PT0E-1672

RIKEN KEIKI

Docking Station
SDM-3R
Operating Manual
(PT0-167)

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Contents

1. Overview

1. A calibration kit combining both SM and DM.
2. Infrared communication communicates at SIR(115.2Kbps).
3. The GX-3R / GX-3R Pro displays received messages with IrDA From the SDM-3R.
4. One,two and three three-way solenoid valves can be connected to the SDM-3R body.

2. Specification

1. Bump test (single execution(SM) / Maximum of 10 simultaneous execution(DM))
2. Gas calibration (single execution (SM) / simultaneous execution of up to 10 units (DM))
3. Gas calibration (single execution (SM) / simultaneous execution of up to 10 units (DM))
4. Copy the result data of bump test & gas calibration & alarm check to USB memory (SM)
5. Download data logger data of GX-3R / GX-3R Pro with PC (DM)
6. Charge the GX - 3R / GX - 3R Pro.

3. SM and DM operation

1. Usually operate as SM.
2. SM is operating even if it is connected with PC via USB cable.
3. When you start the docking station software with PC, it changes to DM operation.
4. When DM state is entered, the switch will not be accepted.
5. When you exit the docking station software, it changes to SM operation.

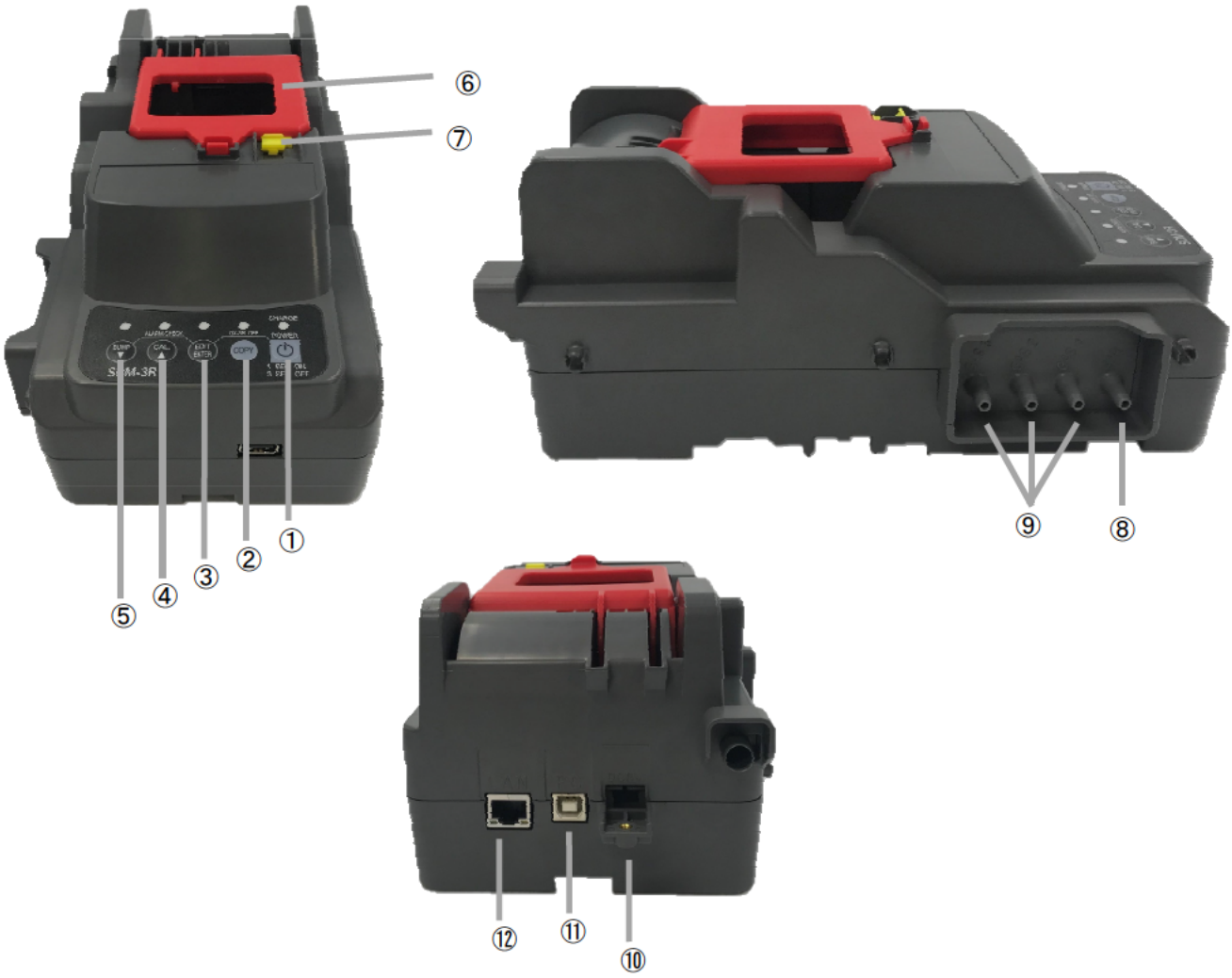
【 GX-3R 】

CH4	**%LEL**	**O2**	**%**
	50		**12.0**
CO	**ppm**	**H2S**	**ppm**
	50		**25.0**
	TRANSMIT		

【 GX-3R Pro 】

CH4	**%LEL**	**CO**	**ppm**	**H2S**	**ppm**
	50		**50**		**25.0**
O2	**vol%**		**CO2**		**ppm**
	12.0				**0**
TRANSMIT					

4. Name of each part of product



①	POWEW button
②	COPY button
③	EDIT / ENTER　button
④	CAL / ▲ button
⑤	BUMP / ▼ button
⑥	Lever
⑦	Cover
⑧	AIR inlet
⑨	GAS IN
⑩	Charging contact
⑪	PC connection cable contact
⑫	LAN connection contacts

5. Power on / off operation of SDM-3R and GX-3R / GX-3R Pro

5.1 Power on operation of SDM-3R

1. Press and hold the "SDM-3R" "POWER" switch for more than 1 second to turn on the power.
   Initially all the LEDs turn orange and then the "CHARGE" LED blinks green.
2. Charging will start when the GX-3R / GX-3R Pro is loaded.
   - "CHARGE" LED blinks orange while charging.
   - Lights up green when charging is complete.
   - If there is a problem with charging, it turns red.
   - When the power of the GX-3R / GX-3RPro is turned on, charging ends and changes to green blinking.

