

4 to 20 mA Digital Transmitter Board Alphasense Type A and B Toxic Gas Sensors



Alphasense 4-20mA digital transmitters offer the following features:

- Factory calibration, custom-set for immediate use
- Digital zero, sensitivity and temperature compensation
- Digital and 4-20mA output
- Biased or unbiased operation
- Calibration and range change

Alphasense 4-20mA digital transmitter boards provide a cost effective way for Original Equipment Manufacturers to include 4-20mA gas sensor transmitters for fixed installation systems. The range of sensors are shown in Table 1. Transmitters are supplied with pre-calibrated sensors.

The 4-20 mA output signal performance is as shown on individual sensor data sheets. Calibration and digital interface communication use the 2-wire power supply (HART-type communications).

Optional fitting kit and connector/leads are available on request (Fig 2)

Table 1. Transmitter Board and Sensors

GAS	SENSOR TYPE A	MAXIMUM CONCENTRATION (ppm)	SENSOR TYPE B	MAXIMUM CONCENTRATION (ppm)
Carbon Monoxide	CO-AF	5,000	CO-BF	5,000
	CO-AE	10,000	CO-B1	5,000
	CO-AX	2,000	CO-BX	2,000
Hydrogen Sulfide	H2S-A1	100	H2S-B1	200
	H2S-AH	50	H2S-BH	50
	H2S-AE	2,000	H2S-BE	2,000
Sulfur Dioxide	SO2-AF	50	SO2-BF	100
	SO2-AE	2,000		
Nitrogen Dioxide	NO2-A1	20	NO2-B1	20
	NO2-AE	200		
Chlorine	CL2-A1	20	CL2-B1	20
Nitric Oxide*	NO-A1	250	NO-B1	250
	NO-AE	5,000		
Phosphine	PH3-A1	10	PH3-B1	10
			PH3-BE	2,000
Ethylene Oxide*	ETO-A1	100	ETO-B1	100
Hydrogen Cyanide	HCN-A1	100	HCN-B1	100
Hydrogen Chloride	HCL-A1	20	HCL-B1	20
Ammonia			NH3-B1	100

* Biased sensors require at least 12 hours to stabilise after first powered on
Specify required full scale gas concentration. Do not exceed maximum gas concentration shown in table.

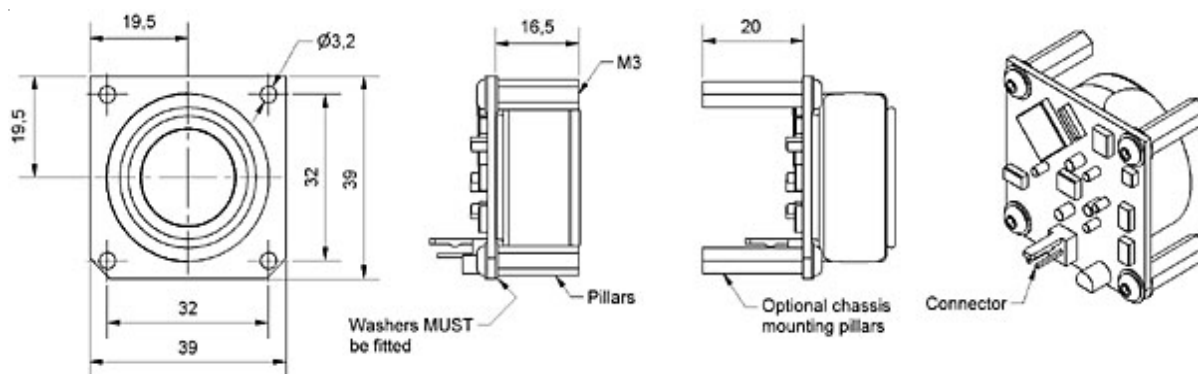
Technical Specification

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INPUT	Type: 3-electrode gas sensor: type A or type B Maximum range: -220uA to +320 uA Minimum range: ± 3 uA Sample rate: 500ms per sample Thermal drift: 0.05 uA/°C Power-off state: Shorting FET connects working to reference electrode Resolution: 11 nA Bias: Selectable: Off, +200 and +300mV (±10 mV tolerance) Temperature compensation: On-board temperature sensor. Range -30°C to 60°C ± 0.5°C Software correction of Zero and Span Connection: 2-pin MOLEX plug (ref 22-27-2021)
OUTPUT	Type: 4 mA to 20 mA 2-wire loop powered Output current range: 3.8 mA to 21.5mA Supply voltage: 10 to 30 VDC Supply sensitivity: < 0.03% 10 to 30 VDC Loop ripple effect: ± 2 uA measure @ 1 volt RMS 50Hz supply ripple Thermal drift: ± 0.2 uA / °C Accuracy: ± 5 uA Maximum loop resistance: 700 Ω @ 24VDC Resolution: 0.75 uA Sensor over-range: > 21.5mA Protection: Reverse connection and over-voltage protection Connection: 2-Pin MOLEX plug (Ref. 22-27-2021)
ENVIRONMENT	Ambient temperature: -30°C to 60°C Ambient storage: -40°C to 70°C Ambient humidity: 0% to 95% continuous (non-condensing) Coating: Conformal spray coated
CE APPROVAL	BS EN 61326 (Industrial)

Fig 2. Transmitter Board Dimension Details



Optional fitting kit # 000-0420-KIT

4 x pillars	16.0 mm length, M3 tapped
8 x washers	M3 flat washers
4 x screws	M3 x 8 button head screws
1 x transmitter lead	Molex socket housing with 150 mm leads