

4-Channel Digital Controller For Gas Detector

GMS - 1500



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[Introduction]

GMS-1500 is multi-point type gas detector signal receiving unit which can be connected to four (4) detectors. Receiving analogue continuous signal from four (4) detectors and converting it into digital signal, GMS-1500 provides various alarming and monitoring environment by micro-processor.

Also, GMS-1500 converts digital signal into the 4-20^{mA} standard current signal for output signal which can be transmitted to various external devices such as PLC, DDC, RECORDER, and so on. Using these functions, you can easily construct the gas monitoring system more extensive as well as more comprehensive.

[Features]

- ◆ Built-in microprocessor can provide various and accurate functions.
- ◆ Built-in HD(high dissolution) A/D converter accurately transmits the signal.
- ◆ Compact & simple design enables easy installation.
- ◆ High/Low two step alarming contact realizes interlocking of various external devices such as fan and so on.
- ◆ 4 - 20^{mA} output signal enables long distance(2.5km) signal transmission.
- ◆ Programmable menu enables user's own environment set.

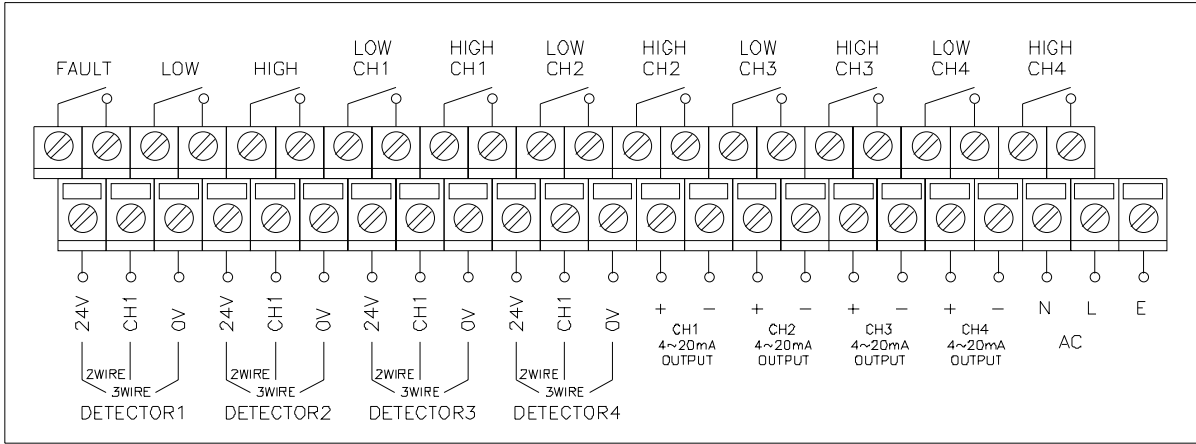
[Specification]

Mounting	Wall mounting
Connecting to detector	Multi-point type(max connectable detectors - 4 units)/4 circuits
Input power	AC 230V/60Hz
Input signal	4-20mA DC/F.S
Output power	DC 24V(250mA)
Output signal	4-20mA DC/F.S
Density indication	LCD Display - PPM, %LEL, or % set by user
Alarm Indication	Low alarm – ‘LOW’ LED (red)
	High alarm – ‘HIGH’ LED (red)
	Trouble alarm – ‘FAULT’ LED (yellow)
Alarm method	Optical – LED blinking
	Sonic – Buzz sound (higher than 80dB)
Set alarm value	HIGH/LOW 2 step alarm set by user
Alarm delay time	0~99 seconds set by user
Alarm release	Manual or automatic release
Alarm output	2 step (HIGH/LOW) alarm relay contact
Operation temperature	-10℃ ~ 50℃
Operation humidity	5 ~ 95%RH (non-condensing)

