

Smart Digital-Process Gas Detector

DA-90-10

Gas Sensor Transmitter(4-20mA)



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■ Introduction	3
■ Features	3
■ Specification	4
■ Terminal	5
■ Wiring	5
■ Menu	6
■ Menu Setting	7
■ Sensor calibration	8
■ Dimension	9

***Best Detectors,
Best Service***

[Introduction]

DA-90-10 is an on-site indication type gas detector and a digital transmitter based micro-processor.

It detects various combustible & toxic gases leaked from industrial areas and It displays its concentration and 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. If the gas concentration is over the alarm value set, its light bar and buzzer are activated automatically.

DA-90-10 provides RS-485 communication signal and gas leakage alarm signal by relay contact output.

[Features]

◆ Digital Process

Digital processor based on built in micro processor realizes various artificial intelligent functions which result in more convenient, more accurate, and more efficient gas detection environment.

◆ Self Diagnose

Digital processor automatically diagnoses the sensor signal and sends 2mA error signal output on the malfunction in the sensor

◆ Gas Concentration Display

Display the measured gas concentration on FND and easily check it in dark environment.

◆ User Programmable Menu

User programmable calibration density and detection range etc for user's own operating functions.

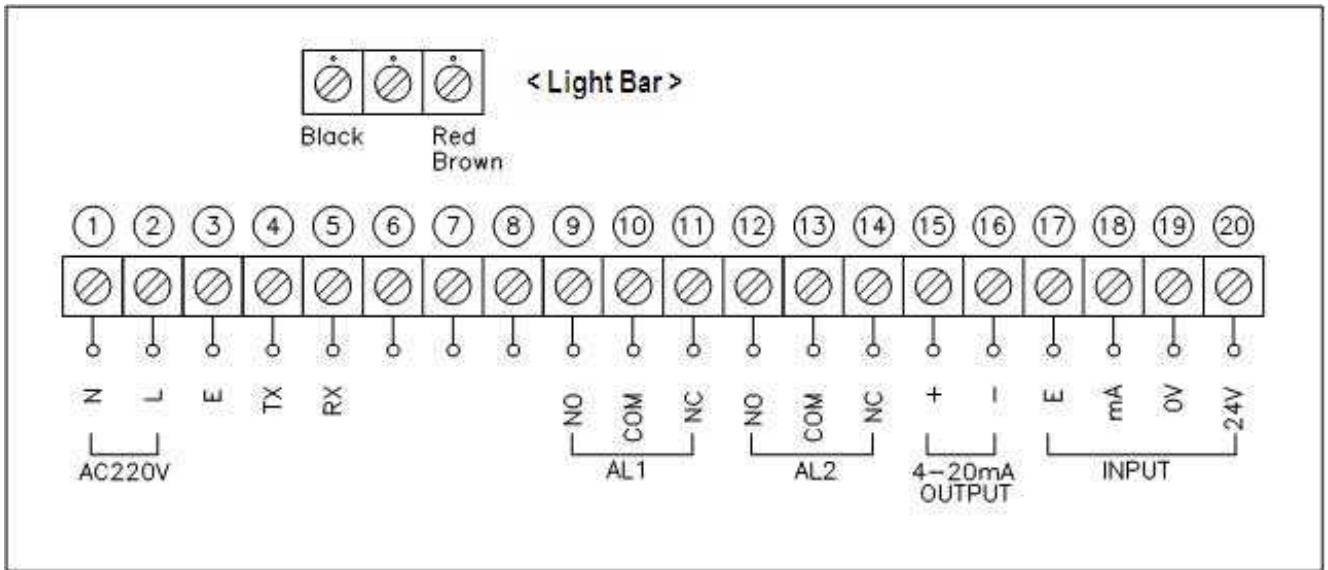
◆ Multi Signal Output

Various output signals - DC 4-20mA, 2 step-relay contact, & RS-485(option) – provides best networking with all kinds of devices & equipments

[Specification]

	DA-90-10
Detection principle	Catalytic, Electro-chemical, NDIR
Response time	Within 10 sec, 90%/Full Scale
Detectable Gas	Toxic and combustible
Accuracy	≤±2%/Full Scale
Selectable function	Calibration density. Detection range setting
Input power	AC 220V/60Hz
Output power	4~20mA/Full Scale – 2.5Km transmit
Alarm	Low alarm – AL1 LED(RED)
	High alarm – AL2 LED(RED)
	Light bar – BZ LED(RED)
Alarm method	Sight – Light bar
	Hearing – Buzzer (90dB/1m)
Operation temperature & humidity	-20℃~60℃, 5~95% RH (Non-Condensing)
Alarm release	Manual and automatic release
Alarm output	2 step (AL1/AL2) alarm relay contact, RS-485 (option)
Mounting type	Wall Mounting Type
Density indication	PPM, %LEL, %,

