None	1. Initialize the logger.	Error condition
req[8-2-1-7]	Data logger clear start processing of logger function	Perform data logger clear start processing of logger function	None	1. Turn logger data clear flag ON.	Logger data clear flag
req[8-2-2-1]	Logger clear	Clear the logger	Data logger control flag Read FLASH status byte	1. Initialize the logger pointers other than the power ON/OFF setting and setting change history. 2. Clear DATALOGGER_CLEAR. 3. Clear DATALOGGER_FULL state. 4. DATALOGGER_OVERWRITE Clear. 5. When logger cleared in DISP mode, initialize lunch break and start logger.	judgment result
req[8-3-1-1]	Substitution processing of trouble detail code	Substitute the trouble detail code	Code number	1. Calculate the fault detail code.	Breakdown Detail Code
req[8-4-1-1]	Logger full state set	Perform logger full state set	None	1. Set the logger full wait state.	None
req[8-4-1-2]	Logger remaining time	Perform logger remaining time calculation processing	Interval page pointer Overwrite implemented flag status Measurement start 4K block Interval Trend Address	1. Maximize for 10 hours at 10 second intervals and convert to total 3600 data. 2. If it is less than the last sector, the interval page pointer is multiplied by a value obtained by adding the next writing position from the top of the page and the page size. 3. If the overwrite setting is not set, the logger full state is set. 4. Divide 14400 by interval trend cycle. 5. Calculate logger remaining time.	Interval page pointer Overwrite implemented flag Logger remaining time
req[8-4-1-3]	Logger full wait state set	Set the logger full wait state	State	1. Set the status to the standby state. 2. Set the standby state to be in the logger state.	Standby state to enter the logger state
req[8-7-1-1]	Operation system event confirmation	Confirm operation type event	None	1. Switch stations.	None
req[9-1-2-1]	Create measured concentration display	Create measurement concentration display	Gas setting	1. Create a display of the current concentration. 2. When the temperature warning is not in progress and the gas is being replaced, the set flammable gas name is displayed. 3. In the case of the temperature warning, the display flicker is counted and corresponding . character data is created during the temperature warning.	None
req[9-2-1-1]	DISP mode menu start processing	Perform DISP mode menu start processing	None	1. Initialize item number.	Item Number
req[9-2-1-2]	DISP mode menu item selection processing	Perform DISP mode menu item selection processing	Item Number	1. If the item number matches the number of DISP items, turn on the result. 2. Return results.	Item Number
req[9-2-1-3]	DISP mode menu display processing	Perform DISP mode menu display processing	Item Number ON/OFF setting of long life mode Temperature value	1. Check the DISP mode menu display items. 2. If item selection number is 00, display PEAK value. 3. If the item selection number is 01, display the STEL value. 4. If the item selection number is 02, display the TWA value. 5. If the item selection number is 03, display the integrated value. 6. When the item selection number is the following items 7 to 14, create character data corresponding to the DISP mode menu. 7. Flammable read gas selection. 8. Flammable long energy setting. 9. User ID Selection. 10. Station ID selection. 11. Calibration record indication. 12. BUMP record indication. 13. Date and time temperature indication. 14. Indication of alarm point.	Maintenance letter

req[9-2-1-4]	Confirmation processing of DISP mode menu display items	Confirmation processing of DISP mode menu display items	ON/OFF setting of display of calibration time limit ON/OFF setting of bump time limit DISP mode setting item ON/OFF setting ID display ON/OFF setting	1. Confirm the following display items 2 to 10. 2. STEL display item. 3. TWA display item. 4. Integrated display item. 5. Calibration record indication. 6. BUMP record indication. 7. Flammable reading gas selection item. 8. Flammable long energy setting indication. 9. User ID selection display. 10. Station ID selection display.	None
req[9-3-1-1]	Gas calibration mode menu start processing	Perform gas calibration mode menu start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-3-1-2]	Calibration Expiration Gas Calibration Mode Menu Start Processing	Perform Calibration Expiration Gas Calibration Mode Menu Start Processing	None	1. Initialize item number with auto cal menu number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-3-1-3]	Gas calibration mode menu item selection processing	Perform gas calibration mode menu item selection processing	Item Number Up / down change setting of numerical value Gas calibration mode display item	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[9-3-1-4]	Gas calibration mode menu display processing	Perform gas calibration mode menu display processing	Item Number Up / down change setting of numerical value Gas calibration mode display item	1. Check the gas calibration mode menu display item. 2. Create character data corresponding to the gas calibration mode menu.	Maintenance letter
req[9-3-1-5]	Check processing of gas calibration mode menu display items	Performs confirmation processing of the gas calibration mode menu display item	Gas setting ON/OFF setting	1. Hide reserved items in gas calibration mode.	Gas calibration mode display item
req[9-3-1-6]	User mode menu start processing	Perform USER mode menu start process	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-3-1-7]	User mode menu start processing for calibration expiration	Perform user mode menu start processing for calibration expiration	None	1. Initialize item number with cal limit menu number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-3-1-8]	User mode menu start processing for BUMP expiration	Perform user mode menu start processing for BUMP expiration	None	1. Initialize item number with bump limit menu number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-3-1-9]	User mode menu item selection processing	Perform USER mode menu item selection processing	Item Number Up / down change setting of numerical value USER mode display item	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[9-3-1-10]	User mode END display processing	Perform USER mode END display processing	None	1. Create character data corresponding to USER mode END.	None
req[9-3-1-11]	User mode menu display processing	Perform USER mode menu display processing	Item Number USER mode display item	1. Character data is set with the value of item number as a condition. 2. Create character data corresponding to the setting mode menu.	Maintenance letter
req[9-3-1-12]	Confirmation processing of User mode menu display item	Confirm processing of USER mode menu display items	Destination setting Zero tracking ON/OFF display setting within USER mode Suppress ON/OFF display setting in USER Gas setting	1. Execute display setting of item 2 to 5 below. 2. ON/OFF setting of calibration expired function setting item. 3. Zero tracking ON/OFF is displayed in USER. 4. Display suppression ON/OFF in USER. 5. AIR calibration switch indication in USER mode.	USER mode display item
req[9-4-1-1]	Maintenance mode menu start processing	Perform maintenance mode menu start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-4-1-2]	Maintenance mode menu item selection processing	Perform maintenance mode menu item selection processing	Item Number Up / down change setting of numerical value MAINTE mode display item	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[9-4-1-3]	Maintenance mode menu display processing	Perform maintenance mode menu display processing	Item Number MAINTE mode display item	1. Check the MAINTE mode menu display items. 2. Create text data corresponding to MAINTE mode menu.	Maintenance letter
req[9-4-1-4]	Maintenance mode menu display item confirmation processing	Confirm processing of maintenance mode menu display items	Destination setting	1. If the destination setting is domestic or a ship, display the maintenance announcement setting. 2. If the destination setting is overseas, hide the maintenance announcement setting.	USER mode display item
req[9-5-1-1]	Gas select mode menu start processing	Perform gas select mode menu start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-5-1-2]	Gas select mode menu item selection processing	Perform gas select mode menu item selection processing	Item Number Up / down change setting of numerical value Gas select mode display item	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number Up / down change of numerical value
req[9-5-1-3]	Gas select mode menu display processing	Perform gas select mode menu display processing	Item Number Gas select mode display item	1. Create character data corresponding to the gas select mode menu.	Maintenance letter
req[9-6-1-1]	FACT mode menu start processing	Perform FACT mode menu start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[9-6-1-2]	FACT mode menu item selection processing	Perform FACT mode menu item selection processing	Item Number Up / down change setting of numerical value FACT mode display item	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number Up / down change of numerical value
req[9-6-1-3]	FACT mode menu display processing	Perform FACT mode menu display processing	Item Number FACT mode display item	1. Create character data corresponding to FACT mode menu.	Maintenance letter
req[9-7-1-1]	Communication mode communication display processing	Perform communication mode communication display processing	None	1. Create character data corresponding to communication mode communication.	None
req[9-7-2-1]	SDM mode display processing	Perform SDM mode display processing	None	1. Create character data corresponding to SDM mode.	None
req[9-7-2-2]	Acquisition processing of gas combo data for SDM	Acquire processing of gas combo data for SDM	None	1. Return gas setting data for SDM measurement display.	Gas setting data for SDM measurement display
req[9-7-2-3]	Acquisition processing of EX command flag for SDM	Acquire processing of EX command flag for SDM	None	1. Return the EX command flag of the command for SD.	EX command flag of the command for SDM
req[9-7-2-4]	SDM display data creation processing	Perform SDM display data creation processing	Communication data for SDM display	1. Clear display data of LCD. 2. In the case of the measurement screen, the measurement display data for SDM is created. 3. In the case of the maintenance screen, the maintenance display data for SDM is created.	Gas combo data for SDM measurement display
req[9-7-2-5]	EX command data reception processing for SDM	Perform EX command data reception processing for SDM	None	1. Create character data corresponding to reception of EX command data for SDM.	None
req[9-7-2-6]	Setting process of EX command flag of SDM command	Perform setting process of EX command flag of SDM command	ON/OFF setting flag	1. When the ON/OFF setting flag is ON, turn on the EX command flag of the command for SDM. 2. When the ON/OFF setting flag is OFF, the EX command flag of the command for SDM is turned off.	EX command flag of the command for SDM
req[9-7-2-7]	Maintenance display data creation processing for SDM	Performs maintenance display data creation processing for SDM	Maintenance display data	1. Create character data to be displayed on the maintenance screen.	None
req[9-7-2-8]	Measurement display data creation processing for SDM	Perform measurement data creation processing for SDM	Measurement data	1. Create character data to be displayed on the measurement screen. 2. Blink a comment character.	Comment character blink
req[9-8-1-1]	Calculation of initial display duration	Calculate display time of initials	Maintenance announcement display ON/OFF setting ON/OFF setting of display of calibration time limit ON/OFF setting of bump time limit ON/OFF setting of ID display	1. Set the display time of the following items 2 to 14 displayed during the initial. 2. Date and time. 3. Battery voltage. 4. Gas name. 5. TWA alarm point. 6. STEL alarm point. 7. Integrating alarm point. 8. 1st alarm point. 9. 2 nd alarm point. 10. 3 rd alarm point. 11. Calibration expiration. 12. BUMP expiration. 13. User ID. 14. Station ID.	Initial display time
req[9-8-1-2]	Acquisition of display time of initials	Acquire display time of initials	None	1. Return initial display time.	Initial display time
req[9-8-1-3]	Create full screen display of initials	Create full screen display of initials	None	1. Set all lighting display data.	None
req[9-9-1-1]	Acquisition of the mode status	Acquire mode status	None	1. Return the mode number.	Mode number
req[9-9-1-2]	Setting the mode status	Set the mode status	Mode flag	1. Place the mode flag in the mode number.	Mode number
req[9-9-1-3]	Each mode menu item selection processing	Perform each mode menu item selection processing	Number of items in mode Mode end number Present value Up down selection Show/hide items	1. Increment the current value when up/down selection is OFF. Skip item hidden numbers. 2. If the up-down selection is ON, decrement if the current value is non-zero, and set the end number of the mode if the current value is 0. Skip item hidden numbers.	Update result
req[9-9-1-4]	Mode selection numerical value acquisition processing	Perform mode selection numerical value acquisition processing	Selection value in mode Selected value in sub mode Selected value in sub 2 mode Number Sub numerical value	1. Acquire the following selection values 2 to 6 and return the acquired value. 2. Selection value in mode. 3. Selected value in sub mode. 4. Selected value in sub 2 mode. 5. Number. 6. Sub numerical value.	Mode selection numerical value
req[10-2-1-1]	Gas name display	Perform gas name display	Gas setting	1. When the following conditions 2 to 5 are satisfied, the read gas name is displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Flammability. 5. It is being rewritten 6. Create character data corresponding to gas name display.	None
req[10-2-2-1]	Full scale display	Perform full scale display	Gas setting Setting flammable LEL numerical value	1. When the setting is on and H2 is not canceled CO, full scale concentration value and gas name are displayed. 2. Create character data corresponding to full scale display.	None
req[10-2-4-1]	Integral alarm point display	Perform integral alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be integrated warning are displayed. 2. Setting is ON. 3. Alarm function is OFF. 4. Create character data corresponding to integral alarm point display.	None
req[10-2-4-2]	1st alarm point display	Perform 1st alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be the 1st alarm are displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Alarm function is OFF. 5. 1st Create character data corresponding to alarm point display.	None

req[10-2-4-3]	2nd alarm point display	Perform 2nd alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be the 2 nd alarm are displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Alarm function is OFF. 5. Create character data corresponding to 2nd alarm point display.	None
req[10-2-4-4]	3rd alarm point display	Perform 3rd alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be a 3rd alarm are displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Alarm function is OFF 5. Create character data corresponding to 3rd alarm point display.	None
req[10-2-4-5]	STEL alarm point display	Perform STEL alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be the STEL alarm are displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Alarm function is OFF. 5. STEL Creates character data corresponding to alarm point display.	None
req[10-2-4-6]	TWA alarm point display	Perform TWA alarm point display	Gas setting Alarm function ON/OFF setting	1. When the following conditions 2 to 4 are satisfied, the concentration value and the gas name to be the TWA warning are displayed. 2. Setting is ON. 3. H2 Cancel is not CO. 4. Alarm function is OFF. 5. Create character data corresponding to TWA alarm point display.	None
req[10-2-5-1]	Alarm point display processing	Perform alarm point display processing	Item Number	1. If item number is 0, display full scale. 2. When the item number is 1, the 1st alarm point is displayed. 3. When item number is 2, 2nd alarm point is displayed. 4. When item number is 3, display 3rd alarm point. 5. When the item number is 4, the STEL alarm point is displayed. 6. When the item number is 5, the TWA alarm point is displayed. 7. When the item number is 6, display the integration alarm point.	None
req[10-2-5-2]	Alarm point display start processing	Perform alarm point display start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[10-2-5-3]	Alarm point display item selection processing	Perform Alarm point display item selection processing	Item Number	1. If there is a toxicity sensor, display STEL and TWA.	Item Number
req[10-3-1-1]	Display date and time	Display date and time	None	1. Acquire date and time data. 2. Create character data corresponding to date and time display. 3. Convert the numerical value corresponding to the date and time to character data.	Maintenance letter
req[10-3-4-1]	Date and time setting end processing	Perform date and time setting end processing	None	1. Set the date and time of the RTC.	None
req[10-3-4-2]	Date and time setting preprocessing	Perform date and time setting preprocessing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting. 3. Get the current date and time.	Item Number Up / down change of numerical value Editing variables
req[10-3-4-3]	Date and time setting item change processing	Perform the date and time setting item change processing	Item Number Editing variables	1. When the following conditions 2 to 3 are satisfied, the maximum value of the date and time is set. 2. Next item to be set is day. 3. If the date and time is greater than the settable date and time, set the date and time to the maximum value.	Editing variables
req[10-3-4-4]	Date and time set value change processing	Perform date and time set value change processing	Date and time Item Number	1. Set the numerical values for year, month, hour, minute.	Editing variables
req[10-3-4-5]	Date setting display processing	Perform date setting display processing	None	1. Create character data corresponding to the date and time setting and change the number to character (SHORT) data. 2. Display character data corresponding to item number. 3. Flashes letters.	Maintenance character blinking
req[10-4-1-1]	Battery voltage acquisition processing	Acquire battery voltage	None	1. Return the A/D value of the battery.	A/D value of battery
req[10-4-1-2]	Battery voltage acquisition processing for communication output	Acquire battery voltage for communication output	None	1. Return the A/D value of the communication battery.	Battery A/D value for communication
req[10-4-1-3]	Battery voltage calculation processing	Perform battery voltage calculation processing	None	1. Read 12-bit A/D value. 2. When the A/D value of DRY battery is 200 mV or less, set it to Li-ion battery.	None
req[10-4-2-1]	Battery voltage display	Display battery voltage	Alarm action	1. Acquire battery voltage. 2. Create character data corresponding to battery voltage display. 3. Convert numeric value corresponding to battery voltage indication into character data.	Maintenance letter
req[10-4-3-1]	Battery voltage confirmation processing	Perform battery voltage confirmation processing	Startup battery voltage MIN hold delay Battery A/D value A/D value of battery for communication Battery type Battery status	1. Calculate battery voltage. 2. When using a lithium ion battery, obtain the status of the lithium ion battery. 3. When using alkaline batteries, obtain the status of alkaline batteries.	Judgment result
req[10-4-3-2]	Battery icon level acquisition process for communication output	Acquire the communication output battery icon level	None	1. Return battery voltage icon level.	Battery voltage icon level
req[10-4-3-3]	Low-temperature operation necessity confirmation processing	Perform low-temperature operation necessity confirmation processing	Mode flag Current temperature	1. Initialize the low temperature operation required flag. 2. Turn ON the low temperature operation required flag in the initial mode and when the current temperature is below the threshold. 3. Return the low temperature operation required flag.	Low temperature operation required flag
req[10-4-4-1]	Battery icon lighting processing	Perform battery icon lighting processing	Battery status	1. Display the battery icon.	None
req[10-5-1-1]	ROM/SUM display start processing	Perform ROM/SUM display start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting. 3. Start ROM check. 4. Start SUM calculation of RL78.	Up / down change of numerical value
req[10-5-1-2]	Get gas table version number	Perform get gas table version number	None	1. Return the gas table version number.	Gas table version number
req[10-5-2-1]	ROM/SUM display processing	Perform ROM/SUM display processing	Gas setting Item Number	1. Create character data corresponding to ROM / SUM display 2. Convert numeric value corresponding to ROM / SUM display to character data	None
req[10-5-2-2]	Get gas table SUM	Perform get gas table SUM	None	1. Return the SUM value of the gas table.	SUM value of the gas table
req[10-5-3-1]	ROM/SUM calculation in progress confirmation processing	Perform confirmation processing during ROM / SUM calculation	Item Number	1. When the SUM calculation of MAIN is completed, check the SUM value of MAIN 2. When the SUM calculation of the SUB is completed, the SUM value of the SUB is confirmed.	Item Number
req[10-6-1-1]	Station ID display	Display the station ID	None	1. Convert the numerical value corresponding to the station ID display into character data. 2. Create character data corresponding to station ID display.	None
req[10-6-2-1]	User ID display	Display the user ID	None	1. Convert numeric value corresponding to user ID display into character data. 2. Create character data corresponding to user ID display.	None
req[10-7-1-1]	A/D value display preprocessing	Perform A/D value display preprocessing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[10-7-1-2]	A/D value display page switching	Switch the display page of the A/D value	None	1. Include increment / decrement processing of number in item number.	Item Number
req[10-7-1-3]	A/D value display processing	Perform A/D value display processing	Item Number A/D value of NC sensor The A/D value of the EC sensor Temperature value Gas setting A/D value after sensor average	1. Create character data corresponding to each A/D value display. 2. Convert the numerical value corresponding to each A/D value display to character data.	Maintenance letter
req[11-1-2-1]	Using temperature warning reset processing	Perform reset processing of using temperature warning	Again warning buzzer counter Operating temperature warning reporting flag	1. When the warning buzzer counter is smaller than the buzzer resettable time and the operating temperature warning reporting flag is ON, the warning buzzer flag is turned off again.	Operating temperature warning reporting flag
req[11-1-2-2]	Using temperature warning flag acquisition processing	Acquire the using temperature warningg flag	Count outside the operating temperature range Operating temperature out of range flag	1. When the usage outside temperature range count is equal to or more than the buzzer resettable time and the out-of-service temperature range flag is ON, the operation temperature warning flag is set to 2. 2. Returns operating temperature warning flag.	Operating temperature warning flag
req[11-1-2-3]	Using temperature warning issuing flag acquisition processing	Acquire using temperature warning reporting flag	None	1. Return the operating temperature warning reporting flag.	Operating temperature warning reporting flag
req[11-1-2-4]	Using temperature warning confirmation processing	Confirm processing of the using temperature warning	Operating temperature out of range flag Operating temperature out of range flag Warning reset count	1. If a warning is occurring and the temperature is out of the reset temperature range, reset the warning reset count. 2. When a warning is occurring and the warning reset count is equal to or more than the specified count, the following processes 3 to 5 are executed. 3. Temperature range out of use flag is turned off. 4. Warning Reset reset count. 5. Reset outside the operating temperature range. 6. If no warning has occurred, execute the following processing 7 to 10. 7. Reset warning buzzer counter again. 8. Temperature warning warning flag set OFF. 9. Reset the count outside the operating temperature range when the temperature is within the operating temperature range. 10. If the count outside the operating temperature range is more than specified and the measurement is in progress or during the display mode, execute the following processes 11 to 13. 11. Turnon the outside temperature range flag. 12. Temperature warning warning flag set ON. 13. Warning Reset reset count. 14. If the buzzer reoccurrence count is over the specified value or 1 hour has elapsed, the following processes 15 to 16 are carried out. 15. Temperature warning warning flag set ON. 16. Reset warning buzzer counter again.	Warning reset count Operating temperature out of range flag Count outside the operating temperature range Again warning buzzer counter Operating temperature warning reporting flag Again warning buzzer counter
req[11-1-2-5]	10 msec interruption processing for using temperature warning processing	Perform 10 msec interruption processing for using temperature warning processing	Count outside the operating temperature range Warning reset count Again warning buzzer counter Operating temperature warning reporting flag 5 second count timer	1. When the outside temperature range count is less than the timer count maximum value, count up outside the operating temperature range. 2. Warning When the reset count is less than the timer count maximum value, count the warning reset count. 3. When the warning buzzer counter is again less than the timer count maximum value, the warning buzzer counter is counted up again. 4. When the operating temperature warning announcement flag is ON and the 5 second count timer is abnormal during buzzer ringing, execute the following processing 5 to 7. 5 . 5 seconds Reset the count timer. 6. Ring a warning buzzer tone. 7. Reset LCD backlight timer.	Count outside the operating temperature range Warning reset count Again warning buzzer counter Operating temperature warning reporting flag 5 second count timer

