



# CTS - M18

## CTS - M18 SERIES CARBON MONOXIDE TRANSMITTER/SENSOR

The CTS-M18 Series is a microprocessor based transmitter. It uses a gas specific solid state semiconductor sensor for the detection of Carbon Monoxide. Typical application is enclosed parking facilities. QEL Engineers, through extensive research and development, have designed the M18 to be an industry leader in performance and application. The M18 offers good value. Standard features within the M18 can only be found as expensive options in other manufacturers' product. Temperature compensation is standard to maintain accuracy. A digital display (LCD), push-button programming and onboard meter jacks are all standard. The transmitter provides an analog output of 4-20 mA DC or 2-10 VDC, linear to the measured gas range, for transmission to the Building Automation System (BAS) or controller supplied by QEL or others. The signal is fully user assignable over the gas range and can be configured for rising or falling gas concentration. In addition, RS-485 communication is built in. Input voltages of 24 VDC or 24 VAC with wide tolerances are acceptable. Relay set points may be set as increasing or decreasing actuation simply by adjusting the deadband relationship. Set the deactuation point above the actuation setpoint and the M18 will automatically alarm on decreasing concentrations. Relay setpoints are always present even though relays themselves are an option. Calibration is very easy - simply apply the cal gas and the microprocessor handles all calculations and adjustments, allowing hands-free and attention-free calibration. The standard enclosure is a fire retardant Polycarbonate / ABS blend.

### MODEL NUMBER ORDERING CODE

C	T	S	-	M	1	8	1	6	X	-	Q	0			0	0	0
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Revision (Factory Provided) — X

Enclosure - Wall Mount — Q

Options (Enter 0 for No Selection)

Relays (2) — R

Conformal Coating — W



### PRINCIPLE OF OPERATION

The solid state sensor utilizes a sintered tin dioxide element. When the sensor is heated to a high temperature, free electrons flow easily when no oxygen is present. In clean air (20.9% oxygen) the oxygen is absorbed onto the element surface causing a restriction to the electron flow thus increasing the electrical resistance of the element. As the sensor is exposed to the target gas, the tin dioxide element adsorbs molecules of the target gas and displaces oxygen molecules in a process known as oxidation. In the presence of CO, the sensor's conductivity increases depending on the gas concentration in the air. The microprocessor based electronics measures this change in conductivity and converts it to a 4-20 mA DC or 2-10 VDC output. The microprocessor performs an algorithm to linearize the final signal.

# SPECIFICATIONS

**Input Power:** 24 Volts AC Floating  
24 Volts AC One side grounded  
24 Volts DC

**Sensor Type:** Solid state semiconductor, Gas specific

**Sensor Life:** Typical 5 to 7 years


**Enclosure Materials:** Polycarbonate / ABS blend  
Fire Retardant

**Output Signal \*:** Analog, 4-20 mA or 2-10 VDC (linear)  
Digital, RS-485

**Temperature:** -20° C to 40° C

**Display:** Alphanumeric - 2 line X 8 digit LCD

**Humidity:** 0 to 99% RH, non-condensing

**Relay(s) Output:** Two, Single pole double throw (SPDT),  
(optional)  CSA 1500 V FCC Part 68

**Pressure:** Atmospheric ±10%

**Response Time:** Less than 180 seconds  
for 90% of step change


**Time Delays:** Actuation - 0 to 60 minutes in  
5 minute increments  
De-Actuation - 0 to 60 minutes in  
5 minute increments

**Accuracy:** ± 5% of reading

**Repeatability:** ± 2 ppm

**Mounting:** Screw mounts to a standard 2" X 4"  
electrical junction box.

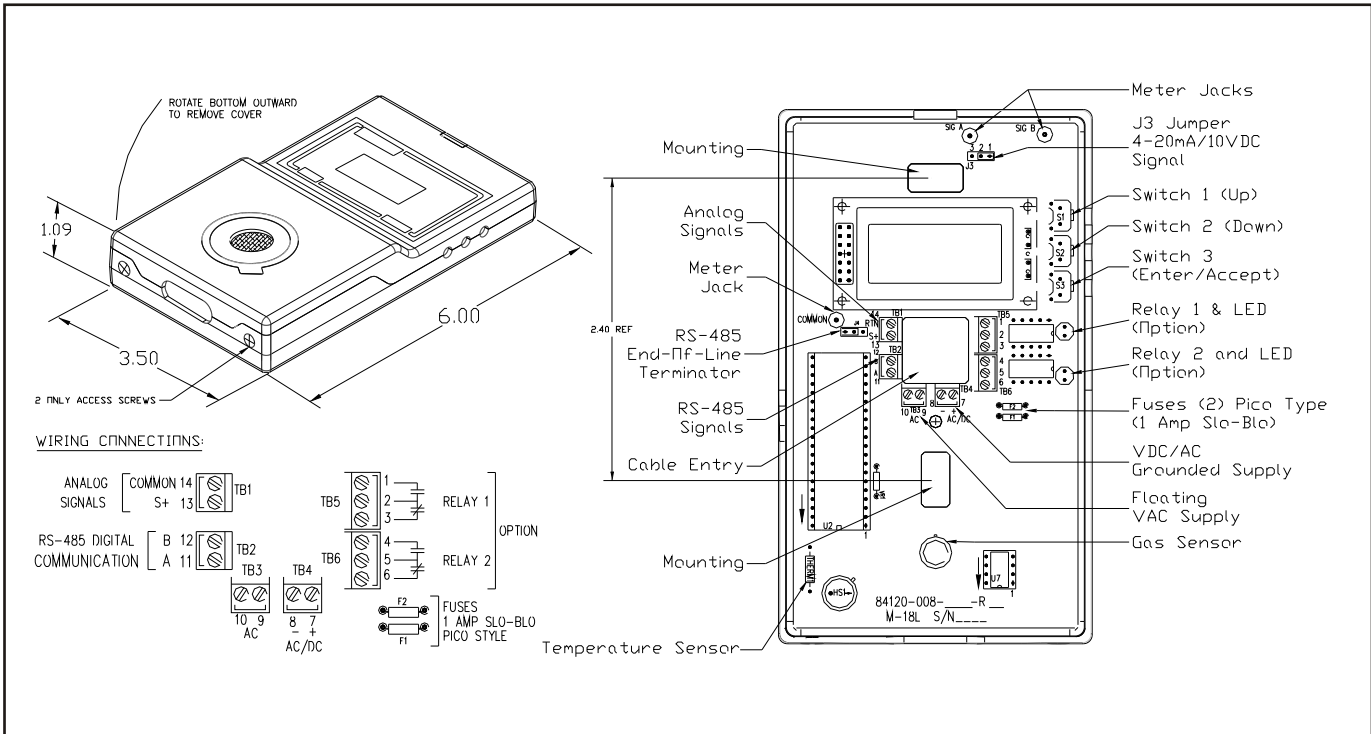
**Range:**  
Standard 0 to 125 ppm  
User Programmable 0 to 500 ppm

**Approval:**   
(PENDING)

**\* FULLY ASSIGNABLE 4-20 mA or 2-10 VDC OVER CHOSEN RANGE**

*4 mA / 2 VDC may be set anywhere in range, 20 mA / 10 VDC may be set anywhere in range*

*Signal is assigned linearly between the two points  
Signal may be rising or falling with gas concentration*



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This brochure includes general specifications which are subject to change without notice. Ensure a complete understanding of all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

**Read and understand fully all instructions before using these products**

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