Headquarters / Engineering research laboratory :
23 Gunpo Advance d Industry 1-ro(Bugok-dong), Gunpo-si, Gyeonggi-do
Tel +82-31-490-0800 Fax +82-31-490-0801

Yeongnam business office / Plant :
55 Gonghangap-gil 85beon-gil, Gangseogu, Busan Metropolitan City
Tel +51-973-8518 Fax +51-973-8519

E-mail : info@gastron.com

www.gastron.com

GPD-100

Instruction Manual

Read in detail for correct use.

Gas & Flame Detection System

GASTRON

When abnormalities occur after purchasing the product, please contact the following address.

· Address : 23 Gunpo Advanced Industry 1-ro, Gunpo-si, Gyeonggi-do
· Tel : 031-490-0800
· Fax : 031-490-0801
· URL : www.gastron.com
· e-mail : info@gastron.com

We sincerely thank you for purchasing the product of Gastron Co. Ltd.

Our Gastron Co.Ltd. is a company specialized in Gas detector and Gas Monitoring System, being recognized by many consumers due to the best quality and use convenience. We always enable you consumers to find desired products nearby and are ceaselessly studying and striving for development of Gas detectors satisfying customers. From now on, solve all anguishes concerning Gas detector with the products of Gastron Co. Ltd, We Gastron Co. will take a responsibility and give you satisfaction.

In the present instruction manual, operation method for Gas detector as well as simple methods for maintenance and repair, etc. are recorded If you read it in detail and keep it well, for reference when you have questions, then it will give you much help.

- For accurate operation of Gas detector, check up and calibrate for more than once in every 6 months. (* See No. 13 of KOSHA GUIDE : P-135-2013 / 8.3 paragraph on qualification and calibration)
- For accurate operation of Gas detector, checkup and calibration with calibration gas before measurement is recommended.
- When not calibrated, it may cause malfunction of the equipment due to problems resulting from Sensor aging.
- When the present instrument should be dismantled, those with professional skills for Gas detector should conduct the operation.
- For power supply cable, wire specifications should be determined by referring to the item of "Length of installed cable".
- For the contents on checkup and calibration of Gas detector, please use our company's engineering department , e-mail, or web site.

The present product and the product manual can be changed without advance notice for performance improvement and use convenience of the product.

* KOSHA GUIDE : P-135-2013
Calibration should be executed at periods required by the manufacturer, and should be executed in every quarter unless there are separate calibration periods.

Contents

Contents

1. Overview

GPD-100 portable gas detector has been developed to prevent accidents beforehand by detecting various leaked gases occurring in industry fields such as plant, gas storage place, manufacturing process, etc. that produce or use flammable gas, toxic gas.
GPD-100 portable gas detector displays measured values by detecting gas leakage in areas with risk of gas leakage, and inform the user of alarm signals using visual and audio signals.

2. Structure

Body of GPD-100 has enclosure made of plastic (Polycarbonate) material.
GPD-100 has Sample pump embedded according to the method where leaked gas is inhaled by using a Pump. The front face is composed of display unit displaying gas concentration value and alarm situation, port unit inhaling and exhausting gas, terminal unit connecting USB, has Micro SD Card, and DC Jack. Also, the sensor has a structure of cartridge form, facilitating easy exchange by the user.

[Figure 1. GPD-100 Overview]

3. Specifications

3.1. Basic Specifications

ITEMS	SPECIFICATION	
Measuring Type	Auto Sampling type	
Display Type	LED segment Type	
Measuring Method	Electrochemical / Cartridge Catalytic / Cartridge semiconductor type (semiconductor) / Cartridge Photo ionization detector(PID) / Cartridge	
Detectible Gas	Flammable gas, Toxic gas, Oxygen possible (Note1)	
	000.0 ~ 9999 display possible (Note1)	
	≤ ±3% / Full Range	
Zero Drift	≤ 2% / Full Range	
Response Time	Vary with sensor model, Refer to sensor specification or inquire our company in the case of special gas.	
Pump Type	Diaphragm Pump	
Flow Rate	100 ~ 1,000 ml (Normal 300~500ml / min)	
Gas Sample Line	Less than 5m (1/4" Tube)	
Approvals Classification	CE (No. K5004/E12)	
Storage	SD Card	
Warranty	Body (Transmitter)	2Year
	Sensor	1Year

※ Note1. Please see the document of detectible gas list in the case of detectible gas and range, Inquire of our company in the case of special ga

3.2. Mechanical Specifications

ITEMS	SPECIFICATION
Dimension / mm	218(W) × 95(H) × 100(D) mm
Weight including Sensor	App. 1.2kg
Sample gas vent / inlet	1/4" Teflon Tube
Body material	PC-ABS(polycarbonate-ABS)

