

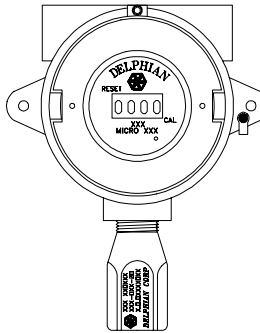
# SafeCAL/SLAM/SafePRO

## StandAlone System Combustible & Toxic Gases

Reference:

Quotation No:

Date:



### Specification

Dimensions: 152mm x 203mm x 114mm (6"x8.3"x4.5")  
Input Power: 24VDC +/-5% @ 330mA Max RFI & surge protected  
Cable length: 5,000 feet, 12 AWG (1,525 metres)  
Enclosure: 4" instrument, cast aluminium, glass window  
Indicators: 4 digit alphanumeric LED display  
%LEL/ppm alarms  
E000 Incorrect configuration  
E111 Zero calibration failure  
E222 Span calibration failure  
E333 Span < Zero  
E444 Internal diagnostic  
E555 Service warning

Controls: Magnetized calibrator which excites an integral hall effect sensor for calibration activation or system reset.

Inputs: Accepts any DELPHIAN sensor/transmitter

Outputs: StandAlone	4-20mA
calibration	1.7mA
fail	<1.0mA
Controller Based	1-5mA
Calibration	.46 mA
fail	<0.1mA

Load Impedence <300ohms

Protected against shorts to supply or ground

Cable requirements: Connects directly to Delphian transmitter

Electronics: Water & dust tight epoxy encapsulated for indoor and outdoor use

MTBF:	14.5 years	-40°C
	15 years	0°C
	7.3 years	60°C
	4.4 years	85°C

SLAM: Local Alarm Drivers  
4 relays (FAIL, LO, HI, HIHI) (LOLO for O2 only)  
Contacts form C (SPDT)  
Contact rating 2 amps @ 24VDC  
Wiring size 14 AWG maximum

Environmental: -40°C to +85°C (-40°F to 185°F)

Hazardous location rating: Depending on gas & sensor type  
Class 1, Group A, B, C, D environments by FMRC.  
Class 1, Groups B, C, D environments by CSA.

SafePRO: Software, MS-DOS 3.3 & higher compatible  
Configure & interrogate SafeCAL memory

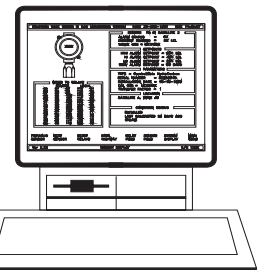
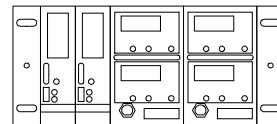
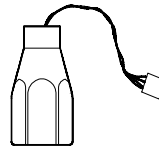
Warranty: 2 years

### Assembly Design

- Microcontroller based stand-alone gas detection system using digital technology to monitor sensor operation, store calibration parameters, calibrate and generate alarm information.
- C.A.T. (Computer Aided Testing) quality controlled.
- Modular component design concept.
- Digital Hall effect sensors provide operator control of calibration and system reset sequences. (DELPHIAN patent 4,476,706).
- The microcontroller is encapsulated and contains the system memory, watchdog timer and analog circuitry.
- The sensor is connected to an epoxy encapsulated electronic transmitter with its constant temperature circuit.
- The optional encapsulated SLAM fits between the transmitter and SafeCAL modules. Provides LO, HI, HIHI or LOLO and FAIL relays.
- Encapsulation guarantees reliability without concern for moisture and dirt.
- SafeCAL is designed for 3 wire connections (+, - and signal).
- RFI and surge protection circuits are built in.
- SafePRO configuration kit can be installed on any IBM PC or compatible using MS-DOS version 3.3 or higher.
- SafePRO enables configuration changes of a SafeCAL. Changes can be implemented for the sensor type, scale, transfer factor, calibration gas/concentration, output, alarm setpoints, relay functions

### Construction

- Stand-alone. Modular construction for SafeCAL, SLAM and transmitter components.
- The SLAM module can be mounted separately in its own conduit box.
- The sensor housing is of either aluminium or stainless steel design with a flame arrestor, both conforming to Class I, Division 1 Groups A, B, C, D.
- Sensor and electronic components are assembled via gold-plated "quick" connectors.
- Electronics are shock and water proof and a lightning arrestor is available for use in applications where high-energy transient suppression is necessary.
- The sensor and electronics are available in explosion-proof housings which are FMRC and CSA rated.
- The sensor can be mounted externally on a duct using a reclamation adaptor or at a remote location using a ported adaptor.
- Calibration is performed by attaching a gas bottle with regulator to either the ported adaptor for remotely installed sensors or to the calibration adaptor for sensors installed within easy access to the operator.
- Dust cover and/or a foam splash/wind guard is available for severe environmental and operational conditions.



Delphian's SafeCAL system connects with all Delphian combustible & toxic gas sensor/transmitters, Flexiracks, SAGE systems and PLC/DCS systems