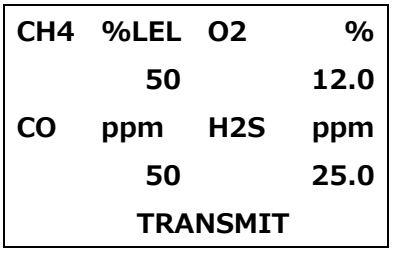
5.2 Powering off the SDM-3R

1. Hold down the POWER switch for 3 seconds to turn off the SDM-3R.
2. Power OFF operation is effective only when not in communication with GX-3R / GX-3R Pro.

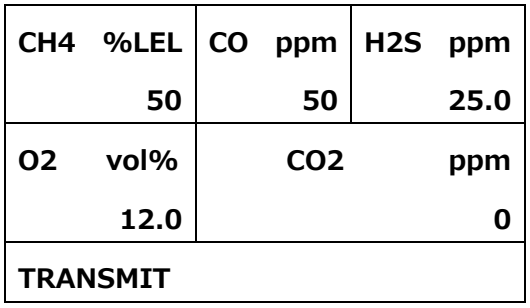
5.3 Power on the GX-3R / GX-3R Pro

1. When the SDM-3R cover is closed, the power of the GX-3R / GX-3R Pro turns on.
2. Turn on the power of GX-3R / GX-3R Pro and start communication with SDM-3R.
3. "CHARGE" LED blinks green when communication starts.
4. Once communication is established, the gas name and calibration concentration value set in the GX-3R / GX-3R Pro are displayed on the GX-3R / GX-3R Pro LCD.

【 Name of gas caliblation concentration 】



【 Basic screen(GX-3R) 】



【 Basic screen (GX-3R Pro) 】

※ The left screen is GX-3R, the right screen is GX-3R Pro.

5.4 Powering off the GX-3R / GX-3R Pro

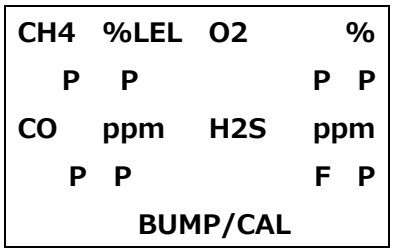
【In the case of SM】

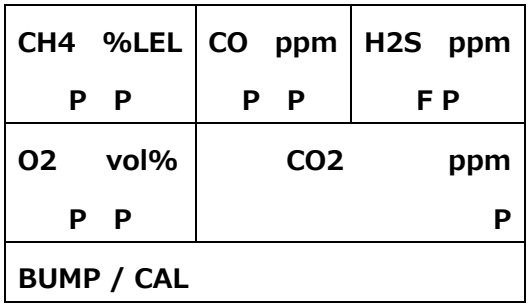
1. Hold down the POWER + EDIT / ENTER switch for 3 seconds to turn off the GX-3R / GX-3R Pro.
   * This operation can be performed only on the basic screen and result screen of 4.3.
2. If there is no switch operation for 10 minutes or more on the basic screen or result screen, the power of the GX-3R / GX-3R Pro is turned off.
3. Even if the power of the GX-3R / GX-3R Pro is turned off, the bump test / gas calibration / alarm check result (LED) state is maintained.
4. After that, turn on the power of GX-3R / GX-3R Pro and display the result of the previous bump test / gas calibration / alarm check.

   ※ The previous result display is only when the GX-3R / GX-3R Pro of the same serial number is connected.

   * The result is cleared when the power of SDM-3R is turned off, so the previous result is not displayed even if the
   power of GX-3R / GX-3R Pro is turned on.

   ※ If the GX-3R / GX-3R Pro with different serial number is connected, the result of bump test / gas calibration / alarm check will be cleared and the display will be the basic screen (see 4.3).





【In the case of DM】

1. In the PC software, select "Power off" from the right-click menu of the detector icon to turn off the GX-3R / GX-3R Pro.
2. If there is no operation for 1 hour on the main screen, the power of the GX-3R / GX-3R Pro will be turned off. (Time can be changed)

6. SM operation procedure

6.1 Power on the SDM-3R

1. The power turns on when the SDM-3R's "POWER" switch is held down for more than one second.
2. "CHARGE" LED flashes green.

6.2 Power on the GX-3R / GX-3R Pro

1. Attach the power-off GX-3R / GX-3R Pro to the SDM-3R. The "CHARGE" LED on the SDM-3R flashes in orange.
2. Turn on the power of the GX-3R / GX-3R Pro and start communication with the SDM-3R. The "CHARGE" LED of the SDM-3R flashes green.
3. When communication is established, the gas name and calibration concentration value set in GX-3R / GX-3R Pro are displayed on the LCD of GX-3R / GX-3R Pro.

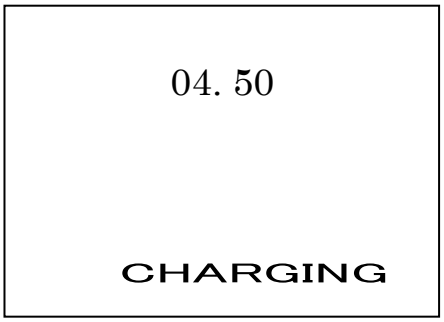
【 Name of gas calibration concentration 】

CH4	**%LEL**	**O2**	**%**
	50		**12.0**
CO	**ppm**	**H2S**	**ppm**
	50		**25.0**
	TRANSMIT		

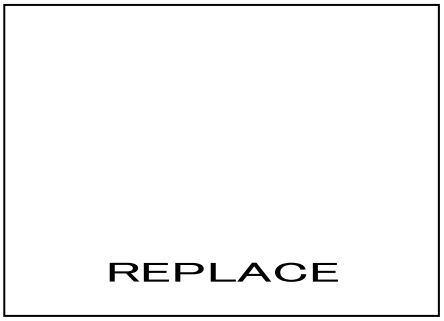
CH4	**%LEL**	**CO**	**ppm**	**H2S**	**ppm**
	50		**50**		**25.0**
O2	**vol%**		**CO2**		**ppm**
	12.0				**0**
TRANSMIT					

4 While the basic screen or result screen is displayed, when the battery level of GX-3R / GX-3R Pro is near the low battery error, "CHARGING" is displayed on the charging screen and charging starts (5 minutes charging Do).