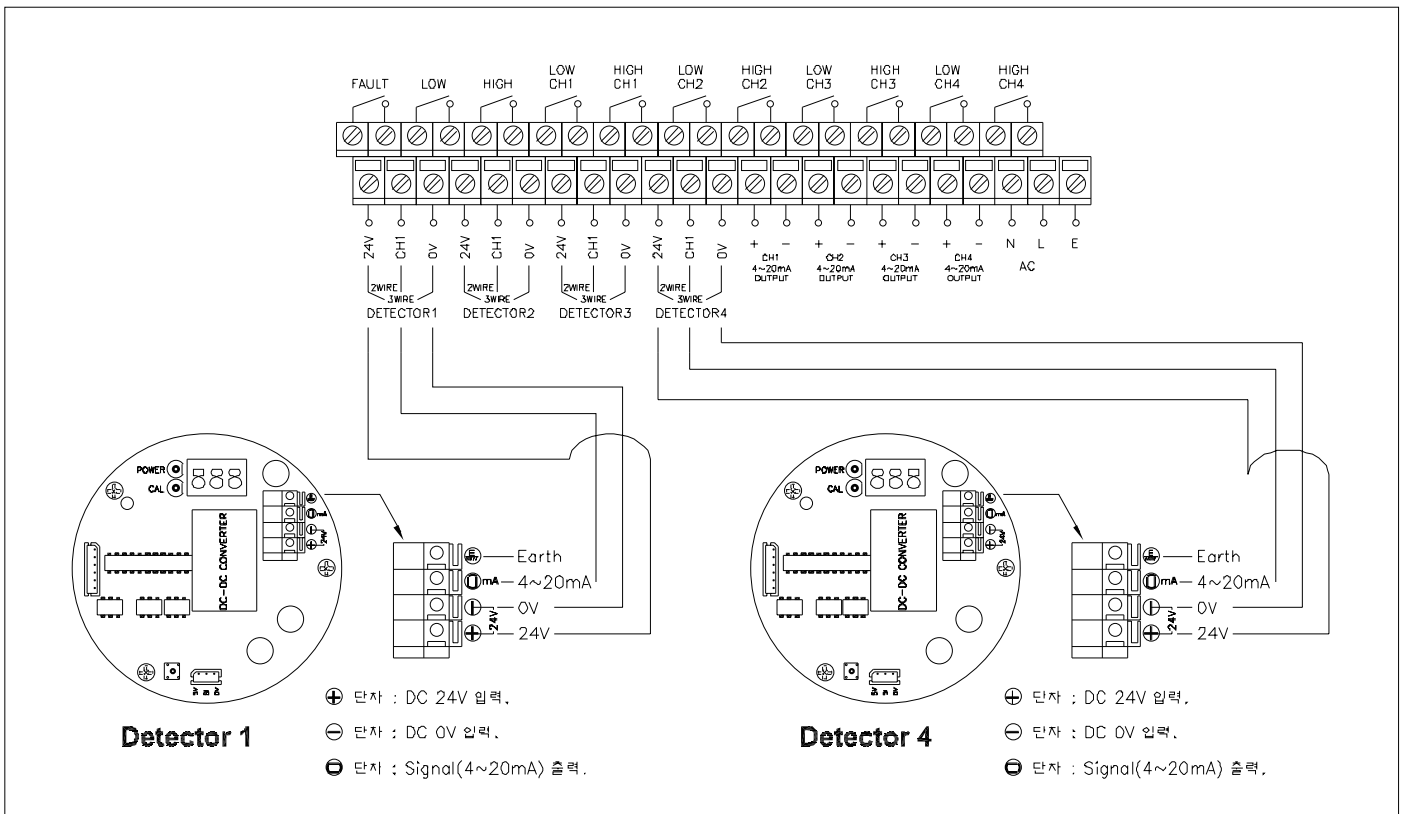
[Menu]

Menu	Description
CH1 USE (CHANNEL1 USE)	Use detector1
CH1 TYPE (CHANNEL1 ALARM TYPE)	Select the type of alarm (H&H or H&L)
CH1 UNIT (CHANNEL1 UNIT)	Set unit of density.
CH1 POINT (CHANNEL1 DATA PIONT)	Set decimal point on density value.
CH1 SCALE (CHANNEL1 SCALE)	Set 20 ^{mA} according to full scale
CH1 LOW-AR (CHANNEL1 LOW ALARM)	Set 'LOW' alarm value
CH1 HI-AR (CHANNEL1 HIGH ALARM)	Set 'HIGH' alarm value.
CH1 D-BAND (CHANNEL1 DEAD BAND)	Set alarm dead band
CH1 OFFSET (CHANNEL1 OFFSET)	Set compensation value for measurement bias
*Above menu for CH1 is the same as for CH2, CH3, & CH4.	
RESET TYPE (RESET ALARM TYPE)	Select alarm release type
DEAD TIME (ALARM DEAD TIME)	Set alarm dead time
INIT TIME	Set initialization time from power on(0~99 seconds)