[Terminal]



[Wiring]

Terminal No	Function
(1),(2),(3)	AC220V/60Hz
(4),(5)	RS-485 output (Option)
(9),(10),(11)	Alarm1 relay output signal
(12),(13),(14)	Alarm2 relay output signal
(15),(16)	4-20mA current output
(17),(18)	4-20mA current output
(19),(20)	0-24V voltage input
Light Bar	Internal light bar output signal

[Menu]

Menu	Description
Hi-SC	Set value for 20 ^{mA} output signal against Full(0~65534)
AL-1	ALARM-1 , alarm value setting (0~65534)
AL-2	ALARM-1 alarm value setting (0~65534)
dtimE	Delay Time setting (0~999초)
dbAnd	Dead Band setting (0~99)
ALrES (ALarm Reset)	Alarm release selection menu - Manual/Automatic release.
	※ AuTo – automatic release mode
	※ Hand – manual release mode
StArt	Set initial time from power on (0~999초)
ZERO	Zero calibration
SPAN	Calibration by standard gas

[Menu setting]

STEP	Menu	Menu selection	menu values setting	Store the set value
1	Select menu mode – when you press (MODE) key, ‘ Hi-SC’ menu appears.			
2	Hi-SC	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
3	AL-1	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
4	AL-2	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
5	dtimE	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
6	dbAnd	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
7	ALrES	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
8	StArt	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
9	ZERO	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
10	SPAN	(ENT)-Key	Set the value by (UP) and (DOWN) Key	(ENT)-Key
11	Quit	When you finish the above steps, it returns to measuring mode automatically.		
※ If you want to move next step without setting value in current step, please press (MODE) key				
※ if press (RESET) KEY, menu mode finishes and it returns to measuring mode.				
※ If you want to set any values in certain step, please press (MODE) key to move to the designated step.				
※ How to set ‘AL-1’: Pressing (MODE) key, please move to ‘AL-1’ menu screen. And then, press (ENT) key to retrieve stored set value. And then, pressing (UP) and (DOWN) key, change the set value. And then, press (ENT) key to return to measuring mode.				
※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, ‘AL1’ & ‘AL2’ alarms automatically on.				

[Sensor Calibration]

Gas sensor's property is subject to change while it is being used. This is common to all sensors. You have to calibrate the sensor periodically to keep the optimum condition of sensor.

DA-90-10 has a automatic calibration function by micro processor.

1. Zero calibration

Please follow below process to zero-calibrate sensor output.

- ① Please keep touching the **MODE** key more than 2 seconds and enter into setting mode.
- ② Then, FND shows "ZERO". Please press **ENT** key.
- ③ Then, FND shows "0". Please infuse the standard gas.
- ④ When the measured value gets stable, please press **ENT** key.
- ⑤ Then, if zero calibration is successful, FND shows "[YES]" (if failed, shows 'FAIL')

▲ **Caution:** For zero calibration, you should have clean status without any gases. If you cannot have clean status, please use nitrogen gas for zero calibration.

2. Span calibration

Please follow below process using standard gas to calibrate the linear change of sensor output.

- ① please touch **MODE** key more than 2 seconds after disassembling main cover. It leads you to setting mode.
- ② Then, please move to "SPAN" menu and touch **ENT** key.
- ③ Then, FND shows "ADJ" for one seconds and the gas density will be shown. Please input desired calibration gas density values touching **UP** & **DOWN** keys. When you finish it, please touch **ENT** key. (gas density set finished)
- ④ Then, FND shows "gAS In" for two seconds and the gas density will be shown.
- ⑤ When "0" is shown, please infuse the calibration standard gas. While you infuse the gas, LCD values approaches the values of gas density. When the LCD shows stable gas values, please touch **ENT** key. (span calibration finished).
- ⑥ Then, if Span calibration is successful, FND shows "[YES]" (if failed, shows 'FAIL')

▲ **Caution:** CO Span calibration gas should be ranged from 50ppm to 5000ppm. Sensor calibration is not possible with high density gas. High density gas puts excessive burden to the sensor and it damages the sensor or reduces the sensor life time extremely.

Please process SPAN calibration after ten (10) minutes from power when replacing the sensor.

[Dimension]