req[11-2-1-1]	Acquire long energy flag	Get long energy flag	Long life ON/OFF flag Mode flag of NC sensor	1. Acquire long flag ON/OFF setting flag. 2. When any of the following conditions 3 to 5 is satisfied, the long life ON/OFF setting flag is turned off. 3. AIR calibration is in progress. 4. Maintenance is in progress. 5. Flammable sensor is warming up or off. 6. Return long flag ON/OFF setting flag.	Mode flag of NC sensor
req[11-2-2-1]	Flammable long energy setting display processing	Perform flammable long energy setting display processing	None	1. Create character data corresponding to flammable long energy setting.	None
req[11-2-2-2]	Flammable long energy setting display end processing	Perform flammable long energy setting display end processing	Item Number	1. Place the item number in the ON/OFF setting of the long life mode. 2. Turn on FRAM write start flag.	ON/OFF setting of long life mode
req[11-2-2-3]	Flammable long energy setting display start processing	Perform flammable long energy setting display start processing	ON/OFF setting of long life mode	1. Place the ON/OFF setting of long life mode in the item number.	Item Number
req[11-2-2-4]	Flammable long energy setting selection processing	Perform flammable long energy setting display selection processing	None	1. Perform selection process of flammable long energy setting.	Item Number
req[11-2-2-5]	Long energy setting call	Perform long call energy setting call processing	None	1. Return ON/OFF setting flag of long energy.	Long energy ON/OFF setting flag
req[11-2-2-6]	Setting of long energy	Perform long energy setting process	ON/OFF setting flag	1. When the ON/OFF setting flag is OFF, turn ON/OFF setting flag of long energy OFF. 2. When the ON/OFF setting flag is ON, turn ON/OFF setting flag of long energy.	Long energy ON/OFF setting flag
req[11-3-1-1]	Margin value calculation processing	Perform margin value calculation process	Gas setting	1. Calculate reserve value corresponding to each gas.	None
req[11-3-1-2]	EC sensor margin value calculation processing	Perform EC sensor margin value calculation processing	Gas channel Direction of gas change Zero coefficient Span fix Full scale value Calibration concentration value	1. Obtain the A/D value of the sensor. 2. Correct the temperature at zero point and change to the reference temperature. 3. Calculate the span temperature compensation coefficient. 4. Calculate EC sensor reserve value.	Address of current gas data FRAM data address for gas data Span calibration margin value
req[11-3-1-3]	Hydrogen cancellation carbon monoxide margin value calculation processing	Perform hydrogen cancellation carbon monoxide margin value calculation processing	Span coefficient Zero coefficient Full scale value Digit Calibration concentration value	1. H2 cancel Acquires the A/D value of CO and H2S. 2. Correct the temperature at zero point. 3. Calculate the span output at the current temperature. 4. Calculate the span temperature compensation coefficient. 5. H2 Cancel Calculate the margin value of CO.	Span calibration margin value
req[11-3-1-4]	Oxygen margin value calculation processing	Perform oxygen margin value calculation processing	Span coefficient Zero coefficient Full scale value Digit	1. Set the address to O2. 2. When the instruction is plus, calculate the reserve value of O2.	Span calibration margin value
req[11-3-1-5]	Combustible margin value calculation processing	Perform combustible margin value calculation processing	A/D value of NC sensor Zero coefficient Measurement gas type group The ratio of FS% LEL to the representative gas Span fix Ppm value corresponding to LEL used for concentration calculation Full scale value Calibration concentration value Digit	1. Set the address to NC. 2. Calculate the NC zero point temperature compensation coefficient. 3. Calculate the NC span point temperature compensation coefficient. 4. Calculate reserve value of combustible gas.	Span calibration margin value
req[11-3-2-1]	Display of margin value after auto calibration	Display of margin value after auto calibration	Gas setting	1. When the calibration is executable and not H2 of H2 canceled CO, the gas name is displayed as the marginal value concentration. 2. AUTO Creates character data corresponding to the margin value after proofreading.	None
req[11-3-3-1]	Margin value display function ON/OFF confirmation processing	Perform margin value display function ON/OFF confirmation processing	Margin value display ON/OFF setting Gas setting	1. When the following conditions 2 to 4 are satisfied, turn on the result. 2. Span reserve value display is ON. 3. Calibration executable. 4. H2 Cancel CO is not H2. 5. Return results.	Result
req[11-3-3-2]	Sensor margin margin display ON/OFFsetting display processing	Perform sensor marginvalue display ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to ON/OFF setting of sensor reserve value display.	None
req[11-3-3-3]	Sensor margin value display ON/OFF setting end processing	Perform sensor marginvalue display ON/OFF setting end processing	Item Number	1. Enter the item number in the margin value display ON/OFF setting. 2. Turnon FRAM write start flag.	Margin value display ON/OFF setting
req[11-3-3-4]	Sensor margin value display ON/OFF setting start processing	Perform sensor marginvalue display ON/OFF setting start processing	Margin value display ON/OFF setting	1. Put the remaining power value display ON/OFF setting in the item number.	Item Number
req[11-3-3-5]	Sensor margin value display ON/OFF setting selection processing	Perform sensor marginvalue display ON/OFF setting selection processing	None	1. Place the ON/OFF swapping process in the item number.	Item Number
req[11-4-2-1]	Stealth motor ON/OFF setting display processing	Perform stealth motor ON/OFF setting display processing	None	1. Create display of ON/OFF setting menu corresponding to stealth motor ON/OFF setting.	None
req[11-4-2-2]	Stealth function ON/OFF setting display processing	Perform stealth function ON/OFF setting display processing	None	1. Create a display of the ON/OFF setting menu corresponding to the stealth function ON/OFF setting.	None
req[11-4-2-3]	Stealth function ON/OFF setting end processing	Perform stealth function ON/OFF setting end processing	Item Number	1. Enter the item number in the stealth setting. 2. Insert item number into stealth motor setting. 3. Turnon FRAM write start flag.	Stealth setting Stealth motor setting
req[11-4-2-4]	Stealth motor ON/OFF setting start processing	Perform stealth motor ON/OFF setting start processing	Stealth motor setting	1. Place the stealth motor setting in the item number.	Item Number
req[11-4-2-5]	Stealth function ON/OFF setting start processing	Perform stealth function ON/OFF setting start processing	Stealth setting	1. Place the stealth setting in the item number.	Item Number
req[11-4-2-6]	Stealth motor ON/OFF setting selection processing	Perform stealth motor ON/OFF setting selection processing	None	1. Place the ON/OFF swapping process in the item number.	Item Number
req[11-4-2-7]	Stealth function ON/OFF setting selection processing	Perform stealth function ON/OFF setting selection processing	None	1. Place the ON/OFF swapping process in the item number.	Item Number
req[11-5-1-1]	Flammability limit warning display	Perfor flammability limit warning display	None	1. Create character data corresponding to flammable restriction warning.	None
req[11-5-2-1]	Processing for setting gas data for reading NC sensor	Perfom processing for setting gas data for reading NC sensor	Gas species Calibration curve number Measurement gas type group The ratio of FS% LEL to the representative gas Ppm equivalent to LEL Ppm value corresponding to LEL used for	1. Acquire the following items 2 to 6. 2. Calibration curve number. 3. Measurement gas type group. 4. The ratio of FS% LEL to the representative gas. 5. Ppm equivalent to LEL. 6. Ppm value corresponding to LEL used for concentration calculation.	Calibration curve number Measurement gas type group The ratio of FS% LEL to the representative gas Ppm equivalent to LEL Ppm value corresponding to LEL used for concentration calculation
req[11-5-2-2]	Combustible gas read permission confirmation processing	Perform combustible gas read permission confirmation processing	Unit / decimal point position Gas setting Flammable sensor mode	1. When the following conditions 2 to 4 are satisfied, the result is made OK. 2. Gas name is not "***". 3. Unit is not vol%. 4. Not HC. 5. Return results.	Result
req[11-5-2-3]	Flammable gas selection display processing	Perform flammable gas selection display processing	Item Number	1. Create character data corresponding to flammable gas selection.	Maintenance letter
req[11-5-2-4]	Flammable gas selection display end processing	Perform flammable gas selection display end processing	Item Number	1. Place the item number in the combustible read gas number. 2. Set gas data for reading NC sensor. 3. Turnon FRAM write start flag.	Flammable read gas number
req[11-5-2-5]	Flammable gas selection display start processing	Perform flammable gas selection display start processing	None	1. Initialize item number. 2. Turnoff the numeric up / down change setting.	Item Number Up / down change of numerical value
req[11-5-2-6]	Flammable gas selection display item selection processing	Perform flammable gas selection display item selection processing	Item Number Up / down change of numerical value	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[11-5-2-7]	Flammability limit warning display presence/absence confirmation processing	Perform flammability limit warning display presence/absence confirmation processing	Gas setting Flammable sensor mode	1. If the following conditions 2 to 4 are satisfied, ON is returned. 2. Calibration executable. 3. The combustible gas setting is CH 4 or i - C 4 H 10. 4. In flammable limit.	None
req[11-5-2-8]	Flammable restriction mode check processing	Perform flammable restriction mode check processing	Gas setting Flammable sensor mode	1. When the flammable restriction is in effect and the combustible gas setting is CH 4 or i - C 4 H 10, turn on the result. 2. Return results.	Result
req[11-5-2-9]	Confirmation of flammable restriction mode Read gas initialization processing	Perform confirmation of flammable restriction mode Read gas initialization processing	Measurement gas type group Gas setting	1. If the present value is solvent setting, carry out the following processing 2 to 4. 2. Setting the read-out gas setting as calibration gas. 3. Set gas data for reading NC sensor. 4. Turnon FRAM write start flag.	Gas species
req[11-6-2-1]	Flammable LEL value switching setting display processing	Perform flammable LEL value switching setting display processing	Item Number	1. Create character data corresponding to flammable LEL value switching setting. 2. Convert the numerical value corresponding to the flammable LEL value switching setting to character data. 3. Flash maintenance letters.	Maintenance character flashing
req[11-6-2-2]	Flammable LEL value switching setting end processing	Perform flammable LEL value switching setting end processing	Item Number	1. Place the item number in the flammable LEL value. 2. Set LEL value for flammable gas data. 3. Turnoff up / down numerical value setting.	Setting flammable LEL numerical value
req[11-6-2-3]	Flammable LEL value switching start setting processing	Perform flammable LEL value switching setting start processing	Setting flammable LEL numerical value	1. Flammability Set the setting of the LEL numerical value in the item number. 2. Turnoff up / down numerical value setting.	Item Number
req[11-6-2-4]	Flammable LEL value switching setting selection processing	Perform flammable LEL value switching setting selection processing	None	1. Include increment / decrement processing of number in item number.	Item Number
req[11-7-1-1]	Calibration data display processing	Perform calibration data display processing	None	1. Create character data corresponding to proofreading data.	Item Number
req[11-7-1-2]	Calibration data display start processing	Perform calibration data display start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[11-7-1-3]	Calibration data display item selection processing	Perform calibration data display item selection processing	Item Number Up / down change of numerical value Gas setting	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[11-7-1-4]	Calibration data bump data display item selection process	Perform calibration data bump data display item selection process	Up/down selection flag Mode selection number	1. If the up/down selection flag is up, increment the mode selection number. Skip numbers with invalid gas settings. 2. If the up/down selection flag is down and the mode selection number is non-zero, the mode selection number is decremented, and if the mode selection number is 0, the maximum value of the mode selection is substituted. Skip numbers with invalid gas settings.	Mode selection number
req[11-8-1-1]	BUMP data display processing	Perform BUMP data display processing	None	1. Create character data corresponding to BUMP data.	None
req[11-8-1-2]	BUMP data display start processing	Perform BUMP data display start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	1. Initialize item number 2. Turnoff up / down numerical value setting
req[11-8-1-3]	BUMP data display item selection processing	Perform BUMP data display item selection processing	Item Number Up / down change of numerical value Gas setting	1. If the up / down numeric value change setting is OFF, move the item upward. 2. If the up / down change setting of the number is ON, move the item downward.	Item Number
req[11-8-1-4]	Calibration data bump data display item selection process	Perform calibration data bump data display item selection process	Up/down selection flag Mode selection number	1. If the up/down selection flag is up, increment the mode selection number. Skip numbers with invalid gas settings. 2. If the up/down selection flag is down and the mode selection number is non-zero, the	Mode selection number
req[11-9-1-1]	FRAM reset alarm point data is selected and read	FRAM reset alarm point data is selected and read	FRAM data address for reset alarm point Numerical judgment of surface (A side B side) flag FRAM reset alarm data SUM value FRAM reset alarm SUM calculation result	1. Read specified byte read processing result into FRAM and read it into result. 2. Reset the watchdog timer. 3. Recalculate the check SUM value. 4. If the result of recalculation is inconsistent, make the reading result NG. 5. Return reading results.	Judgment result

req[11-9-1-2]	FRAM reset alarm point LOAD processing	Perform FRAM reset alarm point LOAD processing	Number of writes Structure size of alarm point data for reset	1. Read FRAM reset alarm point data 2 planes. 2. Match write process. 3. Compare which side is the latest. 4. Write on the old side. 5. If you do not know which side is the latest, write on both sides. 6. Return judgment result.	Judgment result
req[11-9-1-3]	Confirmation flag for checking whether the alarm point can be reset to the factory setting	Set the confirmation flag as to whether the alarm point can be reset to the factory setting	None	1. Return alarm reset ON/OFF setting flag.	Judgment result
req[11-9-1-4]	Alarm point factory setting restore display 1 processing	Perform alarm point factory setting restore display 1 processing	None	1. Create character data corresponding to display 1.	None
req[11-9-1-5]	Alarm point factory setting restore display 2 processing	Perform alarm point factory setting restore display 2 processing	None	1. Create character data corresponding to display 2.	None
req[11-9-1-6]	Alarm point factory setting restore processing	Perform alarm point factory setting restore processing	None	1. Load factory default data (alarm point) of FRAM. 2. Turnon FRAM write start flag.	None
req[11-9-2-1]	FRAM reset alarm SUM calculation result	Perform FRAM reset alarm SUM calculation	FRAM data address for reset alarm point Alarm point for resetting data structure size	1. Reset watchdog timer. 2. Perform FRAM reset alarm SUM calculation. 3. Reset the watchdog timer. 4. FRAM reset alarm Returns the result of SUM calculation.	Judgment result
req[11-9-2-2]	FRAM reset alarm point data is divided into specified bytes and written	FRAM reset Alarm point data is divided into specified bytes and written	Numerical value of surface (A side B side) Alarm point for resetting data structure size Number of writes	1. Place the inverted value of FRAM_DATA in the fram_back. 2. Initialize pointer. 3. Specify the side to be written. 4. Write data. 5 In addition, if there is a remainder less than M_FRAM_STACK_SIZE, write data. 6. Writing the write count. 7. Return data write.	Surface status (face j or faced)
req[11-9-2-3]	FRAM reset alarm point update processing	Perform FRAM reset alarm point update processing	Number of writes FRAM reset alarm SUM calculation result	1. Substitute the FRAM setting data size. 2. Substitute the program number. 3. Copy the program number. 4. Check SUM Update.	Number of writes Judgment result
req[11-9-2-4]	Alarm point setting display processing at reset	Display processing of alarm point setting at reset	None	1. Create character data corresponding to reset alarm point setting.	None
req[11-9-2-5]	Alarm point setting end processing at reset	Perform end processing of alarm point setting at reset	Full scale value Unit decimal point position 1st alarm point 2nd alarm point 3rd alarm point STEL alarm point TWA alarm point	1. Reset each alarm point. 2. Turnon the FRAM error flag. 3. Confirm whether resetting of alarm point can be executed.	Full scale value 1st alarm point 2nd alarm point 3rd alarm point STEL alarm point TWA alarm point Judgment result
req[12-1-1-1]	Gas test display processing	Perform a gas test display process	None	1. Display concentration for gas test. 2. Create character data corresponding to gas test.	None
req[12-2-1-1]	Check if sensor change date ESCAPE display	Sensor exchange date setting Confirm whether ESCAPE display is displayed	Item Number	1. When the item number is 6, turn the judgment result ON. 2. Returns the judgment result.	Judgment result
req[12-2-1-2]	Sensor replacement date setting display processing	Perform sensor replacement date setting display processing	Item Number	1. Acquire date and time data. 2. Create character data corresponding to sensor replacement date setting. 3. Create character data corresponding to sensor replacement date setting. 4. Change the numerical value corresponding to sensor change date setting to character (SHORT) data.	Maintenance letter 7 SEG dots for concentration
req[12-2-1-3]	Sensor replacement date setting gas selection display processing	Perform sensor replacement date setting gas selection display processing	Item Number	1. Create character data corresponding to the sensor exchange date setting gas.	None
req[12-2-2-1]	Sensor replacement date setting end processing	Perform sensor replacement date setting end processing	Item Number	1. Acquire date and time data. 2. Output year, month, day.	Sensor exchange date and time
req[12-2-2-2]	Sensor replacement date setting gas selection start processing	Perform sensor replacement date setting gas selection start processing	None	1. Initialize item number. 2. Turnoff up / down numerical value setting.	Item Number Up / down change of numerical value
req[12-2-2-3]	Sensor replacement date setting display item selection processing	Perform sensor replacement date setting display item selection processing	Item Number Up / down change of numerical value Gas setting	1. If the up / down change is OFF, carry out the following processing 2 to 3. 2. If the item number is larger by 1 than the maximum value, the item number is initialized. 3. If the item number is smaller than the value obtained by adding 1 to the maximum value, 1 is added to the item number.	Item Number
req[13-1-1-1]	Channel port number correspondence setting	Perform channel port number correspondence setting	Gas set value	1. Set the channel port number correspondence.	Setting port
req[13-1-1-2]	I/O port initialization processing (main MCU)	Initialize the I/O port	None	1. Initialize the I/O port.	None
req[13-1-1-3]	I/O port initialization processing (sensor MCU)	Initialize the I/O port	None	1. Initialize the I/O port.	None
req[13-1-1-4]	Port setting initialization processing	Perform port setting initialization processing	None	1. Initialize port settings.	None
req[13-1-1-5]	USB port acquisition processing	Perform USB port acquisition processing	None	1. Initialize the port ON/OFF flag. 2. When the USB connection confirmation port is HI, turn ON the port ON/OFF flag. 3. Return the port ON/OFF flag.	Port ON/OFF flag
req[13-2-1-1]	SUM value acquisition processing	Perform SUM value acquisition processing	None	1. Return the SUM value.	SUM value
req[13-2-1-2]	ROM check processing	Perform ROM check processing	Check start address Check end address Base Sum	1. Calculate the difference between the check end address and the check start address. 2. If the difference result is 0 or more, put that value in the base sum and subtract the difference result. 3. Return basesum.	Base Sum
req[13-2-1-3]	ROM value call processing	Perform ROM value call processing	None	1. Return the ROM value.	ROM value
req[13-2-1-4]	SUM value call processing	Perform SUM value call processing	None	1. Return the SUM value.	SUM value
req[13-2-1-5]	Version value call processing	Perform version value call processing	Data buffer	1. Copy the version value to the data buffer.	Data buffer
req[13-2-1-6]	Substitution of ROM number of RL78	Substitute the ROM number of RL78	ASCII [5] data pointer of ROM number	1. Acquire the ROM number of the R78.	None
req[13-2-1-7]	Substitution of SUM value of RL78	Substitute the SUM value of RL78	SUM value	1. Acquire SUM value of R78.	Sensor MCU SUM value
req[13-2-1-8]	Substitution of RL78 version number	Substitution of RL78 version number	Data buffer	1. Copy the version value of the RL78 microcomputer to the data buffer.	Data buffer
req[13-2-1-9]	Interrupt processing of 10 msec of SUM calculation of RL78	Perform interrupt processing of 10 msec of SUM calculation of RL78	Standby count SUM calculation phase value	1. If the wait count is greater than 0 at the start, wait, or end of the calculation of the SUM value, the wait count is counted down.	SUM calculation phase value
req[13-2-1-10]	RL78 SUM value calculation transmission permission processing	Perform transmission permission processing for calculation of SUM value of RL78	SUM calculation phase value	1. When the calculation of the SUM value is one of activation, standby, and end, turn on the permission flag. 2. Return permission flag.	Judgment result
req[13-2-1-11]	Confirm flag for stopping A/D acquisition of RL78 and starting SUM calculation	Confirm flag for stopping A/D acquisition of RL78 and starting SUM calculation	None	1. Return the calculation phase of the SUM value.	SUM calculation phase value
req[13-2-1-12]	Completion confirmation end processing of SUM value calculation of RL78	Perform completion confirmation end processing of SUM value calculation of RL78	None	1. Finish calculating the sum value.	SUM calculation phase value
req[13-2-1-13]	RL78 SUM value calculation standby end processing	Perform processing for ending waiting for SUM value calculation of RL78	None	1. Stop calculating the SUM value.	SUM calculation phase value
req[13-2-1-14]	RL78 SUM value calculation start confirmation end processing	Perform RL78 SUM value calculation start confirmation end processing	None	1. Wait for calculation of the SUM value.	SUM calculation phase value
req[13-2-1-15]	SUM calculation start processing of RL78	Perorm SUM calculation start processing of RL78	SUM calculation phase value Standby count	1. When the calculation of the SUM value is stopped, the standby count is maximized and the calculation of the SUM value is started.	Standby count
req[13-3-1-1]	Address setting processing of FRAM data for main body data	Perform address setting of FRAM data for main body data	Address of FRAM data for body data	1. Process address setting of FRAM data for body data.	Address of st_Detector_Info
req[13-3-1-2]	Address acquisition processing of FRAM data for main body data	Perform address acquisition processing of FRAM data for main body data	None	1. Return the address of the st_Detector_Info.	Address of FRAM data for body data
req[13-3-1-3]	Address setting processing of concentration calculation data	Perform address setting processing of concentration calculation data	None	1. Return data for concentration calculation.	Data for concentration calculation
req[13-3-1-4]	Processing for setting gas data of nonvolatile memory	Perform setting process of gas data of nonvolatile memory	Alarm point Calibration concentration value Temperature data at zero point calibration Zero coefficient Span coefficient Sensor exchange date and time Calibration curve number Measurement gas type group Concentration calculation value	1. Acquire an alarm point. 2. Acquire the calibration concentration value. 3. Acquire the CAL concentration value. 4. Acquire the calibration concentration value. 5. Acquire temperature data at zero point calibration. 6. Obtain zero coefficients. 7. Acquire the span coefficient. 8. Acquire sensor replacement date and time. 9. Acquire calibration curve number. 10. Acquire the measurement gas type group. 11. Acquire concentration calculation value.	Alarm point Calibration concentration value Temperature data at zero point calibration Zero coefficient Span coefficient Sensor exchange date and time Calibration curve number Measurement gas type group Concentration calculation value
req[13-3-1-5]	Gas data setting processing of concentration calculation data	perform gas data setting processing of concentration calculation data	Gas setting Digit Span fix SPAN coefficient AIR coefficient Zero coefficient Unit decimal point position	1. Perform gas data setting processing of concentration calculation data. 2. Acquire the maximum and minimum values of span coefficients. 3. Acquire the maximum and minimum values of AIR coefficients. 4. Get the maximum and minimum value of the zero coefficient. 5. Acquire unit. 6. Acquire warning status. 7. Acquire the maximum minimum value of concentration. 8. Acquire average value of concentration. 9. Get the STEL value. 10. Acquire the TWA value. 11. Zero tracking 1 minute continuous acquisition of lower value integrated value.	Digit r SPAN coefficient AIR coefficient Zero coefficient Zero coefficient Unit / decimal point position
req[13-3-1-6]	Address setting processing of main unit status data	Perform address setting processing of main unit status data	None	1. Return main unit status data.	Body status data
req[13-3-1-7]	Acquisition of address of gas data	Acquire the address of the gas data	None	1. Return the address of the gas data.	Gas data address
req[13-3-1-8]	Address setting processing of FRAM data for gas data	Performs address setting processing of FRAM data for gas data	Address of FRAM data for gas data	1. Perform address setting of FRAM data for gas data.	Address of st_GasCalc
req[13-3-2-1]	RAM check start process (main MCU)	Request the start of a RAM check	None	1. If the RAM check phase is stopped, perform the following processes 2 and 3 2. Set the RAM check phase to start processing 3. Initialize the retry counter on error with 0	None
req[13-3-2-2]	RAM check 100msec processing (main MCU)	RAM check processing is performed every 100 msec	None	1. Perform RAM check processing 2. If the result of the RAM check process fails, perform process 3 below. 3. Set the flag abnormally in the RAM error flag setting process	None