[Terminal]



[Wiring] Detector ↔ Receiver



[Set Menu Values]

Step	Menu	Move menu to menu	Set menu value	Store set value
1	Change set value – when you press (CHANNEL) key, setting screen for channel 1 appears.			
1-1	CH1 USE	(MODE) key	(UP) & (DOWN) key.	(ENT) key
1-2	CH2 USE	(MODE) key	(UP) & (DOWN) key.	
1-3	CH3 USE	(MODE) key	(UP) & (DOWN) key.	
1-4	CH4 USE	(MODE) key	(UP) & (DOWN) key.	
2-1	CH1 TYPE	(MODE) key	(UP) & (DOWN) key.	(ENT) key
2-2	CH2 TYPE	(MODE) key	(UP) & (DOWN) key.	
2-3	CH3 TYPE	(MODE) key	(UP) & (DOWN) key.	
2-4	CH4 TYPE	(MODE) key	(UP) & (DOWN) key.	
3-1	CH1 UNIT	(MODE) key	(UP) & (DOWN) key.	(ENT) key
3-2	CH2 UNIT	(MODE) key	(UP) & (DOWN) key.	
3-3	CH3 UNIT	(MODE) key	(UP) & (DOWN) key.	
3-4	CH4 UNIT	(MODE) key	(UP) & (DOWN) key.	
4-1	CH1 POINT	(MODE) key	(UP) & (DOWN) key.	(ENT) key
4-2	CH2 POINT	(MODE) key	(UP) & (DOWN) key.	
4-3	CH3 POINT	(MODE) key	(UP) & (DOWN) key.	
4-4	CH4 POINT	(MODE) key	(UP) & (DOWN) key.	
5-1	CH1 SCALE	(MODE) key	(UP) & (DOWN) key.	(ENT) key
5-2	CH2 SCALE	(MODE) key	(UP) & (DOWN) key.	
5-3	CH3 SCALE	(MODE) key	(UP) & (DOWN) key.	
5-4	CH4 SCALE	(MODE) key	(UP) & (DOWN) key.	
6-1	CH1 LOW-AR	(MODE) key	(UP) & (DOWN) key.	(ENT) key
6-2	CH2 LOW-AR	(MODE) key	(UP) & (DOWN) key.	
6-3	CH3 LOW-AR	(MODE) key	(UP) & (DOWN) key.	
6-4	CH4 LOW-AR	(MODE) key	(UP) & (DOWN) key.	
7-1	CH1 HI-AR	(MODE) key	(UP) & (DOWN) key.	(ENT) key
7-2	CH2 HI-AR	(MODE) key	(UP) & (DOWN) key.	
7-3	CH3 HI-AR	(MODE) key	(UP) & (DOWN) key.	
7-4	CH4 HI-AR	(MODE) key	(UP) & (DOWN) key.	
8-1	CH1 D-BAND	(MODE) key	(UP) & (DOWN) key.	(ENT) key
8-2	CH2 D-BAND	(MODE) key	(UP) & (DOWN) key.	
8-3	CH3 D-BAND	(MODE) key	(UP) & (DOWN) key.	
8-4	CH4 D-BAND	(MODE) key	(UP) & (DOWN) key.	

Order	Menu	Move menu to menu	Set menu value	Stor menu value
9-1	CH1 OFFSET	(MODE) key	(UP) & (DOWN) key	(ENT) key
9-2	CH2 OFFSET	(MODE) key	(UP) & (DOWN) key	
9-3	CH3 OFFSET	(MODE) key	(UP) & (DOWN) key	
9-4	CH4 OFFSET	(MODE) key	(UP) & (DOWN) key	
10-1	RESET TYPE	(MODE) key	(UP) & (DOWN) key	(ENT) key
10-2	DEAD TIME	(MODE) key	(UP) & (DOWN) key	
10-3	INIT TIME	(MODE) key	(UP) & (DOWN) key	

*Move to setting screen-(CHANNEL) key, move menu to menu-(MODE) key.

※ In order to move to next channel setting screen without setting values in current channel setting screen, please press (CHANNEL) key as described on the next page.

