

# B-Guard Cat

## 4-20mA Amplifier Source or Sink



GasTech Australia has used the latest low power switch mode technology for the detection of Combustible gas in LEL and ppm levels.

This unique amplifier has a built in capabilities to be either a 4-20mA Source or sink, simply by the positioning of 2 jumpers. It has a head voltage operation from 1.4Vdc to 14Vdc, which will cover the full range of low voltage and high voltage sensors. It is also designed for set gain control for extra low sensitivity for ppm detection.

The use of a precise amplifier and precise offset voltage allows this to be one of the most stable amplifiers on the market. today.

Advanced calibration minimises interference between zero and span adjustment, which enables quicker and more accurate calibrations.

All components are low profile surface mount designed for ease of installation and years of trouble free operation.

Tamper proof construction  
5 Year sensor life  
RFI/EMI Resistant powder coated  
protective case  
MTBF 10 years on electronics  
10-30VDC operation  
4-20mA source or Sink output  
Simple user calibration procedure  
IECex EXd IIC

### Ordering details

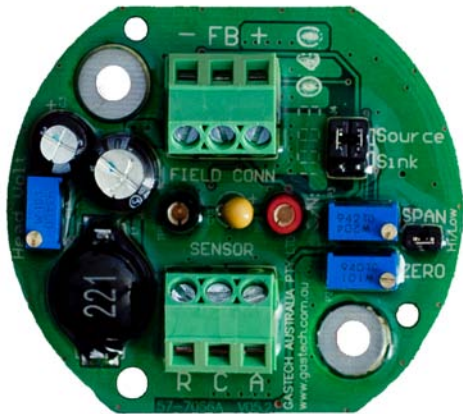
Amplifier part number 57-7056A  
Sensor part number 61-0303  
Order code: 65-5001A  
Splash guard/cal cup: 81-0303-01

### Specifications

Analog Output	4-20mA
Input Power	10-30VDC
Head volts	1.4-14VDC
Response Time	90% full response in less than 40 seconds
Operating Temperature	-20°C to +60°C
Humidity Range	10-95% non condensing
Accuracy	±2% of reading
Repeatability	1% of reading
Drift	Less than 5% signal loss per year
Certification	IEC Ex IIC 85degC
Weight	800g
Dimensions	160mm x 110mm x 80mm
Enclosure	IP66/IP67
Warranty	2 Years on electronics 1 year on sensor

# LEL Amplifier

## Calibration procedure



All Gastech Australia's amplifiers are designed to make calibration as simple and easy as possible and are designed so that no special tools are required.

Requirement for calibration

Standard Multimeter capable of measuring in mV

Calibration cup/Splash guard part number 81-0303-01

Calibration gas

Zero air gas part number 81-9987

Regulator, 1Lpm part number 81-9998

Small screw driver

### Calibration calculations

MV test point calculations measuring at TP1 and TP2.

4mA = 40mV

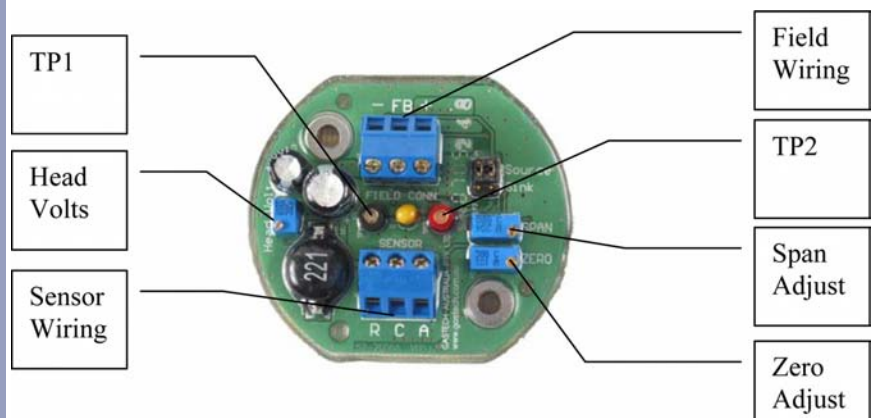
12mA = 120mV

20mA = 200mV

$\frac{160\text{mV}}{\text{Full Range}} \times \text{Span gas} + 40 = \text{mV output}$

$\frac{160\text{mV}}{100\% \text{ LEL}} \times 50\% \text{ LEL} + 40 = 120\text{mV}$

- 1) Power up the amplifier with the sensors connected for at least 1 hour to fully stabilised.
- 2) Measure the voltage between Active (A) and the Reference (R) wires on the sensor terminal block.
- 3) GasTech sensors:  
**61-0303** sensors head voltage 2.5Vdc  
**61-0203** sensors head voltage 2.4Vdc  
**61-0103** sensors head voltage 6Vdc
- 4) Adjust P1 (Head Volt) pot to the required head voltage. The pot to the right of the field connection terminal strip pot by itself.
- 5) Plug multimeter into TP1 and TP2 with the meter set to measure mV (0 to 200mV)
- 6) Apply zero air gas to the sensor and wait 30 seconds for the reading to stabilise.
- 7) Adjust P2 (Zero) pot till you obtain 40mV on the multimeter.
- 8) Apply Span gas to the sensor and wait 30 seconds for the reading to stabilise.
- 9) Adjust P3 (Span) pot till you obtain the desired output See Calibration Calculations
- 10) Repeat set 6 to confirm Zero setting



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