req[13-3-2-3]	RAM check process (main MCU)	Check RAM	None	1. Initialize the OUTPUT value with "Stop" 2. If the RAM check phase is "process start", perform the following processes 9 to 10. 3. If the RAM check phase is the "save area", perform the following processes 11 to 16. 4. If the RAM check phase is the "main area", perform the following processes 17 to 23. 5. If the RAM check phase is "stack area", perform the following processes 24-29. 6. If the RAM check phase is "process successful", perform the following process 30. 7. If the RAM check phase is "processing failure", perform the following processes 31 to 33. 8. If the RAM check phase is other than the above processes 2 to 7, perform the following process 34. 9. Initialize the retry counter to 0 and set the RAM check phase to "save area". 10. Set the OUTPUT value to "Running" 11. Perform "save RAM check process" 12. Set the RAM check phase to "Processing failed" 13. If the result of process 11 is successful, perform the following processes 14 to 15. 14. Perform "Check target RAM check initialization process" in the main area 15. Set the RAM check phase to "main area" 16. Set the OUTPUT value to "Running" 17. Perform "main RAM check processing" in the main area 18. If the result of process 16 is successful, perform the following processes 20 to 21. 19. If the result of process 16 is neither process 18 nor calculation, perform the following process 22. 20. Perform "Check target RAM check initialization process" in the stack area 21. Set the RAM check phase to "stack area" 22. Set the RAM check phase to "Processing failed" 23. Set the OUTPUT value to "Running" 24. Perform "main RAM check processing" of the stack area 25. If the result of process 24 is successful, perform the following process 27. 26. If the result of process 24 is neither process 25 nor calculation, perform the following process 28. 27. Set the RAM check phase to "Successful processing" 28. Set the RAM check phase to "Processing failed" 29. Set the OUTPUT value to "in progress" 30. Set the RAM check phase to "Stop processing" and set the OUTPUT value to "Normal" 31. Set the RAM check phase to "Save area" and set the OUTPUT value to "Running". 32. Add 1 to the retry counter, and if the value of the retry counter is 3 or more, perform the following process 33. 33. Set the RAM check phase to "Stop processing" and set the OUTPUT value to "Failed" 34. Set the RAM check phase to "Stop processing"	Check result
req[13-3-2-4]	Check target RAM check initialization process (main MCU)	Set the start address for RAM check	Target area	1. Set the start address (main area: 0x00000004, stack area 0x0000EB00)	None
req[13-3-2-5]	Main RAM check process (main MCU)	Check the RAM of the specified area	Target area	1. Substitute the start address for the check address 2. Set OUTPUT to "Running" 3. Perform the following processes 4 to 14 for 32 bytes 4. Disable interrupts 5. Write the check address data to the save memory 6. Write 0x55 to the check address data 7. Write the check address data to confirmation buffer 1 8. Write 0xAA to the check address data 9. Write the check address data to confirmation buffer 2 10. Write the data in the save memory to the data in the check address 11. Allow interrupts 12. Add 1 to the check address 13. If confirmation buffer 1 is other than 0x55 or confirmation buffer 2 is other than 0xAA, perform the following process 14. 14. Set OUTPUT to "Failure" and exit loop processing 3. 15. Add 32 to the starting address 16. When the start address reaches the end of the RAM to be confirmed, the following process 17 is executed. (Main area: 0x00006000, Stack area 0x0000FFFF) 17. If OUTPUT is "Running", set OUTPUT to "Success"	Check result
req[13-3-2-6]	Evacuation RAM check process (main MCU)	Check the backup RAM area used when checking RAM	None	1. Initialize OUTPUT with "Failure" 2. Set the start address of the backup RAM in the check address 3. Write 0x55 for 16 bytes to the check address data 4. Check if the check address data 16Byte is 0x55 5. Write 0xAA for 16 bytes to the check address data 6. Check if the check address data 16Byte is 0xAA 7. If both process 4 and process 6 above match, set OUTPUT to "success"	Check result
req[13-3-2-7]	Self-diagnosis start processing every 24 hours (sensor MCU)	Counts every 250 msec and performs RAM check start processing every 24 hours	None	1. Add 1 to the 24-hour RAM check counter 2. If the 24-hour RAM check counter is 345600 or higher, perform the following processes 3 and 4 3. Set the 24-hour RAM check counter to 0 4. Perform "RAM check start processing"	None
req[13-3-2-8]	RAM check start processing (sensor MCU)	Request the start of a RAM check	None	1. If the RAM check phase is stopped, perform the following processes 2 and 3 2. Set the RAM check phase to start processing 3. Initialize the retry counter on error with 0	None
req[13-3-2-9]	RAM check 250msec processing (sensor MCU)	RAM check processing is performed every 250 msec	None	1. Perform RAM check process 2. Set the result of RAM check processing to OUTPUT	Check result
req[13-3-2-10]	RAM check processing (sensor MCU)	Check RAM	None	1. Initialize the OUTPUT value with "Stop" 2. If the RAM check phase is "stop processing", the processing ends without doing anything. 3. If the RAM check phase is "process start", perform the following processes 9 to 10. 4. If the RAM check phase is the "save area", perform the following processes 11 to 12. 5. If the RAM check phase is the "main area", perform the following processes 13 to 14 6. If the RAM check phase is "process successful", perform the following process 15. 7. If the RAM check phase is "processing failure", perform the following processes 16 to 20. 8. If the RAM check phase is other than the above processes 2 to 7, perform the following process 21. 9. Initialize the retry counter to 0 and set the RAM check phase to "save area". 10. Set the OUTPUT value to "Running" 11. Perform "RAM check processing: save RAM check phase" and set the result to the RAM check phase. 12. Set the OUTPUT value to "Running" 13. Perform "RAM check process: main RAM check phase" and set the result to RAM check phase. 14. Set the OUTPUT value to "Running" 15. Set the RAM check phase to "Stop processing" and set the OUTPUT value to "Normal" 16. Add 1 to the retry counter 17. If the retry counter value is less than 3, perform process 19 below. 18. If the retry counter value is 3 or more, perform the following process 20. 19. Set the RAM check phase to "Save area" and set the OUTPUT value to "Running". 20. Set the RAM check phase to "Stop processing" and set the OUTPUT value to "Failed" 21. Set the RAM check phase to "Stop processing"	Check result
req[13-3-2-11]	RAM check processing: RAM check phase for saving (sensor MCU)	Performs backup RAM check phase processing	None	1. Perform "save RAM check process" 2. If the result of process 1 above is "successful", perform process 4 below. 3. If the result of process 1 above is not "successful", perform process 5 below. 4. Perform "Check target RAM check initialization process" and set OUTPUT to "Main area". 5. Set OUTPUT to "Processing failed"	RAM check phase
req[13-3-2-12]	RAM check processing: Main RAM check phase (sensor MCU)	Process the main RAM check phase	RAM check phase	1. Perform "Check target RAM check process" 2. If the result of process 1 above is "in progress", set the value of INPUT to OUTPUT. 3. If the result of process 1 above is "successful", set OUTPUT to "process successful". 4. If the result of process 1 above is neither "in progress" nor "success", set OUTPUT to "process failure".	RAM check phase
req[13-3-2-13]	RAM check process for saving (sensor MCU)	Check the backup RAM area used when checking RAM	None	1. Initialize OUTPUT with "Failure" 2. Set the start address of the backup RAM in the check address 3. Write 0x55 for 16 bytes to the check address data 4. Check if the check address data 16Byte is 0x55 5. Write 0xAA for 16 bytes to the check address data 6. Check if the check address data 16Byte is 0xAA 7. If both process 4 and process 6 above match, set OUTPUT to "success"	Check result
req[13-3-2-14]	Check target RAM check initialization process (sensor MCU)	Set the start address for RAM check	Target area	1. Set the start address of the main area (0xE780)	None
req[13-3-2-15]	Check target RAM check processing (sensor MCU)	Check the RAM of the specified area	Target area	1. Substitute the start address for the check address 2. Set OUTPUT to "Running" 3. Perform the following processes 4 to 14 for 32 bytes 4. Disable interrupts 5. Write the check address data to the save memory 6. Write 0x55 to the check address data 7. Write the check address data to confirmation buffer 1 8. Write 0xAA to the check address data 9. Write the check address data to confirmation buffer 2 10. Write the data in the save memory to the data in the check address 11. Allow interrupts 12. Add 1 to the check address 13. If confirmation buffer 1 is other than 0x55 or confirmation buffer 2 is other than 0xAA, perform the following process 14. 14. Set OUTPUT to "Failure" and exit loop processing 3. 15. Add 32 to the starting address 16. When the start address reaches the end of the RAM to be confirmed (0xFE00), the following process 17 is executed. 17. If OUTPUT is "Running", set OUTPUT to "Success"	Check result
req[13-4-1-1]	10 msec interrupt processing for BUMP test	Perform 10 msec interruption processing of BUMP test	Bump test count timer Bump calibration count timer	1. Count down bump test count timer. 2. Count down bump calibration count timer.	Bump test count timer Bump calibration count timer
req[13-4-1-2]	Reading 250 msec count flag (Sensor MCU)	Reads the 250 msec count flag	None	1. Return the 250 msec count flag.	250 msec count flag
req[13-4-1-3]	250 msec count flag setting (Sensor MCU)	Set the 250 msec count flag	Count flag setting value	1. Place the setting value of the count flag in the 250 msec count flag.	250 msec count flag
req[13-4-1-4]	10 msec Interrupt handling (Main MCU)	Perform interrupt processing for 10 msec	None	1. 10 msec Call interrupt processing. 2. Call processing every 10 msec of EC connection check. 3. 24 bit A/D conversion start processing. 4. Calls up the energization time counting process of the NC sensor element. 5. 250 mse When the count timer is 1, set the 250 msec count flag to true and set the 250 msec count timer to 25.	250 msec count flag
req[13-4-1-5]	10 msec interrupt RAM data initialization processing	Perform 10 msec interrupt RAM data initialization processing	None	1. Initialize the 250 msec count flag.	250 msec count flag
req[13-4-1-6]	Reading 100 msec count flag	Reading 100 msec count flag	None	1. Return 100-msec count flag.	100 msec count flag
req[13-4-1-7]	Reading 250 msec count flag (Main MCU)	Reads the 250 msec count flag	None	1. Return 250 msec count flag.	250 msec count flag
req[13-4-1-8]	100 msec count flag setting	Set 100 msec count flag	Count flag setting value	1. Place the setting value of the count flag in the 100 msec count flag.	100 msec count flag
req[13-4-1-9]	250 msec count flag setting (Main MCU)	Set the 250 msec count flag	Count flag setting value	1. Place the setting value of the count flag in the 250 msec count flag.	250 msec count flag

req[13-4-1-10]	Interrupt activation processing	Perform an interrupt activation processing	None	1. 10 msec Call interrupt start processing.	None
req[13-4-1-11]	Interrupt stop processing	Perform interrupt stop processing	None	1. 10 msec Call interrupt stop processing.	None
req[13-4-1-12]	10 msec Interrupt handling (Sensor MCU)	Perform interrupt processing for 10 msec	None	1. Count SPI timeout. 2. Count the delay of SCI6. 3. Call all 10 ms interrupt processing for each function. 4. When the count timer is 0, the count flag is set to true.	None
req[13-4-1-13]	ICMT0 channel initialization processing	Initialize the ICMT0 channel	None	1. Initialize the ICMT 0 channel.	None
req[13-4-1-14]	CMT0 channel counter start processing	Start processing of the CMT0 channel counter	None	1. Enable CMI 0 interrupt in ICU. 2. Start CMT0 count.	None
req[13-4-1-15]	CMT0 channel counter stop processing	Stop processing of CMT0 channel counter	None	1. Invalidate CMI 0 interrupt in ICU. 2. Stop CMT0 count.	None
req[13-4-1-16]	Sensor MCU FW rewrite for 10 msec interrupt processing	Perform Sensor MCU FW rewrite for 10 msecinterrupt processing	None	1. Allow interrupts. 2. Sensor MCU FW rewrite 10 msec When the switching flag is OFF, call 10 msec interrupt processing. 3. Sensor MCU Substitute 10 ms interrupt processing for FW rewriting.	None
req[13-4-1-17]	None	No treatment	None	No treatment.	None
req[13-4-1-18]	None	No treatment	None	No treatment.	None
req[13-4-1-19]	None	No treatment	None	No treatment.	None
req[13-4-1-20]	None	No treatment	None	No treatment.	None
req[13-4-1-21]	None	No treatment	None	No treatment.	None
req[13-4-1-22]	None	No treatment	None	No treatment.	None
req[13-4-1-23]	None	No treatment	None	No treatment.	None
req[13-4-1-24]	IT module initialization processing	Perform initialization process of IT module	None	1. Initialize the IT module.	None
req[13-4-1-25]	IT module start processing	Perform start processing of IT module	None	1. Clear the INTIT interrupt flag. 2. Enable INTIT interrupt.	None
req[13-4-1-26]	IT module stop processing	Perform stop processing of IT module	None	1. Invalidate INIT interrupt. 2. Clear the INTIT interrupt flag.	None
req[13-4-1-27]	10 msec Interrupt processing (Main MCU)	Perform interrupt processing for 10 msec	None	1. Allow multiple interrupts. 2. Call 10 msec interruption processing.	None
req[13-4-2-1]	Module main processing	Perform module main processing	None	1. Reset watchdog timer. 2. Check the RAM. 3. Reset the watchdog timer. 4. Set the RAM error flag. 5. Set the address of the nonvolatile memory. 6. Reset the watchdog timer. 7. Performs voltage detection circuit control activation processing 8. Initialize variables in ZIPC. 9. Check ROM. 10. Initial value of concentration calculation data is set. 11. Activate interrupt. 12. Initialize alarm relation. 13. Start IIC of SCI6. 14. Start SPI of dedicated function. 15. Reset the watchdog timer. 16. Communication with MAIN microcomputer is started. 17. Reset the watchdog timer. 18. Start RTC. 19. Read FRAM data. 20. Read FRAMID data. 21. Read FRAM reset alarm point. 22. Confirm whether resetting of alarm point can be executed. 23 Read FRAM of lunch break data. 24. Reset the watchdog timer. 25. Initialize the logger. 26. Rewrite the FW of the sensor MCU. 27. Main process per main loop. 28. Check the 100 msec flag. 29. Update the 100 msec flag. 30. Start RL78 communication. 31. Perform "RAM check every 100 msec" 32. Check the 250 msec flag. 33. Update the 250 msec flag.	None
req[13-4-2-2]	1000 msec processing A	Perform 1000 msec processing A	None	1. Convert temperature value of RL78. 2. Calculate A/D average value for hydrogen cancellation CO of RL78. 3. Calls up all gas concentration calculation processing. 4. Call self-diagnosis processing after 24 hours.	None
req[13-4-2-3]	1000 msec processing B	Perform 1000 msec processing B	None	1. Reads the date and time of the RTC.	None
req[13-4-2-4]	1000 msec processing C	Perform 1000 msec processing C	None	1. Update the FRAM. 2. Set FRAM to default state. 3. Clear the power logger of the logger function. 4. Clear the logger function data logger.	None
req[13-4-2-5]	1000 msec processing D	Perform 1000 msec processing D	None	1. Implement AIR calibration. 2. Perform AUTO calibration. 3. Check every 1 second period.	None
req[13-4-2-6]	250 msec processing	Perform processing A for 250 msec	None	1. Reset watchdog timer. 2. Calculate the average value of 12 bits A/D value. 3. Perform RL78 communication processing. 4. Check warning temperature warning. 5. Create an event for ZIPC of key. 6. Clear LCD display data. 7. When battery voltage is abnormal, turn on the battery voltage abnormality flag. 8. Display each icon. 9. Judge PowerOff display. 10. Perform the processing of ZIP-C. 11. When the EX command reception flag for SD is ON, the display data for SDM is created. 12. When the PowerOff display ONOFF is ON, a TURNOFF display is created.	None
req[13-4-2-7]	250 msec processing	Perform processing B for 250 msec	None	1. Automatically light the backlight. 2. Lit the LCD backlight. 3. Perform buzzer loop processing. 4. Set display data of LCD. 5. Check ROM. 6. Perform "voltage detection circuit control self-diagnosis processing every 250 msec"	None
req[13-4-2-8]	Main loop processing	Perform processing for each main loop	None	1. Analyze received data and create transmitted data. 2. SCI9 Perform main processing after UART command reception.	None
req[13-4-2-9]	Module main processing (Sensor MCU	Perform module main processing	None	1. Allow interrupts. 2. If the RAM check process at startup is not good, turn on the RAM error flag. 3. Substitute SUM check in progress flag. 4. Reset the watchdog timer. 5. Perform "power supply voltage monitoring circuit control RAM data initialization processing" 6. Initialize 24 bit A/DRAM data. 7. EC connection check RAM data is initialized. 8. EC connection check RAM data is initialized. 9. Initialize NC sensor RAM data. 10. Initialize oxygen warm air RAM data. 11. Initialize command receive RAM data. 12. Execute the interrupt activation process. 13. Perform oxygen warming initial processing. 14. 10 msec Start interrupt. 15. 24 Start the A/Dbit conversion. 16. Communication with MAIN microcomputer is started. 17. Set the receive buffer. 18. Start UART communication. 19. Check the 250 msec flag. 20. Reset the watchdog timer. 21. Update the 250 msec flag. 22. Perform oxygen loop warm up main loop processing. 23. Calculate the average value of A/D values. 24. Calculate the difference AD of the EC connection check. 25. Check ROM. 26. If there is an abnormality in the RAM, turn on the RAM error flag. 27. Perform "self-diagnosis start processing every 24 hours" 28. Perform "RAM check every 250msec" and turn on the RAM error flag if there is an error.	None
req[13-5-1-1]	TGRA compare match interrupt handling	Perform TGRA compare match interrupt processing	Temporary buffer of TGRA Temporary buffer of TGRB Buzzer in operation flag	1. When the buzzer is in the OFF state, turn off the MTU 2 function.	None
req[13-5-1-2]	MTU2 channel 2 counter start processing	Perform start processing of MTU 2 channel 2 counter	None	1. Enable TGIA 2 interrupt with ICU.	None
req[13-5-1-3]	MTU2 channel 2 counter stop processing	Perform stop processing of MTU 2 channel 2 counter	None	1. Disable TGIA 2 interrupt with ICU.	None
req[13-5-1-4]	MTU2 module initialization processing	Initialize the MTU 2 module	None	1. Initialize the MTU2 module.	None
req[13-5-1-5]	TGRA compare match interrupt processing	Perform TGRA compare match interrupt processing	None	1. Allow interrupts. 2. Call TGRA compare match interrupt processing.	None
req[13-6-1-1]	12bit AD variable initialization processing	Perform 12bit AD variable initialization processing	None	1. Initialize the AD value save buffer. 2. Initialize the averaging buffer. 3. Initialize the average buffer update disable flag. 4. Initialize the initial process flags.	AD value save buffer Averaging buffer Average buffer update disable flag Initial process flags
req[13-6-1-2]	12 bit A/D conversion start processing	Perform 12 bit A/D conversion start processing	None	1. When A/D conversion is stopped, start 12-bit A/D conversion.	None
req[13-6-1-3]	12-bit A/D conversion completion interrupt processing	Perform 12 bit A/D conversion completion interrupt processing	Moving average buffer update permission flag	1. Acquire the A/D value. 2. When moving average buffer update prohibition flag is OFF, insert 12-bit A/D data into average buffer.	None
req[13-6-1-4]	Substitution processing of NC sensor toggle count	Acquire processing of NC sensor toggle count	None	1. Return the NC sensor toggle count.	NC sensor toggle count
req[13-6-1-5]	24 bit A/D conversion start processing	Perform 24 bit A/D conversion start processing	None	1. When A/D conversion is stopped, start 24-bit A/D conversion after setting PGA.	None