5. In the case of dry batteries, do not charge and display the battery replacement screen "REPLACE".
6. In the charging screen, the remaining charging time is displayed in minutes and seconds.
7. When charging is complete, return to the basic screen or result screen.
8. Bump test / gas calibration / alarm check does not start even if the switch is pressed on the charge screen or battery replacement screen.



【 In the case of rechargeable battery 】



【 In the case of dry cell 】

7. Bump test and gas calibration of SM operation

* If the exhaust gas is drawn at a wind speed of 1 m / s or more, accurate bump test and gas calibration can not be performed.

1. Press the BUMP switch to start the bump test, and press the CAL switch to start gas calibration. At this time, each LED blinks in orange.

The yellow cap on the GX-3R does not start if it is open.

※ Perform bump test / gas calibration for all gases.

* The current concentration value is displayed during bump test / gas calibration.

【 Bump test 】

CH4	%LEL	O2	%
	20		17.0
CO	ppm	H2S	ppm
	15		2.5
	BUMP		

CH4	%LEL	CO	ppm	H2S	ppm
	20		15		2.5
O2	vol%		CO2		ppm
	17.0				0
BUMP					

【 Gas calibration 】

CH4	%LEL	O2	%
	30		14.0
CO	ppm	H2S	ppm
	35		20.0
	CAL		

CH4	%LEL	CO	ppm	H2S	ppm
	30		35		20.0
O2	vol%		CO2		ppm
	14.0				0
CAL					

2. First perform AIR suction and zero calibration.

Zero calibration performs all sensors simultaneously.

If there is an O2 sensor and it is less than 40 seconds after connecting with GX-3R / GX-3R Pro, extend AIR suction up to 40 seconds.

3. Perform bump test / gas calibration in the order set by the cylinder settings.

The gas set by the inlet number (GAS ○) is simultaneously executed.

If set with CHG ○, change gas and execute.

When bump test / gas calibration is completed, the result is displayed.

4. Display the result.

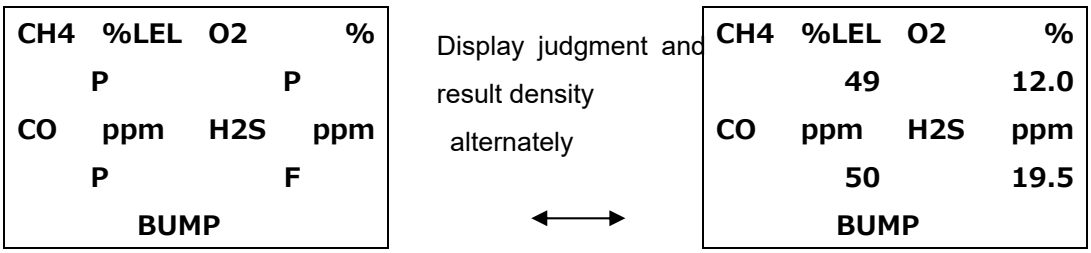
If everything is successful, the BUMP LED / CAL LED will turn green. If even one fails, it lights red.

Each result shows success "P" and failure "F". P: PASS F: FAIL

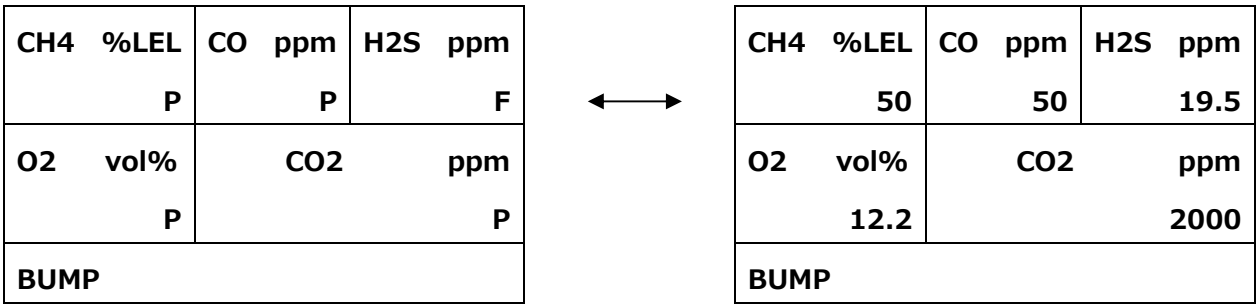
Displays the gas concentration during bump test / gas calibration.

