Modular Gas Detectors

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The MGD range of gas detectors are designed to accurately monitor gas levels in ambient air. The detector gives traffic light indication: Green (normal), Yellow (warning), and Red (alarm). The detectors are configured to monitor Oxygen, Carbon Dioxide, or Hydrogen gas levels. The gas detectors are designed for mounting inside the gas-containing room, with the option for a Repeater Unit to be mounted outside the gas-containing room.

The gas detectors contain the following:

- Replaceable sensor with a long life
- 110V AC, 24V AC, 18-60V DC power supply options
- Two internal relays for external devices
- Two analog outputs
- Output to an external strobe
- 4-second alarm delay to prevent false activation
- Modbus RS485 for connection to MGD-R (Repeater) unit
- 80 dB internal audio warning, activated when gas detection reaches Alarm level
- Self-test button to simulate a test to ensure the configured systems, outputs, alarms, indications, and other external devices operate as intended
- Gas detectors are factory-calibrated when shipped
- Gas detectors display an “End of Life” screen to indicate that the sensor has reached the end of its operational life

Model	Target Gas	Pre-Alarm	Alarm	Measuring Range
MGD-O2	Oxygen (O2) Depletion	<19.5%	<18.5%	0-25%
MGD-O2	Oxygen (O2) Enrichment		>23%	0-25%
MGD-CO2	Carbon Dioxide (CO2)	>0.5% Vol	>3%	0-3% Vol
MGD-H2	Hydrogen (H2)	>1% Vol	>2%	0-2% Vol

MGD-O2

The Oxygen MGD offers protection in areas where the level of atmospheric oxygen may be depleted due to a high concentration of an inert gas such as Nitrogen, or for use in an area where high concentrations of oxygen are stored. The sensor is set by default to trigger low-going alarms at both 19.5% and 18.5%, and a highgoing alarm at 23%.

MGD-CO2

The Carbon Dioxide MGD offers protection for people working in the proximity of high-concentration sources of CO_2. The sensor is set by default to trigger a low-level alarm at 0.5% CO_2, and an evacuation alarm at 3.0% CO_2.

Gas Detector Unit

Repeater Unit

MGD-H2

In addition to cylinder room monitoring, the Hydrogen MGD is a solution for monitoring gas leakage from stationary fuel cell systems which transform combustible gases into hydrogen. As the sensor possesses a proprietary filter material inside its sensor cap, its cross sensitivity to organic vapors is small. The sensor is set by default to trigger a warning at 1.0% H_2 and an alarm at 2.0% H_2.

MGD-Repeater Unit

The MGD-R, repeater unit, can be configured as part of a Modbus controlled gas detection system, incorporating up to three (3) gas detectors. The repeater unit features a display screen showing the status of up to three gas detectors.

The MGD-Repeater Unit requires 120VAC power input. The repeater unit can power up to three MGD gas detectors by providing 24VDC to each unit. An RS485 cable carries the data from the gas detectors back to the repeater unit.

A manual test circuit button allows for testing without the need to access the connected detectors in the system, allowing for a convenient way to monitor the gas detection system.