req[13-6-1-6]	Confirm whether to change PGA setting of 24bit A/D and set it	Confirm whether to change PGA setting of 24 bit A/D and carry out setting processing	A/D channel A/D value	1. In the case other than the temperature sensor, perform the following processing 2 to 3. 2. Fix the PGA setting value to 1 when checking EC sensor connection. 3. If it is outside the threshold value, the PGA setting value is changed.	PGA setting value
req[13-6-1-7]	Set PGA setting of 24 bit A/D to register	Perform processing to set PGA setting of 24 bit A/D to register	PGA setting value	1. Set the PGA setting value in each PGA register.	None
req[13-6-1-8]	24 bit A/D RAM data initialization processing	Initialize the buffer used for 24 bit A/D acquisition	None	1. Initialize the setting value of PGA. 2. Initialize A/D acquisition buffer. 3. Initialize the flag of the combustible sensor.	PGA setting value A/D acquisition buffer Flag of combustible sensor
req[13-6-1-9]	Settable amp offset adjustment processing	Perform settable amp offset adjustment processing	None	1. Save the variables that will be overwritten by the API. 2. Set power on of the AFE circuit. 3. Measure the PGA offset voltage. 4. Start offset trimming of CONFIGURABLE AMPLIFIERn. 5. Restore the data stored in the variable to the relevant register.	None
req[13-6-1-10]	PGA and DS A/D converter initialization processing	Initialize the PGA and DS A/D converter	None	1. Wait until the AFE stabilizes. 2. Wait until the PGA stabilizes. 3. INTDSAD Set level 2 priority.	None
req[13-6-1-11]	DS A/D conversion average result acquisition processing	Acquire average result of DS A/D conversion	Buffer H Buffer L	1. Return the average result of A/D conversion.	None
req[13-6-1-12]	DS A/D conversion result acquisition processing	Acquire DS A/D conversion result	Buffer H Buffer L	1. Returns the A/D conversion result.	None
req[13-6-1-13]	PGA and DS A/D converter start processing	Perform start processing of PGA and DS A/D converter	None	1. Clear the INTDSAD interrupt flag. 2. Enable INTDSAD interrupt. 3. Start conversion.	None
req[13-6-1-14]	PGA and DS A/D converter stop processing	Perform stop processing of PGA and DS A/D converter	None	1. Disable INTDSAD interrupt. 2. Clear the INTDSAD interrupt flag. 3. Stop the conversion.	None
req[13-6-1-15]	24-bit A/D conversion completion interrupt processing	Perform 24 bit A/D conversion completion interrupt processing	None	1. Allow multiple interrupts. 2. Call 24-bit A/D conversion completion interrupt processing.	None
req[13-6-1-16]	A/D converter initialization processing	Perform initialization processing of the A/D converter	None	1. Initialize the A/D converter.	None
req[13-6-1-17]	A/D converter start processing	Perform start processing of the A/D converter	None	1. Start the A/D converter.	None
req[13-6-1-18]	A/D converter stop processing	Perform stop processing of the A/D converter	None	1. Stop the A/D converter.	None
req[13-6-1-19]	Initializes the selectable power-on-reset circuit	Perform initializes the selectable power-on-reset circuit	None	1. Initializes the CAMP circuit.	None
req[13-6-1-20]	Starts the CAMP0	Perform starts the CAMP0	None	1. Starts the CAMP0.	None
req[13-6-1-21]	Starts the CAMP1	Perform starts the CAMP1	None	1. Starts the CAMP1.	None
req[13-6-2-1]	12 bit A/D value average conversion processing	Perform 12 bit A/D value average conversion processing	Moving average buffer	1. Turnon moving average buffer update prohibition flag. 2. Calculate the average value of temperature sensor A/D values. 3. Convert A/D data to voltage value. 4. Turnoff the moving average buffer update prohibition flag.	Moving average buffer update permission flag 12 bit A/D value Moving average buffer update prohibition flag
req[13-6-2-2]	12 bit A/D value read processing	Perform 12 bit A/D value read processing	A/D channel	1. Return the A/D value of the specified A/D channel.	12 bit A/D value
req[13-6-2-3]	12 bit A/D mV conversion	Perform 12 bit A/D mV conversion	AD conversion result	1. Convert the AD conversion result to a voltage value.	Voltage value
req[13-6-2-4]	12bitA/D initial AD acquisition flag	Perform 12bitA/D initial AD acquisition flag	Initial process flag	1. Initialize the result flags. 2. Turn on the result flag other than the initial process flag is completed. 3. Return result flag.	Result flag
req[13-6-2-5]	Put 12 bit A/D data in the average buffer	Put 12 bit A/D data in the average buffer	12 bit A/D value	1. Insert the 12-bit A/D value into the moving average buffer.	Moving average buffer
req[13-6-2-6]	24 bit A/D value average conversion processing	Perform 24 bit A/D value average conversion processing	Average buffer update permission flag Backup buffer for NC sensor	1. When the average buffer renewal permission flag is ON, the NC sensor average A/D value is obtained using the NC sensor backup buffer, and the update permission flag is turned off. 2. From the EC sensor A/D value, calculate the average A/D value of the EC sensor. 3. Calculate the average A/D value of the temperature sensor from the temperature sensor A/D value. 4. When the average A/D value of the NC sensor is obtained, the average A/D data of the NC sensor is converted into the voltage value. 5. Convert A/D data of EC sensor and temperature sensor to voltage value.	NC sensor average A/D value EC sensor average A/D value Temperature sensor average A/D value Average buffer update permission flag
req[13-6-2-7]	24 bit A/D mV conversion	Perform 24 bit A/D mV conversion	A/D channel A/D value	1. Convert the A/D data of the specified channel to the voltage value.	A/D value
req[13-6-2-8]	24 bit A/D conversion completion interrupt processing	Perform 24 bit A/D conversion completion interrupt processing	None	1. Check the 24-bit A/D conversion complete channel. 2. The completed channels are subjected to the following processes 3 to 8. 3. Acquire the A/D value. 4. When O2 sensor channel and oxygen warming is being performed, acquire the A/D value every 10 msec. 5. If the EC sensor is not being checked, insert the 24-bit A/D value into the buffer. 6. Acquire the A/D value of the EC sensor check. 7. Change the PGA setting of 7. 24 bit A/D. 8. If there is no completed channel, stop 24-bit A/D conversion.	None
req[13-6-2-9]	24 bit A/D value assignment processing	Perform 24 bit A/D value assignment processing	NC sensor average A/D value EC sensor average A/D value Temperature sensor average A/D value A/D channel NC sensor acquisition timing	1. Return the A/D value mV of the specified A/D channel. 2. In case of NC sensor, it returns the A/D value mV of the specified acquisition timing. 3. O2 In case of warming up, obtain the A/D value after O2 sensor average.	A/D value
req[13-6-2-10]	24bit A/D acquisition	Acquire 24 bit A/D	None	1. Obtain A/D value and shift bit.	A/D value
req[13-6-2-11]	24 bit A/D conversion complete channel check	Perform 24 bit A/D conversion complete channel check	None	1. Return converted A/D channel in bit format.	A/D channel
req[13-6-2-12]	Determine ± of 24 bit A/D data	Determine ± of 24 bit A/D data	A/D value	1. Reference the sign bit of the A/D value and return the absolute value of the A/D value.	A/D value
req[13-6-2-13]	Put 24bit A/D data in average buffer	Put 24bit A/D data in average buffer	A/D channel A/D value	1. Assign the A/D value to the average buffer of the specified AD channel.	Average buffer
req[13-6-2-14]	NC sensor 24bit A/D value average processing	Perform NC sensor 24bit A/D value average processing	Element energization flag AD conversion result	1. Copy the NC sensor AD conversion result corresponding to the element energization flag to the backup buffer. 2. Accumulate the AD values in the backup buffer. Get the minimum value at the same time. 3. Calculate the average value by subtracting the minimum value from the integrated value. 4. Calculate the voltage-converted AD value. 5. Shift the average buffer. 6. Turn ON the average buffer movement flag when the AD values of all elements have	Average buffer Average buffer movement flag
req[13-6-2-15]	NC sensor AD value difference acquisition processing	Perform NC sensor AD value difference acquisition processing	Element energization flag Average buffer	1. Returns the difference between the current average buffer and the previous average buffer.	NC sensor voltage difference
req[13-6-2-16]	Acquisition processing of H2 cancellation CO	Acquire A/D value of H2 cancellation CO	A/D channel	1. Return the (WE 1 or W 2) A/D value specified on the A/D channel.	CO sensor A/D value
req[13-6-2-17]	12 bit A/D conversion completion interrupt processing	Perform 12 bit A/D conversion completion interrupt processing	None	1. Call 12-bit A/D conversion completion interrupt processing.	None
req[13-6-2-18]	Result acquisition processing from the A/D converter	Acquire result from A/D converter	Channel of data register to be read Buffer pointer	1. Acquire the result from the A/D converter.	None
req[13-7-1-1]	SAU0 module initialization processing	Initialize the SAU0 module	None	1. Initialize the SAU 0 module.	None
req[13-7-1-2]	UART0 module initialization processing	Initialize the UART0 module	None	1. Initialize the UART0 module.	None
req[13-7-1-3]	UART0 module start processing	Perform start processing of UART0 module	None	1. Start operation of UART0 module.	None
req[13-7-1-4]	UART0 module stop processing	Perform start processing of UART0 module	None	1. Stop the operation of the UART0 module.	None
req[13-7-1-5]	SCI5 initialization processing	Perform initialization processing of SCI5	None	1. Initialize SCI 5.	None
req[13-7-1-6]	SCI5 start processing	Perform SCI5 start processing	None	1. Starts SCI5.	None
req[13-7-1-7]	SCI5 stop processing	Perform SCI5 stop processing	None	1. Stops SCI5.	None
req[13-7-1-8]	SCI9 initialization processing	Perform initialization processing of SCI9	None	1. Initialize SCI9.	None
req[13-7-1-9]	SCI9 start processing	Perform start processing of SCI9	None	1. Clear the interrupt flag. 2. Enable SCI interrupt.	None
req[13-7-1-10]	SCI9 stop processing	Perform stop processing of SCI9	None	1. Set the TXD 9 pin. 2. Disable SCI interrupt.	None
req[13-7-1-11]	RL78 communication processing 10 msec interrupt processing	Perform RL78 communication processing 10 msec interrupt processing	RL78 communication retry timer	1. If the communication retry timer of the RL 78 is other than 0, the communication retry timer of the RL78 is counted down.	None
req[13-7-1-12]	RL78 communication setting reconfiguration processing	Perform RL78 communication setting reconfiguration processing	None	1. Set the communication status of the RL78 to the RL78 sensor MCU communication unconfirmed state. 2. Reset communication retry timer of RL78.	None
req[13-7-1-13]	UART start processing of SCI9	Perform UART start processing of SCI9	None	1. Start UI of SCI9. 2. Set the receive buffer.	None
req[13-7-1-14]	UART stop processing of SCI9	Perform UART stop processing of SCI9	None	1. Stop UI of SCI9.	None
req[13-7-1-15]	UART5 driver initialization processing	Perform UART5 driver initialization processing	None	1. Initialize the UART5 driver.	None
req[13-7-1-16]	UART5 driver startup processing	Perform UART5 driver startup processing	None	1. Perform UART5 startup processing. 2. Set up the receive buffer for receiving the next 1 byte.	None
req[13-7-1-17]	UART5 Receive buffer setting processing for receiving the next 1	Perform UART5 Receive buffer setting processing for receiving the next 1 byte	Received data	1. Set the reception data pointer of UART5 and set the number of reception data to 1 byte.	None
req[13-7-1-18]	SCI5 UART start processing	Perform SCI5 UART start processing	None	1. Perform UART5 startup processing. 2. Set up the receive buffer for receiving the next 1 byte.	None
req[13-7-1-19]	SCI5 UART stop processing	Perform SCI5 UART stop processing	None	1. Perform SCI5 UART stop processing.	None
req[13-7-2-1]	UART0 data transmission processing	Perform data transmission processing of UART0	Transfer buffer pointer Buffer size	1. Send UART 0 data.	Judgment result
req[13-7-2-2]	UART0 error processing	Perform UART0 error processing	None	No treatment.	None
req[13-7-2-3]	Transmission processing of UART0	Perform transmission processing of UART0	None	No treatment.	None
req[13-7-2-4]	UART0 error interrupt processing	Perform interrupt handling on UART0 error	None	1. Setting the receive buffer.	None
req[13-7-2-5]	Interrupt processing at UART0 transmission	Perform interrupt handling when sending UART0	Uart 0 transmission data number Uart 0 Transmit buffer address	1. If the number of data to be transmitted by UART 0 exists, count up the transmission buffer and count down the number of data transmitted by UART 0.	Number of data transmitted by UART 0 Transmit buffer
req[13-7-2-6]	SCI5 data transmission processing	Perform data transmission processing of SCI5	Transfer buffer pointer Buffer size	1. If the buffer size is smaller than 1, make the status an error. 2. Place the transmit buffer pointer in the transmit buffer address of SCI5. 3. Put the buffer size in the number of transmitted data of SCI5. 4. Set the TXD5 pin. 5. Return status.	Judgment result Transmit buffer address of SCI5 Number of data transmitted by SCI5
req[13-7-2-7]	SCI9 data transmission processing	Perform data transmission processing of SCI9	Transfer buffer pointer Buffer size	1. If the buffer size is smaller than 1, make the status an error. 2. Place the transmit buffer pointer in the transmit buffer address of SCI9. 3. Put the buffer size in the number of transmitted data of SCI9. 4. Set the TXD9 pin. 5. Return status.	Judgment result Transmit buffer address of SCI9 Number of data transmitted by SCI9
req[13-7-2-8]	SCI5 transmission end processing	Perform transmission end processing of SCI5	None	No treatment.	None
req[13-7-2-9]	SCI5 transmission interrupt processing	Perform transmission interrupt of SCI5	None	1. Call SCI 5 send / receive interrupt processing.	None
req[13-7-2-10]	SCI5 transmission end interrupt processing	Perform transmission end interrupt processing of SCI5	None	1. Call SCI 5 transmission end interrupt processing.	None
req[13-7-2-11]	SCI9 transmission end processing	Perform transmission end processing of SCI9	SCI9 transmission flag of RL 7 PLOG	1. If the SCI9 transmission flag of the RL 7 PLOG is TRUE, set the SCI9 transmission flag of RL78 to FALSE.	SCI9 transmit flag of RL78

req[13-7-2-12]	SCI9 transmission interrupt processing	Perform SCI9 transmit interrupt handling	Receive buffer address of SCI9 Number of data received by SCI9	1. When the number of transmission data of SCI9 is larger than 0, the reception buffer address of SCI9 is counted up and the number of data received by SCI9 is counted down.	Receive buffer address of SCI9 Number of data received by SCI9
req[13-7-2-13]	SCI9 transmission end interrupt processing	Perform SCI9 transmission end interrupt processing	None	1. Set the TXD 9 pin.	TXD 9 pin
req[13-7-2-14]	RL78 communication processing (started at 250 msec)	Perform RL78 communication processing	RL78 communication error count buffer The communication status flag of RL78	1. When the communication error count buffer of the RL78 is smaller than the communication retry number by the periodic HA command, turn on the sensor circuit error flag. 2. When the communication error count buffer of the RL78 is larger than the communication retry number by the periodic HA command, the communication error count buffer of the RL78 is counted up.	None
req[13-7-2-15]	Create communication command data in send buffer	Create communication command data in the transmission buffer	Transmit buffer pointer Main command transmission buffer pointer Subcommand send buffer pointer	1. Create communication command data.	None
req[13-7-2-16]	Command processing	Perform command processing	Type of equipment	1. Execute command response processing corresponding to the requested command code.	None
req[13-7-2-17]	Pass the maximum number of communication commands	Pass the maximum number of communication commands	None	1. Return the maximum number of commands.	Maximum number of commands
req[13-7-2-18]	Pass table data of communication command	Pass the maximum number of communication commands	Table number	1. Return table code data.	Table code data
req[13-7-2-19]	Pass the table command pointer of the communication command	Pass the table command pointer of the communication command	Table number	1. Return table command pointer.	Table command pointer
req[13-7-2-20]	Setting value writing (W)	Perform transmission processing of setting value writing (W)	None	1. Assign a pointer to the send buffer. 2. Create communication command data of zero tracking setting. 3. Insert the ON/OFF setting of the gas into the transmission buffer. 4. Create and transmit data for transmission.	Transmit buffer
req[13-7-2-21]	Setting + A/D value reading (W)	Perform transmission processing of setting + A/D value reading (W)	None	1. Assign a pointer to the transmission buffer. 2. Create the communication command data for the zero tracking setting. 3. Obtain the logger energy flag. 4. Obtain flammable sensor protection flap. 5. Turnoff the EC connection check flags. 6. Create and send the transmission data.	Long energy flag Flammable sensor protection flag
req[13-7-2-22]	Device connection confirmation command (R)	Perform transmission processing of device connection confirmation command (R)	None	1. Assign a pointer to the transmission buffer. 2. Create communication command data for device connection confirmation. 3. Create and send the transmission data.	None
req[13-7-2-23]	Program number confirmation (R)	Perform transmission processing of program number confirmation (R)	None	1. Assign a pointer to the transmission buffer. 2. Create communication command data for program number confirmation. 3. Create and send the transmission data.	None
req[13-7-2-24]	Confirming whether SUM value confirmation is being executed or not	Confirming whether SUM value confirmation is being executed or not	None	1. Assign a pointer to the transmission buffer. 2. Create the communication command data for confirming the SUM value confirmation execution. 3. Create and send the transmission data.	None
req[13-7-2-25]	Confirm SUM value	Perform transmission processing of confirming the SUM value	None	1. Assign a pointer to the send buffer. 2. Create communication command data for checking the SUM value. 3. Create and transmit data for transmission.	None
req[13-7-2-26]	SUM value confirmation start processing	Perform transmission processing of SUM value confirmation start processing	None	1. Assign a pointer to the send buffer. 2. Create communication command data of SUM value confirmation start processing. 3. Create and transmit data for transmission.	None
req[13-7-2-27]	Confirming whether the correct command was sent	Confirms whether the correct command was sent	Flag to execute processing in the main loop after completion of reception	1. If the transmitted command is correct, execute command processing of SCI9. 2. End transmission of data.	None
req[13-7-2-28]	Data transmission end processing	Perform data transmission end processing	None	1. Reset the reception count. 2. After completion of reception, turn off the flag to execute processing in the main loop.	None
req[13-7-2-29]	Data transmission processing	Perform data transmission processing	None	1. Send data of SCI9.	None
req[13-7-2-30]	SUM calculation of transmission data	Perform SUM calculation of transmission data	Transmission data Transmit buffer	1. Calculate SUM value of transmission data. 2. Returns the SUM value.	SUM value of transmission data
req[13-7-2-31]	Transmission processing of error command	Perform transmission processing of error command	None	1. End data transmission. 2. Set headers. 3. Put the NAK in the transmission buffer. 4. Create and transmit data for transmission.	Transmit buffer
req[13-7-2-32]	Set the header of the receive buffer in the send buffer	Set processing to the header of the receive buffer in the transmission buffer	Receive data save buff Trans data save buff	1. Copy command to array for response command.	Copy to array for response command
req[13-7-2-33]	Creating and sending data for data transmission	Create and send data transmission data	The number of data	1. Place the ETX in the transmission buffer. 2. Pass the number of bytes to be checked and calculate the SUM value. 3. Put the EOT in the transmission buffer. 4. Send data. 5. End transmission of data.	Copy to array for response command
req[13-7-2-34]	Pointer assignment processing of transmission buffer	Perform pointer assignment processing of transmission buffer	None	1. Return pointer of send buffer.	Pointer of transmission buffer
req[13-7-2-35]	Setting value writing (R)	Perform transmission processing of set value writing (R)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. Assign gas ON/OFF setting. 3. Create and transmit data for transmission.	None
req[13-7-2-36]	Setting value writing (W)	Perform transmission processing of setting value writing (W)	Receive buffer pointer Transmit buffer pointer	1. Setting ON/OFF of gas. 2. Send setting value write (R).	None
req[13-7-2-37]	Setting + Read A/D value (R)	Perform transmission processing of setting + send A/D value reading (R)	Receive buffer pointer Transmit buffer pointer	1. Acquire the A/D value of each sensor. 2. Convert HEX data to ASCII data. 3. Perform the following processes 4 to 9. 4. Substitution processing of NC sensor toggle count. 5. Substitution processing of Sensor MCU status flag. 6. Long energy setting call processing. 7. Flammability protection setting call processing. 8. Acquisition process of EC connection check in progress flag. 9. Transmission data creation / transmission processing.	None
req[13-7-2-38]	Setting + A/D value reading (W)	Perform transmission processing of setting + transmission of A/D value reading (W)	Receive buffer pointer Transmit buffer pointer	1. Perform the following processes 2 to 6. 2. Setting of long energy. 3. Flammability protection setting. 4. Start processing of EC connection check O2. 5. Start processing of EC connection check H2S / CO. 6. Transmission processing of setting + A/D value reading (W).	Setting of long energy Flammability protection setting
req[13-7-2-39]	Device connection confirmation command (R)	Performs transmission processing of the device connection confirmation command (R)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. Create and transmit data for transmission.	None
req[13-7-2-40]	Program number confirmation (R)	Perform transmission processing of program number confirmation (R)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. Convert U_SHORT data to ASCII data of U_CHR [5]. 3. Create and transmit data for transmission.	None
req[13-7-2-41]	Confirm SUM value (C)	Perform transmission processing of SUM value confirmation (C)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. When the SUM check in progress flag is ON, put '1' in the send buffer pointer. 3. When the SUM check in progress flag is OFF, put '0' in the send buffer pointer. 4. Create and transmit data for transmission.	None
req[13-7-2-42]	Confirm SUM value (R)	Perform transmission processing of SUM value confirmation (R)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. Substitute ROMSUM. 3. Convert HEX data to ASCII data. 4. Create and transmit data for transmission.	None
req[13-7-2-43]	Confirm SUM value (W)	Perform transmission processing of SUM value confirmation (W)	Receive buffer pointer Transmit buffer pointer	1. Set the header. 2. When the SUM checking in-p+P1494:P1502rogress flag is OFF, substitution of the start flag of SUM during checking is substituted. 3. Create and transmit data for transmission.	None
req[13-7-2-44]	Command processing	Perform command processing	Receive buffer pointer Transmit buffer pointer Command type	1. Execute command response processing corresponding to the requested command code.	None
req[13-7-2-45]	Pass the maximum number of communication commands	Pass the maximum number of communication commands	None	1. Return the maximum number of commands.	Maximum number of commands
req[13-7-2-46]	Pass table data of communication command	Pass table data of communication command	Table number Table code data	1. Return table code data.	Table code data
req[13-7-2-47]	Pass the table command pointer of the communication command	Pass the table command pointer of the communication command	Table number	1. Return table command pointer.	Table command pointer
req[13-7-2-48]	Confirming whether the correct command was sent	Confirms whether the correct command was sent	None	1. If the transmitted command is correct, execute command processing. 2. If the transmitted command is incorrect, send an error command.	None
req[13-7-2-49]	Data transmission end processing	Perform data transmission end processing	None	1. Set the reception count to 0. 2. After completion of reception, turn off the flag to execute processing in the main loop.	None
req[13-7-2-50]	Data transmission processing	Perform data transmission processing	None	1. Send data of UART 0.	None
req[13-7-2-51]	SUM calculation of transmission data	Perform SUM calculation of transmission data	Transmission data Transmit buffer	1. Calculate SUM value of transmission data.	SUM value of transmission data
req[13-7-2-52]	Transmission processing of error command	Perform transmission processing of error command	None	1. End data transmission. 2. Set the header. 3. Insert NAK in send buffer. 4. Create and transmit data for transmission.	Transmission buffer
req[13-7-2-53]	Set the header of the receive buffer in the send buffer	Set processing to the header of the reception buffer in the transmission buffer	Receive data save buff Trans data save buff	1. Copy command to array for response command. 2. Put the received data in the transmission buffer.	Transmission buffer
req[13-7-2-54]	Creating and sending data for data transmission	Create and send data transmission data	Amount of transmitted data	1. Set ETX in the transmission buffer. 2. Get the number of bytes to check and calculate the SUM value. 3. Put the reception end command save destination in the transmission buffer. 4. Send data. 5. End data transmission / reception.	Transmission buffer
req[13-7-2-55]	Pointer assignment processing of transmission buffer	Perform pointer assignment processing of transmission buffer	None	1. Return pointer of send buffer.	Pointer of transmission buffer
req[13-7-2-56]	Get transmission status of SCI5	Perform get transmission status of SCI5	None	1. Return the transmission status of SCI5.	Transmission status of SCI5
req[13-7-2-57]	SCI5 data transmission processing	Perform SCI5 data transmission processing	Transmit data buffer pointer Send data size	1. If the UART5 transmission counter is 0 and the transmission request data size is greater than or equal to the minimum value, the following processing is performed. 2. Substitute the address of the transmit buffer. 3. Substitute the transmission data size. 4. Set PC3 (TXD) as peripheral function (SCI) 5. Enable transmit interrupt (TXI) 6. Allow send operation	Send buffer address Send data size
req[13-7-2-58]	UART5 driver transmission completion interrupt handling	Perform UART5 driver transmission completion interrupt handling	None	1. Set PC3(TXD) to port function. 2. Turn off the transmission end interrupt (TEI) request flag. 3. Disable transmission operation. 4. Disable End of Transmission Interrupt (TEI) requests.	None
req[13-7-2-59]	Data transmission end processing	Perform data transmission end processing	None	1. Assign 0 to the receive counter. 2. Turn off the reception complete flag.	Receive counter Reception complete flag
req[13-7-2-60]	Data transmission process	Perform data transmission process	Send data size Transmit buffer	1. Send SCI5 data.	None