【 Bump test results 】

【 GX-3R 】

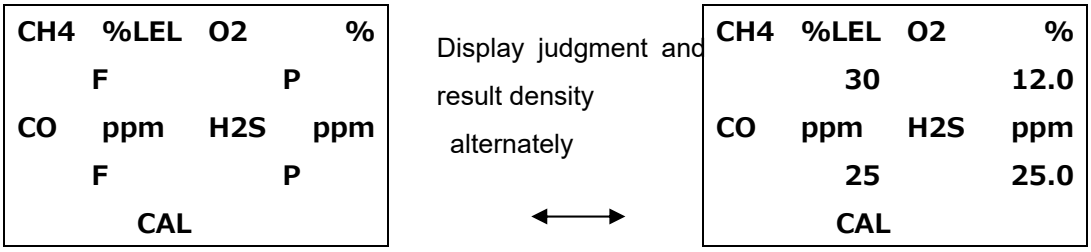


【 GX-3R Pro 】

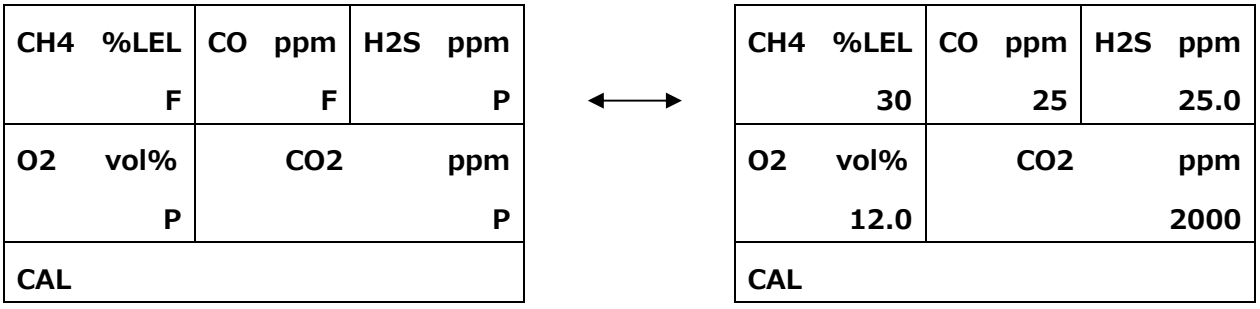


【 Gas calibration judgment 】

【 GX-3R 】



【 GX-3R Pro 】



5. Record the result in the memory inside SDM-3R.

   Record up to 200 cases. If the maximum number is exceeded, old records are deleted.

6. bump test / cancellation of gas calibration

・Canceling can be performed by pressing the BUMP switch for bump test and the CAL switch for 3 seconds or longer for gas calibration.

※ Cancellation during the first AIR suction time (AIR FLUSH) ends immediately and returns to the basic screen.

At this time, the LED of BUMP / CAL turns off.

It does not record in SDM-3R internal memory that it was canceled.

※ If cancellation is performed during gas suction, perform AIR suction (AIR PURGE).

“CANCEL” is displayed during AIR suction, and when suction is completed, the result screen is displayed.

※ If at least one bump test / gas calibration is completed, the result is displayed.

Record the result in the internal memory

CH4	%LEL	O2	%
	20		17.2
CO	ppm	H2S	ppm
	15		2.5
CANCEL			

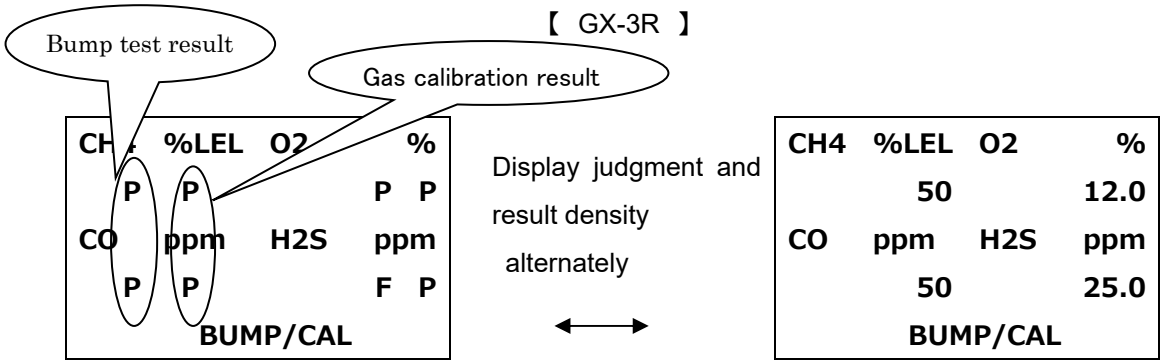
CH4	%LEL	CO	ppm	H2S	ppm
	20		15		2.5
O2	vol%	CO2			ppm
	17.2				0
CANCEL					

7. Automatic gas calibration after failure of bump test

• Perform this when "AUTO CAL" is set to ON. ※ If the bump test succeeds, gas calibration is not performed.

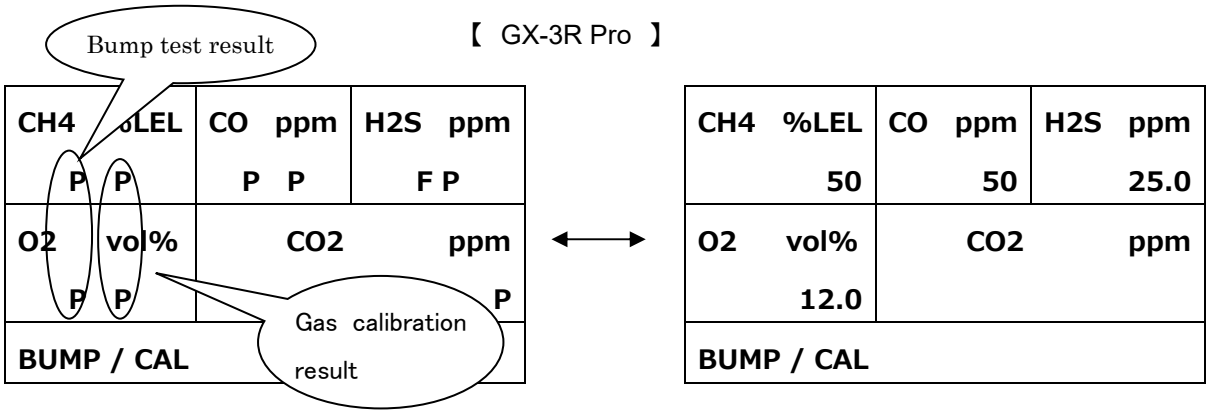
• If the bump test fails, continue gas suction until the total gas suction time reaches the gas calibration time, and perform gas calibration.

• Display the judgment of bump test / gas calibration.



[Display calibration result]

【 GX-3R Pro 】



8. fast bumps

・Perform when "FAST BUMP" is set to ON.

・ Gas suction is performed for 15 seconds, and the pump stop state is performed for 10 seconds, and judgment is made.

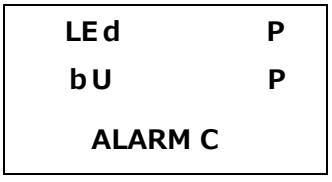
・ In the fast bump, "F" is displayed on the lower right of the screen, and the blinking speed of the BUMP LED is doubled.