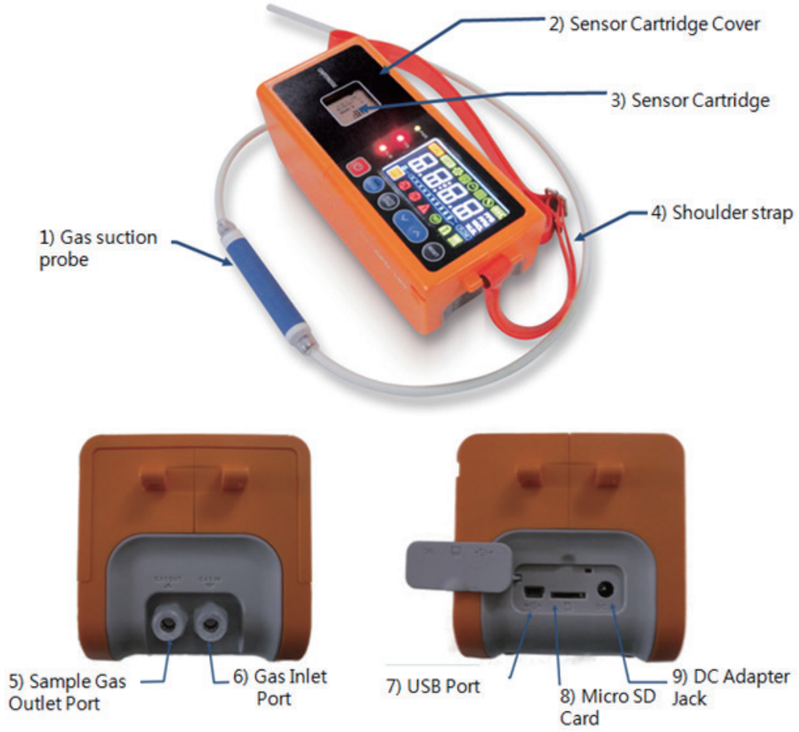
3.3. Electrical Specifications (Standard Type)

ITEMS	SPECIFICATION	
Battery Specifications(Battery Type)	Lithium-Ion DC 7.4 V / 4.3A	
Charge Time	4 hours	
Service time	Normal Sensor Type	10 hours
	CEC(thermal decomposition device) Sensor Type	5 hours
Charge Voltage	DC 12V /2A	
AC Adapter Input Voltage	AC100~230V 50/60Hz	

3.4. Environmental Specifications

ITEMS	SPECIFICATION	
Operation Temperature	Transmitter	-20 to 50 ℃
	Sensor	See sensor specifications
Storage Temperature	Transmitter	-20 to 50 ℃
	Sensor	See sensor specifications
Operation Humidity	Transmitter	5 to 99% RH (Non-condensing)
	Sensor	See sensor specifications
Pressure Range	90 to 110KPa	
Max. air velocity	6m/s	

4.1. Components of transmitter



[Figure 2. Components of GPD-100]

4. Name and description of each part

4.2. Configuration of front face unit Display

[Figure 3. Configuration of front face Display]

No	NAME	DESCRIPTIONS
1	Calibration Icon	Display upon performing calibration function
2	Setting Icon	Display upon performing saving function for state value of particular operation
3	Pump Icon	Display driving state of inside pump
4	Test Icon	Display driving state of test mode
5	Time setting Icon	Display time setting mode
6	State viewing Icon	Display inside configuration mode
7	AC Adaptor Icon	Display charging state
8	Battery Icon	Display battery charging state
9	Measuring Unit	Display displayed measuring unit (PPM, PPM, %VOL, %LEL, mA)
10	Flow Rate	Display measured Flow value by division into 10 stages
11	Communication Icon	Display USB communication state
12	Locking Icon	Display upon prohibition of Gas detector setting
13	Pyrolyzer Icon	Display operation state of Pyrolyzer
14	Breakdown icon	Display when Fault is detected upon self diagnosis of Gas detector
15	Alarm2 icon	Display when 2nd Alarm is set or detected
16	Alarm1 icon	Display when 1st Alarm is set or detected
17	Zero, Span icon	Display Zero, Span Mode state upon calibration
18	Display of gas concentration and sensor state	Display gas measurement value or state message
19	Power LED	Display input state of power supply
20	Trouble LED	Display breakdown state
21	Alarm LED	Display alarm state
22	Power Key	Power supply switch
23	RUN / MODE Key	Entry control key for measuring mode or setting mode
24	AUTO ZERO Key	Zero calibration key
25	Down Key	Key for reducing setting value in function setting mode
26	Up Key	Key for increasing setting value in function setting mode
27	RESET key	Key used for clearing entered mode or measuring mode

[Table 1. Description on components for front face Display]

5. Operation

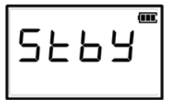
5.1. Connection of Sampling Probe

- Connect the sampling probe (1/4 "Teflon tube) to the Gas Inlet port.

[Figure 3. Slotted set screw]

5.2. Power On

- Operate by pushing power supply switch(Power) for more than 2sec.
- Check that Power LED is lighted, 'LOAd'(about 15sec) for loading of sensor data is displayed, and Walt is displayed after which 'Stby' (Stand by) is displayed blinking.