req[13-7-2-61]	SUM calculation of transmitted data	Perform SUM calculation of transmitted data	Send data size Transmit buffer	1. Accumulate the data in the transmit buffer. 2. Return the SUM value.	SUM value
req[13-7-3-1]	UART0 data reception processing	Perform UART0 data reception processing	Receive buffer pointer buffer size	1. Receive data of UART 0.	Judgment result
req[13-7-3-2]	UART0 reception end processing	Perform UART0 reception end processing	None	1. Setting the receive buffer.	None
req[13-7-3-3]	UART0 overflow data reception processing	Perform UART0 overflow data reception processing	None	No treatment.	None
req[13-7-3-4]	UART0 reception interrupt processing	Perform UART0 reception interrupt processing	Receive data length of UART 0 Number of data received by UART 0 received data	1. If the received data length of UART 0 is larger than the number of received data of UART 0, perform the following processing 2 to 4. 2. Place received data in receive buffer. 3. Count up the receive buffer. 4. Count up the number of data received by UART 0.	Receive buffer
req[13-7-3-5]	SCI5 data reception processing	Perform SCI5 data reception processing	Buffer size Receive buffer pointer	1. If the buffer size is smaller than 1, make the status an error. 2. Set the number of data received by SCI5 to 0. 3. Put the buffer size in the receive data length of SCI5. 4. Put the receive buffer pointer in the receive buffer address of SCI5. 5. Return status.	Status Number of data received by SCI5 Receive data length of SCI5 Receive buffer address of SCI5
req[13-7-3-6]	SCI9 data reception processing	Perform SCI9 data reception processing	Buffer size Receive buffer pointer	1. If the buffer size is smaller than 1, make the status an error. 2. Set the number of data received by SCI9 to 0. 3. Put the buffer size in the receive data length of SCI9. 4. Put the receive buffer pointer in the receive buffer address of SCI9. 5. Return status.	Status Number of data received by SCI9 Receive data length of SCI9 Receive buffer address of SCI9
req[13-7-3-7]	SCI5 reception end processing	Perform SCI5 reception end processing	None	1. Allow interrupts. 2. Get the received data of SCI5. 3. Set the receive buffer for receiving the next 1 byte.	None
req[13-7-3-8]	SCI5 receive error processing	Perform SCI5 receive error processing	None	1. Execute reception error interrupt processing.	None
req[13-7-3-9]	SCI5 reception interrupt processing	Perform SCI5 reception interrupt processing	None	1. Call SCI 5 reception interrupt processing.	None
req[13-7-3-10]	SCI5 receive error interrupt processing	Perform SCI5 receive error interrupt processing	None	1. Call SCI 5 error interrupt processing.	None
req[13-7-3-11]	SCI9 reception end processing	Perform SCI9 reception end processing	SCI9 transmission flag of RL 7 PLOG	1. When the SCI9 transmission flag of the RL 7 PLOG is TRUE, set the SCI9 transmission flag of RL 7 PLOG to FALSE. 2. Set receive and receive buffers by 1 byte each.	None
req[13-7-3-12]	SCI9 receive error processing	Perform SCI9 receive error processing	None	No treatment.	None
req[13-7-3-13]	SCI9 reception interrupt processing	Perform SCI9 reception interrupt processing	Receive data length of SCI9 Number of data received by SCI9 received data Receive buffer address of SCI9 Number of data received by SCI9	1. If the received data length of SCI9 is larger than the received data number of SCI9, execute processes 2 to 4 below. 2. Increment the receive buffer address of SCI9. 3. Count down the number of data received by the SCI9. 4. If the received data length of the SCI9 is less than or equal to the number of received data of the SCI9, the reception of the SCI9 is terminated.	Receive buffer address of SCI9 Number of data received by SCI9
req[13-7-3-14]	SCI9 receive error interrupt processing	Perform SCI9 receive error interrupt processing	None	1. Clear overrun, framing, parity error flag.	None
req[13-7-3-15]	RL78 Communication processing (activated in the main loop)	Perform RL78 communication processing	RL78 communication error count buffer RL78 communication retry timer	1. If not the periodic HA command, but the communication error count buffer of the RL78 is smaller than the communication retry count, turn on the sensor circuit error flag. 2. If the communication error count buffer of RL78 is larger than the communication retry count rather than the periodic HA command, execute the following processing 3 to 6. 3. Perform processing corresponding to the communication status of RL78. 4. Communication error of RL78 Count up count buffer. 5. Set the communication retry timer of RL78 to the communication delay retransmission time.	RL78 communication error count buffer RL78 communication retry timer
req[13-7-3-16]	RL78 Communication processing acknowledgment	Confirm response of RL78 communication processing	Communication status of RL78 Count number	1. In case of the periodic HA command, reset the communication error count buffer of RL78.	None
req[13-7-3-17]	Write set value	Perform response processing of writing setting value of SCI9 UART	Receive buffer pointer Transmit buffer pointer	1. Execute the following processing 2 with W command and R command. 2. Assign gas ON/OFF setting of RL78.	None
req[13-7-3-18]	Setting + A/D value reading	Perform response processing of Setting + A/D value readingof SCI9 UART	Receive buffer pointer Transmit buffer pointer Count value of NC sensor Sensor MCU status value	1. Execute the following processing 2 with W command and R command. 2. Substitute ON/OFF setting of gas of RL78. 3. Set A/D value reading. 4. When the status of the sensor circuit is abnormal, turn on the sensor circuit fault flag.	None
req[13-7-3-19]	Device connection confirmation command	Perform response processing of device connection confirmation command of SCI9 UART	Receive buffer pointer Transmit buffer pointer	1. Check the RL78 communication processing response with R command.	None
req[13-7-3-20]	Program number confirmation	Perform response processing of program number confirmation command of SCI9 UART	Receive buffer pointer Transmit buffer pointer	1. Set RL78 communication status to program number confirmation with R command.	None
req[13-7-3-21]	Confirm SUM value	Perform response processing of SUM value confirmation command of SCI9 UART	Receive buffer pointer Transmit buffer pointer	1. Execute the following processing 2 to 4 with the R command. 2. Convert ASCII data to HEX data. 3. Acquire the SUM value of RL78. 4. 24 hours If the SUM value is not being checked, set .the RL78 communication status to SUM value check. 5. Execute the following processing 6 to 7 with the W command. 6. RL78 SUM value calculation start confirmation end processing. 7. Set RL78 communication status to equipment connection check. 8. Execute the following processes 9 to 10 with the C command. 9. 24 hours SUM calculation start processing completed. 10. 24 hours If SUM value is not being checked, set RL78 communication status to SUM value check.	None
req[13-7-3-22]	Receive data command check	Perform reception data command check processing	Receiving buffer	1. UART reception data SUM If the check result is OK, set the command number to 0. 2. Receive data of UART When SUM check result is NG, set the command number to 0xFF.	Command number
req[13-7-3-23]	Received data SUM check (SUM check)	Perform reception data SUM check	Receiving buffer	1. Search for the first command. 2. Break at the end of command if it reaches. 3. Compute the complement. 4. The calculated value is compared with the received SUM value, and if it is the same, the result is made NG. 5. Return results.	Judgment result
req[13-7-3-24]	Main processing after receiving command	Perform main processing after receiving command	Flag to execute processing in the main loop after completion of reception	1. After completion of reception, if the flag to execute processing in the main loop is ON, check whether the correct command was sent.	None
req[13-7-3-25]	Receive processing by 1 byte	Perform reception processing by 1 byte	Data in 1-byte receive buffer for driver Count for reception	1. Acquire data in 1 byte receive buffer for driver. 2. Put the data in the driver's 1-byte receive buffer into the receive buffer. 3. When the RIKEN command ends, allow processing within the main loop.	1 byte receive buffer for driver
req[13-7-3-26]	For the next 1 byte reception, the reception buffer setting processing	For reception of next 1 byte, reception buffer setting processing is performed	None	1. Set the receive data pointer of UART 9 and set the number of receive data to 1 Byte.	None
req[13-7-3-27]	Write set value	Perform response processing of setting value writing	Receive buffer pointer Transmit buffer pointer	1. Send set value write (R) with R command. 2. Send setting value write (W) with W command.	None
req[13-7-3-28]	Setting + A/D value reading	Perform response processing of Setting + A/D value reading	Receive buffer pointer Transmit buffer pointer	1. Send setting + A/D value reading R) with R command. 2. Send setting + A/D value reading (W) with W command.	None
req[13-7-3-29]	Device connection confirmation command	Perform response processing of the device connection confirmation command	Receive buffer pointer Transmit buffer pointer	1. Send device connection confirmation command (R) with R command.	None
req[13-7-3-30]	Program number confirmation	Perform response processing of program number confirmation	Receive buffer pointer Transmit buffer pointer	1. Send program number confirmation with R command.	None
req[13-7-3-31]	Confirm SUM value	Perform response processing for checking the SUM value	Receive buffer pointer Transmit buffer pointer	1. Send SUM value confirmation (R) with R command. 2. Send the SUM value confirmation (W) with the W command. 3. S value confirmation (C) is sent by the C command.	None
req[13-7-3-32]	Receive data command check	Perform reception data command check processing	None	1. UART reception data SUM If the check result is OK, set the command number to 0. 2. Receive data of UART When SUM check result is NG, set the command number to 0xFF.	Command number
req[13-7-3-33]	Main processing after receiving command	Perform main processing after receiving command	Flag to execute processing in the main loop after completion of reception	1. After reception is completed, if the flag to execute processing in the main loop is ON, check whether the transmission command is correct or not.	None
req[13-7-3-34]	Receive processing by 1 byte	Perform reception processing by 1 byte	Data in 1-byte receive buffer for driver Receiving buffer Count for reception	1. Acquire data in 1 byte receive buffer for driver. 2. Put buffer for receiving data in 1 byte receive buffer for driver. 3. When the RIKEN command ends, the received data is saved and processing within the main loop is permitted.	Count for reception
req[13-7-3-35]	Pointer assignment processing of receive buffer	Perform pointer assignment processing of receive buffer	None	1. Perform pointer assignment processing of receive buffer.	Receive buffer pointer
req[13-7-3-36]	For the next 1 byte reception, the reception buffer setting processing	For reception of next 1 byte, reception buffer setting processing is performed	None	1. Set the receive data pointer of UART 0 and set the number of receive data to 1 Byte.	None
req[13-7-3-37]	Received data SUM check (SUM check)	Perform reception data SUM check processing	Receiving buffer	1. Search for the first command. 2. Break at the end of command if it reaches. 3. Compute the complement. 4. The calculated value is compared with the received SUM value, and if it is the same, the result is made NG. 5. Return results.	Judgment result
req[13-7-3-38]	SCI5 1-byte reception processing	Perform SCI5 1-byte reception processing	Receive buffer	1. Perform SCI5 reception processing.	None
req[13-7-3-39]	UART5 driver error interrupt handling	Perform UART5 driver error interrupt handling	None	1. Perform UART5 driver error interrupt processing.	None
req[13-7-3-40]	Received data SUM check	Perform received data SUM check	Receiving buffer	1. Search for the first command. 2. Break at the end of command if it reaches. 3. Compute the complement. 4. The calculated value is compared with the received SUM value, and if it is the same, the result is made NG. 5. Return results.	Judgment result
req[13-8-1-1]	RSPI0 module initialization processing	Initialize the RSPI0 module	None	1. Initialize the RSPI0 module.	None
req[13-8-1-2]	RSPI0 module start processing	Perform start processing of RSPI0 module	None	1. Enable RSPI interrupt. 2. Disable idle interrupt.	None
req[13-8-1-3]	RSPI0 module stop processing	Perform stop processing of RSPI0 module	None	1. Disable RSPI interrupt. 2. Disable RSPI function.	None
req[13-8-1-4]	SPI timeout count	Perform SPI timeout count processing	Timeout count	1. If the timeout count is greater than 0, count down the timeout count.	None
req[13-8-1-5]	SPI start processing of dedicated function	Perform SPI start processing of dedicated function	None	1. Start operation of the RSPI0 module.	None
req[13-8-1-6]	SPI stop processing of dedicated function	Perform SPI stop processing of dedicated function	None	1. Stop the operation of the RSPI0 module.	None
req[13-8-1-7]	SPI writing in progress flag down	Execute flag down processing during SPI writing	None	1. Set the data reception completion flag to OFF.	None
req[13-8-2-1]	RSPI0 data transmission/reception processing	Perform data transmission/reception processing of RSPI0	Transmit buffer pointer Buffer size Receive buffer pointer	1. Initialize the global counter. 2. Enable send interrupt. 3. Enable receive interrupt. 4. Enable error interrupt. 5. Enable RSPI function.	Judgment result

req[13-8-2-2]	RSPI0 data transmission/reception processing	Perform data transmission/reception processing of RSPI0	Transfer buffer pointer Buffer size Receive buffer pointer Buffer size Channel number	1. Setting the channel. 2. Initialize global counter. 3. Enable send interrupt. 4. Enable receive interrupt. 5. Enable RSPI function. 6. Return status.	Judgment result
req[13-8-2-3]	RSPI0 error processing	Perform RSPI0 error processing	None	No treatment.	None
req[13-8-2-4]	RSPI0 reception end processing	Perform processing of end of RSPI0 reception	None	1. Down the SPI writing flag.	None
req[13-8-2-5]	RSPI0 transmission end processing	Perform processing of end of RSPI0 transmission	None	1. Down the SPI writing flag.	None
req[13-8-2-6]	Error interrupt processing	Perform error interrupt processing	None	1. Make sure SSL0 pin is inactive level. 2. Disable RSPI function. 3. Disable send interrupt. 4. Disable error interrupt. 5. Disable error assignment. 6. Disable idle interrupt.	None
req[13-8-2-7]	Idling interrupt handling	Perform idling interrupt handling processing	None	1. Disable the RSPI function. 2. Disable idle interrupt.	None
req[13-8-2-8]	Data reception interrupt processing	Perform data reception interrupt processing	RSPI0 Receive data length RSPI0 receive data number	1. Write reception data. 2. Disable send interrupt. 3. Allow SPII 0 interrupt.	None
req[13-8-2-9]	Data transmission interrupt processing	Perform data transmission interrupt processing	RSPI0 transmission data number	1. Write transmission data. 2. Disable send interrupt. 3. Allow SPII 0 interrupt.	None
req[13-8-2-10]	Wait for data transfer completion	Wait until data transfer is completed	Data reception completion flag Timeout count	1. Set the timeout count to 5. 2. If the data reception completion flag is 1 and the timeout count is 0, the response result is set to NG. 3. Return response result.	Judgment result
req[13-8-3-1]	SPI transmission reception processing of dedicated function	Perform SPI transmission reception processing of dedicated function	Transfer buffer pointer Buffer size Receive buffer pointer Channel	1. If the buffer size is larger than 0 and the number of channels is smaller than 2, execute the following processing 2 to 5. 2. Turnon data reception completion flag. 3. Write data to slave device. 4. Wait until data transfer is completed. 5. Set the execution status to ACK. 6. Return the enforcement status.	Implementation status Data reception completion flag
req[13-9-1-1]	SCI6 initialization processing	Perform initialization processing of SCI6	None	1. Initialize SCI6.	None
req[13-9-1-2]	SCI6 start processing	Perform start processing of SCI6	None	1. Clear the interrupt flag. 2. Enable TXI and STI interrupt. 3. Enable RXI interrupt.	None
req[13-9-1-3]	SCI6 stop processing	Perform stop processing of SCI6	None	1. Disable TXI and STI interrupt. 2. Disable TXI and STI interrupt. 3. Clear the interrupt flag.	None
req[13-9-1-4]	IIC start processing of SCI6	Perform IIC start processing of SCI6	None	1. Start IIC of SCI6.	None
req[13-9-1-5]	IIC stop processing of SCI6	Perform IIC stop processing of SCI6	None	1. Stop IIC of SCI6.	None
req[13-9-2-1]	Transmission of IIC6 data to slave device	Perform transmission of IIC6 data to slave device	Slave device address Receive buffer pointer Buffer size	1. Place the transmit buffer pointer in the transmit buffer address of SCI6. 2. Buffer size Include in the number of transmission data of SCI6. 3. Place the slave device address in the target slave address of SCI6. 4 Set the I2C SCI6 transmit receive flag and I2C SCI6 start stop flag. 5. Disable RXI and ERI interrupt requests. 6. Generate start condition.	SCI6 transmit buffer address Number of SCI6 transmit data Target slave address
req[13-9-2-2]	IIC start processing	Perform start processing of IIC	None	1. Generate IIC start condition.	None
req[13-9-2-3]	IIC stop processing	Perform stop processing of IIC	None	1. Generate IIC stop condition	None
req[13-9-2-4]	SCI6 transmission end interrupt processing	Perform transmission end interrupt processing of SCI6	None	1. End transmission / reception of SCI6.	None
req[13-9-2-5]	Transmission interrupt processing per 1 Byte of SCI6	Performs transmission interrupt processing every 1 Byte of SCI6	SCI6 transmit receive flag Number of SCI6 transmit data Number of SCI6 received data Receive data length	1. When the following conditions 2 to 4 are satisfied, the transmission buffer address of the SCI6 is counted up and the number of transmission data of the SCI6 is counted down. 2. ACK is being received. 3. I2C SCI6 transmission reception flag is the transmission flag. 4. There is the number of transmission data of SCI6.	SCI6 transmit buffer address Number of transmission data of SCI6
req[13-9-2-6]	SCI6 transmission end interrupt processing	Perform SCI6 transmission end interrupt processing	SCI0 start stop flag SCI6 transmit receive flag	1. When the SCI6 start / stop flag of I2C is the start flag, put the slave address in the transmit data register. 2. If the SCI6 start / stop flag of the I2C is the stop flag and the SCI6 transmission reception flag of the I2C is the transmission flag, the transmission of the SCI6 is ended. 3. If the SCI6 start / stop flag of I2C is a stop flag and the SCI6 transmission reception flag of I2C is a reception flag, the transmission and reception of SCI6 is terminated.	Transmit data register
req[13-9-2-7]	IIC transmission processing of SCI6	Perform IIC transmission processing of SCI6	Address data Transmit buffer address Transmit data byte Transmitting flag for LCD	1. When the in-transmission flag for LCD is OFF, carry out the following processing 2 to 5. 2. Start transmission / reception. 3. Send IIC6 data to slave device. 4. Place the result of transmission reception delay processing in the deend result. 5. Make the judgment result OK. 6. Returns the judgment result.	Judgment result
req[13-9-2-8]	IIC transmission processing of SCI6 (at startup)	Perform IIC transmission processing of SCI6 at startup	Address data Transmit buffer address Transmit data byte Transmitting flag for LCD	1. When the in-transmission flag for LCD is OFF, carry out the following processing 2 to 5. 2. Start transmission / reception. 3. Send IIC6 data to slave device. 4. Place the result of transmission reception delay processing in the deend result. 5. Make the judgment result OK. 6. Returns the judgment result.	Judgment result
req[13-9-2-9]	IIC transmission process for LCD of SCI6	Perform IIC transmission processing for LCD of SCI6	Address data Transmit buffer address Transmit data byte	1. Turnon the transmitting status flag for LCD. 2. Send IIC6 data to slave device. 3. Returns the judgment result.	Judgment result
req[13-9-2-10]	SCI6 transmission reception end flag	SCI6 transmission reception end flag	None	1. Turnoff the transmission reception end flag of SCI6. 2. Turnoff the sending flag for LCD.	Transmission reception end flag of SCI6 Transmitting flag for LCD
req[13-9-3-1]	IIC6 data reception processing from slave device	Perform reception processing of IIC6 data from the slave device	Slave device address Receive buffer pointer Buffer size	1. Place the buffer size in the receive data length of SCI6. 2. Set the number of data received by SCI6 to 0. 3. Put in the receive buffer address of receive buffer pointer SCI6. 4. Place the slave device address in the target slave address of SCI6. 5. Set the I2C SCI6 transmit receive flag and I2C SCI6 start stop flag. 6. Disable RXI and ERI interrupt requests. 7. Generate start condition.	Receive data length of SCI6 Reception buffer address of SCI6 Target slave address of SCI6
req[13-9-3-2]	SCI6 reception end processing	PerformSCI6 reception end processing	None	1. End transmission / reception of SCI6.	None
req[13-9-3-3]	SCI6 receive interrupt handling	Perform reception interrupt processing of SCI6	Receive data length of SCI6 Number of data received by SCI6	1. If the received data length of SCI6 is larger than the received data number of SCI6, execute processes 2 and 3 below. 2. Increment the receive buffer address of SCI6. 3. Count down the number of data received by SCI6.	Reception buffer address of SCI6 Number of data received by SCI6
req[13-9-3-4]	Transmission reception delay processing	Perform transmission reception delay processing	Transmission reception end flag Delay count	1. When the transmission reception end flag of SCI6 is ON, nop processing is executed. 2. When the delay count of the SCI6 is 0, the deend result is set to NG. 3. Returns the judgment result.	Judgment result
req[13-9-3-5]	Transmission reception start flag	Performs transmission reception start flag processing	None	1. Turnon SCI6 transmission reception end flag. 2. Set the delay count of SCI6 to 20 msec.	Delay count of SCI6
req[13-9-3-6]	Transmission reception start flag	Performs transmission reception start flag processing	None	1. Turnon SCI6 transmission reception end flag. 2. Set the delay count of SCI6 to 200 msec.	Delay count of SCI6
req[13-9-3-7]	Delay count processing of SCI6	Performs delay count processing of SCI6	Delay count of SCI6	1. If the delay count of SCI6 is not 0, the delay count of SCI6 is counted down.	Delay count of SCI6
req[13-9-3-8]	IIC reception processing of SCI6	Perform IIC reception processing of SCI6	Transmission address Receiving address Transmission data received data Transmission size Receive size	1. Start transmission / reception. 2. Send the data of IIC6 to the slave device. 3. Place the result of transmission reception delay processing in the deend result. 4. When the deend result is OK, the following processings 5 to 6 are executed. 5. Start transmission / reception. 6. Receive IIC6 data to slave device. 7. Place the result of transmission reception delay processing in the deend result. 8. Returns the judgment result.	Judgment result
req[13-10-1-1]	Watchdog timer initialization processing	Initialize the watchdog timer	None	1. Initialize the watchdog timer.	None
req[13-10-1-2]	Watchdog timer interrupt processing	Perform watchdog timer interrupt processing	None	No treatment.	None
req[13-10-2-1]	Watchdog timer restart processing (sensor MCU)	Watchdog timer restart processing	None	1. Watchdog timer restart processing.	None
req[13-10-2-2]	Watchdog timer restart processing (main MCU)	Watchdog timer restart processing	None	1. 00h is written, and then FFh is written and updated.	None
req[13-11-1-1]	NC sensor RAM data initialization processing	Perform NC sensor RAM data initialization processing	None	1. Initialize the energization flag of the element of the NC sensor. 2. Initialize ON/OFF setting flag of long energy. 3. Initialize the flammable sensor protection flag.	The energization flag of the element of the NC sensor Long energy ON/OFF setting flag Flammable sensor protection flag
req[13-11-1-2]	Initial value setting processing of concentration calculation data	An initial value setting process of data for concentration calculation is performed	None	1. Perform initial value setting processing of concentration calculation data.	None
req[13-11-1-3]	Confirm existence of TWA	Confirm existence of TWA	Gas setting ON/OFF setting of integrating alarm	1. If the setting is ON and the integrating alarm is OFF, ON is returned.	Judgment result
req[13-11-1-4]	Process of converting ASCII (8) to concentration data of OFF_VAL	Perform process of converting ASCII (8) to concentration data of OFF_VAL	ASCII (8) Concentration data with OFF_VAL	1. When the comparison result is 0, the variable within the address of U_CHR is set to the result OFF concentration. 2. When the comparison result is 1 for the variable in the address of U_CHR, the result is set to the concentration value. 3. Returns the concentration value of either "1" or "2".	Concentration value
req[13-11-1-5]	Convert ASCII '0' or '1' to OFF or ON	Convert ASCII '0' or '1' to OFF or ON	ASCII data	1. If ASCII to be checked is '0', turn the judgment result OFF. 2. When ASCII to be checked is '1', turn the judgment result ON. 3. Returns the judgment result.	Judgment result
req[13-11-1-6]	Convert ASCII OFF or ON to '0' or '1'	Convert ASCII OFF or ON to '0' or '1'	ASCII data	1. When ASCII to be checked is OFF, set the judgment result to '0'. 2. When ASCII to be checked is ON, the judgment result is set to '1'. 3. Returns the judgment result.	Judgment result
req[13-11-1-7]	Processing of converting concentration data of OFF_VAL to ASCII (8)	Perform processing of converting concentration data of OFF_VAL to ASCII (8)	Concentration data with OFF_VAL Number Decimal point	1. If there is no numerical value, create character data. 2. If there is a numeric value, change the numeric value to character data.	None
req[13-11-1-8]	Return pointer of character string from unit code	Return pointer of character string from unit code	String data Unit code	1. Copy the address and return a character string pointer from the unit code.	None
req[13-11-1-9]	Processing to convert LONG (HEX) data to ASCII	Perform processing to convert LONG data to ASCII	LONG (HEX) data Number word count	1. Convert LONG data to ASCII.	None
req[13-11-1-10]	Convert ASCII data to HEX (Byte) data (Main MCU)	Convert ASCII data to HEX (Byte) data	ASCII data as HEX (Byte) data The number of data	1. If the size of the ASCII data is 2, convert it to 2 bytes of HEX data. 2. If the size of the ASCII data is 4, convert it to 4-byte HEX data.	None
req[13-11-1-11]	Convert U_SHORT data to ASCII of U_CHR [5] (Main MCU)	Convert U_SHORT data to ASCII data of U_CHR [5]	Number String pointer	1. Convert to ASCII data in the order of 10000, 1000, 100, 10, and 1.	None
req[13-11-1-12]	Receives the value of 1 or 0 and replaces ON/OFF	Receives the numerical value of 1 or 0 and replaces ON/OFF	Number to change	1. When the numerical value to be changed is ON, the result is turned off. 2. If the number to be changed is OFF, turn on the result. 3. Return results.	Numerical value after change