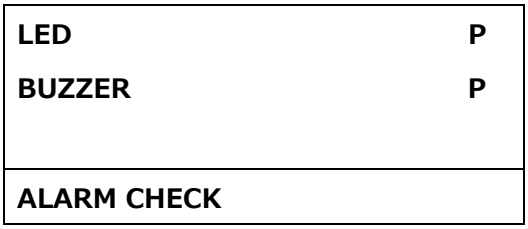
8. Alarm check of SM operation

1. Press the BUMP + EDIT / ENTER switch to start the alarm check.
2. When “ALARM CHECK” is ON in BUMP setting or CAL setting, alarm check starts after bump test or gas calibration.
3. The middle LED blinks orange during alarm check.
4. When the alarm check is completed, the result screen is displayed and the LED changes from blinking orange to the result color.

If everything is successful, the LED turns green.

If even one fails, the LED turns red.

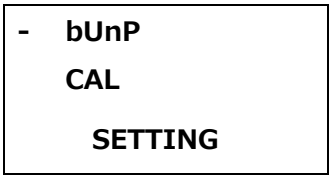




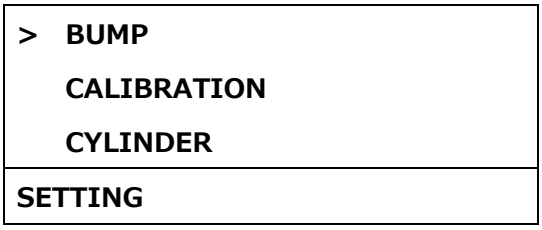
9. Change the setting value of SM operation

9.1 Menu operation

1. Press the EDIT / ENTER switch for 3 seconds or more on the basic screen to display the setting menu.



【 GX-3R 】



【 GX-3R Pro 】

2. Select the item you want to change with the ▲ / ▼ switch. Exit the menu with ESCAPE.

BUMP	:	Bump test setting value
CAL	:	Gas calibration set value
CYLINDER	:	Cylinder setting
DATE	:	Date and time setting
PASSWORD	:	password setting

9.2 Each setting contents

【 BUMP 】 9 types

①AIR FLUSH TIME（air time） ･･･ 15 ～ 180 seconds （Default：15seconds）

②GAS TIME(gas aspiration time) ･･･ 20 ～ 120 seconds （Default：25 seconds）

③AIR PURGE TIME (purge time) ･･･ 5 ～ 180 seconds （Default：15 seconds）

④TOLERANCE（threshold） ･･･ ±10 ～ 50% （Default:±50%）

⑤AUTO CAL（automatic gas calibration） ･･･ ON / OFF（Default：ON）

⑥FAST BUMP（fast bump） ･･･ ON / OFF（Default：ON）

⑦ALARM CHECK(alarm check) ･･･ ON / OFF（Default：ON）

⑧BUMP EXPIRED（bump expired execution） ･･･ ON / OFF（Default：OFF）

⑨AUTO EXEC（bump automatic execution） ･･･ ON / OFF（Default：OFF）

When BUMP EXPIRED is ON, the bump test starts automatically when the bump expired detector is connected.

【 CAL 】 7types

①AIR FLUSH TIME（air time） ･･･ 15 ～ 180 seconds （Default：15 seconds）

②GAS TIME(gas aspiration time) ･･･ 20 ～ 120 seconds （Default：60 seconds）

③AIR PURGE TIME (purge time) ･･･ 5 ～ 180 seconds (Default：15 seconds）

④ALARM CHECK(alarm check) ･･･ ON / OFF (Default：ON)

⑤CAL EXPIRED（gas calibration expired run） ･･･ ON / OFF（Default：OFF）

⑥AUTO EXEC（Gas calibration automatic exection）･･･ ON / OFF（Default：OFF）

⑦MANUAL CAL （manual execution） ･･･ ON / OFF（Default：ON）

When CAL EXPIRED is ON, gas calibration is automatically started when the calibration expired detector is connected.
When AUTO EXEC is ON, gas calibration starts automatically when the detector is connected.
When MANUAL CAL is OFF, gas calibration is not performed even if the CAL switch is pressed. In addition, BUMP setting
"AUTO CAL" turns off and can not be changed.

【 CYLINDER 】 Each gas

①One solenoid valve version ･･･ OFF / GAS1 / CHG1

②Solenoid valve 2-piece version ･･･ OFF / GAS1 / GAS2 / CHG2

③Solenoid valve 3-piece version ･･･ OFF / GAS1 / GAS2 / GAS3 / CHG3

【 DATE 】

①Year / month / day ･･･ ○○○○/○○/○○

②Hour / minute / second ･･･ ○○ /○○/○○

【 PASSWORD 】

1. Password when setting menu is displayed ･･･ ON / OFF （Default：OFF）

1. Password value change ･･･ 4 digits（Default：0000）

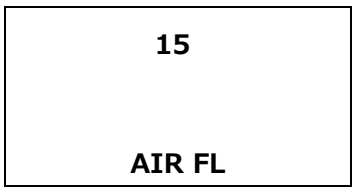
9.3 Setting method

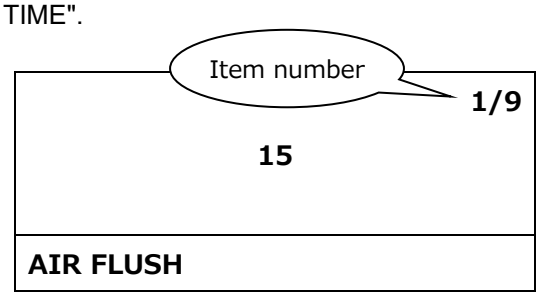
・To change the setting, press the EDIT / ENTER switch to display the setting screen.

・The operation method of each setting screen is as follows

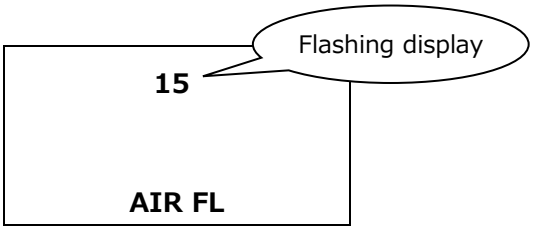
【 BUMP configuration 】

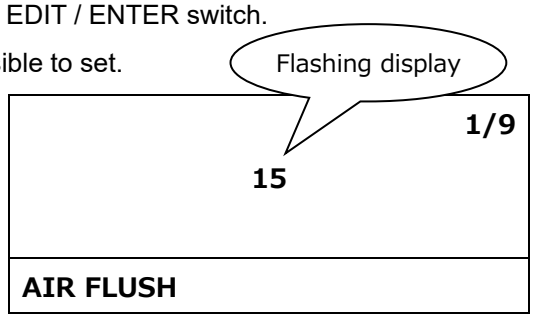
1. First, display the setting screen of "AIR FLUSH TIME".