– When the power switch is turned ON, "L0Ad" (Load) display blinks for about 15 sec after display of "U–XX" Version information in LCD. When Warming–Up is finished, "Stby" (Stand by) is displayed in LCD , immediately becoming measurable state. If abnormality of equipment or of sensor cartridge occurs at this time, then breakdown alarm occurs. s

5.3. Gas measuring mode

– When "RUN/MODE" switch is pushed for a short time, time required for stabilization off the sensor is counted down as 20→ 19→18→ … 1, and measured gas concentration is outputted in LCD when 0 is obtained.

※ Note1) When abnormality occurs in sensor cartridge, characters such as "E–33", etc. are displayed blinking in "E–10" and Trouble LED is lighted.

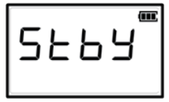
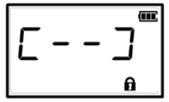
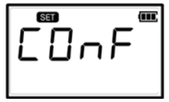
※ (See error and warning messages)

※ Note2) When gas concentration value is larger than the set High Scale value by more than 10%, the character of "OuEr" is displayed blinking at an interval of 0.5sec.

※ Note3) Stabilization time for sensor varies with the sensor type

- In the case of flammable sensor : 10sec
- In the case of toxicity/O2 sensor: 20sec

5.4. Setting of inside mode(Mode Configuration)

	– When "RUN/MODE" Key is pushed for more than 2sec in the state of displaying "Stby" (Stand by). menu selection mode is entered into.
	– There is a part for inputting password. "When the password is inputted by using "UP" key or "DOWN" key and "RUN/MODE" Key is pushed, it is shifted to "ConF" (Configuration) menu. (Initial password: [––]).
	– Select "COnF"(Configuration) by using "UP" key or "DOWN" key, and "RUN/MODE" Key is pushed, setting mode is entered into. – When Reset key is pushed in the designated setting state. St and by display state is entered into.

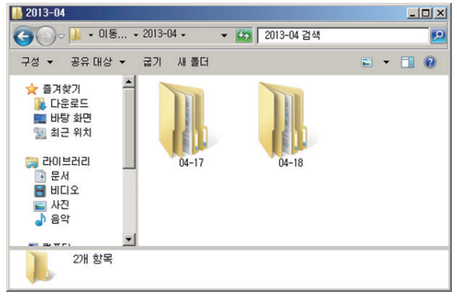
5.5. Power supply state

CLASSIFICATION	DISPLAY OF BATTERY ICON STATE	DESCRIPTION
Full charging state		Battery in 100% charging state. Outskirt of battery image blinks by the unit of 1sec.
80% charging		Available range of more than 80% of battery displayed
60% charging		Available range of more than 60% of battery displayed
40% charging		Available range of more than 40% of battery displayed
20% charging		Available range of more than 20% of battery displayed
Charging state of less than 5%		Less than 5% of battery displayed, Outskirt of battery image blinks by the unit of 1 sec. In the case of battery state of less than 3%, power supply is automatically turned OFF
Charging state		When AC adaptor is connected, AC adapter icon is activated, and battery icon blinks.

[Table 2. Power Status]

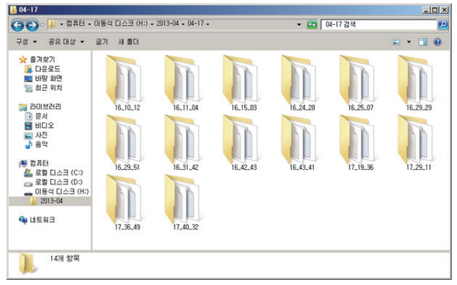
5.6. How to use log mode

- Connect SD memory to PC to read data saved in SD card after use of log mode
- Memory saved in SD card has folder generated according to the measured date and time, and file in text form is generated according to Run stat within the generated folder.
- When SD card is read, each record is saved per date of saving the record in SD card. For the date, the record is saved per date set in "tImE".(04-17 in the figure below shows April 17th)



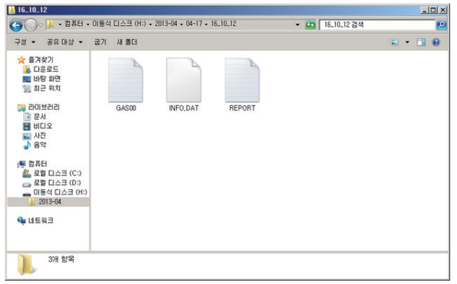
[Figure 5. Generation of folder per date within SD card]

- In the folder per each date, folders with folder name set for hour, minute, second are generated, and measurement records as well as records on the equipment remain as log in the folder.(16_10_12 in the figure below shows 16 hour 10 minute 12 second)



[Figure 6. Generation of time folder within date folder]

- FILES in 3 forms remain as log in the folder generated by the unit of hour-minute-second.



