

# QEL QTS-6000 Toxic Transmitter / Sensors



The QTS-6000 Series is the latest advancement in economical analog output toxic gas transmitters. This universal transmitter can be easily configured via solderless shorting links for any of a wide variety of plug-in electrochemical sensors. The compact sensor elements have a typical life of two to three years, are easily field replaceable, and do not require electrolyte replenishment. With rapid response to target gas and stable zero readings, these sensors retain their sensitivity to gases such as H<sub>2</sub>S even after prolonged exposure to clean air. The two wire transmitters are available in a variety of ABS or explosion-proof rated NEMA enclosures. The transmitter operates on a power supply range of 12-36 VDC with an output of 4-20 mA DC into 750 Ohms (at 24 VDC), making it useable with any standard intrinsic safety barrier. With integral RFI and EMI protection, this is the most robust transmitter available in its class.

## PRINCIPLE OF OPERATION

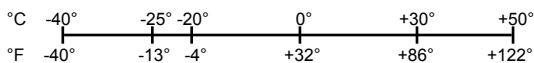
Electrochemical gas sensors are micro-fuel cells designed to be maintenance free and stable for long periods. Gas continuously enters the self-contained cell through a flow limiting diffusion barrier. The target gas reacts within the electrolyte creating a microamp current flow between the electrodes. No fluid replenishment is required as these cells are not self-consuming. They work by catalyzing the combustion of the target gas using atmospheric oxygen. The cell electrodes degrade with time, resulting in typical life span of 2 to 3 years.

The QTS-6000 transmitter is powered by a nominal 24 VDC external power supply in a two-wire connection. It transmits through the same two wires a 4-20 mA DC 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, or an integrally mounted sensor assembly on the industrial enclosure. Solderless shorting links configure the board for a specific sensor type. Calibration is achieved through a simple zero and span adjustment using the appropriate calibration gases for the sensor installed.

## GAS SELECTION TABLE

Gas Type	Number	RANGE**	TEMP °C*
Transmitter Only	000	NONE	---
Hydrogen Sulphide – H <sub>2</sub> S	110	0 – 25 ppm	-40 to +50
Hydrogen Cyanide – HCN	115	0 – 20 ppm	-20 to +50
Chlorine – Cl <sub>2</sub>	120	0 – 3 ppm	-20 to +50
Chlorine Dioxide – ClO <sub>2</sub>	123	0 – 1 ppm	-20 to +50
Hydrogen Chloride – HCl	125	0 – 10 ppm	-20 to +50
Sulphur Dioxide – SO <sub>2</sub>	140	0 – 6 ppm	-20 to +50
Nitrogen Dioxide – NO <sub>2</sub>	150	0 – 6 ppm	-20 to +50
Carbon Monoxide – CO	160	0 – 250 ppm	-20 to +50
Nitric Oxide – NO	190	0 – 100 ppm	-20 to +50
Hydrogen – H <sub>2</sub>	211	0 – 2000 ppm	-20 to +50
Ammonia – NH <sub>3</sub>	220	0 – 50 ppm	-25 to +30
Ozone – O <sub>3</sub>	240	0 – 3 ppm	-20 to +50

\* Temperature operating range given in degrees Celcius. See chart below for Fahrenheit equivalent



\*\* Standard ranges, please inquire for other possible ranges.