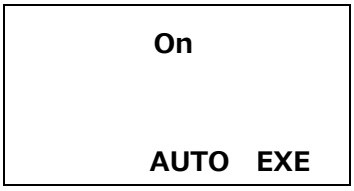
2. If you want to change the setting value, press the EDIT / ENTER switch.
   The numerical value flashes and it becomes possible to set.

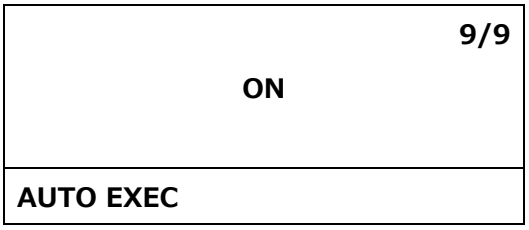




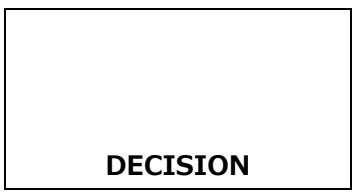
3. Change the value with the ▲ / ▼ switch.
4. Press the EDIT / ENTER switch to confirm the set value.
5. Set each item in the same way.
6. GX-3R Pro displays the current item number in the upper right.

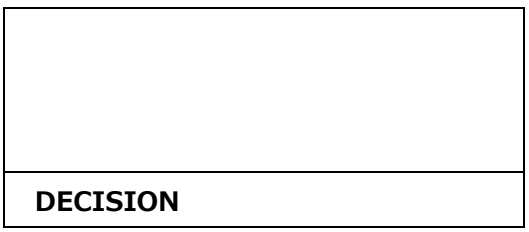
7. 9/9 When the ▼ switch is pressed on the AUTO EXEC (bump automatic execution) screen, save processing of the set value is executed.





8. During the storage procedure, display the "DECISION" screen.
9. When save processing is completed, the screen returns to the menu screen of 8.1.





【 Gas calibration setting 】

1. Setting process is the same as BUMP setting

2. There are 7 items.

3. 7/7 Press the ▼ switch on the MANUAL CAL screen to save the setting value

【Cylinder setting】

1. Set the cylinder number to be supplied to each sensor. Cylinder settings are stored for each sensor combination and for each GX-3R / GX-3R Pro (up to 10).
2. The setting value when there is one solenoid valve is 3 types of OFF / GAS1 / CHG1
3. Set value when there are 2 solenoid valves: 4 types of OFF / GAS1 / GAS2 / CHG2
4. Set value when there are 3 solenoid valves: 5 types of OFF / GAS1 / GAS2 / GAS3 / CHG3

5 By default, when the GX-3R / GX-3R Pro is set to the domestic specification, CH4 • O2 • CO is assigned to GAS1, H2S to GAS2, and others to GAS3 when the GX-3R / GX-3R Pro is a domestic specification.
For overseas specifications, CH4 · O2 · CO · H2S is assigned to GAS1, and others to GAS2 and GAS3.
If the suction port of GAS2 or GAS3 does not exist according to the number of solenoid valves, it is assigned to CHG ○.
Even after connecting the GX-3R / GX-3R Pro with different domestic and overseas specifications, use the saved settings.

6. If set to OFF, do not execute processing. In the case of H2 of CO-H2 sensor, it will be hidden on the screen other than the cylinder setting.
7. CHG ○ is used for gas exchange and processing when the number of cylinders is insufficient.

※ Basic, OFF / CHG ○ is not set.

8 In the case of GX-3R Pro, set in the order of CH4 → O2 → H2S → CO → fifth component (when set).
In the case of GX-3R, set in the order of CH4 → O2 → H2S → CO.

CH4 %LEL O2 %
G1
CO ppm H2S ppm
CYLINDER

CH4 %LEL	**CO ppm**	**H2S ppm**
GAS1		
O2 vol%	**CO2 ppm**	
CYLINDER		

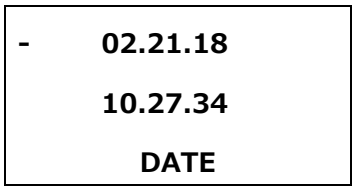
9 If there is a CO2 sensor with N2 calibration, the next to the 5th component is the setting of N2. N2 can not be set after CO2 (number greater than CO2 cylinder setting).

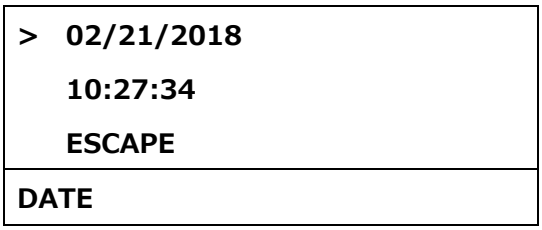
N2
GAS2
CYLINDER

10. When the ▼ switch is pressed on the last gas setting screen, save processing of the set value is executed. (Process similar to BUMP setting)

【Date and time setting】

1. Set year / month / day / hour / minute / second.
2. It is divided into items of year / month / day setting and hour / minute / second setting.
3. Set ">" or "-" to the item whose setting value you want to change, and press the EDIT / ENTER switch

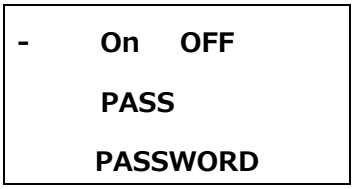


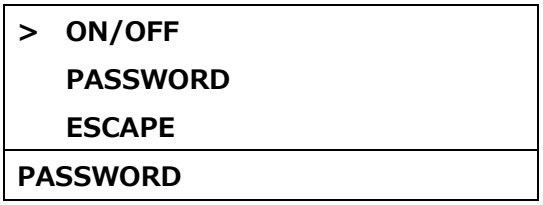


4. Set as year → month → day / hour → minute → second.
5. Select "ESCAPE" to return to the menu screen of 8.1.

【Password setting】

1. Set the presence / absence of the password when entering the setting menu and change the password value.





2. Set ">" or "-" to the item whose setting value you want to change, and press the EDIT / ENTER switch.
3. In case of ON / OFF setting, change with ▲ / ▼ switch, and press EDIT / ENTER switch to confirm.
4. Save the set value (display DECISION) and return to the menu screen above.
5. When setting password numbers, set from the 4th digit (the leftmost value). (4 → 3 → 2 → 1st digit)
6. Change using the ▲ / ▼ switch, and press the EDIT / ENTER switch to move to the next digit.
7. Press the EDIT / ENTER switch in the first digit to determine the numerical value.
8. Save the setting value (display DECISION) and return to the menu screen.
9. Select "ESCAPE" to return to the menu screen of 8.1.