[Figure 7.Log file within time folder]

CLASSIFICATION	FILE NAME	DESCRIPTION
Gas measurement log file	GAS00.TXT	Gas measurement value saved by the unit of second
Report log file	REPORT.TXT	System state and measurement state saved
System log file	INFO.DAT	System file

[Table 3. Description on Log File]

5.6.1. Gas measurement log file

- Measurement files are saved under the name of GAS00.txt, and opened by using Notepad or Text editor.
- In GAS00.txt file, gas values measured by the unit of second are saved.
- By using Notepad, saved values can be viewed as shown in the figure below.

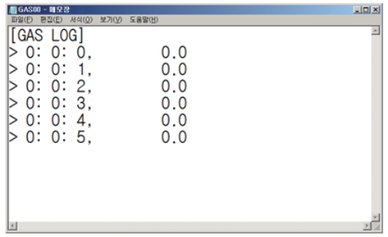


Figure 8. Gas measurement log file

- Text file contents have the following meanings.

CLASSIFICATION	SAVED VALUE	
Log form	0:0:0	0.0
Description	Measuring time (saved by the unit of second)	Measured value

Table 4. Description on gas measurement log

- Report files are saved under the name of REPORT.TXT, and opened by using Notepad or Text editor.
- In report file, information related to state of measuring equipment, setting values, and log is saved.
- By using Notepad, saved values can be viewed as shown in the figure below.

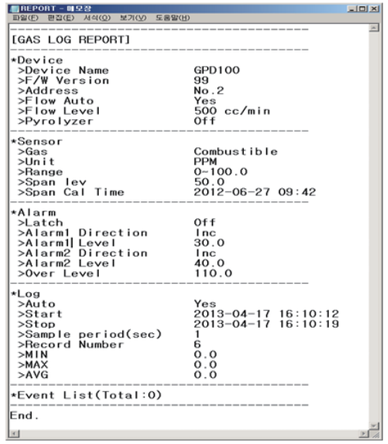


Figure 9. Measurement state log file

CATEGORY	SUBDIVISION	DESCRIPTION	REMARKS
Device	Device Name	Product model name	
	F/W Version	Firmware version	
	Address	Equipment address	
	Flow Auto	Operation status of flow automatic function	
	Flow Level	Flow level reference	
	Pyrolyzer	Operation status of Pyrolyzer function	
Sensor	Gas	Gas type	
	Unit	Measuring unit	
	Range	Measuring range	
	Span Lev	Sensitivity level	
	Span Cal time	Sensitivity adjustment date	
Alarm	Latch	Operation status of alarm latch mode	
	Alarm1 direction	Output polarity of Alarm1	
	Alarm1 Level	Reference level for Alarm 1	
	Alarm2 direction	Output polarity of Alarm 2	
	Alarm2 Level	Reference level for Alarm 2	
	Over Level	Exceeded measurement level	
Log	Auto	Operation status of automatic saving function	
	Start	Logging start time	
	Stop	Logging stop time	
	Sample period(sec)	Logging sampling period	
	Record Number	No. of measurement records	
	MIN	Minimum value	
	MAX	Maximum value	
	AVG	Average value	
Event List		Occurrence frequency and state of Alarm Evens	

[Table 5. Description on measurement state log]

6. System Mode

6.1. Mode configuration

■ The relevant equipment is comprised of the menu in the following form.

CLASSIFICATION	MENU DISPLAY	DESCRIPTION	REMARKS
CONFIGURATION MODE	CONF	Setting configuration for inside functions	
PROGRAM MODE	PRGM	Setting related to gas measurement	
CALIBRATION MODE	CALB	Gas calibration	
ALARM MODE	ALAM	Alarm setting	
TIME MODE	TIME	Time change	Factory Mode
SENSOR DATA MODE	S-DT	Sensor data output	Factory Mode
TEST	TEST MODE	Test mode	Factory Mode
FLOW MODE	FLOW	Setting mode for Flo w operation	Factory Mode
Log Mode	Log	Log-related setting	
MAINTENANCE MODE	M-T	Configuration setting for inside functions	Factory Mode

[Table 6. Mode Configuration]

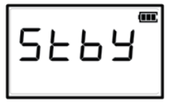
6.2. Detailed configuration of menu

■ Entire menu configuration for equipment is as follows.