※ In order to move to the channel screen which you want to set values, please press (CHANNEL) key, and then 'CH1 USE' blinks. And then, using (UP) & (DOWN) key, please select whether you use 'channel 1' or not - (UP) key for on, (DOWN) key for off.

※ When you want to change the set values in certain menu, please use (MODE) key to move to the menu screen. And, after changing set values, please press (ENT) key for storage. After storage, next setting screen appears automatically. When you want to move to next screen without changing the set value from current screen, please press (CHANNEL) key, and then next setting screen appears.

※ EX) How to change the set values of 'CH1 SCALE', 'CH2 SCALE' & 'CH3 SCALE'=>

(1) Please press (CHANNEL) key until 'CH1 SCALE' setting screen appears.

(2) Please press (MODE) key and select the designated channel. (When 'CH1 SCALE' blinks, 'CH1 SCALE' is selected.)

(3) Using (UP) key & (DOWN) key, please change the set values.

(4) Using (MODE) key, please select 'CH2 SCALE' or 'CH3 SCALE'.

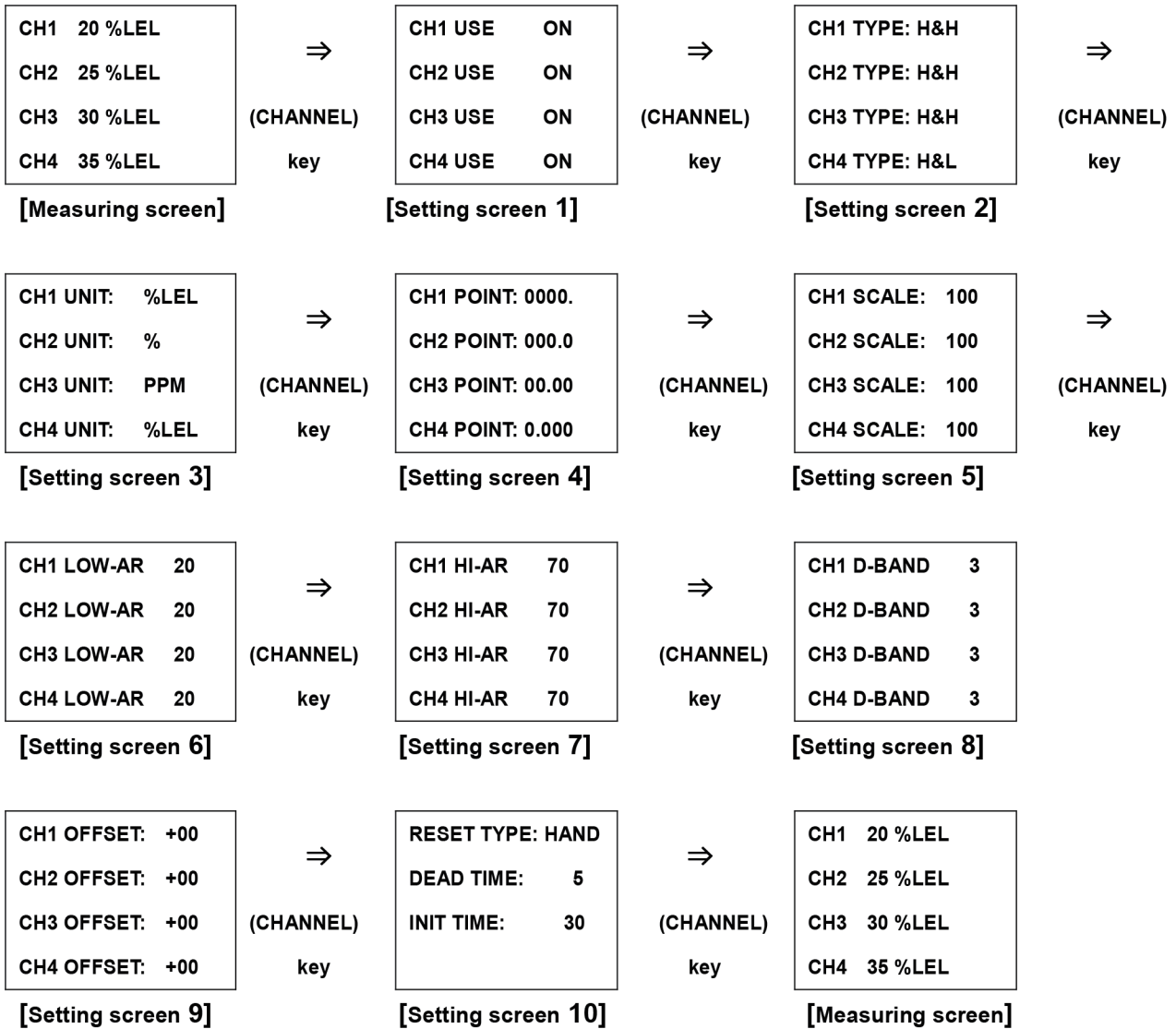
(5) Using (UP) key & (DOWN) key, please change the set values.