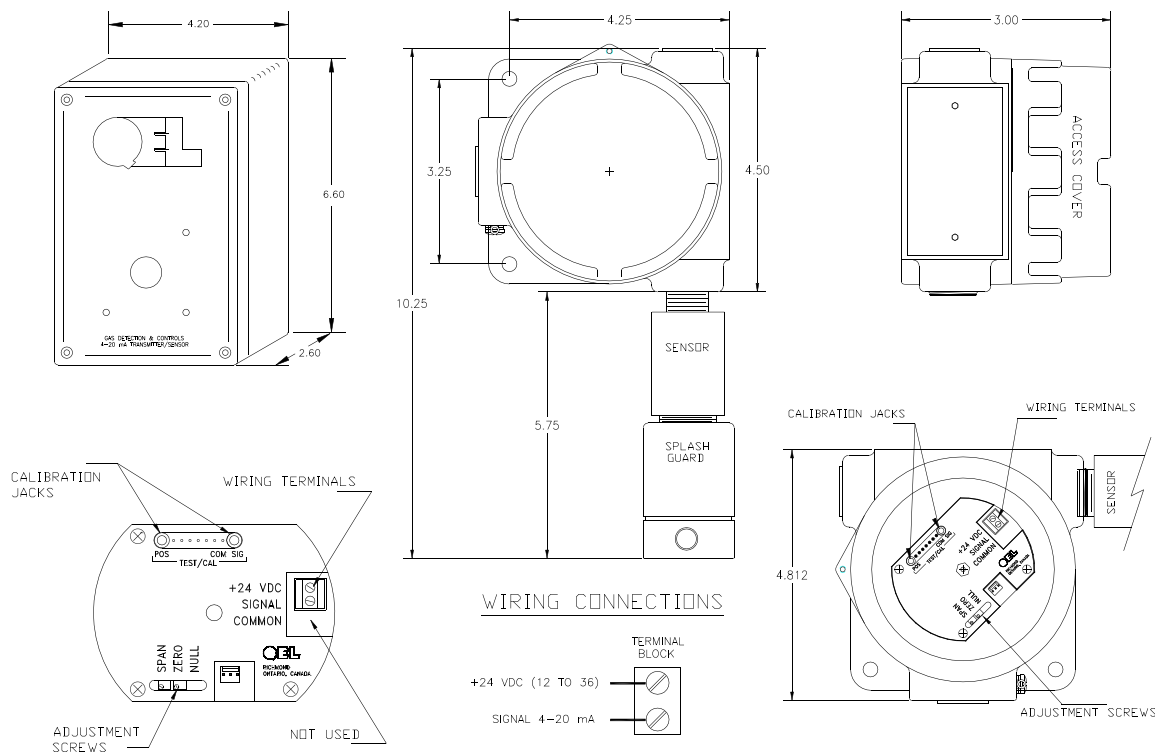
## MODEL NUMBER ORDERING CODE

Q T S - 6 1 X - 0 0





- Transmitter Type**
  - Non-indicating Analog Output
- Gas Type** (See Gas Selection Table for #)
- Revision** (Factory Provided)..... **X**
- Enclosure**
  - Commercial Nema 1 ..... **C**
  - Commercial Nema 4X c/w splash guard..... **N**
  - Commercial Nema 1 Ductmount..... **D**
  - Industrial Nema 4X,7,9 c/w Alum. sensor housing ..... **E** (note 1)
  - Industrial Nema 4X,7,9 c/w S.S. sensor housing ..... **S** (note 1)
- Options** (Enter 0 for No Selection)
  - Conformal Coating** ..... **W**
  - Splash Guard** for Industrial Enclosure ..... **G**
  - Low Temperature** Heater Option (-40°C, note 2)..... **L**
  - Non-Standard Calibration**..... **X**
  - Special** (Consult Factory) ..... **S**

Note 1 - Cl<sub>2</sub>, ClO<sub>2</sub>, HCl, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub> and O<sub>3</sub> sensor assemblies are NOT explosion-proof rated.  
 Note 2 - Available only in type C enclosure ONLY. Requires a power supply.

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## ELECTRICAL AND MECHANICAL SPECIFICATIONS

<b>Input Power:</b>	12 to 36 VDC	<b>Response Time:</b>	Typical less than 60 seconds for 90% response to a step change
<b>Fuse:</b>	0.5 Amp socketed pico fuse	<b>Sensor Life:</b>	Typical 2 to 3 years
<b>Output Signal:</b>	4 to 20 mA DC into 750 ohms at 24 VDC, Two-wire configuration	<b>Sensor Gas Types:</b>	Field configurable for any sensor from Sensor Selection Table
<b>RFI / EMI Protection:</b>	4.0 Watt at 1 meter radiated	<b>Temperature - Sensor:</b>	See Sensor Selection Table
<b>Enclosure Rating:</b>	C, D – NEMA Type 1 General Purpose N – NEMA Type 4X Weatherproof E – NEMA Type 4X Weatherproof, Type 7 and 9 Explosion Proof; Class 1, Div. 1, Groups B,C,D Aluminum Sensor Housing also Group A rated. S – Same as E above except with 316 Stainless Steel Sensor Housing	<b>Temp. - Transmitter:</b>	-40° to +50° C (-40° to +122° F)
		<b>Humidity - Sensor:</b>	15 to 90% RH continuous operating, non-condensing,
		<b>Humidity - Transmitter:</b>	0 to 99% RH, non-condensing, operating and storage
		<b>Pressure:</b>	Atmospheric ± 10%
		<b>Accuracy:</b>	± 2.5% of Reading
<b>Enclosure Materials:</b>	C, N, D – ABS Plastic	<b>Repeatability:</b>	± 1.0%
<b>Sensor Technology:</b>	Electrochemical, non-consuming		

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



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This brochure includes general specifications which are subject to change.