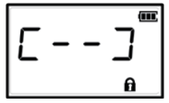
CLASSIFICATION	MENU DISPLAY			DESCRIPTION	REMARKS
COnF	Body setting	Add	Sensor No. designation	Set for [01] 01~64	
		PSWd	Password designation	Set for [00] 00~99	
		SUPr	Setting for suppression ratio of concentration display	Set for OFF 1~50%	
		PyrO	Use setting for Pyrolyzer	ON / OFF	
		Py-U	Display of used voltage for Pyrolyzer	1.50U	
		U-00	Display of program version		
Prgm	Measuring data	Unit	Setting for measuring unit	%LEL, %VOL, PPM, PPB	
		dP-S	Position setting for decimal point	Set for 0000, 0.000, 00.00, 000.0	
		H-SL	Setting for Full Scale	Arbitrarily set for 0~9999	
CALb	Calibration mode	ZERO	ZERO calibration mode	YES/no	Execution setting for ZERO calibration
				0.0	Display mode for measured values
				WAit	Display during ZERO calibration
				0.0	Display measured values after completion of calibration
CALb	Calibration mode	SPAN	Span calibration mode	YES/no	Execution setting for span calibration
				50.0	Setting for span calibration value
				50.3	Display of standard gas measured values
				WAit	Display during span calibration
				50.0	Display of measured values after completion of calibration
ALAm	Set Alarm	LACH	Setting for maintenance of Alarm occurrence state	on/OFF	
		AL-1	Setting for Alarm1 value	Set for 90% of 0~Full Scale	
		1H/1L	Setting for operation direction of Alarm1	H: Ascent Alarm/L: Descent Alarm	
		AL-2	Setting for Alarm2 value	Set for 90% of 0~Full Scale	
		2H/2L	Setting for operation direction of Alarm2	H: Ascent Alarm/L: Descent Alarm	
LOg	Save log	CtrL	Log saving mode	On/OFF	
		AUto	Setting for automatic log saving mode	On/OFF	
		mSdC	Setting for external memory type		

[Table 7. Menu Table]

6.3. Setting for body environment (Configuration Mode)



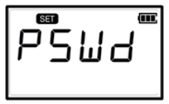
- When "RUN/MODE" Key is pushed for more than 2sec in the state of displaying "Stby" (Stand by). menu selection mode is entered into



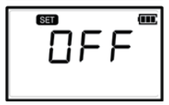
- There is a part for inputting password. When the password is inputted by using "UP" key or "DOWN" key and "RUN/MODE" Key is pushed, it is shifted to "ConF" (Configuration) menu. (Initial password: [--]).

- Select "COnF"(Configuration) by using "UP" key or "DOWN" key, and "RUN/MODE" Key is pushed, setting mode is entered into.
- When Reset key is pushed in the designated setting state. St and by display state is entered into

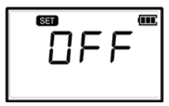
- Address setting function message "Add" is displayed to set the recognition number in data communication.
- Press the "RUN / MODE" key to enter the address setting function.
- Address is the mode to input address address so that the operation status of each detector can be checked on PC. "UP key" Each time the "DOWN" key is pressed, the address number ([01]) is incremented or decremented.
- When the desired address is displayed, press the "RUN / MODE" Key to set the address and enter the next item.



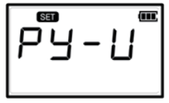
- It is a password mode for granting authority capable of changing program of the sensor, and the password figure is changed whenever "UP" key or "DOWN" key is pushed.
- If "RUN/MODE" Key is pushed when the desired Password is displayed, Password is set and the next item is entered into.



- "SUPr"(suppression) is a mode for setting suppression point to be displayed as '0' when gas concentration is displayed, and the percentage figure is increased or decreased whenever "UP" key or "DOWN" key is pushed.(OFF, can be set from 1 to 50)
- If "RUN/MODE" Key is pushed when the desired percentage is displayed, the suppression percentage figure is set and the next item is entered into.



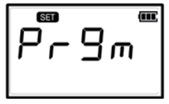
- It is a mode for setting use status of Pyrolyzer , and ON/OFF is changed whenever "UP" key or "DOWN" key is pushed.
- If "RUN/MODE" Key is pushed when the desired mode is displayed, Pyrolyzer mode is set and the next item is entered into.



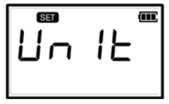
- It is a setting function mode for voltage used by Pyrolyzer , and is displayed as "Py-V".
- When "RUN/MODE" Key is pushed, setting function for voltage used by Pyrolyzer is entered into.
- Pyrolyzer Voltage is mode for inputting voltage values to allow setting of the voltage used by Pyrolyzer of the sensor, and the voltage setting figure (1.50V) is increased or decreased whenever "UP" key or "DOWN" key is pushed.
- Used voltage can be set as 0.5V~2.3V. If "RUN/MODE" Key is pushed when the desired voltage is displayed, the voltage is set and the next item is entered into.

- It is a mode for displaying program Version.
- If "RUN/MODE" Key is pushed, menu mode is entered into.

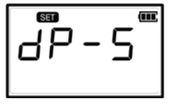
6.4. Program setting



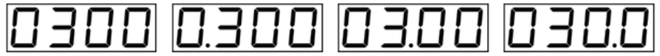
- If "RUN/MODE" Key is pushed for more than 2sec in the display state of "Stby", the mode for menu selection is entered into.
- There is a part for selecting a password. The password is inputted by using. "UP" key or "DOWN" key By pushing "RUN/MODE" Key, it is shifted to "ConF"(Configuration) menu.
- When "Prgm" (programmable) is selected by using "UP" key or "DOWN" key, and "RUN/MODE" Key is pushed, the program setting mode is entered into.



