



Wired Monitoring Solutions

Millenium Infrared Gas Monitor

Fixed Monitor for Hazardous Gas Detection

FEATURES:

- Virtually maintenance free infrared sensing technology
- Low cost of ownership with over five years operating life
- Rugged stainless steel construction with fast response time
- Requires no routine calibration to ensure proper operation
- Fault indications for all failure states
- Patented self-compensating optics with no moving parts
- Heated optical chamber prevents condensation
- A multi-layered filtering system protects optics from dirt and water ingress
- Straight optical path eliminates the need for reflective surfaces, such as mirrors or beam splitters
- Performs well in the presence of high concentrations or constant background levels of hydrocarbons and in oxygen depleted atmospheres
- Highly resistant to poisoning and etching
- Standard 4-20 mA output (source)
- Explosion proof housing designed for harsh environments
- Certified for C1 Div 1 locations and C22.2 No. 152
- Transmitter Options:
 - ST-44 with Color Display, Ethernet web server, Modbus TCP, Modbus RS-485 and relays
 - ST-48 with Backlit LCD Display, Modbus RS-485 and relays
 - Wireless WaveCast



Diffusion "Smart" Sensor with Splash Guard and Cal Port

CSA Performance Approved

The MILLENIUM infrared gas detector is a microprocessor based intelligent gas detector that continuously monitors for combustible hydrocarbon gases and vapors within the Lower Explosive Limit (LEL).

The MILLENIUM is ideally suited for use in harsh environments and where the cost of required maintenance for conventional catalytic detectors is prohibitive. These infrared gas detectors perform reliably in the presence of silicone and other catalyst poisoning agents and operate in oxygen free environments or where high background gas levels are present.

The MILLENIUM is a standalone device providing a continuous 4-20 mA output with no local readout. It is easily mated with our ST-44 or ST-48 Sensor Transmitters as pictured above. ST-44's add a vivid color display and ethernet port with web server and modbus TCP interface. The ST-48 adds a backlit LCD with optional relays and modbus RS-485 port. Both make it possible to offer a dual gas monitor by adding a toxic sensor for gases such as H₂S, SO₂, chlorine, ammonia and many others.

The MILLENIUM Infrared gas detector uses infrared absorption technology for detecting combustible hydrocarbon gases. Gases absorb infrared light only at certain wavelengths. The concentration of a gas can be measured by the difference of two channels (wavelengths), a reference and a measurement channel. The MILLENIUM uses a collimated infrared light source that passes through a waveguide, at the end of the waveguide is a dual channel receiver. The dual channel receiver measures the intensity of two specific wavelengths, one at an absorption wavelength and another outside of the absorption wavelength. The gas concentration is determined by a comparison of these two values.

MILLENIUM is a user friendly and easy to install complete GAS DETECTION SOLUTION.

SPECIFICATIONS

Detection Method

Diffusion – Optional sample draw (requires a minimum of 1 liter per minute flow rate.)

Output (analog): 4-20mA (Source Type), max 1000 Ohm

Response Time

T50 < 5 seconds

T90 < 10 seconds

Construction

316 Stainless Steel

Class 1, Division 1, Groups B, C and D

Accuracy

+/- 3% LFL, 0 to 50% LFL (Lower Flammable Limit)

+/- 5% LFL, 51 to 100% LFL

Operating Temperature Rating

-40° to + 70° C at 0 to 99% RH (non-condensing)

Operating Range

18 to 32 VDC measured at the detector head

Power Consumption

5 Watts Max

Max Current Draw

(at 24VDC): Average: 210mA Peak: 400mA

Approvals

C22.2 No. 152-M1984 (R1997)

Performance Tested

Installation Category

Cat 1, Pollution Degree 2

Weight

5 lbs (2.3 Kg.)

