Chemical H2S (3-Wired Type) Transmitter
H2S-CD300(LG)

H2S-CD300 (G)-HC

H2S-CD300(LG)
(with LCD display)

General

H2S-CD300(LG) is a 3wired Electro-Chemical type transmitter which can detect high concentration 0~100 ppm H2S gas.

Features

• 15years know-how based multipled compensation algorithms keep accuracy and long-term stabilization throughout full operating Temperature and Concentration range.

• 4~20mA (default) 0~20mA,0~10V,2~10V is selctable with switch (0~5V/1~5V is orderable).

• All units verification in factory before delivery.

• Easier mgmt with auto-Zero calibration mode

• Size : 124 x 70 x 43 (mm), 110g, 120g : LCD(o)

※ Design or Specification of H2S-CD300(LG) Series might be changed without prior notice.

H2S-CD300(LG)

Application

Manhole, safety inspection, leak detection, industrial sites, livestock houses, pig houses, poultry farms, portable H2S gas detector, etc.

General Performance

Operating Temperature range

-20 ~ 40℃

Operating Humidity range

15 ~ 90% RH (Non-condensing)

('G' option: operatable 80% RH or more with Non-Condensing and protect from rustness)

Long Time Output Drift

<2% signal/month

Storage Temperature

5℃ ~20℃ (Higher temp. shorten sensor life.)

Measurement

Sensing Method

Eletro-Chemical type to sense H2S gas

Measurement Range : 0~100ppm

Maximum Overload : 200ppm

Accuracy : ±3% of F.S

Response Time : T90 : < 30sec, T60 : < 9sec

Sampling Interval : 1 second

life Cycle : 2 years.

Electrical Data

Input Power

24VDC± 20%, (3-Wired)

Power consumption

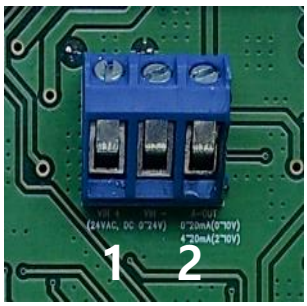
0.7 Watt

Wiring Method

1. VIN+: 24VDC+

2. VIN-: Common-GND

3. A-OUT: Output Signal (Voltage or Current)



Wire connector.

※Warning : Please careful not to wire power cable into signal output position of terminal block, which leads to damage sensors .

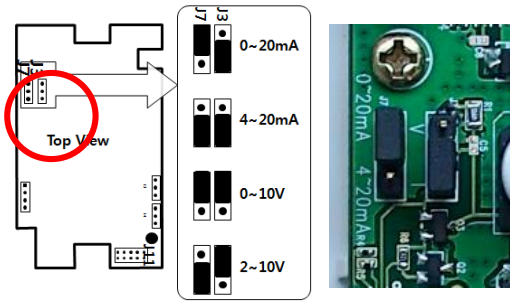
Dimensions (unit : mm)

Output Signals

4 ~ 20mA is default (2 ~ 10VDC or 0 ~ 20mA or 0 ~ 10VDC is selectable with jumper setting change)

■ **Jumper A (J7, J3) : Set Voltage/Current**

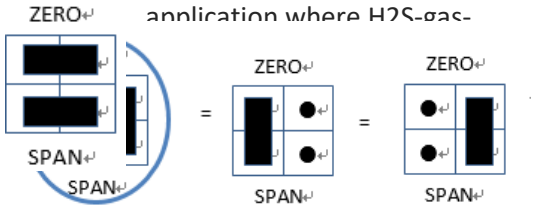
● **[J7,J3] Output Mode**



Ex) 0 ~ 20mA setting.

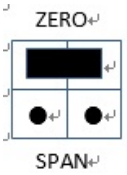
Operation Mode selection

Automatic Zero Calibration mode-#2 is for application where H2S-gas-meter or



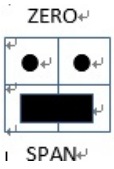
and fixed type H2S-meter installed where always 5ppm or more of H2S gas existing environment.

Manual Zero Calibration mode-#3 is used to



calibrate H2S-gas sensors; it start and repeat calibration every minute. Please do calibration at H2S-gas-free area or in chamber with standard 0 ppm H2S gas. (Caution: Please don't use N2 100% gas, nor do other gases which not include O2 gas.) Return to previous set #1 or #2. After calibration

Manual SPAN(50ppm F.S.) Calibration mode-#4 is used to calibrate H2S-gas sensors after



#3 cablibration; it start and repeat calibration every minute. do calibration with standard H2S-50ppm gas in chamber CMB-10. After calibration, return to previous set #1 or #2.

■ **Analog output calculation**

* Output signal calculation examples

Ex) should the measurement range of 0~10V set

and measured voltage is 8.10V,

(8.10V-0V) x (100ppm/10V) = 81ppm

Cautions on Installation

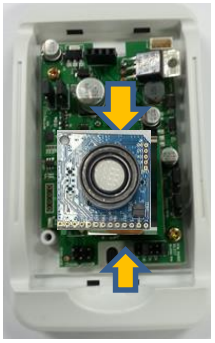
I. Chemical sensors should be kept 5~20℃ and better to use in 3 months from purchase not to shorten their lifecycle.