- It is a mode for setting the measuring unit for gas concentration, and the unit icon on the right side is changed whenever "UP" key or "DOWN" key is pushed. (%LEL, %VOL, PPB, PPM)
- If "RUN/MODE" Key is pushed when the desired unit icon is displayed, measuring unit is set and the next item is entered into.



- Position setting message for decimal point in gas concentration figure is displayed as "dP-S"(decimal point).
- If "RUN/MODE" Key is pushed, the setting for decimal point is entered into.
- Decimal point is used when there is a need for change according to the measuring range, and the position of decimal point is changed to 4 types as shown on the left when "UP" key or "DOWN" key is pushed for setting of the position for decimal point.
- If "RUN/MODE" Key is pushed when the desired position of decimal point is displayed, the position of decimal point is set and the next item is entered into.

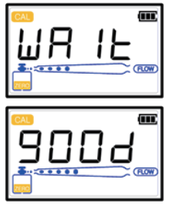


- Setting function message for High scale as the function for setting the maximum value for gas concentration display is displayed as "H-SL".
- When "RUN/MODE" Key is pushed, setting function for High scale is entered into.
- High scale value is set in the range set by domestic regulations upon product shipment.
- High scale value can have the setting value changed according to measuring range, and Scale value is increased or decreased whenever "UP" key or "DOWN" key is pushed.
- If "RUN/MODE" Key is pushed when the desired High scale value is displayed, High scale value is set.

6.5. Zero Calibration

6.5.1. Auto Zero Calibration

- Another method for Zero Calibration can be executed in measuring state.
- By using calibration apparatus, clean air or 100% nitrogen injected in the Gas In Port. If "ATUO ZERO"
- Key is pushed for a long time in the measuring mode, AUTO ZERO is executed.

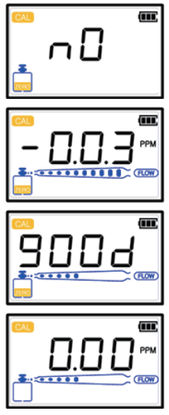


- If successful after Zero calibration is automatically performed, and "WAIt" is displayed in LDC Display, "gOOd" (Good) is displayed in LCD Display .
- If Zero Calibration is not successful, " FAIL" is displayed for 2 sec and it is converted to calibration mode.

6.5.2. Zero calibration within calibration mode

- When "RUN/MODE" Key is pushed for more than 2 sec in the state of "Stby" display, manual selection mode is entered into.
- There is a part for selecting a password. The password is inputted by using. "UP" key or "DOWN" key By pushing "RUN/MODE" Key, it is shifted to "ConF"(Configuration) menu.
- When "CALb"(Calibration) is selected by using and "RUN/MODE" Key is pushed, calibration mode is entered into.

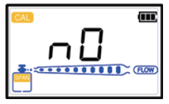
- If "RUN/MODE" Key is pushed when "ZERO" icon on the bottom left side blinks, Zero Calibration mode is entered into.



- By using "UP" key or "DOWN" key, No / YES can be selected.
- By selecting YES, Zero calibration mode is entered into.
- By using calibration apparatus, clean air or 100% nitrogen is injected in Gas In Port.
- If "RUN/MODE" Key is pushed when the measured value is stabilized, Zero calibration is automatically performed, and WAIt"(wait) is displayed in LCD Display, and "g00d" (Good) is displayed in LCD Display if successful.
- If Zero Calibration is not successful, "FAIL" is displayed for 2sec, and t is converted to calibration mode.

6.6. Span Calibration

– Push "RUN/MODE" Key in "CALb" mode to enter into calibration mode.
– When "ZERO" icon on the bottom left side blinks, use "UP" key or "DOWN" key to change "SPAN" icon so that it is made to blink, and then push RUN/MODE" Key and select to enter into Span Calibration mode.



– Span calibration status can be selected by selection of NO/YES through the use of "UP" key or "DOWN" key.

– When YES is selected, the figure blinks. At this time set the standard gas value by using, "UP" key or "DOWN" key. Inject the standard gas in Gas In Port by using the calibration apparatus.
– When the measured value is stabilized after gas injection, Span calibration is automatically performed by pushing "RUN/ MODE" Key. If successful, "good"(Good) is displayed in LCD Display and it is converted to Calibration mode.
– If Span Calibration is not successful, "FAIL" is displayed, and it is converted to the display mode for calibrated concentration.

6.7. Setting for Alarm data (Alarm mode)

– When "RUN/MODE" Key is pushed for more than 2sec in the state of "Stby" display,menu selection mode is entered into.
– There is a part for setting password. Input the password by using "UP" key or "DOWN" key. When "RUN/MODE" Key is pushed, it is shifted to "ConF".
– When "ALAm"(alarm) is selected by using "UP" key or "DOWN" key and "RUN/MODE" Key is pushed, it proceeds to alarm setting mode.

– It is a mode for setting Alarm latch type. When "RUN/MODE" Key is pushed, the setting mode for Alarm latch type is entered into.