ORDERING INFORMATION

Unit Status Chart

4-20 mA	Normal measuring mode
0.0 mA	Unit Fault
0.2 mA	Reference Channel Fault
0.4 mA	Analytical Channel Fault
0.8 mA	Unit Warm up
1.0 mA	Optics Fault
1.2 mA	Zero drift fault
1.6 mA	Calibration fault
2.0 mA	Unit spanning
2.2 mA	Unit zeroing
4.0 mA	Zero gas level
5.6 mA	10% LEL
8.0 mA	25% LEL
12 mA	50% LEL
16 mA	75% LEL
20 mA	100% LEL
20.1-23 mA	Over range (> 100 %)

Available Gases

Acetone	Iso-Butane
Acetylene	Isopropyl Alcohol (IPA)
Butyl Acetate	Jet Fuel
Carbon Dioxide	JP4
Cyclopentane	JP5
DF 2000	JP8
Diesel	Methane
Dimethyl Ether	Methanol
Ethane	Methyl Amyl Ketone
Ethanol	n-Butane
Ethylene	Pentane
Gasoline	Propane
Green Earth	Propane with Methane rejection
Hexane	Propylene
Kerosene	

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RC SYSTEMS

RC Systems has engineered and manufactured industrial electronic products for the instrumentation industry since 1979. As critical alarm monitoring experts, we specialize in interfacing various sensors and analyzer devices to our alarm and display products. Our products are known for their reliability, performance, and ease of use for applications where maintenance and safety are crucial. Some of these applications include fixed and temporary ambient gas detection as well as numerous other multi signal monitoring applications. In addition, we provide various solutions for hard wire or wireless systems. Our wireless monitoring ability/strategy continues to provide recognized solutions for countless customers worldwide.



ST-49 Toxic/ Oxygen 2-wire 4-20mA sensor Transmitter With Fault

The RC Systems Model ST-49 is a 2-wire 4-20mA Sensor Transmitter . It accepts low power toxic or oxygen electrochemical sensor modules and functions in a 2-wire 4-20mA "sink" mode to transmit gas values to an appropriate receiver device.

Electrochemical toxic/oxygen sensor element



FEATURES

- Field replaceable toxic/oxygen sensor module.
- Range and target gas configured on sensor module.
- Improves system noise immunity because low level sensor signals are protected within the stainless steel sensor head.
- Industry standard 4-20mA signal may be transmitted thousands of feet on 2-wires.
- Suitable for Division 1 and 2 hazardous areas. May be installed as an intrinsically safe device with a barrier, or, explosion-proof for NEMA 7 installations.
- Missing sensor forces <2mA FAULT indication.
- Designed for use with our 1, 2, 4, 16 or 64 channel Controllers. Calibration is not possible at the ST-49 and may only be performed at the 4-20mA receiver.
- 2-wire 4-20mA signal is nonpolar with protective "steering diode" interface.
- Standard "Fault Supervision" circuitry continuously monitors for failed sensor. 4-20mA output transmits <2mA during failures.

SPECIFICATIONS

SENSOR INTERFACE MODULE

Industry standard electrochemical type sensor with range configuration resistor and shorting transistor integrated into "smart" sensor module. 10-0242EC for "Series 7" or 10-0272EC for "Series 4" sensors

ANALOG OUTPUT

2-wire 4-20mA current sink; 9-36 VDC; less than 2mA FAULT value transmitted in case of missing or faulty sensor module. Max output = 25mA

NRTL CSA APPROVALS (File # 219995)

ST-49 (10-0248) is Division 1 and 2 Group A,B,C,D Exia. Suitable for Explosion Proof and Intrinsically Safe installations
ST-48IS (10-0248IS) without flame arrestor is Division 1 and 2 Group A,B,C,D. Suitable for Intrinsically Safe installations only
IMPORTANT: Intrinsically Safe installations require IS barrier number 10-0263 (MTL 7787P+) or equivalent

CALIBRATION

None. Calibration function must be provided by the 4-20mA receiver. RC Systems ST-90, ST-71 and ST-72 controllers are designed to provide this function

