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ENOM

Electrochemical NO Monitor for Tunnels

The ENOM tunnel monitor measures the concentration of nitric oxide (NO) within an ambient environment such as road, rail, meteorological or other industrial application.

These measurements can be used as part of an air quality management system for ventilation control within a traffic tunnel or other confined space.

The ENOM is a fixed sensor, which uses an electrochemical cell for NO detection. The ENOM consists of a Sender Unit and a 'plug-in' Sensor Module, which are mounted together on the wall or ceiling of the tunnel. The Sensor Module is pre-calibrated and stores all necessary data relating to type identification, sensing range and specific calibration. This data is automatically recognised by the Sender Unit when the module is fitted.

Using an electrochemical cell means that the ENOM combines good sensitivity at low gas concentrations with high range capability and excellent stability. Electrochemical cells contain an electrolyte that is gradually consumed during use, influenced mostly by the duty cycle, ambient temperature and humidity. Therefore, the Sensor Module requires replacement / recalibration every 6 to 12 months to ensure accuracy of response. The sensor modules are pre-calibrated plug-in units which can be quickly and conveniently replaced, which means calibration gases are not required. Replacement sensor modules are available from Acoem Dynoptic.

The ENOM is an intelligent sensor with 4-20 mA output and the option of RS485 serial communication protocols. It has two visual output alarm signals for GENERAL alarm and HIGH alarm. Default values are entered during manufacture and these can be adjusted to preferred values.

Benefits

- **Designed for in-situ monitoring in tunnels or similar confined spaces**
- **Proven electrochemical measurement of NO**
- **Pre-calibrated "plug-in" sensor modules for ease of replacement**
- **Backlit LCD display providing clear sensor information and diagnostic data**
- **Compatible with BS EN 50545-1:2011**
- **Rugged and reliable, with ingress protection to IP65**

Specification

Measurement Performance

Item	Parameter	Units	Min	Max	Comment
1	**Measurement Range**	ppm	0	50	
2	**Resolution**	ppm		1	Display resolution
3	**Accuracy**	ppm %	-1 -2	+1 +2	
4	**Response Time** - T90 - T63	s		 40 20	
5	**Temperature Stability**	%	-3	+3	Over full temperature range
6	**Span Drift**	% / Month	-1	+1	
7	**Calibration Interval**	Months	6	12	Replace or recalibrate sensor module

Power

8	**Voltage**	Vdc	+24		90 - 260 Vac with optional PSU
9	**Voltage Tolerance**	%	-10	+10	
10	**Nominal Current Consumption**	mA		40	
11	**Power Up Current Consumption**	mA		50	

Interface Options

12	**Analogue Output**	mA	4	20	(ESU-420 only)
13	**Serial output**				Modbus RTU via RS485 (ESU-485 only)

Physical

14	**Ingress Protection**			IP65	Gas port IP54
15	**Operating Temperature**	°C	-20	+50	
16	**Operating Humidity**	%	15	90	Non condensing
17	**Ambient Pressure**	mBar	800	1100	
18	**Materials**				Reinforced polymer
19	**Dimensions**	mm	140 x 98 x 57		
20	**Weight**	kg		0.6	

Compliance & Design

21	**Warranty** Sender Unit Sensor Module	Months	 24 6		Return to base warranty.
22	**Regulatory Compliance**				2014/30/EU (Electromagnetic Radiation) 2014/35/EU (Low Voltage) 94/9/EC (ATEX)