– Alarm latch type has 2 modes of "on" and "0FF", with " on" and "0FF" being changed whenever "UP" key or "DOWN" key is pushed.
– In OFF mode, Alarm is automatically Reset, while the Alarm is Reset in on mode only when the user must push Reset Key for clearing.

– It is a mode for setting Alarm1 value, with the message being displayed as "AL–1".
– It is a function for changing Alarm1 setting value, where the maximum value is possible up to 90% value of High scale, at which time, Alarm 1 value is increased or decreased whenever "UP" key or "DOWN" key is pushed.
– If "RUN/MODE" Key is pushed when the desired Alarm 1 value is displayed,Alarm1 value is set and the next item is entered into.
– Alarm level is set for the concentration specified by domestic regulations upon product shipment.

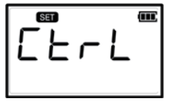
– It is a mode where the direction for operation of Alarm1 is set, and "1H " or "1L"0|is displayed whenever "UP" key or "DOWN" key is pushed at this time. "1H " mode is the mode operating – when larger than or the same as Alarm1setting value, while "1L" mode is the mode operating when smaller than or the same as Alarm1 setting value.
– If "RUN/MODE" Key is pushed when the desired mode is displayed, it is set and the next item is entered into.

– It is a mode for setting Alarm2 value, with the message being displayed as "AL–2".
– It is a function for changing Alarm1 setting value, where the maximum value is possible up to 90% value of High scale, at this time, Alarm 2 value is increased or decreased whenever "UP" key or "DOWN" key is pushed.
– If "RUN/MODE" Key is pushed when the desired Alarm 2 value is displayed,Alarm1 value is set and the next item is entered into.
– Alarm level is set for the concentration specified by domestic regulations upon product shipment.

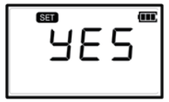
- It is a mode where the direction for operation of Alarm1 is set, and "2H" or "2L" is displayed whenever "UP" key or "DOWN" key is pushed at this time.
- "2H" mode is the mode operating when larger than or the same as Alarm1setting value, while "2L" mode is the mode operating when smaller than or the same as Alarm1 setting value.
- If "RUN/MODE" Key is pushed when the desired mode is displayed, it is set and the next item is entered into.

6.8. Record saving mode (Log Save Mode)

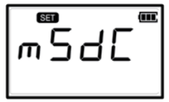
- When "RUN/MODE" Key is pushed for more than 2sec in the state of "Stby" display, menu selection mode is entered into.
- There is a part for setting password. Input the password by using "UP" key or "DOWN" key. When "RUN/MODE" Key is pushed, it is shifted to "ConF".
- When "LOg(LOG)" is selected by using "UP" key or "DOWN" key and "RUN/MODE" Key is pushed, it proceeds to alarm setting mode.



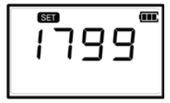
- After "RUN/MODE" Key is pushed in "CtrL" mode, On/ OFF can be set at this time by using "UP" key or "DOWN" key.
- If "RUN/MODE" Key is pushed after selection of On, log saving mode operates.
  Note 1) Log starts saving from the time where Wait time is completed after "RUN/MODE" Key is pushed in the state of "Stby" display.



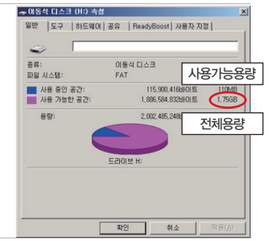
- "AUtO"(Auto) mode is a mode for automatic recording/saving of log, and YES /no can be selected if "RUN/MODE" Key is pushed. When YES is selected, it operates in Auto mode, measured values and equipment information are left in the external memory. When No is selected, flow rate is saved by using "UP" key or "DOWN" key at this time.

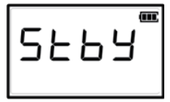


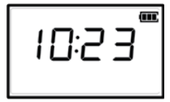
- It shows a type of external memory. If "RUN/MODE" Key, it is shifted to the next mode.



- It shows currently available capacity of the external memory. If "RUN/MODE" Key is pushed, the whole memory capacity is displayed.







- When the record saving mode is set as On, "Stby" (Stand by) and the set time is alternatingly displayed in the state of Stand by . The set time is the same as the time set in "tImE".

- Note1) When the record saving mode is turned On, log is saved when there is SD card.
- Note2) When a SD card insert with more than 2GB, W-04 Error message is DISPLAYED, with recognition being not possible.

