

QEL QTS-1710 Combustible Transmitter / Sensors



The QTS-1710 Series utilizes catalytic pellistor bead technology for the measurement of combustible gases. The standard sensor is resistant to poisoning substances such as silicones, sulphur compounds, and chlorinated compounds. It is mounted in an explosion-proof housing rated Class 1, Division 1, Groups A, B, C, and D. The transmitter provides a 4-20 mA DC output linear to the LEL (Lower Explosive Limit) of the calibrated combustible gas. The analog transmitter operates on a power supply of 12-30 VDC in a three wire configuration and is mounted in an explosion-proof housing rated Class 1, Division 1, Groups B, C and D. Test jacks are provided to monitor the transmitter signal without interrupting the output.

PRINCIPLE OF OPERATION

Sensor assemblies consist of two matched pellistor beads, each encasing a coiled platinum wire. One of the beads is coated with platinum as a catalyst. Both elements are exposed to the same environmental conditions and heated with the platinum wire. The elements are connected to two nodes of a Wheatstone Bridge on the transmitter electronics, measuring the resistance of each element. When combustible gas is introduced to the elements, the catalyst coating on one bead will cause oxidation. This will raise the temperature of the element, increasing the resistance. This oxidation does not occur on the bead without the coating. The resultant difference in resistance is proportional to the concentration of combustible gas. The electronics provides a null adjustment to balance the resistance of the two elements in clean air conditions. The resistance differential is linearized and converted into a 4-20 mA DC signal proportional to a 0-100% LEL concentration of the target combustible gas. Zero and span adjustments are provided to calibrate the transmitter for a specific combustible gas.

NOTES:

All transmitters are calibrated using a correlation method with Methane calibration gas and detection constants as shown. Calibration with actual target gas is available upon special request. Code **S** for special in options group.

MODEL NUMBER ORDERING CODE

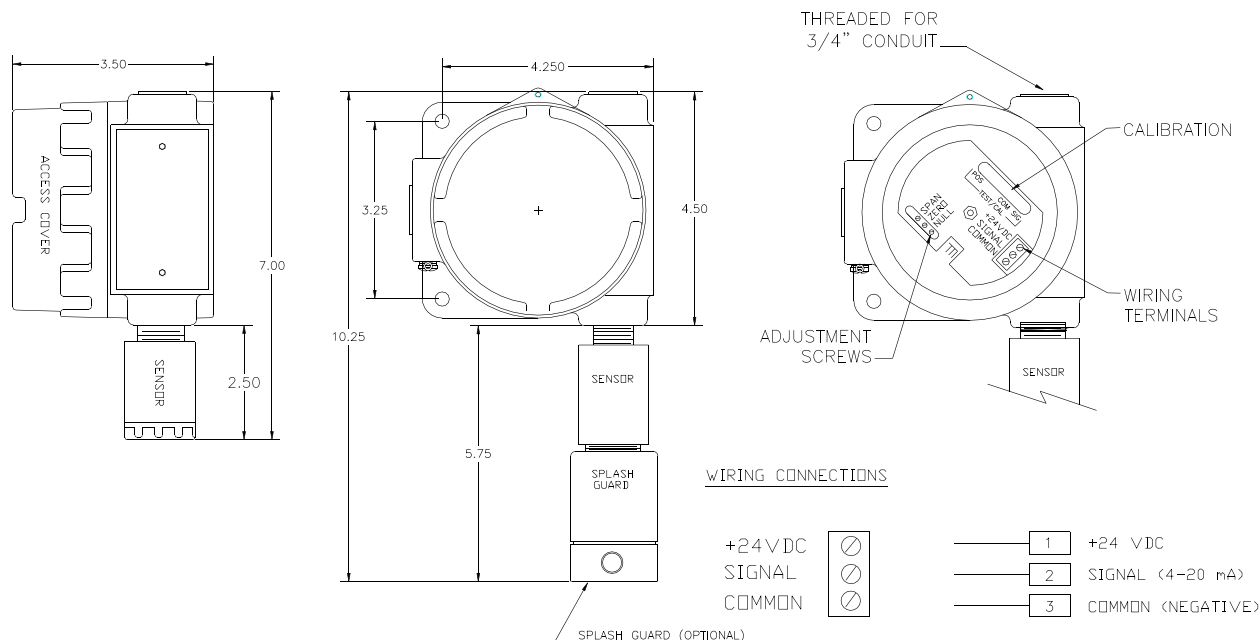
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- Gas Type** (See Gas Selection Table for #)
- Transmitter Type** Non-indicating analog output
- Revision** (Factory Provided)..... **X**
- Enclosure (Industrial Nema 4x, 7, 9)**..... **S**
comes with 316 Stainless Steel sensor housing
- Options** (Enter 0 for No Selection)
 - Protective Sensor Guard**..... **P**
 - Remote Calibration Adapter** **F**
 - Duct Mount**..... **D**
 - Conformal Coating**..... **W**
 - Non-Standard Calibration**..... **X**
 - Special** (Consult Factory)..... **S**

GAS SELECTION TABLE COMBUSTIBLE GASES

Gas Type	Number	100% LEL in % Volume	Detection Constant
Methane	0	5.0 %	112
Acetylene	1	2.5 %	63
Ethane	2	3.0 %	76
Propane	3	2.1 %	62
n-Butane	4	1.6 %	66
n-Pentane	5	1.5 %	51
n-Octane	6	1.0 %	42
Hydrogen	7	4.0 %	86
Gasoline	8	1.3 %	44
Other	9	Advise	Advise

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ELECTRICAL AND MECHANICAL SPECIFICATIONS

Input Power: 12 to 30 VDC, 125 mA maximum

Output Signal: 4 to 20 mA DC into 700 ohms at 24 VDC, Three-wire configuration

Enclosure Rating: S – NEMA Type 4X Weatherproof, Type 7 and 9 Explosion Proof; Class 1, Div. 1, Groups B,C,D 316 Stainless Steel Sensor Housing is also Group A rate

Enclosure Materials: S – Cast Aluminum, Epoxy Coated

Sensor Technology: Dual element poison resistant catalytic pellistor bead

Sensor Gas Types: Hydrocarbon combustible gases



Response Time: Less than 10 seconds to register 50% of a full scale step change
Less than 30 seconds to register 90% of a full scale step change

Sensor Life: Typical 3 to 5 years

Temperature: -40° to +50° C (-40° to +122° F)

Humidity: 0 to 99% RH, non-condensing

Pressure: Atmospheric ± 10%

Accuracy: ± 1% LEL Methane

Repeatability: ± 1% LEL Methane

Zero Drift: <2% of range/month at 68° F (20° C)

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.