ACCURACY

± 5% of full scale

AMBIENT TEMPERATURE RANGE

-40 - 60 degrees C

TEMPERATURE DRIFT

Less than .1% per degree C over ambient temperature range

POWER SUPPLY

9-36 VDC @ 25mA

HOUSING

316 Stainless or aluminum (10-0248 IS) enclosure suitable for Class 1, Groups A,B,C,D; Class 2, Groups E,F,G

ST-49 MODELS

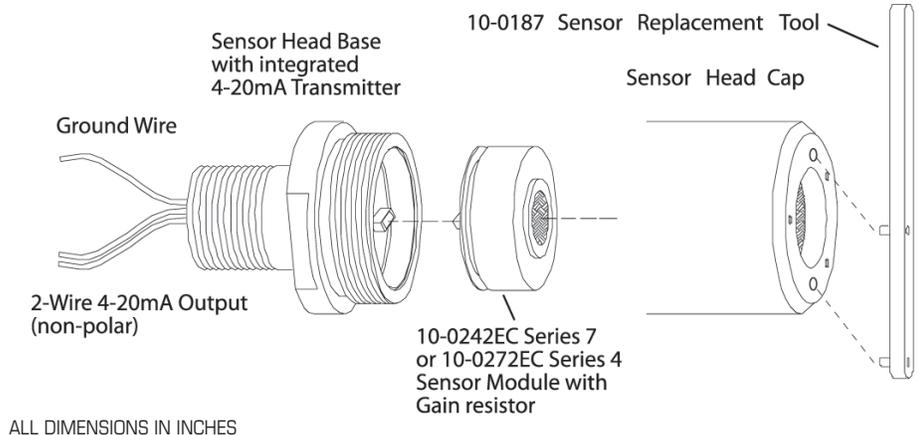
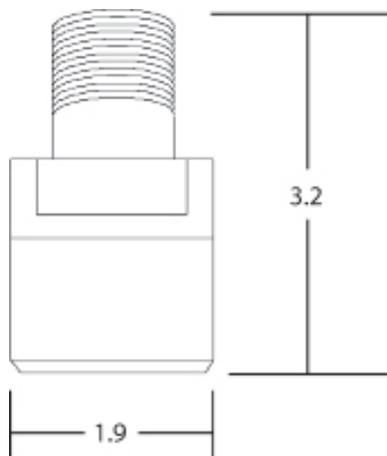
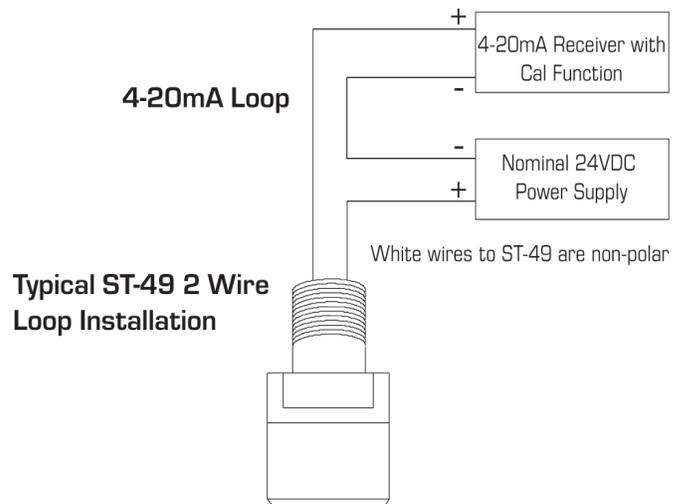
10-0248 T-49 Stainless Steel with flame arrestor
10-0248IS ST-49 Aluminum without flame arrestor

Series 4 or 7" industry standard Echem sensors supplied by user. Specify micro amps full scale and when ordering. For sensors requiring bias, add "-BIAS" suffix when ordering.

ST-49 ACCESSORIES

*10-0242EC Series 7 Echem Interface PCB without sensor
*10-0272EC Series 4 Echem Interface PCB without sensor
10-0193 ST-49 junction box
10-0198 Sensor splash guard with remote calibration port
10-0203 Sensor calibration cup
10-0205 Sensor flow cell for process monitoring
10-0187 Sensor replacement tool kit

*Either a Series 7 or Series 4 Sensor Interface PCB is required



ALL DIMENSIONS IN INCHES



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