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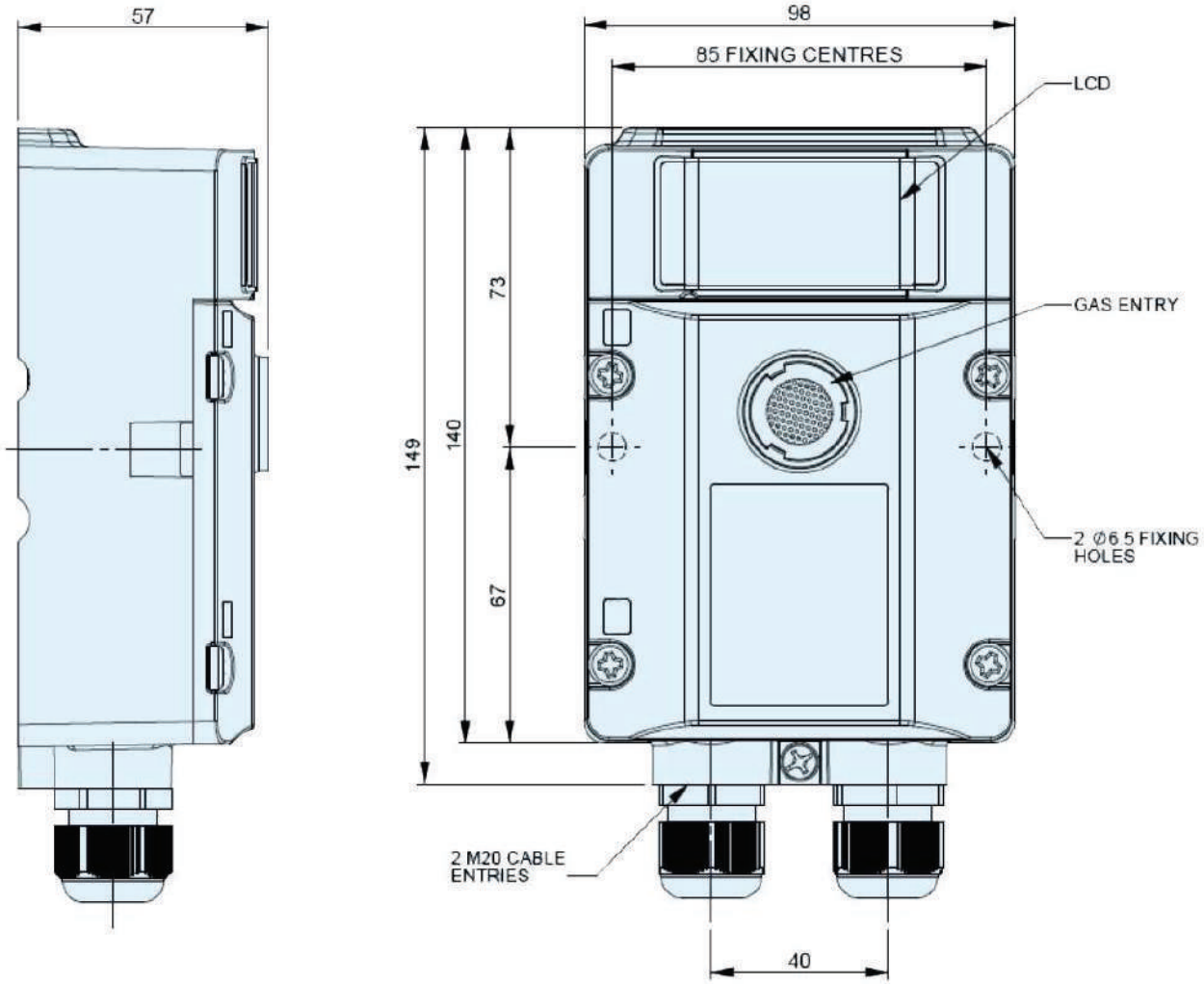
Installation Overview



Options & Accessories

Description	Order Code	Notes
ENOM Instrument 	TSL-ESU-420 TSL-ESU-485	Sender Unit 4 to 20mA version RS485 Version
Calibrated NO Sensor Module 	TSL-ENOM-SM1	Plug-in Sensor Module NO calibrated 0 to 50ppm.
Boxed PSU	TSL-PSU-75	Multi AC input, 24Vdc output, 75W, IP67 rated enclosure
Cable	CBL-099	7-core screened LSZH cable.
TSCU (Operator Interface) 	TSL-TSCU-1	Operator Interface for use with RS485 version only. 1 analogue output and relay
Calibration Check Adapter Hood	OEM-006	Gas hood to fix over the gas entry port for calibration checking.
Calibration Check Tubing	OEM-007	1m tubing to connect gas cylinder to calibration hood.

Note that the actual part may differ from the above representative pictures.

ISO 9001

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