

**Model MIR**  
**MSHA Approved IR Gas Detector****APPLICATION**

The Det-Tronics Model MIR is a diffusion based point-type infrared (IR) gas detector that provides continuous monitoring for methane gas in underground mining applications. The gas detection system is approved by MSHA as permissible for use in gassy mines (Approval No. 18-A070003-0).

The Model MIR consists of an IR sensor and a gas transmitter. The IR gas sensor provides superior performance when compared to catalytic sensors. The IR sensor cannot be poisoned like catalytic sensors and has a faster response time. In addition, it has a longer service life and requires less routine maintenance. Unlike catalytic sensors, IR sensor performance is not adversely affected by oxygen depletion or exposure to high concentrations of hydrocarbons.

The transmitter is an easy to use, robust gas detection transmitter with advanced programming and unique diagnostics capabilities. An alphanumeric display indicates the gas concentration (0-5% methane by volume) and identifies the nature of any system fault condition. The transmitter provides a 4 to 20 milliampere output signal that corresponds to the detected gas concentration. Optional alarm and fault relay contacts are available.

**FEATURES AND BENEFITS**

- MSHA Approved as a permissible gas detector system
- Optimized for detection of methane gas
- Transmitter display shows 0-5% methane by volume
- Minimum routine maintenance
- Longer service life than catalytic bead sensors
- Fail-safe operation
- Continuous self-tests
- Automatic fault diagnostics and graphic message annunciation.
- Automatic indication of dirty optics or other faults
- Easy filter replacement in the event of clogging
- Easy non-intrusive calibration using the internal magnetic reed switch, or an externally located pushbutton (not included).
- Optional relay package provides three alarm relays (high, low, and auxiliary) and one fault relay.
- Explosion-proof aluminum housing

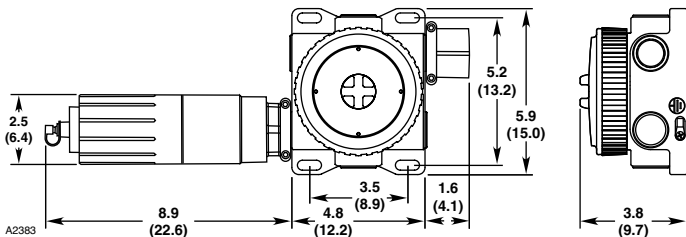
# SPECIFICATIONS

## SENSOR

<b>Input Voltage</b>	24 Vdc nominal. Operating range is 18 to 30 Vdc including ripple.
<b>Current Output</b>	Linear 4 to 20 mA current source (non-isolated).
<b>Detection Range</b>	0 to 5% methane by volume.
<b>Accuracy *</b>	±0.15% by volume from 0 to 2.5%, ±0.25% by volume from 2.55% to 5% (at +25°C).
<b>Stability (Temp) **</b>	Zero: ±0.1% by volume from -40°F to +167°F (-40°C to +75°C).  Span: ±0.25% by volume at 2.5% from -13°F to +167°F (-25°C to +75°C).  ±0.5% by volume at 2.5% from -40°F to -13°F (-40°C to -25°C).
<b>Stability (Time) **</b>	(12 months) ±0.1% by volume.
<b>Repeatability *</b>	Zero: ±0.05% by volume. Span: ±0.1% by volume at 2.5% (at +25°C).
<b>Temperature Range</b>	Operating: -40°C to +75°C (-40°F to +167°F). Storage: -40°C to +85°C (-40°F to +185°F).
<b>Humidity</b>	0 to 99% relative humidity (non-condensing)
<b>Response Time</b>	T90 in 15 seconds.
<b>Ingress Protection</b>	IP66, NEMA 4.
<b>Materials</b>	Aluminum with Polyphthalamide weather protection baffle.

\* Based on a calibration at room temperature of 0-5% methane by volume.

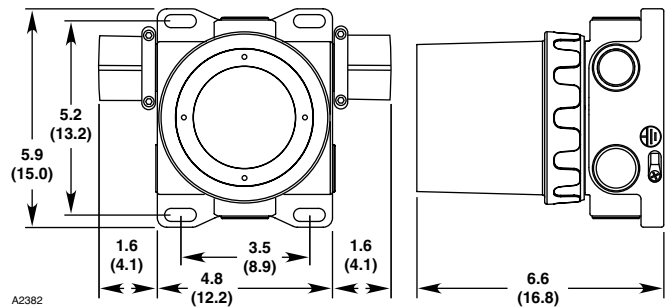
\*\* Based on a calibration of 0-5% methane by volume.



Dimensions of Sensor with PIRTB Termination Box in Inches (Centimeters)

## TRANSMITTER

<b>Input Voltage</b>	24 Vdc nominal. Operating range is 18 to 30 Vdc including ripple.
<b>Current Output</b>	Linear 4 to 20 mA output, with maximum loop resistance of 600 ohms. Selectable isolated or non-isolated operation. Factory-set 2.0 mA output indicates unit is in Calibration or Setup mode (field adjustable). Less than 1.0 mA output indicates fault condition.
<b>Relays (Optional)</b>	<u>Three Alarm relays:</u> Form C contacts, rated 5 amperes at 30 Vdc. Selectable as a group for normally energized or de-energized coil. Low and auxiliary alarm relays selectable together for latching or non-latching contacts. High alarm contacts are always latching. <u>One Fault relay:</u> Form C contacts, rated 5 amperes at 30 Vdc. Normally energized for no fault condition with power applied to device.
<b>Display</b>	Eight character alphanumeric display indicates power-on, gas concentration, alarm and fault.
<b>Display Range</b>	0 to 5.0% methane by volume.
<b>Temperature Range</b>	<u>Operating:</u> -40°F to +167°F (-40°C to +75°C). <u>Storage:</u> -67°F to +185°F (-55°C to +85°C).
<b>Wiring</b>	18 AWG minimum is recommended for power wiring to the transmitter. Larger diameter wire may be required to maintain a minimum of 18 Vdc at the transmitter for all operating conditions. Maximum wire size for terminals is 12 AWG.
<b>Enclosure Materials</b>	Epoxy coated 356 alloy aluminum.



Dimensions of Transmitter in Inches (Centimeters)



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Specifications subject to change without notice.