

VCOM
Combined CO and Visibility
Monitor for Tunnels



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FEATURES

- Proven infrared spectroscopy technique for measurement of carbon monoxide (CO)
- Visibility measurement using the widely accepted light transmission opacity technique
- User selected unit display options of Opacity (%), Extinction Coefficient (k) or Meteorological Optical Range (MOR)
- Temperature and humidity compensated measurements to ensure stable readings across all tunnel conditions
- IP65 / NEMA 4X rated external enclosure supplied with quick release dust protection tubes and wall brackets
- Intelligent analyser with optional Operator Interface

BENEFITS

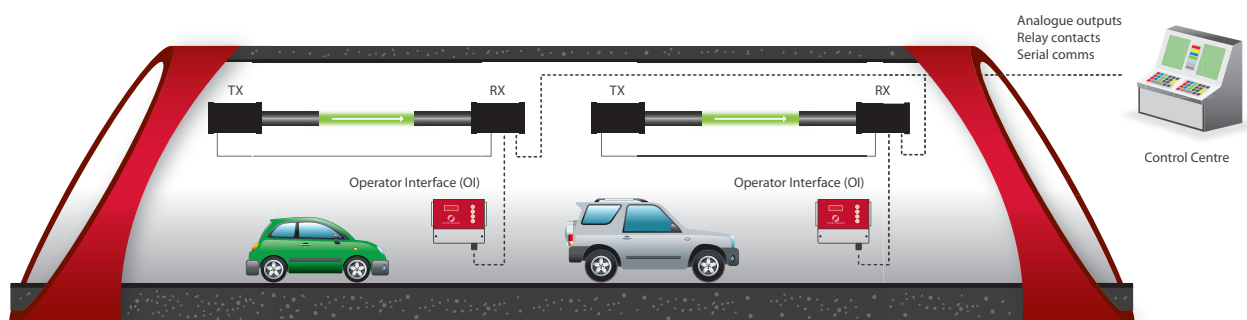
- Designed specifically for monitoring in tunnels
- Rugged design to withstand corrosive atmosphere and regular tunnel washing
- Simple installation and alignment
- Low maintenance requirements
- Suitable for right or left hanging to enable compliance with regulations governing light emissions facing on-coming traffic flow

APPLICATIONS

The VCOM tunnel monitor measures the concentration of carbon monoxide (CO) in tunnel atmospheres and makes a visible opacity measurement to determine the visibility within the tunnel. These measurements can be used as part of an air quality management system for ventilation control and/or secondary smoke detection within a traffic tunnel or other confined space.

OPERATION

The VCOM sensor consists of a Transmitter (TX) and Receiver (RX) mounted "facing" each other on the wall or ceiling of the tunnel. The Transmitter emits two optical beams; one visible (green) light for measurement of the visibility and the other infrared (IR) for CO measurement. Both optical beams are received by the RX, where the signals are conditioned and processed on independent internal optical benches.



SYSTEM COMPONENTS

- VCOM sensor consisting of Transmitter (TX) and Receiver (RX)
- LSZH cable with connectors for connecting the RX and TX
- Wall mounting brackets
- PC based utility software package for set-up and control of the instrument
- Optional Operator Interface with remote or local mounting configurations
- Optional variable input AC power supply
- Optional reference gas cells and filters for routine calibration check of the instrument

TECHNICAL SPECIFICATION

CO MEASUREMENT PERFORMANCE

Parameter	Comment
Measuring Principle	Infrared absorption
Measurement Reading	Concentration in ppm
Measuring Range	0 – 300 ppm (user configurable)
Path Length	5 – 10 m (6.0 m optimum)
Accuracy	+ / - 2 ppm

VISIBILITY MEASUREMENT PERFORMANCE

Measuring Principle	Light transmission
Measurement Reading	Transmission Extinction Coefficient (k) Meteorological Optical Range (MOR) Opacity
Measuring Range	
Transmission	0 – 1.000
Extinction Coefficient (k)	0 – 1.000 m ⁻¹
Meteorological Optical Range (MOR)	0 – 15,000 m
Opacity	0 – 100 %
Path Length	5 – 10 m (6.0 m optimum)
Accuracy	+ / - 2 % as opacity

POWER REQUIREMENTS

Voltage	+24 Vdc
Nominal Current Consumption	1.0 A
Power Up Current Consumption	2.0 A

INTERFACE OPTIONS

Serial Comms	ModBus RTU via RS485 External USB
Analogue Outputs	4.0 – 20 mA (isolated and scalable)
Digital Relay Contacts	3A @ 30 Vdc (level alarms and data valid alarm)

PHYSICAL

Ambient Operating Temperature	-20 – +55 °C
Ambient Operating Humidity	0 – 100 %
Ingress Protection	IP65 for external use
Materials	Powder coated stainless steel
Dimensions (incl. dust tube)	790 x 160 x 230 mm (each measuring head)
Weight	8.5 kg per head

Tunnel Sensors

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