req[13-11-1-13]	Compare variables in address of U_CHR (Main MCU)	Perform variable comparison processing within the address of U_CHR	Pointer address of comparison destination Pointer address of comparison source Comparison size	1. Compare two variables. 2. When the comparison result matches, the comparison result is made coincident. 3 Count up two variables. 4. Return comparison result.	Comparison result
req[13-11-1-14]	Copy variable in address of U_CHR (Main MCU)	Perform variable copy processing within the address of U_CHR	Matrix address Characters (numbers) Number of characters (maximum 8 digits) Decimal point	1. Place the source variable in the destination variable. 2. Count up two variables.	None
req[13-11-1-15]	Create display of ON/OFF menu	Perform display creation processing of ON/OFF menu	ON/OFF setting flag	1. Create character data corresponding to ON, OFF. 2. Flash character data.	Pointer address of display creation data
req[13-11-1-16]	Convert HEX (Byte) data to ASCII data (Main MCU)	Convert HEX (Byte) data to ASCII data	ASCII data as HEX (Byte) data The number of data	1. Convert HEX data 'A' to 'F' to ASCII data. 2. Count the converted number. 3. Return ASCII data.	Convertion value
req[13-11-1-17]	Convert U_CHR (up to 8 bytes) ASCII data to U_LNG data	Convert U_CHR (up to 8 bytes) ASCII data to U_LNG data Perform processing	ASCII data The number of data	1. When the number of characters is 8, set U_LNG data to OFF concentration. 2. If the character string pointer is '+' or '-', set the buffer to 0 and count up the character string pointer. 3. Set U_LNG data to 0. 4. Set the digit to 1. 5. The value multiplied by the buffer and the digit is added to the U_LNG data. 6. Multiply digits by 10. 7. The value multiplied by the buffer and the digit is added to the U_LNG data. 8. Return U_LNG data.	U_LN data
req[13-11-1-18]	Convert ASCII data to DEC (U_LNG) data	Convert ASCII data to DEC (U_LNG) data	ASCII data Assignment pointer The number of data	1. Convert ASCII data to DEC data. 2. Return DEC data.	DEC data
req[13-11-1-19]	Convert ASCII data to HEX (Byte) data (Sensor MCU)	Convert ASCII data to HEX (Byte) data	ASCII data as HEX (Byte) data The number of data	1. If the size of the ASCII data is 2, convert it to 2 bytes of HEX data. 2. When the size of the ASCII data is 4, convert it into 4-byte HEX data.	None
req[13-11-1-20]	Convert U_SHORT data to ASCII data of U_CHR [5]	Convert U_SHORT data to ASCII data of U_CHR [5]	Number String pointer	1. Convert to ASCII data in the order of 10000, 1000, 100, 10, and 1.	None
req[13-11-1-21]	Compare variables in address of U_CHR (Sensor MCU)	Perform variable comparison processing within the address of U_CHR	Pointer address of comparison destination Pointer address of comparison source Comparison size	1. Compare two variables. 2. When the comparison result matches, the comparison result is made coincident. 3 Count up two variables. 4. Return comparison result.	Comparison result
req[13-11-1-22]	Copy variable in address of U_CHR (Sensor MCU)	Perform variable copy processing within the address of U_CHR	Copy destination pointer address Address copy source pointer address Copy size	1. Place the source variable in the destination variable. 2. Count up two variables.	None
req[13-11-1-23]	Copy by inverting variable in U_CHR address	Make a copy by inverting the variable in the address of U_CHR	Copy destination pointer address Address copy source pointer address Copy size	1. Place the inverted copy source variable in the copy destination variable. 2. Count up two variables.	None
req[13-11-1-24]	Copy the variable in U_CHR address to U_SHORT	Copy variables in U_CHR address to U_SHORT	Copy destination pointer address Address copy source pointer address Copy size	1. Copy source variable cast to U_SHORT is copied. 2. Count up two variables.	None
req[13-11-1-25]	Copy variable in address of U_SHORT	Perform variable copy processing within the address of U_SHORT	Copy destination pointer address Address copy source pointer address Copy size	1. Place the source variable in the destination variable. 2. Count up two variables.	None
req[13-11-1-26]	Convert HEX (Byte) data for dump to ASCII data	Convert HEX (Byte) data for dump to ASCII data	HEX (Byte) data for dump The number of data	1. Convert HEX data 'A' to 'F' to ASCII data. 2. Count the converted number. 3. Return ASCII data予.	Convertion value
req[13-11-1-27]	Convert HEX (Byte) data to ASCII data (Sensor MCU)	Convert HEX (Byte) data to ASCII data (Sensor MCU)	HEX (Byte) data The number of data	1. Convert HEX data 'A' to 'F' to ASCII data. 2. Count the converted number. 3. Return ASCII data.	Convertion value
req[13-11-1-28]	Convert HEX (Byte) data to SHORT ASCII data	Convert HEX (Byte) data to SHORT ASCII data	HEX (Byte) data The number of data	1. Convert the HEX data '0x0041' to '0x0046' to ASCII data. 2. Count the converted number. 3. Return ASCII data.	Convertion value
req[13-11-1-29]	Increase or decrease the numerical value	Perform increase or decrease the numerical value	Change number Digit Maximum value minimum value OFF concentration setting Change flag	1. If the following conditions 2 to 4 are satisfied, put the minimum value in the change value. 2. OFF concentration is ON. 3. It does not have to increase or decrease. 4. The change value is OFF concentration. 5. When the following conditions 6 to 9 are satisfied, the digit is subtracted from the change value. 6. OFF concentration is ON. 7. The change value is not OFF concentration. 8. Change value is greater than digit. 9. The value obtained by subtracting the digit from the change value is larger than the minimum value. 10. Return change value.	Change number
req[13-11-1-30]	Change numeric value to character (CHR) data	Change numeric value to character (CHR) data	Matrix address Characters (numbers) word count Decimal point	1. If the number is greater than 0, divide that number by 10. 2. Break when the number is less than 0. 3. Change numeric value to character data.	None
req[13-11-1-31]	Changed numeric value to signed (CHR) data	Change processing of numeric value to signed (CHR) data	Matrix address Characters (numbers) Number of characters (maximum 8 digits) Decimal point	1. If there is a number, put the matrix address to put the character in the symbol address. 2. Change numeric value to character (CHR) data. 3. Insert '+' in symbol address.	None
req[13-11-1-32]	Changed numeric value to character (CHR) data with zero added with dot added	Change the numeric value to character (CHR) data with zero added by adding dots	Matrix address to add characters Characters (numbers) word count Decimal point	1. If the number starts from 0, add the value obtained by dividing the number by 10 and add '0' to the buffer and divide the value by 10. 2. If the buffer is blank, put '0' in the buffer. 3. Put the buffer in the matrix address. 4. Count up the matrix address.	Matrix address
req[13-11-1-33]	Changed numeric value to character (SHORT) data with zero added with dot added	Character (SHORT) data with zero added with dot addedChange processing to	Matrix address to add characters Characters (numbers) word count Decimal point	1. If the number starts from 0, add the value obtained by dividing the number by 10 and add '0' to the buffer and divide the value by 10. 2. If the buffer is blank, put '0' in the buffer. 3. Put the buffer in the matrix address. 4. Count up the matrix address.	Matrix address
req[13-11-1-34]	Change numeric value to character (SHORT) data	Change numeric value to character (SHORT) data	Matrix address Characters (numbers) word count Decimal point	1. If the number is greater than 0, divide that number by 10. 2. Break when the number is less than 0. 3. Change numeric value to character data.	None
req[13-11-1-35]	Command receive RAM data initialization processing	Perform command receive RAM data initialization processing	None	1. Initialize the receiving buffer. 2. Initialize transmission buffer. 3. Initialize 1 byte receive buffer for driver. 4. Initialize the reception count. 5. Receive end command Initialize save destination. 6. After completion of reception, turn off the flag to execute processing in the main loop.	Receiving buffer Transmit buffer 1 byte receive buffer for driver Count for reception Receive end command save destination
req[13-11-1-36]	Acquire ZIPC address change address	Acquire ZIPC address change address	None	1. Return the address of the ZIPC numeric value changing variable.	Address of ZIPC numeric value changing variable
req[13-11-1-37]	Numerical item upper limit selection processing	Perform numeric item upper limit selection processing	None	1. Execute up / down change setting of the values of selection 2 to 6 below. 2. Selection within mode. 3. Selection within submode. 4. Selection within sub 2 mode. 5. Selection within setting item. 6. Selection within sub setting item.	Up / down change of numerical value of selection of each mode (item) ON/OFF
req[13-11-1-38]	Address jump	Jump to address	None	1. Jump to address (using assembler).	None
req[13-11-1-39]	H2 gas measurement presence/absence acquisition process	Perform H2 gas measurement presence/absence acquisition process	Gas channel Gas number Gas name	1. Initialize the result flags. 2. Turn ON the result flag when the measurement gas name is H2. 3. Return result flag.	Result flag
req[13-11-1-40]	1 second interrupt for display	Perform 1 second interrupt for display	None	1. Set 0 if the toggle counter is 1. Set to 0 if the 2-second flicker count for display is greater than or equal to the upper limit. Set to 0 if the display 3-second flicker count is greater than or equal to the upper limit. Set to 0 if the 4-second flicker count for display is greater than or equal to the upper limit. 2. Set 1 if the toggle counter is 0.	2 second flicker count for display 3-second flicker count for display 4 second flicker count for display
req[13-11-1-41]	Display flicker count 2 seconds 2	Perform display flicker count 2 seconds 2 types	None	1. Return the 2-second flicker count for display.	2-second flicker count for display
req[13-11-1-42]	Display flicker count 2 seconds 3	Perform display flicker count 2 seconds 3 types	None	1. Return the 3-second flicker count for display.	3-second flicker count for display
req[13-11-1-43]	Display flicker count 2 seconds 4	Perform display flicker count 2 seconds 4 types	None	1. Return the 4-second flicker count for display.	4-second flicker count for display
req[13-12-1-1]	Clock generator initialization processing (main MCU)	Initialize the clock generator	None	1. Initialize the clock generator.	None
req[13-12-1-2]	Clock generator initialization processing (Sensor MCU)	Initialize the clock generator	None	1. Initialize the clock generator.	None
req[13-12-1-3]	Reset processing	Perform reset processing	None	1. Set RESF.	None
req[13-12-1-4]	Hardware setting initialization processing	Perform initialization processing of hardware setting	None	1. Implement the function R_Systeminits.	None
req[13-12-1-5]	Macro initialization processing	Perform macro initialization processing	None	1. Initialize all macros.	None
req[13-12-1-6]	Main function implementation processing (main MCU)	Implement the main function	None	1. Implement the function R_MAIN_UserInit. 2. Implement the function Hardware Setup. 3. Execute function Main_Process.	None
req[13-12-1-7]	main function implementation processing (Sensor MCU)	Implement the main function	None	1. Implement the function R_MAIN_UserInit. 2. Execute function Main_Process.	None
req[13-12-1-8]	Additional processing of user code (main MCU) before implementing main function	Add user code before implementing main function	None	1. Disable protection bit. 2. Restore the state before the protection register.	None
req[13-12-1-9]	Additional processing of user code (Sensor MCU) before implementing main function	Add user code before implementing main function	None	No treatment.	None
req[13-12-1-10]	Reset PC Power on process	Reset the PC Perform power on processing	None	1. Initialize section. 2. Set the hardware to use. 3. Set PSW.	None
req[13-12-1-11]	Hardware setting initialization processing	Perform initialization processing of hardware setting	None	1. Initialize the hardware settings.	None
req[13-12-1-12]	Macro initialization processing	Perform macro initialization processing	None	1. Initialize all macros.	None
req[13-13-1-1]	LVD initial setting process (main MCU)	Initialize the voltage detection circuit function	None	1. Set the voltage detection 1 permission bit (LVD1E) to "voltage detection 1 circuit disabled"	None
req[13-13-1-2]	LVD function started (main MCU)	Activate the voltage detection circuit function	None	1. Get the status of the protect register 2. Set PRC3 of the protect register to "write permission" 3. Set the voltage detection 1 permission bit (LVD1E) to "voltage detection 1 circuit enabled" 4. Wait only for VD operation stabilization time 5. Set the voltage monitoring 1 circuit comparison result output permission bit (LVD1CMPE) to "voltage monitoring 1 circuit comparison result output permission" 6. Return to the state where the protect register was acquired in process 1.	None

req[13-13-1-3]	LVD function stopped (main MCU)	Stop the voltage detection circuit function	None	1. Get the status of the protect register 2. Set PRC3 of the protect register to "write permission" 3. Set the voltage monitoring 1 circuit comparison result output permission bit (LVD1CMPE) to "voltage monitoring 1 circuit comparison result output prohibited" 4. Set the voltage detection 1 permission bit (LVD1E) to "voltage detection 1 circuit disabled" 5. Return to the state where the protect register was acquired in process 1.	None
req[13-13-1-4]	Voltage detection circuit control start processing (main MCU)	Starts the voltage detection circuit control process	None	1. Perform "LVD function start" 2. Initialize the power supply voltage error delay counter	None
req[13-13-1-5]	Voltage detection circuit control stop processing (main MCU)	Stop the voltage detection circuit control process	None	1. Perform "LVD function stop"	None
req[13-13-1-6]	Voltage detection circuit control 250msec self-diagnosis processing (main MCU)	Monitor the power supply voltage every 250 msec	None	1. Add 1 to the error delay counter 2. If the voltage detection flag is VCC ≥ Vdet1, initialize the error occurrence delay counter to 0. 3. If the error occurrence delay counter is 20 or more, perform the following processes 4 to 5. 4. Set the error delay counter to 20 5. Set the thermistor error flag to ON (thermistor error because there is no power circuit error)	None
req[13-13-1-7]	LVD initial setting process (sensor MCU)	Initialize the voltage detection circuit function	None	1. Disable LVD interrupts (LVIMK = 1) 2. Clear the LVD interrupt flag (LVIIF = 0) 3. Set the priority of LVD interrupts to low (LVIPR1 = 1, LVIPR0 = 1)	None
req[13-13-1-8]	LVD interrupt processing (sensor	Interrupt processing of voltage detection circuit	None	1. Since the interrupt function is not used, only multiple interrupts are enabled.	None
req[13-13-1-9]	Power supply voltage monitoring circuit control RAM data initialization processing (sensor MCU)	Initialize the power supply voltage monitoring circuit control	None	1. Initialize the power supply voltage error delay counter	None
req[13-13-1-10]	Power supply voltage monitoring circuit control 250msec processing (sensor MCU)	Monitor the power supply voltage monitoring circuit every 250 msec	None	1. Initialize the OUTPUT value to "normal" 2. Add 1 to the error delay counter 3. If the voltage detection flag is power supply voltage (VDD) <detection voltage (VLVD), initialize the error occurrence delay counter to 0. 4. If the error occurrence delay counter is 20 or more, perform the following processes 5 to 6 5. Set the error delay counter to 20 6. Set the OUTPUT value to "abnormal"	Check result
req[13-14-1-1]	Initializes the DA converter	Perform initializes the DA converter	None	1. Initializes the DA converter.	None
req[13-14-1-2]	Enables the DA0 converter	Perform enables the DA0 converter	None	1. Enables the DA0 converter.	None
req[13-14-1-3]	Stops the DA0 converter	Perform stops the DA0 converter	None	1. Stops the DA0 converter.	None
req[13-14-1-4]	Sets the DA0 converter value	Perform sets the DA0 converter value	Value of conversion	1. Sets the DA0 converter value.	None
req[13-14-1-5]	DA initialization processing	Perform DA initialization processing	None	1. Initialize 12bitDA. 2. Initialize the output percentage value. 3. Set the DA0 output value.	Output percentage value
req[13-14-1-6]	DA startup process	Perform DA startup process	None	1. Start DA0. 2. Set 12bitDA delay timer. 3. Start 12bitDA.	None
req[13-14-1-7]	DA stop processing	Perform DA stop processing	None	1. Exit 12bitDA. 2. Stop DA0.	None
req[13-14-1-8]	DA output setting processing	Perform DA output setting processing	Set request output percentage	1. If the set request output percentage exceeds the maximum value, clip at the maximum value. 2. Convert the set request output percentage to a register value. 3. Set a value in the DA0 register. 4. Set 12bitDA delay timer.	None
req[13-14-1-9]	Process for converting percentages to register values	Perform process for converting percentages to register values	Output percentage	1. Convert output percentage to register value.	Register value
req[13-14-1-10]	DA self-diagnostic initialization process	Perform DA self-diagnostic initialization process	None	1. Initialize the delay timer. 2. Initialize the active flag.	Delay timer Active flag
req[13-14-1-11]	DA self-diagnosis start/stop process	Perform DA self-diagnosis start/stop process	Request flag	1. Assign the request flag to the active flag.	Active flag
req[13-14-1-12]	DA self-diagnosis delay timer setting processing	Perform DA self-diagnosis delay timer setting processing	None	1. Assign the delay time to the delay timer.	Delay timer
req[14-1-1-1]	Acquisition processing of FRAM_AR_DATA	Acquire address processing of FRAM_AR_DATA	None	1. Return the address of FRAM_AR_DATA.	Alarm data for reset
req[14-1-1-2]	Acquisition processing of CHK_DATA	Acquire address processing of CHK_DATA	None	1. Return the address of CHK_DATA.	Data group requiring sum check
req[14-1-1-3]	LOAD processing for FRAM data communication dump	Perform LOAD processing for FRAM data communication dump	Assignment buffer of specified area Where to get the designated area	1. Read the first 64 bytes of the specified area. 2. Read the next 64 bytes of the specified area.	Judgment result
req[14-1-1-4]	Address acquisition processing of FRAM_DATA	Acquire address processing of FRAM_DATA	None	1. Return the address of FRAM_DATA.	Nonvolatile data
req[14-1-1-5]	Acquisition processing of FRAM_LB_DATA	Acquire address processing of FRAM_LB_DATA	None	1. Return the address of FRAM_LB_DATA.	Lunch break data
req[14-1-1-6]	Acquisition processing of FRAM_ST_ID_DATA	Acquire address processing of FRAM_ST_ID_DATA	None	1. Return the address of FRAM_ST_ID_DATA.	Station ID data
req[14-1-1-7]	Acquisition processing of FRAM_USER_ID_DATA	Acquire address processing of FRAM_USER_ID_DATA	None	1. Return the address of FRAM_USER_ID_DATA.	User ID data
req[14-1-1-8]	Acquisition processing of DATA_LOGGER	Acquire address processing of DATA_LOGGER	None	1. Return the address of DATA_LOGGER.	Data logger data
req[14-1-1-9]	FRAMID data LOAD processing	Perform FRAMID data LOAD processing	None	1. Read specified byte to FRAM. 2. Reset the watchdog timer.	Judgment result
req[14-1-1-10]	Address setting of nonvolatile memory	Perform address setting of nonvolatile memory	None	1. Set the address of FRAM data for gas_calc. c. 2. Set the address of FRAM data for data_detector. c. 3. Set the address of FRAM data for data_logger. c.	Address of FRAM data for gas_calc. c Address of FRAM data for data_detector. c Address of FRAM data for data_logger. c
req[14-1-1-11]	FRAM Select the plane shipping factory data and read it	FRAM Select surface from shipping factory and perform reading process	Nonvolatile memory record data address Numerical value (A side B side) judgment flag Size of structure of nonvolatile memory recorded data Specified byte read processing in FRAM Nonvolatile memory recorded data SUM value FRAM factory shipping data SUM calculation result	1. Read specified byte read processing result into FRAM and read it into result. 2. Reset the watchdog timer. 3. Recalculate the check SUM value. 4. If the result of recalculation is inconsistent, make the reading result NG. 5. Return reading results.	Judgment result
req[14-1-1-12]	FRAM lunch break data is selected and read in face	FRAM lunch break data is selected for surface and reading processing is performed	Address of lunch break data Numerical value (A side B side) judgment flag Size of lunch break structure Specified byte read processing in FRAM FRAM lunch break SUM calculation result Lunch break SUM value	1. Read specified byte read processing result into FRAM and read it into result. 2. Reset the watchdog timer. 3. Recalculate the check SUM value. 4. If the result of recalculation is inconsistent, make the reading result NG. 5. Return reading results.	Judgment result
req[14-1-1-13]	Read specified byte in FRAM (until M_FRAM_STACK_SIZE)	Read specified byte in FRAM	Read address Read size Write data	1. If the read data is M_FRAM_STACK_SIZE or less, execute the following processing 2 to 4. 2. Insert memory data read address into FRAM transmit data 3. Read FRAM data. . 4. Copy write data to.	Judgment result
req[14-1-2-1]	FRAM write start flag acquisition processing	Perform FRAM write start flag acquisition processing	None	1. Return write request flag.	Write request flag
req[14-1-2-2]	FRAM (ID data part) update processing	Perform FRAM (ID data part) update processing	ID ID list number Main unit error status	1. When FROM / RAM / FRAM is normal, update FRAM (ID data) is executed. 2. When FRAM (ID data) update execution processing is NG, turn on the FRAM write start flag.	None
req[14-1-2-3]	FRAM data LOAD processing	Perform FRAM data LOAD processing	Number of writes Size of structure of nonvolatile memory recorded data Surface setting	1. Read two FRAM inverted value data. 2. Match write process. 3. Compare which side is the latest. 4. Write on the old side. 5. If you do not know which side is the latest, write on both sides. 6. Return judgment result.	Judgment result
req[14-1-2-4]	FRAM write start flag ON processing	turn on FRAM write start flag	None	1. Set the write request flag to 1.	None
req[14-1-2-5]	Write FRAM factory shipping data into designated bytes and write	Divide the FRAM factory shipping data into specified bytes and write	Numerical value of surface (A side B side) Nonvolatile memory record data structure size Number of writes	1. Place the inverted value of FRAM_DATA in the fram_back. 2. Initialize pointer. 3. Specify the side to be written. 4. Write data. 5. In addition, if there is a remainder less than M_FRAM_STACK_SIZE, write data. 6. Writing the write count. 7. Return data write.	Surface status (front or opposite)
req[14-1-2-6]	Write data of FRAM (ID)	Write data of FRAM (ID)	Address of lunch break data	1. Initialize pointer / size / write destination address. 2. Write data.	Judgment result
req[14-1-2-7]	Batch writing of FRAM ID data	Batch writing of FRAM ID data	User ID	1. Write data. 2. In addition, if there is a remainder less than M_FRAM_STACK_SIZE, write data.	Judgment result
req[14-1-2-8]	Write data of FRAM divided by specified byte	Divide FRAM data into designated bytes and write	Numerical value of surface (A side B side) Structure size of nonvolatile memory recorded data Number of writes	1. Place the inverted value of FRAM_DATA in the fram_back. 2. Initialize pointer. 3. Specify the side to be written. 4. Write data. 5. In addition, if there is a remainder less than M_FRAM_STACK_SIZE, write data. 6. Writing the write count. 7. Return data write.	Surface status (front or opposite)
req[14-1-2-9]	Frame data of FRAM is selected and read	Frame data of FRAM is selected for surface reading processing	FRAM data size Numerical value (A side B side) judgment flag Size of structure of nonvolatile memory recorded data Specified byte read processing in FRAM Nonvolatile memory recorded data SUM value FRAM data SUM calculation result	1. Read specified byte read processing result into FRAM and read it into result. 2. Reset the watchdog timer. 3. Recalculate the check SUM value. 4. If the result of recalculation is inconsistent, make the reading result NG. 5. Return reading results.	Judgment result
req[14-1-2-10]	Write specified byte to FRAM (up to M_FRAM_STACK_SIZE)	Perform specified byte write to FRAM	Specified byte write address in FRAM Specified byte write data in FRAM Specified byte write size in FRAM	1. Put write enable address in FRAM transmit data. 2. Allow FRAM writing. 3. Insert memory data write address into FRAM transmit data. 4. Copy write data to. 5. Write FRAM data.	Judgment result
req[14-1-2-11]	Write processing into a single page (write, read, verify)	Perform writing processing into a single page	Write address Write buffer Write size	1. Write to FRAM. 2. In the case of successful writing, a reading process is performed. 3. If both the write and read are successful, the verify check is performed.	Judgment result
req[14-1-2-12]	FRAM (ID data) update execution processing	Perform FRAM (ID data) update execution processing	ID ID number	1. Return write processing of the data of the FRAM (ID).	Judgment result
req[14-1-2-13]	FRAM update execution processing	Perform FRAM update execution processing	Number of writes FRAM data SUM calculation result	1. Substitute the FRAM setting data size. 2. Substitute the program number. 3. Copy the program number. 4. Check SUM Update. 5. Reverse the A / B side of the rewriting surface. 6. When it is the A side, write on the A side. 7. When it is the B side, write on the B side. 8. If the face is unknown, write on both sides.	Judgment result

