

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

Technical Specification



Alphasense digital transmitters offer the following features:

- Factory calibration for immediate use
- Custom-set range to your requirements
- Digital temperature compensation
- Digital and 4-20mA output
- Biased or unbiased operation

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 (over). The boards supplied with sensors are pre-calibrated.

The 4-20 mA output signal provides an equivalent performance to that shown in individual sensor data sheets provided for each of the Alphasense A and B Series Toxic gas sensors.

Each board is provided with set of mounting pillars for location of the board into an enclosure. To allow OEMs to distinguish their product from other offerings, the sensor to gas aperture design is left to the OEM to execute.

**Table 1. Transmitter Board and Sensors**

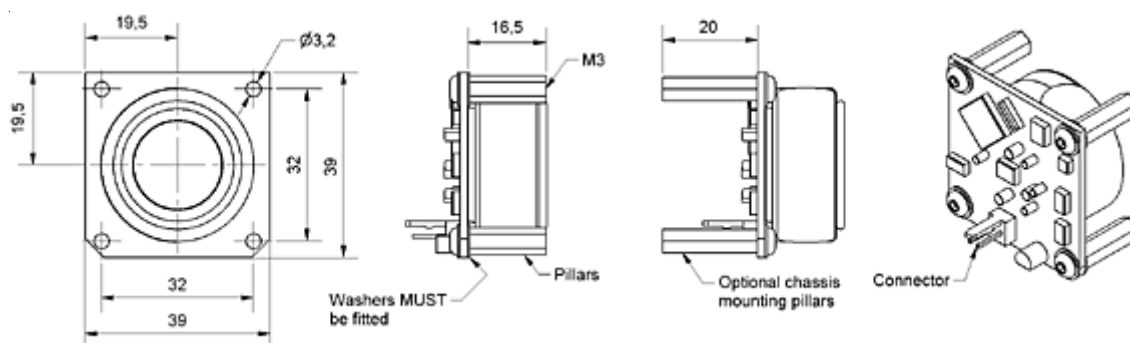
GAS	SENSOR TYPE A	MAXIMUM GAS CONCENTRATION (ppm)	SENSOR TYPE B	MAXIMUM GAS CONCENTRATION (ppm)
Carbon Monoxide	CO-AF*	5,000	CO-BF*	5,000
	CO-AE*	10,000		
	CO-AX*	2,000	CO-BX*	2,000
Hydrogen Sulfide	H2S-A1*	100	H2S-B1*	200
	H2S-AH*	50	H2S-BH*	50
	H2S-AE*	2,000	H2S-BE*	2,000
Sulfur Dioxide	SO2-AF	20	SO2-BF*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

\* Recommended sensor

\*\* Biased sensors require at least 12 hours to stabilise after first powered on  
Specify preferred full scale gas concentration with your order, up to maximum concentration.

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## Transmitter Board Dimension Details



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<b>INPUT</b>	Type	3-wire gas sensor: series A or series B
	Range:	-220 $\mu$ A to +320 $\mu$ A
	Minimum span:	$\pm 3 \mu$ A
	Sample rate:	500ms per sample
	Thermal drift:	0.05 $\mu$ A/ $^{\circ}$ C
	Protection:	Power off shorting FET
	Resolution:	11 nA
	Bias:	Selectable off, +200 and +300mV ( $\pm 10$ mV tolerance)
	Temperature compensation:	On-board temperature sensor range -30 $^{\circ}$ C to 60 $^{\circ}$ C $\pm 0.5^{\circ}$ C for software correction of Zero and Span
	Connection:	2-pin MOLEX plug (ref 22-27-2021)
<b>OUTPUT</b>	Type:	4 mA to 20 mA 2-wire loop powered
	Maximum output:	3.8 mA to 21.5mA
	Operating voltage:	10 to 30 VDC
	Accuracy:	$\pm 5 \mu$ A
	Sensor out of range:	Up Scale > 21.5mA
	Supply sensitivity:	<0.03% 10 to 30 VDC
	Loop ripple effect:	$\pm 2 \mu$ A measure @ 1 volt RMS 50Hz supply ripple
	Thermal drift:	$\pm 0.2 \mu$ A / $^{\circ}$ C
	Maximum loop resistance:	700 R @ 24 VDC
	Resolution:	0.75 $\mu$ A
	Protection:	Reverse connection protected and over voltage
	Connection:	2-Pin MOLEX plug (Ref. 22-27-2021)
<b>GENERAL</b>	Warm-up time:	2 minutes to full accuracy
<b>ENVIRONMENT</b>	Ambient temperature:	-30 $^{\circ}$ C to 60 $^{\circ}$ C
	Ambient storage:	-40 $^{\circ}$ C to 70 $^{\circ}$ C
	Ambient humidity:	0% to 95% continuous (non-condensing)
	Coating:	Conformal spray coated
<b>CE APPROVAL</b>	BS EN 61326 (Industrial)	

**NOTE:** as applications of use are beyond our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors and transmitters are suitable for their own requirements.

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