QEL CTS-M5 Series Toxic Gas Transmitter / Sensors

The CTS-M5 Series is a microprocessor based transmitter. It uses an Electrochemical gas sensor to detect a variety of gases. Typical applications are enclosed parking facilities, refrigeration rooms and oxygen storage rooms. QEL Engineers, through extensive research and development, have designed the M5 to be an industry leader in performance and application. The M5 offers good value. Standard features within the M5 can only be found as expensive options in other manufacturers' product. A digital display (LCD), push-button programming and on-board 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 others. The signal is fully user assignable over the gas range and can be configured for rising or falling gas concentration. In addition, the RS-485 communications is built in. Input voltages of 24 VDC or 24 VAC with wide tolerances are acceptable. Relay setpoints may be seen as increasing or decreasing actuation simply by adjusting the deadband relationship. Set the deactuation point above the actuation setpoint and the M5 will automatically alarm on decreasing concentrations. Relay setpoints are always present even though the relays themselves are an option. Calibration is very easy – simply apply the calibration gas and adjust the potentiometer to the desired reading on the display. The standard enclosure is a fire retardant Polycarbonate/ABS blend.

PRINCIPLE OF OPERATION

Electrochemical gas sensors are micro-fuel cells designed to be maintenance free and stable for long periods. Gas continuously enters the self-contained cell through a flow limiting diffusion barrier. The target gas reacts within the electrolyte creating a microamp current flow between the electrodes. No fluid replenishment is required as these cells are not self-consuming. The cell electrodes degrade with time resulting in a typical working life of 2 to 3 years.The CTS-M5 transmitter is powered by a nominal 24 V external power supply in a two-wire connection. It transmits a 4-20 mA, 2-10 V, or an RS-485 signal over the calibrated range of the sensor selected. The transmitter is factory configured and calibrated for the sensor selected when ordered as a complete assembly. This universal transmitter accepts any of the listed sensors into a plug-in socket on the board. Calibration is achieved through a simple zero and span adjustment using the appropriate calibration gas concentration for the sensor installed.

MODEL NUMBER ORDERING CODE

C	T	S	–	M	5				X	–	Q	0			0	0	0

Gas Ordering Code
(See Below for Code)

Revision (Factory Provided) ..... **X**

Enclosure - Wall Mount ..... **Q**
Enclosure - Duct Mount ..... **D**
Nema 4X ..... **N**

Relays (2 X SPDT & Buzzer) ..... **R**

Gas Type	Number	Maximum Range
Oxygen – O_2	130	0 - 25% v/v
Nitrogen Dioxide – NO_2	150	0 - 10 ppm
Carbon Monoxide – CO	160	0 - 250 ppm
Nitric Oxide – NO	190	0 - 200 ppm
Ammonia – NH_3	220	0 - 100 ppm

QUATROSENSE ENVIRONMENTAL LIMITED

Tel: 613-838-4005
www.QELsafety.com

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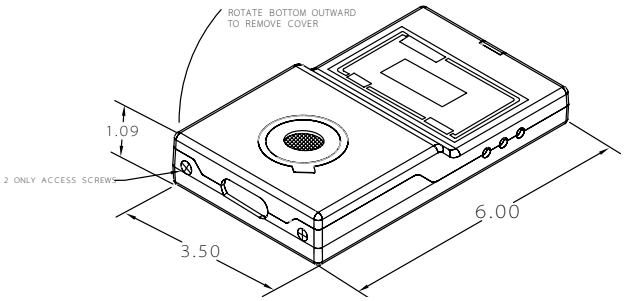

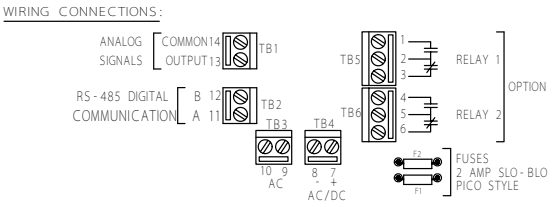

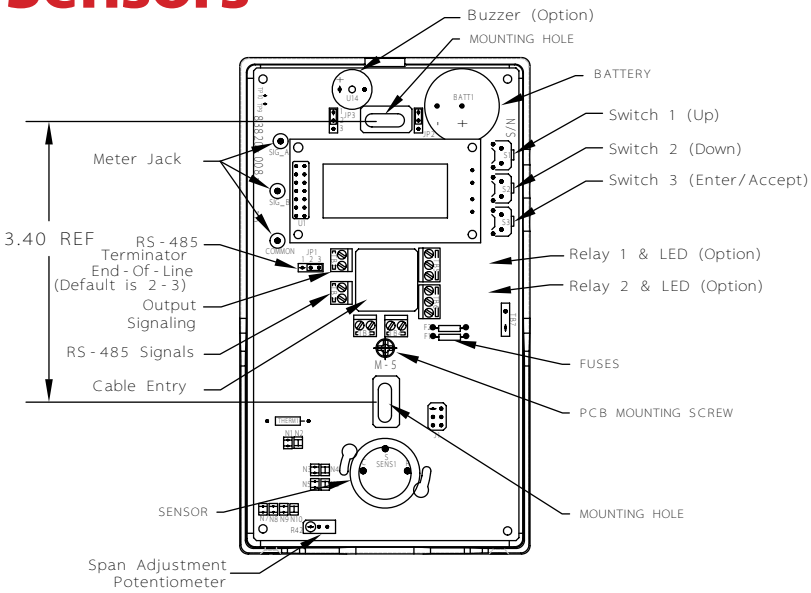

ELECTRICAL AND MECHANICAL SPECIFICATIONS

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

Enclosure Materials: Polycarbonate / ABS blend
Fire Retardant

Temperature: -20° C to 40° C (-4° F to +104° F)

Humidity: Continuous 15 to 90% RH, non-condensing
Intermittent 0 to 99% RH, non-condensing

Pressure: Atmospheric ±10%

Response Time: Less than 60 seconds for 90% of step change

Accuracy: ± 2.5% of reading

Repeatability: ± 1% of reading

Factory Set Range:

O_2	0 to 25% v/v
NO_2	0 to 6 ppm
CO	0 to 125 ppm
NO	0 to 100 ppm
NH_3	0 to 50 ppm

Sensor Type: Electrochemical

Sensor Life: Typical 2 to 3 years, 7 years CO

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

Display: Alphanumeric – 2 line X 8 digit LCD

Relay & Buzzer: (optional) Two, Single pole double throw (SPDT), Form C,1 amp dry contact
CSA 1500 V FCC Part 68
85dB @ one foot

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

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

*** 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

Ensure a complete understanding of all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

QUATROSENSE ENVIRONMENTAL LIMITED
5935 Ottawa Street, Richmond, Ontario, Canada K0A 2Z0
Phone: 1.613.838.4005 Fax: 1.613.838.4018
Email: QEL@QELsafety.com www.QELsafety.com