10. Copy SM operation to USB memory

10.1 Contents

1 SDM-3R can copy the result of bump test / gas calibration / alarm check to USB memory.

2 The color of COPY LED will be as follows according to the amount of data stored by SDM-3R.

- No data: Off
- With data (less than 80%): Lights up green
- 80% or more and less than 100%: Orange light
- 100%: Red light

3 Insert the USB memory into the SDM-3R's USB memory socket and the COPY LED will blink.

10.2 Copy operation

1. Press the “COPY” switch to copy to the USB memory.
2. COPY LED lights in red during copying, and returns to the original LED display when copying is completed.
3. Do not execute if there is not enough free space in the USB memory to copy the saved data.

   * When the COPY switch is pressed in the following state, the SDM-3R USB device is initialized.

     During initials, the COPY LED lights in orange.

   - If you do not recognize even if you plug in the USB memory. (COPY LED does not blink)
   - If copying of data does not end. (COPY LED remains red)

   ※ HUB built-in USB memory can not be used.
4. Press and hold the CAL. + COPY switch for 3 seconds or more to erase all internal data of SDM-3R.
5. After erasing, the COPY LED turns off.
6. Clearing data and copying data can be performed only on the basic screen and result screen.
7. Record the data as a text file in the DAT folder of ROOT.

   ※ Feil name→ SDM3RTEST00000031801 11.TXT

   Unit type Serial number date
8. Because the simultaneous measurement is 5 components, the result data is up to 5 components.
9. The results are stored as one data even for sensors with numbers different in cylinder settings.

10.3 Recorded data

【 Bump test 】

Model : GX-3R
Serial No : **********
Station ID : **********
User ID : **********
SDM Model : SDM-3R
SDM Serial No: SDM-3R_20171227
Date Time : 2018/03/05 10:48:32
Item : BUMP TEST
Gas Name : CH4(%LEL) O2(%) H2S (ppm) CO (ppm)
Test Gas : 50 12.0 25.0 50
Test Result : 49 12.0 25.0 10
Pass/Fail? : PASS PASS PASS FAIL
Result Time1 : 2018/03/05 10:49:33
Result Time2 : 2018/03/05 10:49:33
Result Time3 : 2018/03/05 10:50:03
Result Time4 : 2018/03/05 10:49:33

【 Gas calibration 】

Model : GX-3R
Serial No : **********
Station ID : **********
User ID : **********
SDM Model : SDM-3R
SDM Serial No: SDM-3R_20171227
Date Time : 2018/03/06 10:48:32
Item : CALIBRATION
Gas Name : CH4(%LEL) O2(%) H2S (ppm) CO (ppm)
Full Scale : 100 40.0 200.0 2000
Cal Gas : 50 12.0 25.0 50
Before Cal : 45 11.0 30.0 55
After Cal : 50 12.0 30.0 50
Pass/Fail? : PASS PASS FAIL PASS
Result Time1 : 2018/03/06 10:49:43
Result Time2 : 2018/03/06 10:49:43
Result Time3 : 2018/03/06 10:50:13
Result Time4 : 2018/03/06 10:49:43

【 Alarm check 】

Model : GX-3R
Serial No : **********
Station ID : **********
User ID : **********
SDM Model : SDM-3R
SDM Serial No: SDM-3R_20171227
Date Time : 2018/03/06 10:15:17
Item : ALARM CHECK
Test Type : LED BUZZER
Pass/Fail? : PASS PASS

11. Download data logger of SM operation

1. When connected to the GX-3R / GX-3R Pro and the USB memory is connected, press the COPY switch and the COPY LED turns red. In this state, long press the COPY switch to download the data logger.
2. While downloading the data logger, "DOWNLOAD" is displayed on the GX-3R / GX-3R Pro LCD and the COPY LED blinks in orange. When downloading is completed, the original LCD display / LED display is restored.
3. Press and hold the COPY switch during data logger download to cancel the download.
4. Data logger download operation can be performed only on the basic screen and the result screen.
5. Save the data logger as a binary file in the DAT folder of ROOT.

※ Fail name→ GX-3RPro860010016RK.DAT
Detector type Detector serial number

12. DM operation procedure

1 Launch the docking station software.

2 When the SDM-3R is turned on, the SDM-3R icon is added on the PC screen.

3 SDM numbers are assigned in the order in which the power of SDM-3R is turned on.

4 Load the GX-3R / GX-3R Pro and turn on the power of the GX-3R / GX-3R Pro to start communication with the SDM-3R.

5 Display “TRANSMIT” on the LCD of the GX-3R / GX-3R Pro.

CH4	%LEL	O2	%
	50		12.0
CO	ppm	H2S	ppm
	50		25.0
	TRANSMIT		

CH4	%LEL	CO	ppm	H2S	ppm
	50		50		25.0
O2	vol%		CO2		ppm
	12.0				0
TRANSMIT					

6. "CHARGE" LED blinks green when communication starts.

7. Download of device information from GX-3R / GX-3R Pro to SDM-3R starts.

8. During downloading, the "BUMP" and "CAL" LEDs of SDM-3R blink in orange.

9. When downloading is complete, the "BUMP" and "CAL" LEDs on the SDM-3R light up in orange.

10. “Downloading” icon on the screen disappears when downloading is completed.

