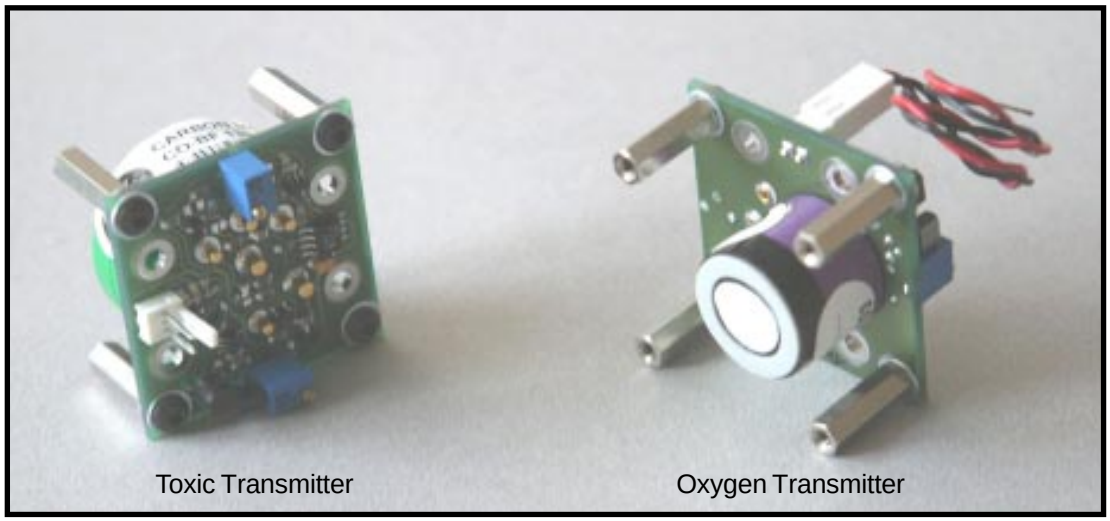
4 to 20 mA Transmitter Boards for
Alphasense “B” Type Toxic & “A” type Oxygen Sensors

Figure 1 Toxic and Oxygen Transmitter Boards

PATENT PENDING



Technical Specification

Alphasense 4-20 milliAmp transmitter boards provide a cost effective way for Original Equipment Manufacturers to engineer transmitter heads for fixed installation systems. The range of sensors that can be supplied with the transmitter are shown in Table 1.

The boards are supplied complete with sensors and are pre-calibrated in accordance with the ranges shown in Table 1. The 4-20 milliAmp output signal provides an equivalent performance to that shown individual sensor data sheets provided for each of the Alphasense “B” Series Toxic and “A” series two year oxygen sensors.

Each board is provided with two sets of mounting pillars for location of the board onto either box lid or chassis. To allow OEMs to distinguish their product from other offerings, the sensor to gas aperture design is left to the OEM to execute.

Alphasense transmitter boards offer ✪ exceptional **stability**. ✪ minimal **settling time** when put on load. ✪ wide **operating voltage range** and ✪ **low RFI susceptibility** through the use of an unbroken ground plane.

Gas	Sensor Type	Full-Scale Gas Concentration (ppm)	Ordering Code
Carbon Monoxide	CO-BF	1,000	THCO-BF
Carbon Monoxide	CO-BF	100	TLCO-BF
Hydrogen Sulfide	H2S-BE	1,000	THH2S-BE
Hydrogen Sulfide	H2S-B1	200	THH2S-B1
Hydrogen Sulfide	H2S-B1	25	TLH2S-B1
Sulfur Dioxide	SO2-BF	100	THSO2-BF
Sulfur Dioxide	SO2-BF	20	TLSO2-BF
Nitrogen Dioxide	NO2-B1	50	THNO2-B1
Nitrogen Dioxide	NO2-B1	10	TLNO2-B1
Chlorine	CL2-B1	10	TLCL2-B1
Oxygen	O2-A2	15% - 25% (Vol.)	TLO2-A2
Oxygen	O2-A2	0% - 30% (Vol.)	THO2-A2

Table 1. Transmitter Board and Sensor Product Codes

If a particular Full-Scale output is not available then contact Alphasense for availability. Transmitters for other gases may be available, contact Alphasense for current list.

