

PRELIMINARY

Specifications Subject to Change
3/16/07



APPLICATION

The Det-Tronics Model MIR is a diffusion based point-type infrared (IR) gas detector that provides continuous monitoring for hydrocarbon gases 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.

The sensor can be mounted directly to the transmitter housing, or it can be separated up to 50 feet for installation in inaccessible areas.



FEATURES AND BENEFITS

- MSHA Approved as a permissible gas detector system
- Responds appropriately to light hydrocarbons (Ethylene)
- 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

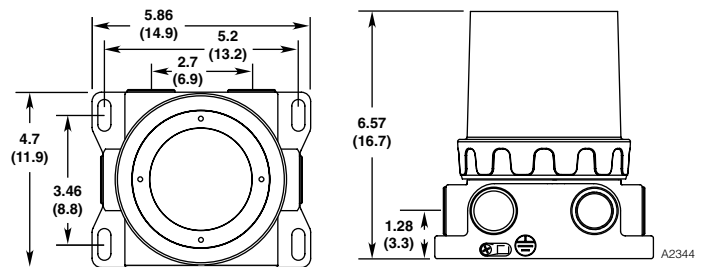
SENSOR

Input Voltage	24 Vdc nominal. Operating range is 18 to 30 vdc including ripple.
Current Output	Linear 4 to 20 mA current source (non-isolated).
Detection Range	0 to 5% methane by volume.
Accuracy *	±0.15% from 0 to 2.5%, ±0.25% from 2.55% to 5%
Stability (Temp) **	Zero: ±0.1% from -40°F to +167°F (-40°C to +75°C). Span: ±0.25% at 2.5% from -13°F to +167°F (-25°C to +75°C). ±0.5% at 2.5% from -40°F to -13°F (-40°C to -25°C).
Stability (Time) **	(12 months) ±0.1%.
Repeatability *	Zero: ±0.05%. Span: ±0.1% at 2.5%.
Temperature Range	Operating: -40°C to +75°C (-40°F to +167°F). Storage: -40°C to +85°C (-40°F to +185°F).
Humidity	0 to 99% relative humidity (non-condensing)
Response Time	T90 in 15 seconds.
Ingress Protection	IP66, NEMA 4.
Wiring	Five 22 AWG wires, 20 inches (50.8 cm) long.
Materials	Aluminum with Polyphthalamide weather protection baffle.

TRANSMITTER

Input Voltage	24 Vdc nominal. Operating range is 18 to 30 vdc including ripple.
Current Output	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.
Relays (Optional)	<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.
Display	Eight character alphanumeric display indicates power-on, gas concentration, alarm and fault.
Display Range	0 to 5% methane by volume.
Temperature Range	<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).
Wiring	18 AWG minimum is recommended for power wiring to the transmitter. Larger diameter wire may be required to maintain a minimum of 16 vdc at the transmitter for all operating conditions. Maximum wire size for terminals is 12 AWG.
Enclosure Materials	Epoxy coated 356 alloy aluminum. (Standard with two conduit entries.) 316 stainless steel (optional).

Dimensions



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

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



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