req[14-1-3-1]	FRAM periodic self-diagnosis processing (SUM calculation)	Perform FRAM periodic self-diagnosis processing	SUM value	1. If the SUM value is equal to the FRAM data SUM calculation result, OK is returned. 2. If the SUM value is not equal to the FRAM data SUM calculation result, NG is returned.	Judgment result
req[14-1-3-2]	FRAM factory shipping data SUM calculation result	FRAM factory shipping data SUM calculation	Nonvolatile data	1. Reset watchdog timer. 2. FRAM factory default data SUM calculation. 3. Reset the watchdog timer. 4. FRAM Factory-shipped data Returns SUM calculation result.	SUM calculation result
req[14-1-3-3]	FRAM lunch break SUM calculation result	Perform FRAM lunch break SUM calculation	Address of lunch break data	1. Reset watchdog timer. 2. Calculate FRAM lunch break SUM. 3. Reset the watchdog timer. 4. FRAM lunch break Returns SUM result.	SUM calculation result
req[14-1-3-4]	FRAM data SUM calculation result	Perform FRAM data SUM calculation	None	1. Reset watchdog timer. 2. Perform FRAM data SUM calculation. 3. Reset the watchdog timer. 4. Returns FRAM data SUM calculation result.	SUM calculation result
req[14-2-1-1]	10 msec interruption processing of FLASH	Perform 10 msec interruption processing of FLASH	Count timer for write standby	1. Count the write standby count timer.	Count timer for write standby
req[14-2-1-2]	Read specified byte in FLASH (up to 256 bytes)	Read specified byte in FLASH	Read data Write address Write Byte	1. When the write address is within the range and the number of write data is within 256 Bytes, execute the following processing 2 to 4. 2. Put the read command into the transmit data buffer. 3. Convert address U_LNG to U_CHR [3]. 4. Create dummy byte. 5. Return SPI transmission reception processing of dedicated function.	Judgment result
req[14-2-1-3]	FLASH Status byte reading (1 byte)	Read FLASH status byte	Read data Status selection	1. When the status selection is correct, put 0 in the transmission data buffer for status and the reception data buffer for status. 2. Returns the result of SPI transmission reception processing of dedicated function.	Judgment result
req[14-2-2-1]	Writing specified byte to FLASH (up to 256 bytes)	Write specified byte to FLASH	Write data Address FLASH write byte count Receive data buffer	1. When the write address is within the range, perform the following processing 2 to 6. 2. Initialize usage variables. 3. Read. 4. Initialize usage variables. 5. writing. 6. Wait until completion of writing.	Judgment result
req[14-2-2-2]	Specified block erase of FLASH (4 kBytes / 32 kBytes / 64 Kbytes)	Perform specified block erase of FLASH	Specified block start address Erase unit	1. When the erase block is 4, 32, 64, execute the following processes 2 to 6. 2. Initialize transmission data. 3. Send write permission. 4. Put the write command into the transmit data buffer. 5. Convert address U_LNG to U_CHR [3]. 6. Write data.	Judgment result
req[14-2-2-3]	Convert address U_LNG to U_CHR [3]	Convert address U_LNG to U_CHR [3]	LNG address CHR [3] address pointer	1. Convert address U_LNG to U_CHR [3].	None
req[14-2-2-4]	Write permission transmit	Perform write permission transmission	Write enable command	1. Place the write enable command in the transmit data buffer. 2. Returns FRAM write permission processing.	Judgment result
req[14-2-2-5]	FRAM update processing	Perform FRAM update processing	Write request flag Main unit error status	1. When FROM / RAM / FRAM is normal, update FRAM. 2. If FRAM update execution processing is NG, turn on FRAM error flag.	None
req[14-3-1-1]	Pointer of A/D data buffer of RL78	Acquire pointer of A/D data buffer of RL78	None	1. Return pointer of A/D data buffer of RL78.	Pointer of A/D data buffer of RL78
req[14-3-1-2]	Pointer of data buffer of RL78	Acquire the pointer of the data buffer of RL78	None	1. Return pointer of data buffer of RL78.	Pointer of data buffer of RL78
req[14-3-1-3]	RTC oscillation stop flag read & start processing	Perform RTC oscillation stop flag read & start processing	None	1. Read data of FLAG register. 2. If the backup battery is less than the threshold mV before the startup process, set VLF to 1. 3. Write 0 to the VLF register. 4. Read data of FLAG register. 5. Returns the judgment result.	Judgment result
req[14-3-1-4]	RTC register read processing	Perform register readout processing of RTC	Register address Acquired data pointer Acquired size	1. Acquire the IIC reception processing of SCI6. 2. Return IIC reception processing of SCI6.	Judgment result
req[14-3-1-5]	RTC register write processing	Perform RTC register write processing	Register address Acquired data pointer Acquired size	1. Acquire IIC transmission processing of SCI6. 2. Return IIC transmission processing of SCI6.	Judgment result
req[14-3-1-6]	Writing processing of circuit setting around charging of RTC	Write circuit setting around RTC charging	None	1. Write the setting value to ControlRegister 1. 2. Return set value.	Judgment result
req[14-3-1-7]	Setting processing of ON/OFF flag of RTC	Perform setting process of ON/OFF setting flag of RTC	ON/OFF setting flag	1. Place the ON/OFF setting flag in the start flag of RTC.	RTC start flag
req[14-3-1-8]	RTC startup processing	Perform startup processing of RTC	None	1. When the oscillation stop flag read & start processing of the RTC is detected, a clock error is issued and the date and time data is set to the default value. 2. If RTC oscillation stop flag read & start processing is not an error, RTC date / time is read. 3. When RTC date / time reading processing is not NG, write circuit setting around RTC charging. 4. Return result flag.	Judgment result
req[14-3-2-1]	Date & time write & verify check	Perform date & time write & verify check	Year to set Set month Date to set When setting Minute to set up Set seconds	1. Acquire year, month, day, hours, minutes, and seconds to set. 2. Read the date and time writing process of RTC and the date and time of RTC, check and write the date and time. 3. Returns the judgment result.	Year Moon Day Time Minute Seconds Judgment result
req[14-3-2-2]	RTC date/time write processing	Perform RTC date/time write processing	Year Moon Day Time Minute Seconds	1. Write 1 to the STOP register. 2. Write date and time data. 3. Write 0 to the STOP register. 4. Returns the judgment result.	Judgment result
req[14-3-2-3]	Time setting processing of RTC	Perform time setting of RTC	Year to set Set month Date to set When setting Minute to set up Set seconds	1. When the RTC function is ON, carry out the following 2 to 3. 2. Acquire the check result of date and time. 3. When the acquired result is OK, the date & time write & verify check is executed. 4. Returns the judgment result.	Judgment result
req[14-3-2-4]	Convert to seconds since 00:00:00	Convert to seconds since 00:00:00	Time data	1. Obtain minutes and set it to second. 2. When you get in seconds. 3. Acquire seconds. 4. Returns the sum of the above 1 to 3.	Seconds
req[14-3-2-5]	Convert to seconds since 2000/01/01 00:00:00	Convert to seconds since 2000/01/01 00: 00: 00	Date and time data	1. Returns the number of days since 1. 2000 / 01/01 and the conversion result and the number of seconds since 00:00:00 plus 86400 for the conversion process.	Seconds
req[14-3-2-6]	Convert to days since 1/01/2000	Convert to days since 1/01/2000	Time data	1. Acquire year, month, day. 2. Add day to total. 3. Add the number of days of the month to the total. 4. Add the number of days of the year to the total. 5. Return days Result.	Days
req[14-3-2-7]	Calculate the number of days in the month	Calculate the number of days of the month	Data for the year including 2000 Month data including 2000	1. Calculate the number of days in the month. 2. Returns the number of days in the month.	Days in the month
req[14-3-3-1]	RTC date/time read processing	Perform date/time read processing of RTC	None	1. Read date and time data. 2. When the read date and time data is OK, obtain two date and time of RTC and check whether the error is less than 60 seconds. 3. Acquire year, month, day, hour, minute, second. 4. Returns the read date and time data.	Date and time data read
req[14-3-3-2]	Date and time data acquisition	Acquire date and time data	Date and time data Year Moon Day Time Minute Seconds	1. Acquire date and time data.	Date and time data
req[14-3-3-3]	RTC date/time read processing	Perform date/time read processing of RTC	RTC start flag	1. When the RTC function is ON, read the date and time of RTC. 2. Return the result of RTC date / time read processing.	Judgment result
req[14-4-2-1]	r_sci5 Transmit interrupt	Perform transmission interrupt processing of SCI 5	None	1. Call SCI 5 send / receive interrupt processing.	None
req[14-4-2-2]	r_sci5 Transmission end interrupt	Perform transmission end interrupt processing of SCI 5	None	1. Call SCI 5 transmission end interrupt processing.	None
req[14-4-3-1]	r_sci 5 Receive interrupt	Perform reception interrupt processing of SCI 5	None	1. Call SCI 5 reception interrupt processing.	None
req[14-4-3-2]	r_sci 5 Receive error interrupt	Perform reception error interrupt processing of SCI 5	None	1. Call SCI 5 error interrupt processing.	None
req[14-5-1-1]	Set pointer address of display creation data	A process of setting a pointer address of display creation data is performed	None	1. Return data for display creation.	Display creation data
req[14-5-1-2]	start LCD_NORMAL	Performs start processing of LCD_NORMAL	None	1. Clear LCD_NOLMAL display data. 2. LCD_NORMAL Full lit display data setting. 3. Send setting data.	None
req[14-5-1-3]	Stop LCD_NORMAL	Perform stop processing of LCD_NORMAL	None	1. Clear LCD_NOLMAL display data. 2. Create LCD_NORMAL display data and send it.	None
req[14-5-1-4]	LCD_NORMAL 10 msec interrupt processing	Performs LCD_NORMAL 10 ms interrupt processing	Count timer	1. If the count timer is other than 0, count down the count timer.	Count timer
req[14-5-1-5]	Start LCD	Perform start LCD	None	1. Start the LCD. 2. Set the LCD backlight timer.	None
req[14-5-1-6]	Stop LCD	Perform stop LCD	None	1. Stop the LCD.	None
req[14-5-1-7]	LCD 10msec interrupt	Perform LCD 10msec interrupt	None	1. Decrement if the backlight timer is non-zero. 2. Decrement if the backlight timer at communication disconnection is non-zero.	Backlight timer Backlight timer at communication
req[14-5-2-1]	LCD_NORMAL all lighting display data setting	Perform LCD_NORMAL all lighting display data setting	None	1. Initialize the following data 2 to 5. 2. Icon data. 3. 7 SEG data for time. 4. 7 SEG data for concentration. 5. 14 SEG data. 6. Delete the BT icon.	Icon data 7 SEG data for time 7 SEG data for concentration 14 SEG data
req[14-5-2-2]	LCD_NOLMAL Clear display data	LCD_NOLMAL Perform display data clearing processing	None	1. Initialize the following data 2 to 5. 2. Icon data. 3. 7 SEG data for time. 4. 7 SEG data for concentration. 5. 14 SEG data.	Icon data 7 SEG data for time 7 SEG data for concentration 14 SEG data
req[14-5-2-3]	Set display data of LCD_NORMAL	Set display data of LCD_NORMAL	None	1. When the turn off display is OFF, display the NO_ALARM icon for low price version. 2. Create LCD_NORMAL display data and send it.	None

req[14-5-2-4]	LCD_NORMAL UPDATA display	Perform UPDATA display processing of LCD_NORMAL	Count timer	1. Clear LCD_NOLMAL display data. 2. Create character data. 3. Create LCD_NORMAL display data and send it. 4. Reset the watchdog timer.	None
req[14-5-2-5]	LCD_NORMAL Creating and sending display data	LCD_NORMAL Create and send display data	Display creation data	1. Create the following display data 2 to 6. 2. Icon data. 3. Gas name. 4. 7 SEG data for time. 5. 7 SEG data for concentration. 6. 14 SEG data. 7. Send setting data.	None
req[14-5-2-6]	14 SEG. Code conversion processing	14 SEG. Perform code conversion processing	Character code Bargain version 14seg font	1. When the ASCII code is the ASCII code for 14 SEG, insert the 14 SEG font code into the SEG code pointer.	SEG. Code pointer
req[14-5-2-7]	7 SEG Code conversion processing	7 SEG. Perform code conversion processing	ASCII code Bargain version 7seg font	1. If the character code is ASCII code for 7 SEG, put the ASCII code for 7 SEG in the SEG code pointer.	SEG. Code pointer
req[14-5-2-8]	Gas name display of concentration part	Perform gas name display processing of concentration part	Gas position	1. Create character data corresponding to the set gas name.	None
req[14-5-2-9]	Processing for creating alarm comment display for low price version	Create alarm comment display for low price version	Alarm event flag	1. Create a comment for each alarm.	None
req[14-5-2-10]	Battery icon display for low price	Perform battery icon display for low price version	The remaining battery capacity	1. Display the battery icon.	None
req[14-5-2-11]	Comment display of concentration part	Perform comment display of concentration part	Gas position Display character Flashing flag	1. Copy the display character corresponding to the comment of the concentration part. 2. When the blinking flag is ON, blink letters.	Blink character
req[14-5-2-12]	Gas numerical display of concentration part	Perform gas numerical display of concentration part	Gas position Number Over flag Minus over Minus flag Fault flag Decimal point position Flashing flag	1. Make settings when character data enters the concentration display section. 2. If there is a decimal point, set the position of the dot. 3. When minus flag is ON, '-' is added before concentration value at minus over. 4. When the flashing flag is ON, blink letters.	Blink character
req[14-5-2-13]	Gas name unit display in concentration part	Perform gas name unit display processing of concentration part	Gas position Gas name Blinking gas name ON/OFF of whether gas name is displayed or notunit Flashing flag	1. Display gas names and unit character data of gas 2 to 5 below. 2. Flammable gas. 3. O2. 4. H2S. 5. CO.	None
req[14-5-2-14]	Heart icon display for low price version	Perform heart icon display for low price version	None	1. Display the heart icon.	None
req[14-5-2-15]	Long life icon display for low price version	Long life icon display for low price version	Long life's ONOFF flag	1. When long flag ON/OFF setting flag is ON, display long life icon.	None
req[14-5-2-16]	Current concentration display creation processing for low price	Perform creation processing of the current concentration display for low price version	Mode setting value Bit designation of gas display ONOFF Main gas setting Fault condition Alarm holding setting Gas concentration display over flag 7 SEG characters for concentration	1. If the following conditions 2 to 6 are satisfied, turn on the flashing flag. 2. Mode is measurement or gas test. 3. Gas setting is valid and BIT designation of gas display ON/OFF is 1. 4. It is not for measurement H2 cancellation CO. 5. The sensor is normal. 6. Gas alarm is reporting. 7. When the following conditions 8 to 10 are satisfied, the current concentration, gas name and its unit are displayed. 8. Mode is maintenance. 9. Gas setting is valid and BIT designation of gas display ON/OFF is 1. 10. It is not for measurement H2 cancellation CO.	None
req[14-5-2-17]	Mode icon display for low price version	Perform mode icon display for low price version	Icon display setting	1. Display mode icon only in maintenance mode.	None
req[14-5-2-18]	NO_ALARM icon display for low price version	Perform NO_ALARM icon display forlow price version	Stealth setting Alarm function ONOFF setting Icon display setting	1. Set the icon display for the presence / absence of stealth function and alarm function.	None
req[14-5-2-19]	Time icon display for low price	Perform time icon display for low price version	7 SEG dots for time 7 SEG dot for time blink	1. Acquire date and time data. 2. Display time icon.	None
req[14-5-2-20]	BUMP check icon display for low price version	Perform BUMP check icon display for low price version	Icon display setting	1. Display the BUMP check icon.	None
req[14-5-2-21]	Pump icon display	Perform pump icon display	Display ON/OFF flag	1. Set the pump icon according to the toggle flag when the display ON/OFF flag is ON. 2. Toggle the toggle flag.	None
req[14-5-2-22]	Set LCD display data	Perform set LCD display data	None	1. Set the LCD display data.	None
req[14-5-2-23]	Battery icon display	Perform battery icon display	None	1. Set the display data for the battery icon.	None
req[14-5-2-24]	Heart icon display	Perform heart icon display	None	1. Set the display data for the heart icon.	None
req[14-5-2-25]	Time icon display	Perform time icon display	None	1. Set the display data of the time icon.	None
req[14-5-2-26]	Mode icon display	Perform mode icon display	None	1. Set the display data for the mode icon.	None
req[14-5-2-27]	Long life icon display	Perform long life icon display	None	1. Set the display data of the long life icon.	None
req[14-5-2-28]	BUMP check icon display	Perform BUMP check icon display	None	1. Set the display data for the BUMP check icon.	None
req[14-5-2-29]	Pump icon display	Perform pump icon display	None	1. Set the display data of the pump icon.	None
req[14-6-1-1]	LED ON/OFF control call	Perform ON/OFF control of LED	LED lit type	1. Set ON/OFF of LED.	None
req[14-6-1-2]	Backlight turning on LCD_NORMAL	Perform lighting process of LCD_NORMAL backlight	ON/OFF setting flag	1. When the ON/OFF setting flag is ON, turn on the backlight.	None
req[14-6-1-3]	Set LED ON/OFF	Set ON/OFF of LED	Control port number ON/OFF setting flag	1. Set ON/OFF of LED 1, LED 2, LED 3.	None
req[14-7-1-1]	LED RAM data initialization	Perform LED RAM data initialization processing	None	1. Initialize the LED light lighting time.	LED light lighting time
req[14-7-1-2]	LED light ON/OFF status acquisition processing	Perform LED light ON/OFF status acquisition processing	None	1. Returns ON if the LED light lighting time is not 0, and OFF if it is 0.	ON/OFF result
req[14-7-1-3]	LED light test ON/OFF processing	Perform LED light test ON/OFF processing	ON/OFF request	1. If the ON/OFF request is ON, set the maximum LED lighting time; if it is OFF, set 0.	None
req[14-7-1-4]	LED light lighting time setting process	Perform LED light lighting time setting process	LED lighting time	1. If the LED lighting time is non-zero, set it to 0; if it is 0, set the maximum lighting time.	None
req[14-7-1-5]	10msec interrupt processing for LED	Perform 10msec interrupt processing for LED	LED lighting time	1. If the LED lighting time is non-zero, decrement the lighting time and turn on the LED light, and if it is 0, turn off the LED light.	None
req[14-7-1-6]	LED light off setting processing	Perform LED light off setting processing	None	1. Set the LED lighting time to 0. 2. Turn off the LED light.	LED lighting time
req[14-7-1-7]	LED light port setting process	Perform LED light port setting process	ON/OFF request	1. If the ON/OFF request is OFF, turn off the LED light. 2. If the ON/OFF request is ON, turn on the LED light.	None
req[14-7-1-8]	LED light ON/OFF processing	Perform LED light ON/OFF processing	None	1. Handle LED light on/off.	None
req[14-7-1-9]	LED light lighting permission acquisition processing	Perform LED light lighting permission acquisition processing	Stealth mode setting	1. Initialize the result flags. 2. If the stealth mode setting is ON, substitute false for the result flag. 3. Return result flag.	Result flag
req[14-7-1-10]	LED light on/off display processing	Perform LED light on/off display processing	None	1. Get the ON/OFF status of the LED light. 2. If the ON/OFF status is ON, create ON display characters. 3. If the ON/OFF status is OFF, create a character for OFF displav.	None
req[14-8-1-1]	Acquire buzzer operation flag	Acquire the operation flag of the buzzer	None	1. Return the buzzer operation in progress flag.	Buzzer operating flag
req[14-8-1-2]	Initial processing of buzzer unit	Perform initial processing of buzzer unit	None	1. Set the alarm pattern to OFF. 2. Set the alarm periodic operation check request flag to OFF. 3. Set the alarm periodic operation execution request flag to OFF. 4. Initialize the buzzer processing variable. 5. Initialize the buzzer driver.	Alarm pattern Alarm period operation check request flag Alarm cycle operation request flag
req[14-8-1-3]	When the power is off, buzzer mute	When power is off, perform buzzer mute processing	None	1. Set the power off flag to ON.	Power OFF flag
req[14-8-1-4]	Initialization of buzzer internal variable	Initialize buzzer internal variable	None	1. Initialize the alarm transition setting table.	Alarm transition setting
req[14-8-1-5]	Buzzer ON/OFF control call	Perform ON/OFF control of buzzer	Buzzer ON/OFF setting flag PWM count value LOW / HI flag	1. When the buzzer ON/OFF setting flag is ON, carry out the following processes 2 to 6. 2. Turnon buzzer ON flag. 3. If the PWM count value is within the threshold value, the value is set to the PWM setting buffer. 4. If the LOW / HI flag is LOW, the setting value of the PWM setting buffer is set to the LOW specification. 5. Turn PMW function on. 6. When the buzzer ON/OFF setting flag is OFF, the buzzer ON flag is turned off and the PWM function is turned off.	PWM setting buffer Buzzer ON flag
req[14-8-3-1]	Alarm processing within 10 msec	Perform alarm processing within 10 msec	Alarm period operation check request flag SDM alarm test flag Alarm test type flag	1. When the alarm cycle operation check request flag is ON, turn on the alarm cycle operation execution request flag. 2. When the SDM alarm test flag is not 0, the SDM alarm test flag is subtracted. 3. When the alarm period operation execution request flag is ON, the following processings 4 to 7 are executed 4. Turnoff the alarm cycle operation execution request flag. 5. Ringing pattern deend processing. 6. Perform ringing execution processing using sounding parameters and alarm transition table. 7. When the end of the alarm transition table is reached,turn off the alarm pattern and alarm period operation check request flag.	Alarm period operation check request flag Alarm cycle operation request flag Alarm pattern
req[14-8-3-2]	Buzzer loop processing	Perform buzzer loop processing	Boot status SDM alarm test flag Alert test type flag Power off flag Failure alarm flag Short buzzer flag Low battery buzzer request flag Mode transition LED request flag	1. Call a Mode transition LED control 250 msec processing 2. When the boot status is at startup, set the alarm type at startup and set the boot status to active. 3. When the power is off, set the alarm type to OFF. 4. When the SDM alarm test flag is ON, an alarm test type flag is set to the alarm type. 5. When the fault alarm flag is ON, the alarm type is set to the fault alarm. 6. When air calibration is in progress, set the alarm type to OFF. 7. In cases other than the above, confirm whether alarm is issued and set each alarm to alarm type. 7. If the alarm type is OFF and the short buzzer flag is valid, set the alarm type to short buzzer. 9. Turnoff the short buzzer flag. 10. When the alarm type is OFF and the power is not stopped, Perform 11 and 12 processing. 11. When the mode transition LED request flag is ON, Set the alarm type to the mode transition LED. 12. When the low battery buzzer request flag is ON,Set the alarm type to low battery buzzer. 13. Set the low battery buzzer request flag and mode transition LED request flag to OFF 14. Set alarm type to alarm pattern. 15. Set the alarm cycle operation check request flag to ON.	Alarm pattern Alarm type Short buzzer flag Boot status Alarm cycle operation check request flag
req[14-8-3-3]	Boot flag assignment	Perform boot flag assignment processing	Boot status	1. Set the boot status to the INPUT value.	Boot status
req[14-8-3-4]	Short buzzer ON processing	Perform short buzzer ON processing	Short buzzer type	1. Set the short buzzer flag according to the short buzzer type. 2. If the key operation sound setting is OFF and the short buzzer type is the key operation sound, set the short buzzer flag toturn off.	Short buzzer flag