II. Due to H2S gas' heavy specific gravity, sensor's low position on installation is recommended as default unless convection current by heater or air-conditioner.
(H2S gas specific gravity : 1.1895, heavier than air, i.e. the ratio 1.5392g/ℓ of H2S and 1.204g/ℓ of air. (c.f. Density 1.36kg/m3 of H2S).

III. The sensors are designed to keep lifecycle when installed normal living condition unless effected physically, mechanically or chemically. Sensor-detection part or PCB part should be kept from dirties, water or oil spraying which cause damage and keep Sensors away from the solvent or high concentration organic gas existence or continuous vibration, or impulse from.

IV. Power should be selected within tolerance and wired into right position, Sensor get damaged when 24V power is inserted into output.

V. Chemical sensor modules' installation or uninstallation should be done carefully not to pluck away sensor modules; Please grip the upside and downside of PCB. arrow-direction of picture, between 4-pins and 10pins connectors on unplugging sensor-module from main-board little by little, left and right in turn. Vice versa on plugging the sensor-module into main-board.



VI. Please install or keep sensors away from the places where electro-static or induced electro-magnetic field exists.

VII. Please make sure to use air-based standard gas on Test Sensor performance.

VIII. The sensors components should be departed or replaced, or manipulated unless requested or agree by vendor, Please don't touch electrolyte leaked from sensor when it is damaged or broken. Wash out skins with running water when wet by leaked electrolyte.

IX. Do Calibrations (Zero, #3) or (Zero, #3 and Span #4) if sensor keep giving 5ppm or higher values even when located H2S-gas-free-zone.

Cross Connectivity

CO 100 pm	< 3 ppm
H2 300 ppm	< 3 ppm
SO2 100 ppm	< 20 ppm
NO2 5 ppm	0.1 ppm

Occupational Health Exposure Standards:

OSHA	Permissible Exposure Limit: General Industry Ceiling Limit: 20 ppm General Industry Peak Limit: 50 ppm (up to 10 minutes if no other exposure during shift) Construction 8-hour Limit: 10 ppm, Shipyard 8-hour limit: 10 ppm Immediately Dangerous to Life and Health: 100 ppm/ 30 mins
NIOSH	Recommended Exposure Limit (10 min ceiling): 10 ppm Immediately Dangerous to Life and Health: 100 ppm
ACGIH	Short Term Exposure Limit: 5 ppm / 15 min

※ Source: OSHA & American National Standards Institute (ANSI Standard No. Z37.2-1972)

OSHA Annotated Table for H2S gas							
Regulatory Limits						Recommended Limits	
OSHA PEL					Cal/OSHA PEL (as of 10/2/2019)	NOISH REL (as of 10/18/2019)	ACGIH*2019 TLV*
Substance	8-hour Time Weighted Average (TWA)	Acceptable Ceiling Concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift				
			Concent-ration	Maximum Duration	8-hour TWA (ST)STEL (C)Ceiling	Up to 10-hour TWA (ST)STEL (C) Ceiling	8-hour TWA (ST)STEL (C) Ceiling
H2S (Z37.2-1966)	-	20 ppm	50 ppm	10 min once only if no other measurable exposure occurs.	10 ppm (ST) 15 ppm (C) 50 PPM	(C) 10 ppm [10 min.]	1 ppm (ST) 5 ppm

※ PEL : Recommended airborne Exposure Limit, REL : Recommended airborne Exposure Limit, TLV : Threshold Limit Value (TLV), STEL : Short Term Exposure Limit, TWA : Time Weighted Average

The most common alarm settings used by instrument manufacturers and users follow the reasoning behind the Cal/OSHA PEL, (as well as guidance contained in OSHA 1910.146 “Permit Confined Spaces”). The instantaneous (peak) low alarm is typically set at 10ppm, the high alarm is set at 15 ppm, the STEL alarm is set at 15 ppm, and the TWA alarm is set at 10ppm.

Gas	Health and Safety Executive (HSE) Worker Exposure Limit (WEL)[1]	National Institute for Occupational Safety and Health (NIOSH)[2] Recommended Exposure Level (REL)	Occupational Safety and Health Administration (OSHA) Permissible Exposure Level (PEL)[3]	OSHA Short-Term Exposure Level (STEL)[3]	NIOSH Immediately Dangerous to Life and Health (IDLH)[2]
Hydrogen sulfide	5 ppm	10 ppm	20 ppm	15 ppm	100 ppm
Sulfur dioxide	0.5 ppm	2 ppm	5 ppm	5 ppm	100 ppm
Chlorine	-	0.5 ppm	1 ppm	1 ppm	10 ppm
Chlorine dioxide	0.1 ppm	0.1 ppm	0.1 ppm	0.3 ppm	5 ppm
Methyl alcohol	200 ppm	200 ppm	200 ppm	250 ppm	6,000 ppm

Table 1. Common occupational exposure levels for toxic gas hazards

Sulfur dioxide and hydrogen sulfide, among other toxic gases, are common effluents. Hydrogen sulfide is recognized as a very dangerous byproduct and has been the cause of numerous fatalities in the larger process industry sector.

ChunuiTechnopark 101-909)36,Bucheon-ro 198beon-gil, Wonmi-gu
Bucheon-si, Gyeonggi-do, 420-857,Korea
Phone. +82-32-719-8055, http://www.eltsensor.co.kr

2022 JAN