7.1. Fault List

FAULT	DESCRIPTION & CONDITION	발생원인
E-10	When Sensor Cartridge was not mounted to the body or is defective	1)Sensor Cartridge connection defective 2)Sensor Cartridge Unit defective
E-11	When communication between the body and Sensor Cartridge does not occur	1)Sensor Cartridge Unit defective 2)Body defective
E-12	When there is no gas Sensor in Sensor Cartridge	Sensor Cartridge Unit defective
E-13	When EEPROM of Sensor PCB is defective	Sensor Cartridge EEPROM defective
E-20	When flow meter Sensor fails to operate	Flow meter sensor inside Main Unit broken down
E-21	When the flux of flow rate meter Sensor is small	When flow meter value is measured to be less than 0%
E-22	When the flux of flow rate meter Sensor is large	When flow meter value is measured to be more than 120%
E-30	When CEC current is measured to be less than 50mA	1) CEC connection defective 2) Inside hot wire of CEC broken down
E-31	When inside EEPROM of the body is not recognized	Main Board내 EEPROM broken down

[Table 8. Fault List]

7.2. Warning List

WARNING	DESCRIPTION & CONDITION	발생원인
W-00	When there is an error in time setting	Error in time setting value for the body
W-01	When effective period of calibration has expired	Effective period for sensor exceeded
W-02	When manufacturing date of Sensor was not inputted	Error in manufacturing date of sensor
W-03	When battery is defective	Battery defective
W-04	When external SD memory card exceeds 2GByte	External SD card of more than 2G used

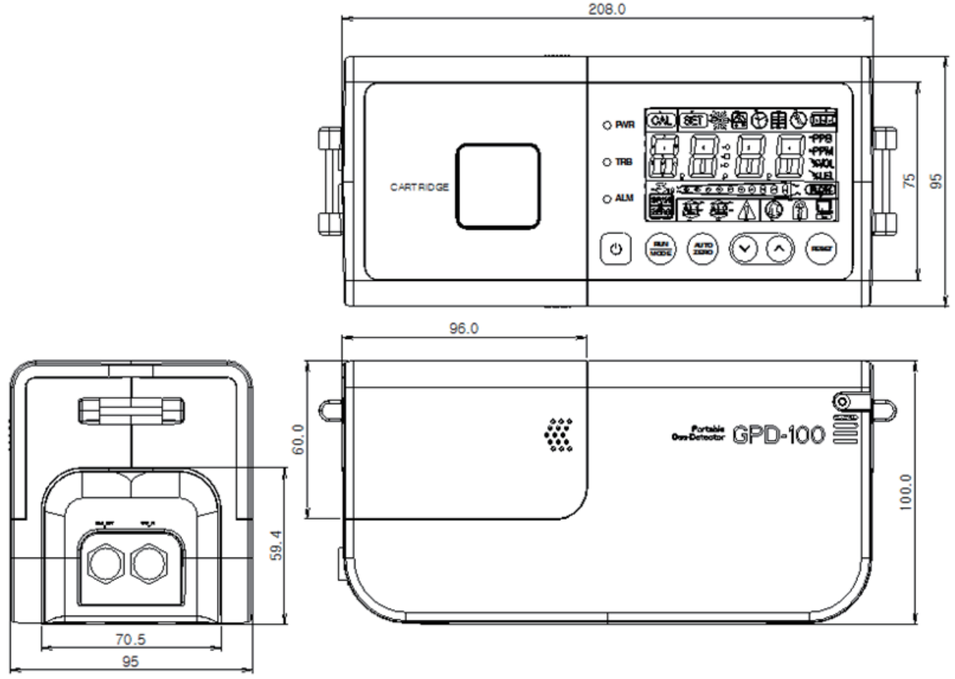
[Table 9. Warning Code]

7.3. Recovery List

NO	CAUSE FOR OCCURRENCE	COPING MEASURE
1	Sensor Cartridge connection defective	Check the state of connecting connector for Sensor Cartridge
2	Sensor Cartridge Unit defective	Effective period of sensor exceeded
3	Gas Sensor function broken down	Replace gas sensor
4	Sensor Cartridge EEPROM defective	1) Revise parameters and recalibrate after execution of memory initialization 2) Replace Sensor Cartridge upon occurrence of the same phenomenon
5	Flow meter sensor broken down	Replace the body
6	When the flow meter value is measured to be less than 0%	1) Check flow rate state of Inlet, and Outlet 2) Replace the body unless it is in the blocked state of inside flow path
7	CEC connection defective	1) Check the state of CEC-connecting connector 2) Replace CEC unless there is abnormality in connector state
8	Inside hot wire of CEC broken down	Replace CEC
9	Main Board내 EEPROM broken down	1) Revise parameters and recalibrate after execution of memory initialization 2) Replace Sensor Cartridge upon occurrence of the same phenomenon
10	CEC broken down	Replace CEC
11	Body defective	Replace the body
12	Error in time setting value for body	1) Reset time 2) Replace the body
13	Effective period for sensor exceeded	Recalibrate or replace the sensor
14	Error in manufacturing date of sensor	Recalibrate sensor
15	Battery defective	1) Check connection state of battery 2) Replace battery

[Table 10. Recovery List]

8. Outline drawing and Dimensions



[Figure 10. Outline drawing for GPD-100]

9. Revision record

VERSION	CONTENTS	DATE
Rev0.0	Manual revised initially	2011.12.31
Rev0.1	* modify GPD-100 image in page 1 * add Battery status * add Flow calibration method * Battery Spec 4.3A -> 4.4A	2011.12.21
Rev1.0	Factory Mode manual separated	2016.09.23