req[14-8-3-5]	Periodic processing for changing the alarm based on the alarm transition setting table	Perform periodic processing for changing the alarm based on the alarm transition setting table	Alarm transition setting table Alarm pattern Alarm transition table Buzzer volume setting Stealth setting Buzzer cycle type Main unit error status	1. Retrieve the current data from the alarm transition setting table. 2. If it is not the end of the alarm transition table, the following processes 3 to 5 are executed. 3. When the buzzer volume setting is LOW, the buzzer volume is set to LOW. 4. When the stealth setting is ON, turn off the buzzer and the LED. 5. When the stealth setting is OFF, set the state to each device.	Buzzer volume
req[14-8-3-6]	Fetch the current data from the alarm transition setting table	Retrieve the current data from the alarm transition setting table	Alarm transition setting table Alarm pattern Alarm setting Alarm transition table	1. Toggle the alarm pattern when the alarm pattern alternates between 1st and 2nd. 2. Based on the current alarm pattern, take out ON/OFF setting status of buzzer, motor and LED. 3. Set state to each device. 4. Retrieve the buzzer frequency from the alarm pattern. 5. Set buzzer sound pressure from buzzer frequency.	Alarm transition setting table Alarm setting Alarm transition table
req[14-8-3-7]	Alarm Request Analysis	Perform alarm request analysis	Alarm transition setting table Alarm setting Alarm pattern	1. Retrieve the alarm pattern in the current state. 2. When the alarm pattern has changed from the previous time, initialize the ringing parameter.	Alarm transition setting table
req[14-8-5-1]	Mode transition LED control 250msec processing	Processing every 250 msec to control the mode transition LED and buzzer	Measurement mode / display mode flag AIR calibration flag Battery status flag	1. Initialize the mode confirmation flag with OFF. 2. Initialize the low battery flag with OFF. 3. Initialize 4-second counter with 0. 4. When the other than measurement mode and display mode, Set the mode confirmation flag to ON. 5. When the AIR calibration flag is ON, the mode confirmation flag set to ON. 6. When the battery status flag is below low battery, the low battery flag set to ON. 7. When the mode confirmation flag and low battery flag is OFF, the 4-second counter set to 0. 8. Increment the 4-second counter. 9. when the 4-second counter has passed 4 seconds, the 4-second counter set to 0 and perform the following processing. 10. When the low battery flag is ON, the low battery buzzer request flag set to ON. 11. When the low battery flag is OFF, the mode transition LED request flag set to ON.	Low battery buzzer request flag Mode transition LED request flag
req[14-9-1-1]	Acquisition of motor operation flag	Acquire motion flag of motor	None	1. Return the running flag of the motor.	Motor running flag
req[14-9-1-2]	ON/OFF control call of vibration motor	Perform ON/OFF control of vibration motor	Vibration motor ON/OFF setting flag	1. Set the vibration motor ON/OFF.	None
req[14-9-1-3]	Set the vibration motor ON/OFF	Set ON/OFF of vibration motor	ON/OFF setting flag	1. When the ON/OFF setting flag is ON, turn on the vibration motor. 2. When the ON/OFF setting flag is OFF, the vibration motor is turned off.	Port Setting
req[14-10-1-1]	Confirm ON/OFF of key port	Confirm ON/OFF setting of port of key	None	1. Return the key port state confirmation processing.	Key port flag
req[14-10-1-2]	10 msec interrupt for key processing (every 10 msec)	Performs 10 msec interruption processing for key processing	Event timeout count No operation time count Confirmed key input data	1. Count down the timeout count. 2. If the counter every 1 second is 0, after counting down the no-operation timeout count, set the counter every second for 100. 3. Read the pressed state of the key.	Event timeout count No operation time count Counter every second
req[14-10-1-3]	Confirm port status of key	Confirm the port state of the key	None	1. Check the port status of the key.	As a result of inverting PORT 14, 15
req[14-10-2-1]	Output ZIPC key event	Perform output process of ZIPC key event	None	1. Return key event of ZIPC.	Key event
req[14-10-2-2]	Acquisition of key reset flag	Acquire key reset flag	None	1. Return the release flag of the key.	Return flag of key
req[14-10-2-3]	Acquisition of timeout time	Acquire timeout time	None	1. Return timeout count.	Remaining time
req[14-10-2-4]	Create event for ZIPC of key	Create event for ZIPC of the key	Confirmed key event storage buffer Set key release flag Key separation process No operation timeout Event timeout count Key press state flag ZIPC key event	1. When interrupt processing occurs while pressing the key, execute the following processing 2 to 6. 2. Failure the presence or absence of an event. 3. Turnoff the old key. 4. Put the current key event in the key event of ZIPC. 5. Set the release flag of the key to 2. 6. Returns existence of event.	ZIPC key event ON/OFF setting flag Judgment result
req[14-10-2-5]	Set no operation timeout time	Perform setting process of no operation timeout time	Flag at timeout execution No operation time count	1. If the non-operation timeout count is 0, turn off the flag at timeout execution. 2. If the non-operation timeout count is other than 0, turn on the flag at timeout execution.	Flag at timeout execution No operation time count
req[14-10-2-6]	Set timeout time	Perform setting process of timeout time	Flag at timeout execution	1. When the timeout count is 0, turn off the flag when executing no operation timeout. 2. If the timeout count is other than 0, turn on the flag when executing no operation timeout.	Flag at timeout execution
req[14-10-2-7]	Confirmation processing of key event state	Performs the key event state deend process	Key press time Confirmed key input	1. If the old key and the new key are the same, press and hold processing is executed. 2. If the old key and the new key are not the same, initialize the key press time. 3. When a new key is being pressed, a process corresponding to the pressed key is executed. 4. If the new key is not pressed, the release flag of the key is initialized. 5. Reset the LCD backlight timer when there is a key event update.	Confirmed key input data
req[14-11-1-1]	Conversion processing of temperature value of RL78 (once per 1 sec)	Conversion processing of the temperature value of RL78 is performed	Gas setting	1. When the voltage value is 0 mV, set the temperature value to 0℃。 2. When the voltage value is not 0 mV, obtain the maximum voltage value or the minimum voltage value. 3. If a combustible sensor is installed, acquire the temperature correction value for installing NC.	Temperature value
req[14-12-1-1]	Pump control initialization processing	Perform pump control initialization processing	None	1. Initialize the pump startup processing phase flag. 2. Initialize the variable for 1000msec count. 3. Initialize the flag backup during pump operation. 4. Stop pump drive. 5. Set Pump Lo/Hi to Lo. 6. Turn off the pump power.	Pump startup processing phase flag Variable for 1000msec count Pump running flag backup
req[14-12-1-2]	Pump control processing	Perform pump control processing	Action request Lo/Hi request	1. Initialize the operation switching flag. 2. If the backup operation flag of the pump is different from the operation request, turn ON the operation switching flag. 3. Increment the 1000msec count variable. 4. If the 1000msec count variable is greater than or equal to the default value or if the operation switching flag is ON, process 5 is performed. 5. When the operation switching flag is ON, update the pump start processing phase flag according to the operation request and drive the pump. 6. Assign the operation request to the backup flag for pump operation.	Pump startup processing phase flag Variable for 1000msec count Pump running flag backup
req[14-12-1-3]	Pump operation phase acquisition process	Perform pump operation phase acquisition process	Pump startup processing phase flag	1. Returns true if the pump startup processing phase flag is NORMAL or END, otherwise returns false.	Phase flag
req[14-12-1-4]	Pump operation phase processing	Perform pump operation phase processing	Lo/Hi request Pump startup processing phase flag	1. If the pump start processing phase flag is other than END, perform the following processing. 2. Update the pump startup processing phase flag according to the pump startup	Pump startup processing phase flag
req[14-12-1-5]	Pump operation setting request processing	Perform pump operation setting request processing	Action request Lo/Hi request	1. If the operation request is ON, set the pump power supply to ON, the pump Lo/Hi to Lo/Hi request, and the pump drive to ON. 2. If the operation request is OFF, substitute OFF for the pump power, Lo for the pump Lo/Hi, and OFF for the pump drive.	None
req[14-12-1-6]	Pump power ON/OFF	Perform pump power ON/OFF	ON/OFF request	1. Turn on the pump power port when the ON/OFF request is ON. 2. Turn off the pump power port if the ON/OFF request is OFF.	None
req[14-12-1-7]	Pump Lo/Hi setting	Perform pump Lo/Hi setting	Lo/Hi request	1. Turn ON the pump Lo/Hi port when the Lo/Hi request is Hi. 2. Turn off the pump Lo/Hi port when the Lo/Hi request is Lo.	None
req[14-12-1-8]	Pump drive ON/OFF	Perform pump drive ON/OFF	Action request	1. Turn ON the pump drive port when the operation request is ON. 2. Turn off the pump drive port when the operation request is off.	None
req[14-12-1-9]	Pump OFF start processing	Perform pump OFF start processing	None	1. Perform logger measurement stop processing.	None
req[14-12-1-10]	Pump OFF end processing	Perform pump OFF end processing	None	1. Perform the following processing when the pump ON/OFF acquisition result is ON. 2. Update the peak value to the current concentration value. 3. Initialize the integrated value of the average value every 60 seconds. 4. Initialize the average value for the entire measurement time. 5. Initialize the integrated value from the start of measurement. 6. Initialize the TWA value and TWA buffer. 7. Initialize STEL values, STEL buffers, and buffer pointers. 8. Turn off the resume flag. 9. Perform logger measurement start processing.	None
req[14-12-1-11]	Pump OFF display processing	Perform pump OFF display processing	None	1. Create character data for OFF display. 2. Create the character data for the pump ON display.	None
req[14-12-1-12]	Pump OFF display ONOFF setting start processing	Perform pump OFF display ONOFF setting start processing	Pump OFF display setting	1. Assign the pump OFF display setting to the item selection number.	Item selection number
req[14-12-1-13]	Pump OFF display ONOFF setting end processing	Perform pump OFF display ONOFF setting end processing	Item selection number	1. Assign the item selection number to the pump OFF display setting. 2. Turn on the FRAM write start flag.	Pump OFF display setting
req[14-12-1-14]	Pump OFF display ONOFF setting display processing	Perform pump OFF display ONOFF setting display processing	Item selection number	1. Create a pump ON/OFF display character according to the item selection number.	None
req[14-12-1-15]	Pump OFF display ONOFF setting ONOFF selection processing	Perform pump OFF display ONOFF setting ONOFF selection processing	Item selection number	1. Swap the ON/OFF setting of the item selection number.	Item selection number
req[14-12-1-16]	Pump stop flag setting process	Perform pump stop flag setting process	ON/OFF request	1. Substitute the ON/OFF request to the pump stopped flag.	Pump stop flag
req[14-12-1-17]	Pump stopped flag acquisition	Perform pump stopped flag acquisition process	None	1. Return the pump stop flag.	Pump stop flag
req[14-13-1-1]	Pump flow rate sensor control initialization processing	Perform pump flow rate sensor control initialization processing	None	1. Initialize the pump Lo/Hi flag. 2. Initialize the pump Lo/Hi request flag. 3. Initialize the pump running flag. 4. Initialize the pump operation request flag. 5. Initialize the pressure sensor output value when the pump is turned off. 6. Initialize the pressure sensor output value at the time of failure. 7. Initialize the initial flag after starting the pump. 8. Initialize the determination result at pump boost startup. 9. Initialize the pump connection test results. 10. Perform pressure sensor control initialization. 11. Perform pump control initialization.	Pump Lo/Hi flag Pump Lo/Hi request flag Pump running flag Pump operation request flag Pressure sensor output value when the pump is turned off Pressure sensor output value at the time of failure Initial flag after starting the pump Determination result at pump boost startup Pump connection test result
req[14-13-1-2]	Pump flow rate sensor control device startup processing	Perform pump flow rate sensor control device startup processing	None	1. Perform pressure sensor control device startup processing.	None
req[14-13-1-3]	Pump flow rate sensor control device stop processing	Perform pump flow rate sensor control device stop processing	None	1. Perform pressure sensor control device stop processing.	None
req[14-13-1-4]	Pump flow rate sensor control device initialization processing	Perform pump flow rate sensor control device initialization processing	DAC0 output value	1. Execute the DAC0 output change processing of the pressure sensor control device.	None
req[14-13-1-5]	Non-volatile data acquisition processing for pump flow rate sensor	Perform non-volatile data acquisition processing for pump flow rate sensor control	Setting value structure pointer	1. Read setting data for non-volatile memory.	Setting data for non-volatile memory
req[14-13-1-6]	Non-volatile data setting process for pump flow rate sensor control	Perform non-volatile data setting process for pump flow rate sensor control	None	1. Return setting data for non-volatile memory.	Setting data for non-volatile memory
req[14-13-1-7]	Non-volatile default data setting processing for pump flow rate sensor control	Perform non-volatile default data setting processing for pump flow rate sensor control	None	1. Set default data for non-volatile memory.	Setting data for non-volatile memory
req[14-13-1-8]	Flow drop output acquisition process	Perform flow drop output acquisition process	None	1. Returns the low flow output setting value.	Low flow rate output set value
req[14-13-1-9]	Pressure sensor setting acquisition processing	Perform pressure sensor setting acquisition processing	None	1. Return the pressure sensor setting value.	Pressure sensor set value
req[14-13-1-10]	Pressure sensor setting setting processing	Perform pressure sensor setting setting processing	Pressure sensor adjustment value	1. Substitute the pressure sensor adjustment value for the pressure sensor setting value.	Pressure sensor set value
req[14-13-1-11]	Pump Lo/Hi request processing	Perform pump Lo/Hi request processing	Lo/Hi request	1. If the Lo/Hi request is Hi, set the pump Lo/Hi flag to Hi, and if it is Lo, set the pump Lo/Hi flag to Lo.	Pump Lo/Hi flag
req[14-13-1-12]	Pump Lo/Hi status acquisition process	Perform pump Lo/Hi status acquisition process	None	1. Returns pump Lo/Hi flag.	Pump Lo/Hi flag
req[14-13-1-13]	Pump start/stop request processing	Perform pump start/stop request processing	Action request	1. If the operation request is ON, set the pump operation flag to ON, and if it is OFF, set the pump operation flag to OFF.	Pump operation flag
req[14-13-1-14]	Pump start/stop status acquisition process	Perform pump start/stop status acquisition process	None	1. Return the pump operation flag.	Pump operation flag

req[14-13-1-15]	Processing every 250msec for pump flow rate sensor control	Perform processing every 250msec for pump flow rate sensor control	None	1. Get the pump error flag. 2. If the pump is abnormal, perform the pump abnormality setting process and request the pump to stop. If the pump is normal, perform processing 3 to 4. 3. Get the low flow rate error flag. 4. If there is a flow rate drop error, the flow rate drop error setting process is performed and the pump is requested to stop. 5. Perform pump control processing.	None
req[14-13-1-16]	Pump flow sensor control processing	Perform pump flow sensor control processing	Operation request flag Lo/Hi request flag	1. Initialize the operation switching flag. 2. If the operation flag and the operation request flag are different, turn on the operation switching flag. Otherwise, when the operation request flag is ON and the Lo/Hi flag is different from the Lo/Hi request flag, the operation switching flag is turned ON. 3. If the operation switching flag is ON, update the operation flag and Lo/Hi flag. If the operation flag is ON, get the pressure sensor output when the pump is OFF. 4. Perform pump control processing.	Action flag Lo/Hi flag
req[14-13-1-17]	Purge necessity check process	Perform purge necessity check process	Gas setting Fault status	1. Initialize the result flags. 2. Turn ON the result flag when the gas setting is valid, there is no sensor failure, and purge is required.	Result flag
req[14-13-1-18]	Retry necessity acquisition processing at pump boost startup	Perform retry necessity acquisition processing at pump boost startup	None	1. Returns whether or not retry is required when the pump boost starts.	Necessity of retry at pump boost startup
req[14-13-1-19]	Processing to acquire pressure sensor output when pump is OFF	Perform processing to acquire pressure sensor output when pump is OFF	None	1. Returns the pressure sensor output when the pump is OFF.	Pressure sensor output when pump is OFF
req[14-13-1-20]	Failure time pressure sensor output acquisition processing	Perform failure time pressure sensor output acquisition processing	None	1. Returns the pressure sensor output at failure.	Pressure sensor output at failure
req[14-13-1-21]	Pump connection test process	Perform pump connection test process	None	1. Return pump connection test result.	Pump connection test result
req[14-13-1-22]	Low flow test process	Perform low flow test process	Pump operation flag	1. Initialize the low flow test result. 2. If the pump operation flag is ON and the result of obtaining the pump operation phase is true, the IN side pressure sensor detects the decrease in flow rate and obtains the result. 3. Return flow reduction test result.	Flow reduction test result
req[14-13-1-23]	Processing to acquire pressure sensor output when pump is OFF	Perform processing to acquire pressure sensor output when pump is OFF	None	1. Initialize the first flag after starting the pump. 2. Get the pressure sensor output when the pump is off. 3. Initialize the pump test result.	First flag after starting the pump Pressure sensor output when the pump is off Pump test result
req[14-13-1-24]	Pump drive detection processing	Perform pump drive detection processing	Pump operation flag Judgment result at pump boost startup	1. Initialize the result flag. 2. Get the current pressure sensor output. 3. Calculate the span output by subtracting the current pressure sensor output from the pressure sensor output when the pump is OFF. 4. Perform 6 from process 5 when the pump operation flag is ON. 5. When the first time flag after starting the flow rate drop pump is ON and the pump operation phase is ON, if the determination result at pump boost start is NG, set the result flag to abnormal. Initialize the judgment result at pump boost startup and the first time flag after starting the flow rate reduction pump. 6. If the flag for the first time after starting the flow rate drop pump is OFF and the span output is less than the threshold value, the determination result at pump boost start is set to abnormal. Update the pressure sensor output value at the time of failure. 7. If the result of purging flag acquisition is ON, set normal to the result flag. 8. Return result flag.	Judgment result at pump boost startup First time flag after starting the low flow rate pump Result flag
req[14-13-1-25]	Low flow rate detection process	Perform low flow rate detection process	Pump operation flag	1. Get the H2 measurement flag. 2. If the pump operation flag is ON, perform process 3. 3. When the pump operation phase is ON, the flow rate reduction notification permission mode is enabled, and the H2 measurement flag is OFF, the flow rate reduction judgment is performed and the result flag is substituted. 4. If the purging flag is ON, set the result flag to normal. 5. Return result flag.	Result flag
req[14-13-1-26]	IN side pressure sensor flow rate drop detection processing	Perform IN side pressure sensor flow rate drop detection processing	Pressure sensor output when the pump is OFF Low Flow Threshold setting	1. Initialize the result flag. 2. Get the current pressure sensor output value. 3. Calculate the span output by subtracting the current pressure sensor output from the pressure sensor output when the pump is OFF. 4. If the span output is greater than the Low Flow Threshold setting, set the Result Flag to Abnormal. Update the pressure sensor output value at the time of failure. 5. Return result flag.	Pressure sensor output value at the time of failure Result flag
req[14-13-1-27]	Pump drive error setting processing	Perform pump drive error setting processing	None	1. Set pump drive error.	None
req[14-13-1-28]	Flow drop error setting processing	Perform flow drop error setting processing	None	1. Set the low flow rate error.	None
req[14-13-1-29]	Purge necessity check process (threshold judgment)	Perform purge necessity check process (threshold judgment)	Gas channel Current concentration Full scale	1. Initialize the result flag. 2. If the current concentration is other than the OFF value, perform the following processing. 3. Get the current concentration. 4. Calculate the purge threshold. 5. If the current concentration is greater than the purge threshold, set the result flag to ON. 6. Return result flag.	Result flag
req[14-13-1-30]	Pressure sensor control initialization processing	Perform pressure sensor control initialization processing	None	1. Perform 12bitDA initial setting processing.	None
req[14-13-1-31]	Pressure sensor control device startup processing	Perform pressure sensor control device startup processing	Pressure sensor DAC0 output %	1. Get the result of checking the upper and lower limits of the pressure sensor DAC output %. 2. Perform 12bitDA startup processing.	None
req[14-13-1-32]	Pressure sensor control device stop processing	Perform pressure sensor control device stop processing	None	1. Perform 12bitDA stop processing.	None
req[14-13-1-33]	Pressure sensor control device DAC0 output change processing	Perform pressure sensor control device DAC0 output change processing	Pressure sensor DAC0 output %	1. Get the result of checking the upper and lower limits of the pressure sensor DAC output %.	None
req[14-13-1-34]	Pressure sensor output acquisition processing	Perform pressure sensor output acquisition processing	None	1. Get the output of the pressure sensor. 2. Return the output of the pressure sensor.	Pressure sensor output
req[14-13-1-35]	Pressure sensor DAC output % upper/lower limit confirmation processing	Perform pressure sensor DAC output % upper/lower limit confirmation processing	Pressure sensor DAC output %	1. If the pressure sensor DAC output % is less than the lower limit, return the lower limit. 2. If the pressure sensor DAC output % is greater than the upper limit, return the upper limit.	Pressure sensor DAC output %
req[14-13-1-36]	Flow drop setting start processing	Perform flow drop setting start processing	Pressure sensor DAC output % Pressure sensor set value	1. Substitute the pressure sensor setting value for the item selection number. 2. Initialize item selection up/down.	Item selection number Item selection up/down
req[14-13-1-37]	Flow drop setting end processing	Perform flow drop setting end processing	None	1. Restore the pressure sensor settings.	None
req[14-13-1-38]	Flow drop setting/confirmation end processing	Perform flow drop setting/confirmation end processing	None	1. Clear circuit voltage fault. 2. Clear the pump fault.	None
req[14-13-1-39]	Flow drop setting display processing	Perform flow drop setting display processing	None	1. Get the AD value of the pressure sensor. 2. Create AD value display characters. 3. Create the display characters for the pressure sensor settings. 4. Create the text for the reduced flow setting display. 5. Perform pressure sensor control device DAC0 output change processing.	None
req[14-13-1-40]	Flow drop setting display item selection processing	Perform flow drop setting display item selection processing	Increase/decrease Item selection number	1. Update the item selection number according to the increase/decrease number.	Item selection number
req[14-13-1-41]	Flow drop confirmation start processing	Perform flow drop confirmation start processing	None	1. Clear circuit voltage fault. 2. Clear the pump fault.	None
req[14-13-1-42]	End process for confirming flow drop	Perform end process for confirming flow drop	Item selection number	1. Assign the item selection number to the pressure sensor setting. 2. Turn on the FRAM write start flag.	Pressure sensor setting
req[14-13-1-43]	Flow drop confirmation display processing	Perform flow drop confirmation display processing	None	1. Get the AD value of the pressure sensor. 2. Create display characters for AD values. 3. Get the pressure sensor output when the pump is off. 4. Create the display characters for the pressure sensor output when the pump is OFF. 5. Create the display characters for the low flow confirmation display. 6. Get pump test results. 7. If the pump is abnormal, the pump is displayed as abnormal, and if the pump is normal, the clogging on the IN side is judged. If the IN side clogging judgment is abnormal, the flow rate abnormality is displayed.	None
req[14-15-1-1]	Power off processing of abnormal time of flammable sensor	Perform power off processing of abnormal time of flammable sensor	Main unit error status	1. When the battery voltage drops or the combustible sensor is abnormal, turn off the original power supply of the combustible sensor.	Port
req[14-16-1-1]	Oxygen warm up RAM data initialization processing	Perform oxygen warm up RAM data initialization processing	RAM data before initialization	1. Perform initialization of RAM data.	RAM data after initialization
req[14-16-1-2]	Oxygen warm up initial processing	Perform oxygen warm up initial processing	RAM data before starting warm up	1. Substitute warm up start data in the RAM data.	RAM data after starting warm up
req[14-16-1-3]	Warm-up processing ON/OFF flag acquisition processing	Acquire warm up processing ON/OFF flag processing	None	1. Substitute warm up processing ON/OFF flag for the return value.	Warm-up processing ON/OFF flag
req[14-16-1-4]	A/D acquisition processing every 10 msec	Acquire A/D value every 10 msec	AD value	1. When the AD value is equal to or larger than the threshold value, the warm up end confirmation counter is incremented. 2. If it is equal to or less than the threshold value, the warm up end check counter is decremented and the warm up recheck counter is set to 1. 3. The warm up recheck counter is incremented, and if it is 2 or more, perform the processing from 3 onward. 4. When the warm up forced end counter is 0 or the warm up end counter is equal to or more than the specified value, terminate the warm up process. 5. If not 4. redo warm up processing.	Warm-up processing restart flag
req[14-16-1-5]	After the average A/D acquisition processing	Acquisition of A/D to be used for concentration calculation during warm up	None	1. Substitute the AD value for concentration calculation for the return value.	A/D for concentration computation
req[14-16-1-6]	Oxygen warm up main loop processing	Perform oxygen warm up main loop processing	Temperature A/D data	1. Acquire AD to calculate concentration during warm up. 2. For temperature below -20°C. , substitute in 0 for the warm up operation flag. 3. For temperatures from -20 to below +35°C, substitute in 1 for the warm up operation flag. 4. For temperatures from +35 to below +45°C, substitute in 2 for the warm up operation flag. 5. For temperatures from +45 to below +55°C, substitute in 3 for the warm up operation flag. 6. For temperatures +55°C. or higher, substitute in 4 for the warm up operation flag.	Warm-up operation flag
req[14-16-1-7]	10 msec Interrupt handling processing	Interrupt processing every 10 msec for warm up process	None	1. Count the timer from warm up port ON to A/D acquisition delay OFF. 2. Allow A/D acquisition permission flag. 3. If the delay OFF timer is non-0, turn on the warm up port. 4. Count the timer from warm up port ON to A/D acquisition delay OFF. 5. If the delay ON timer is non-0, turn off the warm up port. 6. Prohibit A/D acquisition permission flag. 7. Decrement counter for warm up forced end.	Delay OFF timer A/D acquisition permission flag Delay OFF timer Counter for forced warm up terminat
req[14-16-1-8]	Oxygen warm-up port termination processing	Perform oxygen warm-up port termination processing	None	1. Set Hi when the oxygen warm-up port is Lo.	None
req[14-16-1-9]	A/D average processing for hydrogen cancellation CO of RL78 (once every 1 sec)	Perform A/D average processing (once per 1 second) for hydrogen cancellation CO of RL78	Hydrogen compensation CO sensor A/D average buffer	1. Hydrogen Compensated CO Sensor A/D Use the average buffer to obtain the sensor A/D value.	Hydrogen compensation CO sensor A/D value
req[14-16-1-10]	A/D substitution processing for hydrogen cancellation CO of RL78	Performs A/D substitution processing for hydrogen cancellation CO of RL78	Hydrogen compensation CO sensor WE 1 instantaneous value Hydrogen compensation CO sensor WE 2 instantaneous value Average A/D buffer storage location	1. Each instantaneous value is stored in the hydrogen compensation CO sensor average buffer. 2. Add the average A/D buffer storage location.	Hydrogen compensation CO sensor average buffer