11. The GX-3R / GX-3R Pro icon is added on the SDM-3R icon.

12. Bump test / gas calibration / alarm check, data logger download is operated on docking station software.

13. LED display list

BUMP LED ／ CAL LED ／ ALARM LED

State		LED		
		BUMP	CAL	ALARM
Power ON（1 second）		orange	orange	Orange
SM operation	Last result display	（Previous result）		
	Basic screen	OFF	OFF	OFF
	Setting screen	OFF	OFF	OFF
DM operation	Downloading	orange B	orange B	OFF
	Download complete	orange	Orange	OFF
BUMP･CAL In action	During BUMP	orange B	OFF	OFF
	During CAL	OFF	orange B	OFF
	In CAL after BUMP failure	orange B	orange B	OFF
BUMP･CAL result （normal system）	BUMP all success (CAL = OFF after failure)	green	OFF	(Alarm check result)
	BUMP fail	red	OFF	
	CAL all pass	OFF	green	
	CAL fail	OFF	red	
	BUMP all pass（CAL=ON after failure）	green	OFF	
	BUMP fail CAL all pass	red	green	
	BUMP fail CAL failure	red	red	

BUMP･CAL result（abnormal system）	Zero calibration failure (CAL = OFF after failure)	red B	OFF	(Alarm check result)
	Communication error (CAL = OFF after failure)	red	OFF	
	Flow rate decrease (CAL = OFF after failure)	Green B	OFF	
	Zero calibration failure (CAL)	OFF	red B	
	Communication error (CAL)	OFF	red	
	Flow reduction (CAL)	OFF	green B	
	Zero calibration failure (CAL = ON after failure)	red B	OFF	
	Communication error (CAL = ON after failure, in BUMP)	red	red	
	Low flow rate (CAL = ON after failure, during BUMP)	green B	green B	
	Communication error (CAL = ON after failure, in CAL)	red	red	
	Low flow rate (after failure: CAL = ON, during CAL)	green B	green B	
Alarm check In action	During alarm check	OFF	OFF	orange B
	Alarm check in progress (after BUMP)	orange B	OFF	orange B
	Alarm check in progress (after BUMP)	orange B	orange B	orange B
	Alarm check in progress (after CAL)	OFF	orange B	orange B
Alarm check result	Alarm check pass	（BUMP･CAL result）		green
	Alarm check failure	（BUMP･CAL result）		red

※Bumping of BUMP LED · CAL LED becomes faster at the time of fast bump

COPY LED

状態		LED
Power ON（1 second）		orange
No USB memory	No data	OFF
	Little data (less than 80%: 1 to 159) Many	green
	Many data (more than 80%: 160 to 199)	orange
	Data Max (100%: 200)	red
With USB memory	No data	OFF
	Little data (less than 80%: 1 to 159)	green B
	Many data (more than 80%: 160 to 199)	orange B
	Data Max (100%: 200)	red B
	During data copy	red
	Downloading data logger	orange B

POWER LED

状態	LED
Power ON（1 second）	orange
Self-diagnosis error	red
Normal	green B
Charging	orange B
Charge complete	green
Charging error	red

B…Blink

14. Trouble shooting

This troubleshooting does not describe the cause of every failure. The following is a brief list of things that help identify the causes of commonly occurring problems. Please check the instruction manual of the detector (GX-3R or GX-3R Pro).
If you do not recover from the symptoms or measures not described here, please contact your dealer or our nearest sales office.

14.1 Equipment error

Symptoms <Display>	Cause	Action
The power cannot be turned on.	AC power is not connected properly or AC power has not reached the specified voltage	Check the AC power outlet connection. Check that the AC adapter is properly connected to the unit. If there are no problems, please contact your dealer or our nearest sales office.
	Inappropriate time to press the power button	Press the power button to turn on the power, and then release the finger when you hear a beep.
	The lid of the battery box is not completely closed.	Close the battery box lid completely.
Abnormal operation	Impact of sudden electrostatic noise etc	Please turn off the power and then turn it on again.
Air calibration is not possible.	No fresh air is supplied around the unit	Please supply fresh air.
	Deterioration of sensor sensitivity	Please request sensor replacement from your dealer or our nearest sales office.
Low flow warning is displayed	Absorbing water, oil etc	Check the gas collection tube for damage or any signs of water, oil, etc. uptake.
	Filter is clogged	Please check the installation condition of the filter and any clogging or twist.
	The pump is deteriorating	Ask your dealer or our nearest sales office for pump replacement.
	Long storage without leaving for a long time (more than six months)	If a low flow alarm is displayed, turn off the power and then turn it on again (restart). If you do not do this several times, please contact your dealer or our nearest sales office for pump replacement.

Symptoms <Display>	Cause	Action
I can not do gas calibration Calibration error	The calibration gas is not properly connected to the gas IN side.	Please check the installation condition of the filter.
	Gas OUT (exhaust side) is clogged.	Check if the gas OUT piping is clogged. If there are no problems, please contact your dealer or our nearest sales office.
Alarm check fails	There is an error in the alarm display on the detector body	Remove the detector from the unit and check the alarm operation with the detector alone. If there are no problems, please contact your dealer or our nearest sales office.
It becomes charging abnormality	It is out of the chargeable temperature range.	Allow the temperature to fall within the operating temperature range of the unit before charging again.

Revision or Abolition History

Edition	Revision	Issue date
0	First issue	2019/3/15
1	Correct 7.8 and 9.2, Declaration of Conformity added	2019/7/29
2	Declaration of Conformity	2020/4/1

320CE20076

Declaration of Conformity

We, RIKEN KEIKI Co., Ltd.

2-7-6, Azusawa, Itabashi-ku,
Tokyo, 174-8744, Japan

declare in our sole responsibility that the following product conforms to all the relevant provisions.

Product Name	:	Docking Station		
Model Name	:	SDM-3R		
Council Directives	:	EMC	:	2014/30/EU
		RoHS	:	2011/65/EU
Applicable Standards	:	EMC	:	EN61000-6-4:2007+A1:2011 EN61000-6-2:2005
		RoHS	:	EN50581(2012)

Year to begin affixing CE Marking : 2018

Place: TOKYO, Japan

Signature: F. Takakura
Full name: Toshiyuki Takakura

Date: Apr. 1, 2020

Title: Director,Quality control center