Alarm Outputs

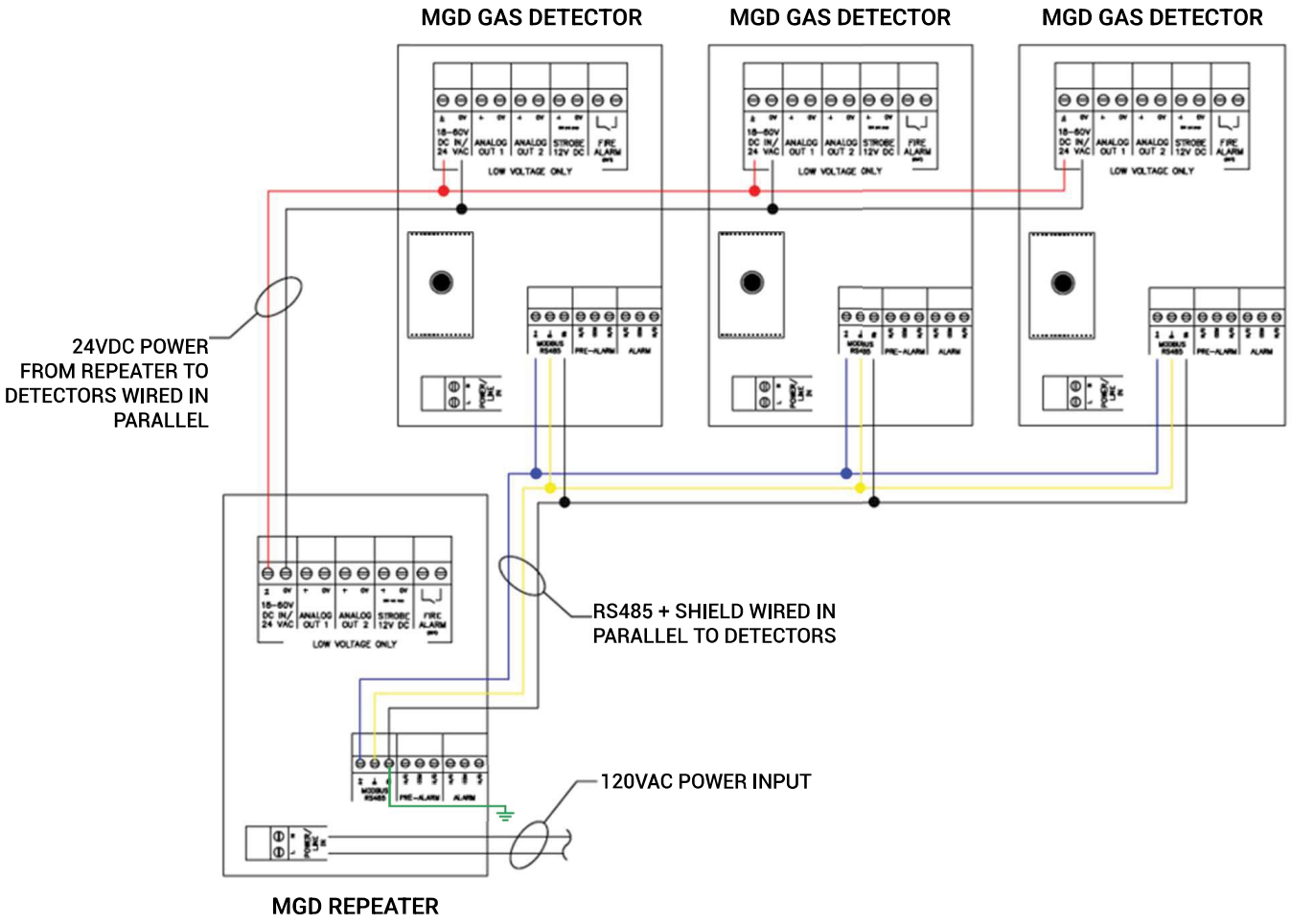
The detector has 10 Amp internal pre-alarm and alarm relays. When the gas level reaches Pre-Alarm level, the contact will close. This relay is suitable for driving a ventilation system or activating a warning alarm. When the gas level reaches Alarm levels, the contact will close. This relay is suitable for activating a danger warning alarm.

The detector has a Strobe connection that provides 12V DC output power to an external strobe and will activate when the Alarm level is reached.

