Critical Environment Technologies™

Self Contained - GAS DETECTION DATASHEET

GEM-MRI Oxygen Sampling System

FIXED SYSTEM DATASHEET

GEM-MRI is a self-contained oxygen (O_2) monitoring system developed for Magnetic Resonance Imaging (MRI) room applications for hospitals and clinics. Since electronic equipment does not operate well inside the MRI room due to the strong magnetic field, these systems are designed to be installed outside of the MRI room with a sample hose running from the monitoring system to the sampled environment.

Features include 24 VDC or 24 VAC (nominal), integral O_2 sensor, integral sample pump and flow meter, measurement range of 0 - 25% volume O_2, LED digital display of real time O_2 levels, two adjustable levels of O_2 alarms, audible alarm (80 dB @ 10') with silence / acknowledge push-button, two only dry contact relays rated 5 amps @ 240 VAC SPDT, and 4 - 20 mA analog output signal. All GEM-MRI O_2 sampling system are packaged with an LPT-A transmitter with an internal O_2 sensor.

The system is accurate enough to measure to government established exposure levels for O_2 deficiency for health and safety.

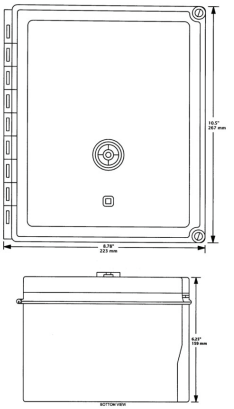
KEY FEATURES

» LED digital display for real time oxygen readings
» Audible alarm with silence push-button
» Dry contact relays for control of remote devices
» Analog output (4 - 20 mA)
» Sample draw pump
» Adjustable flow meter
» Oxygen sensor (3 year)
» Two 5-amp SPDT relays
» RoHS compliant circuit boards
» CSA & UL certified

APPLICATIONS

» MRI rooms

TECHNICAL DRAWING



SAMPLE ENGINEERING SPECIFICATIONS

Oxygen Monitoring System for MRI Rooms in Hospitals and Clinics
Supply a self-contained Oxygen monitoring system model GEM-MRI for the monitoring of Oxygen levels in MRI rooms in hospitals and clinics in a wall mount, water/dust tight, corrosion resistant polyester reinforced fiberglass enclosure with hinged, secured door. The GEM-MRI shall have an LED digital display for indicating real time Oxygen values, audible alarm with silence push-button, two field adjustable alarm levels, analog output, internal sample pump, and an adjustable flow meter.

GEM-MRI should be wall mounted outside of the MRI room with flexible tubing running from the inlet port fitting to the area to be monitored inside the MRI room. If the exhausted sample air must be directed someplace else other than the room where the GEM-MRI is installed connect flexible tubing to the outlet port fitting. Internal flow meter must be adjusted for proper flow rate after installing tubing. Installing contractor should supply and connect 24 VAC or 24 VDC (nominal) power to the instrument. The instrument should be powered up all the time to avoid warm up delays for the Oxygen sensor.

System operation shall be as follows. The GEM-MRI constantly monitors the target area air and indicates real time Oxygen levels on the display. Normal Oxygen levels in a room with good air exchange are approximately 20.8% to 21.0% volume. If the Oxygen level drops below 19.5% the low level alarm LED (amber) is illuminated and the low alarm relay is de-energized. If the Oxygen level drops below 18.0% the high level alarm LED (red) is illuminated, the high alarm relay is de-energized and the audible alarm is activated. The audible alarm can be silenced by the on board "silence" push-button. Once the Oxygen level stabilizes, the visual alarm and relay will reset. The audible alarm will also reset automatically if nobody has silenced it manually. Oxygen sensor life span is approximately three years. If the Oxygen level drops dramatically low, and the system goes into full alarm and will not recover or reset, the Oxygen sensor may have expired. Regular maintenance should be conducted at a frequency of twice per year.

Contractor shall provide all wiring, conduit and hose required for a successful installation. System should be on-site tested after installation and warm up. A service report should be generated for reference.

More specification samples are available at **www.critical-environment.com.**

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TECHNICAL SPECIFICATIONS

MECHANICAL

Enclosure	Water / dust tight corrosion resistant polyester reinforced fiberglass
Weight	1.1 kg (2.5 lb)
Size	8.8" x 10.5" x 6.3" (223 mm x 267 mm x 159 mm)
Display	LED digital display

ELECTRICAL

Power Requirement	24 - 28 VAC or 18 - 26 VDC
Current Draw	500 mA
Wiring	14 - 18 gauge (incoming power to system)
Circuit	Analog design with microprocessor and user settable time delays, accessible with DIP switches on circuit board.
Fuse	Automatic resetting thermal

INPUT / OUTPUT

Outputs	Linear 4 - 20 mA
Alarm	Audible alarm (80 dB @ 10 ft)
Relay	Two SPDT dry contact relays, rated 5 amps @ 240 VAC.

USER INTERFACE

Displays	LED digital display
Audible	Integral piezo audible alarm rated 80 dB @ 10' c/w door mounted silence push-button.
Time Delays	
Delay "ON" (on make), DIP switch	Low alarm relay: 2 minutes High alarm relay: 5 minutes
Delay "OFF" (on break), DIP switch	Also known as "minimum run time" Low alarm relay: 10 minutes High alarm relay: not available
Audible (on make), DIP switch	10 minutes
	NOTE: Time delays can be changed by user.

ENVIRONMENTAL *(sensor dependant)*

Operating Temperature	-20°C to 50°C (-5°F to 120°F)
Humidity	15 - 90% RH non-condensing

CERTIFICATION

CSA	Certified
UL	Certified

WIRING

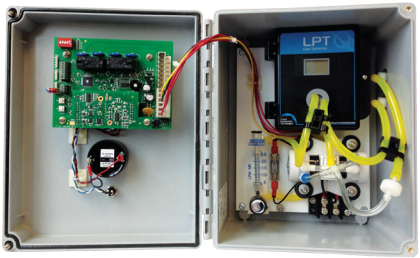
Coming soon...

PRODUCT CODES

Oxygen (O_2), 0 - 25% volume	GEM-MRI

ACCESSORIES

Calibration kit for 17 - 103 L cylinders, 0.5 LPM flow regulator & adapter to fit 17 L cylinder	CET-715A-CK1
Heavy duty, large, metal protective guard, 16 gauge, galvanized	SCS-8000-SPG



The picture above shows the inside of the GEM-MRI.