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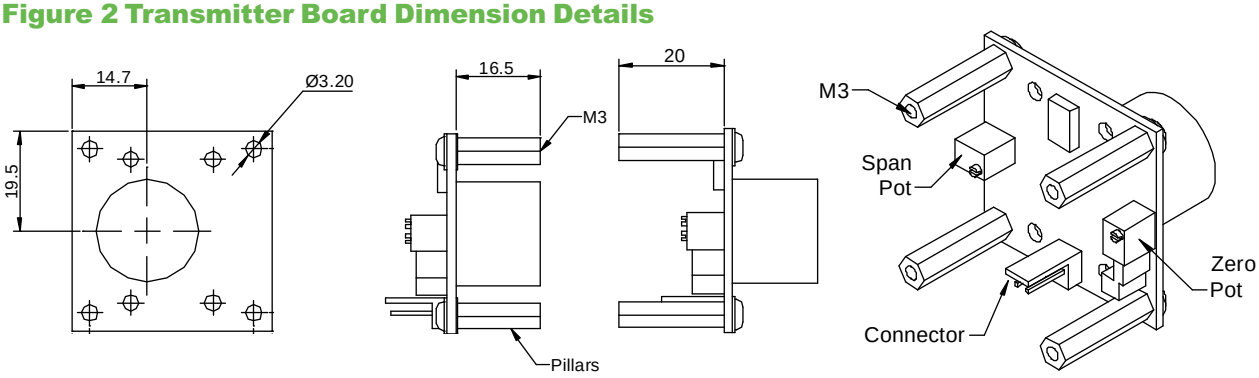
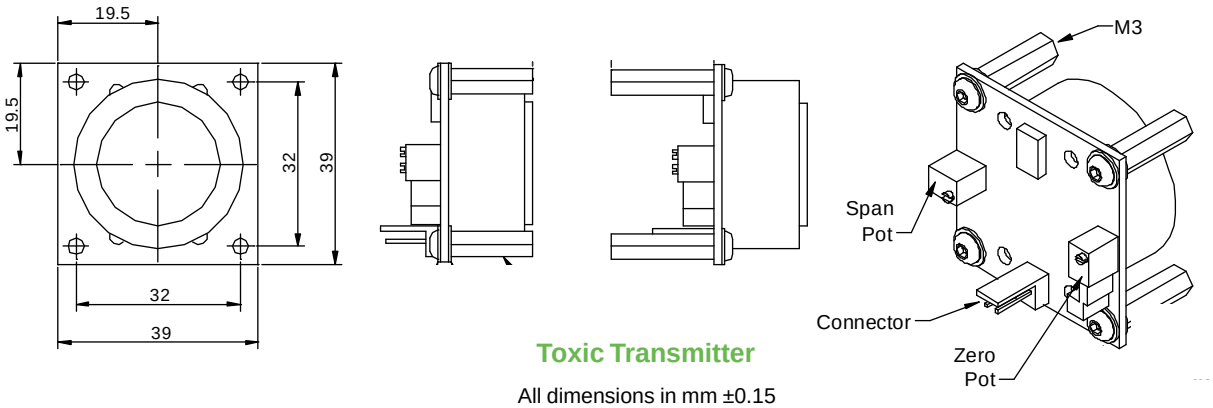
4 to 20 mA Transmitter Boards

Technical Specification

Figure 2 Transmitter Board Dimension Details



Oxygen Transmitter



Toxic Transmitter

All dimensions in mm ±0.15

Transmitter Specifications

Input Voltage Required	+7.5 to +35.0 Volts DC
Output at zero gas concentration (or 15% Oxygen)	4 mA (user adjustable)
Output at full-scale (or 25% Oxygen)	20 mA (user adjustable)
Setability /stability	<0.05mA (<0.25% Full Scale)
Maximum load @ 20 mA, 24 VDC	825 ohms
Supply voltage dependence	< ±0.2% output from +7.5 to +35 Volts DC
Connector	2 pin Molex plug (ref. 22-27-2021) supplied
PCB current requirement	<100 µA
Operating conditions	See sensor data sheet specifications
Calibration	Multiturn zero and span potentiometers
Power supply protection	Diode Protection to voltage regulator
No-power equivalent circuit (for Toxic gas versions)	Sensor electrodes short-circuited via FET
Full-scale gas concentration	Pre Calibrated (See Table 1)

Conformal Coating

The circuit board is conformally coated with an acrylic sealent to ensure a long and reliable operating life.

NOTE: as applications of use are outside 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.

For further information on the performance of sensors in the Alphasense range or any other subject, please contact Alphasense Ltd. For Application Notes visit "www.alphasense.com"