

# ODEM-1 Oxygen Deficiency/Enrichment Monitor Installation Guidelines

EMS Healthcare LLC has developed the **ODEM-1** specifically for detecting gas concentrations in confined spaces such as a gas manifold room with only one entry/exit.

The **ODEM-1** (ODEM-1095) performs continuous oxygen deficiency and enrichment monitoring using a highly accurate, calibrated oxygen sensor within the confined space and displays the oxygen concentration in real-time on a remote display unit installed outside the entry door. The remote unit includes both audible and visual indicators if oxygen levels are outside OSHA specified limits.



**FIGURE 1 - REMOTE  
DISPLAY UNIT**

## Physical Installation

The remote display unit (Figure 1) should be installed outside the entry door to the gas manifold room where personnel who need to enter the room can see the O<sub>2</sub> reading and detect the audible and visual alarms if the reading is outside the safe range.

The remote display unit can be wall-mounted using the available screw holes in the upper and lower wall-mount flanges on the enclosure. Mounting hardware is not included.

Once the remote display unit is located, the O<sub>2</sub> sensor can be located within the gas manifold room (see Figure 2). The ODEM-1 includes a 5m long cable between the remote display unit and the O<sub>2</sub> sensor so the sensor location is constrained by this cable length. After the O<sub>2</sub> sensor location within the room is identified, considering cable length and routing, the sensor should be wall-mounted at a height of 1.5m which is approximately nose height for an adult human.



**FIGURE 2 - MANIFOLD ROOM LAYOUT**

## Electrical Installation

The remote display unit requires a 120VAC source which should be provided from an essential power circuit. See Figure 3 for electrical connections inside the unit cover. Cable penetrations are typically made through the backwall of the enclosure.

Terminal	Signal Description	Wire Color
1	O2 Sensor Power	Brown
2	O2 Sensor Power Return	White
3	O2 Signal	Blue
4	BAS connection (if equipped)	
5	BAS connection (if equipped)	
6	120VAC Input Ground	Green
7	120VAC Input Neutral	White
8	120VAC Input Power	Black

TERMINAL STRIP

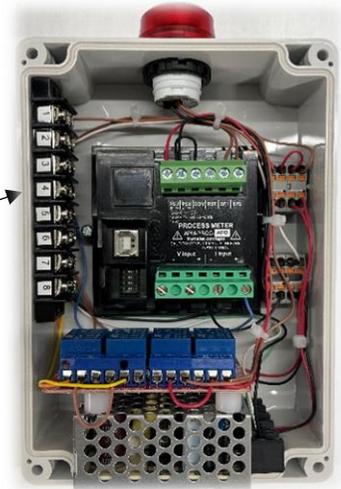


FIGURE 3 - INSIDE COVER

**CAUTION:** The sensor cable connector must be mated to the O2 sensor module prior to 120VAC power being applied to the unit.

## Specifications

<b>Part Number</b>		<b>ODEM-1095</b>
<b>Description</b>		Oxygen monitoring for deficiency (<19.5%) and enrichment (>23.5%) levels. If either level is exceeded, a local visual/audible alarm is triggered.
<b>Performance</b>	<b>Response Time</b>	Within 1 second of any change in oxygen levels
	<b>Accuracy</b>	± 0.5% of FS
	<b>Repeatability</b>	± 1% of reading
	<b>Operating Temp</b>	-40° to 122°F (-40° to +50°C)
	<b>Humidity</b>	0 – 98% RH, non-condensing
<b>Oxygen Monitoring</b>	<b>Range</b>	0 – 95% oxygen concentration
	<b>Sensor Gas Interface</b>	1/2" NPT male threaded connection
	<b>Sensor Electrical Interface</b>	M8 4-pole connector with keyway (5m connectorized cable included with unit)
<b>Alarm</b>	<b>Local Alarm</b>	Red flashing beacon and 95dB intermittent buzzer only when oxygen levels are outside safe limits
	<b>Relay Output (if equipped)</b>	2-wire dry contact, normally open relay commanded closed during normal operation (opens on alarm below 19.5% or above 23.5% O2 or loss of power). Can be connected to Facility Alarm Panel or Building Automation System.
<b>Electrical</b>	<b>Voltage Source</b>	110-120 VAC, 60 Hz (internal power supply includes type T slow-acting fuse on the line path to protect 120VAC input power circuit)
	<b>Power (max)</b>	5 Watts including oxygen transducer
<b>Physical (Control Unit)</b>	<b>Dimensions</b>	5" (W) x 7" (H) x 3" (D)
	<b>Weight</b>	6.5 pounds (2.9 kg) including transducer and wiring
	<b>Enclosure Type</b>	NEMA 1,2,4,4X rated, polycarbonate, indoor/outdoor use