(6) Please press (ENT) key and store the set values. And then, the next screen appears automatically.

(7) If you don't want store the set values, please press (CHANNEL) key to move to the next screen.

※ TEST: It is for your testing whether the alarm operates or not.

* How to set: please press (UP) & (DOWN) key continuously at the same time. While pressing two (2) buttons continuously, the value goes up continuously, and when it reaches the highest value within sensible range, it stops. While the value reaches the alarming values, 'LOW' & 'HIGH' alarms automatically on.



**Using (CHANNEL) key, you can move to the designated channel setting screen. When you arrive at the designated channel setting screen, using (MODE) key, you can move to the designated menu setting screen.*

[Menu description]

(1) USE

- Select whether you use detector or not (ON/OFF).

(2) TYPE (LOW alarm type)

- For combustible or toxic: H&H (In case of higher than set values, 'LOW' alarm on)
- For oxygen: H&L (In case of lower than set values, 'LOW' alarm on)

(3) UNIT (Select density unit)

- 3 options: %LEL, PPM, & %

(4) POINT (Set decimal point of density values)

- Change decimal point according to the measurement range.

(5) SCALE

- Set 20mA proportional to full scale.

(ex) SCALE: For setting 100

For input of 4mA analogue: 0 Display

For input of 20mA analogue: 100 Display

(6) LOW-AR ('LOW' alarm)

- According to 'ALARM TYPE' set , alarm on

(ex1) If 'ALARM TYPE' sets 'H&H' & 'LOW-AR' sets 20

→ When value displays higher than 20, 'LOW' alarm on.

(ex2) If 'ALARM TYPE' set H&L & 'LOW-AR' set 20

→ When value displays lower than 20, 'LOW' alarm on.

(7) HI-AR ('HIGH' alarm)

- When the value displays higher than the set value, the alarm on.

(ex) If 'HI-AR' sets 50

→ When the value displays higher than 50, 'HIGH' alarm on.

(8) D-BAND (Alarm dead band)

Relay output usually repeats on/off around the alarm set value and it makes trouble. 'D-BAND' function gives hysteresis value on the alarm set value to remove this kind of trouble.

(ex1) If 'LOW-AR' sets 20, 'ALARM TYPE' sets 'H&H' & 'D-BAND' sets 3

→ When value displays higher than 20, alarm on ↔ lower than 17, alarm off.

(ex2) If 'LOW-AR' sets 20, 'ALARM TYPE' sets 'H&L' & 'D-BAND' sets 3

→ When value displays lower than 20, alarm on ↔ higher than 23, alarm off.

(9) OFFSET (Compensation of measured value)

- Compensate the bias of measured value at the sensing part with add-subtract on measured value.

(ex) OFFSET: If it sets +5,

→ When output bias is -5 at the sensing part, it displays -5. However, if 'OFFSET' sets +5 for compensation, it displays 0.

(10) RESET TYPE

- Select release method on alarm relay or buzzer.
- Select 'AUTO' (automatic) ↔ 'HAND' (manual)

<1> AUTO (automatic): Regardless reset switch, the relay, buzzer & LED releases according to set value.

<2> HAND (manual): Only when you press reset switch, the relay, buzzer & LED releases.

(11) DEAD TIME (Alarm delay time)

This function is to prevent the normal operation of sensor against any momentary malfunctions affected by outside impact or noise.

(ex) When alarm value sets 50 & 'DEAD TIME' sets 5.

→ Only when the measured value keeps higher than alarm set value during longer than 5 seconds, it accepts the alarm value – alarm on.

(12) INIT TIME

- Set initialization time from power on,

[Dimension]