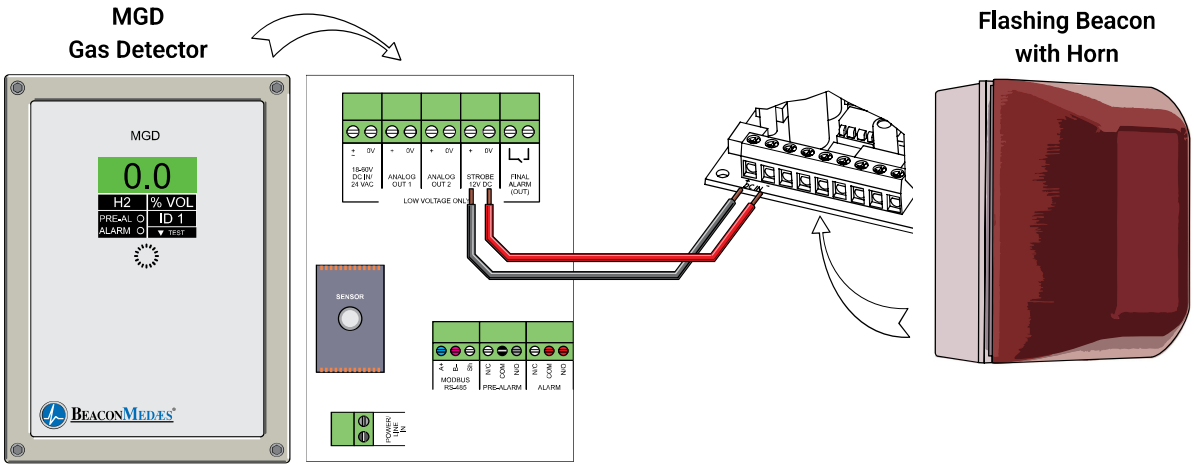
The detector has an alarm connection that provides a 1A normally open dry contact output to an external alarm. The output will be activated at the Alarm level.

The detector has two Analog outputs configurable for 4-20mA or 2-10V outputs (4-20mA by default). This output can be used to regulate an external fan speed, or as an output to a TotalAlert alarm. Please note: the TotalAlert Infinity alarm panel cannot properly display the analog output from the Oxygen MGD for Oxygen depletion, so the 10 Amp internal relays should be used instead.

Wiring Monitors and Repeater Unit



Wiring the Flashing Beacon



Note: Wires/cables shown in wiring diagrams provided by installing electrician.

Part Numbers

Part Numbers - Modular Units	
2205606610	MGD-O2 Modular Gas Detector, Oxygen Depletion and Enrichment
2205606611	MGD-CO2 Modular Gas Detector, Carbon Dioxide
2205606612	MGD-H2 Modular Gas Detector, Hydrogen
2205606613	MGD-R Modular Gas Repeater Unit

Part Numbers - Flashing Beacon	
2205606666	Flashing Beacon with Horn (Red)
2205606667	Weather Proof Cover for Flashing Beacon

Part Numbers - Spare Parts	
2205610089	Replacement Sensor Module - Oxygen
2205610090	Replacement Sensor Module - Carbon Dioxide
2205610091	Replacement Sensor Module - Hydrogen
2205610092	Test Gas - Oxygen Bump Test Kit
2205610093	Test Gas - Carbon Dioxide Bump Test Kit
2205610094	Test Gas - Hydrogen Bump Test Kit

Specifications

MGD: Technical Specifications	
Size (H x W x D)	5.95" x 4.37" x 1.97"
Housing Material	ABS PA765 Flame Retardant UL 94V-1
Weight	7.5 oz
Display	1.8" TFT
Rated Voltage	110V AC, 24V AC, 18-60V DC
Electrical Safety & EMC	BS EN 61010-1:2010 +A1:2019. & BS EN 50270
End-of-Life Years	H2, CO2 = 10 years, O2 = 5 years
Operating Temperature	-10° - 40° C (14° - 104° F)

MGD: Installation Height	
Target Gas	**Typical Install Height**
Oxygen	Breathing Zone: 4-6 ft from ground level
Carbon Dioxide	1 ft from floor
Hydrogen	1 ft from ceiling

Flashing Beacon: Technical Specifications	
Size (H x W x D)	Flashing Beacon: 4.83" x 3.25" x 2.73" Weatherproof Cover: 8.5" x 6.5" x 5.75"
Siren Volume	Low: 85 dB at 1' High: 100 dB at 1'
Alert Tone	32 selectable sounds
Operating Voltage	12-24 VDC

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