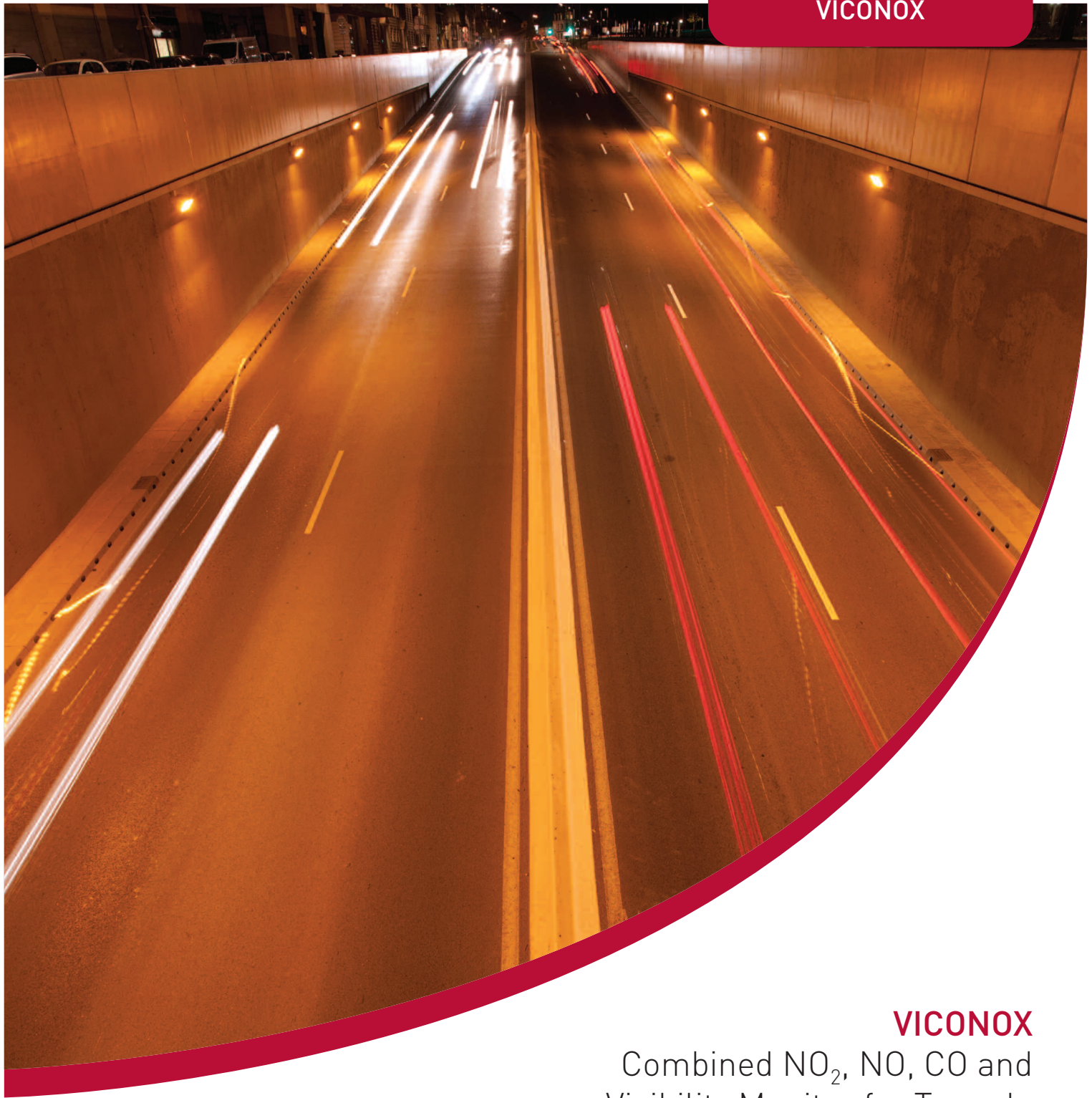


VICONOX



VICONOX
Combined NO₂, NO, CO and
Visibility Monitor for Tunnels



TUNNEL SENSORS

VICONOX

Combined NO₂, NO, CO and Visibility Monitor for Tunnels

FEATURES

- Direct in-situ measurement of NO₂, NO, CO, Visibility and Temperature (or combinations thereof)
- Direct optical measurement of nitrogen dioxide (NO₂) using differential absorption
- Visibility measurement using accepted light transmission opacity technique
- Proven infrared spectroscopy technique for NO and CO measurement
- Temperature and humidity compensated measurements to ensure stable readings across all conditions
- Intelligent analyser with optional TSCU operator interface



BENEFITS

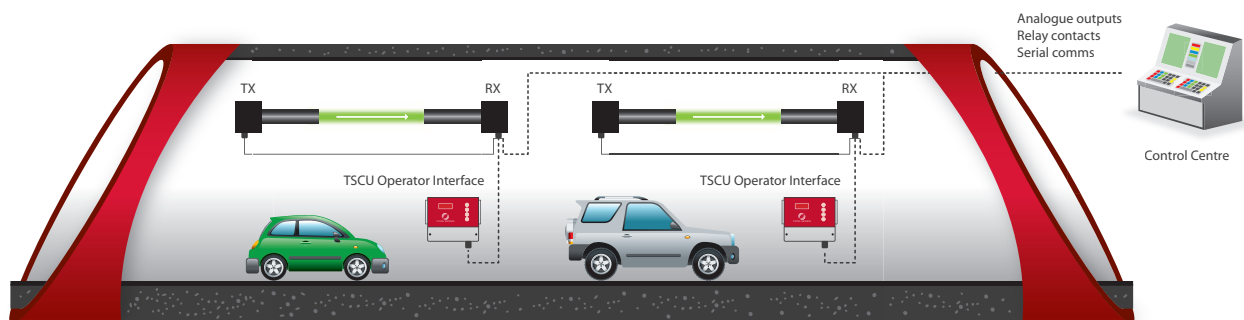
- Rugged design to withstand corrosive atmospheres and regular tunnel washing
- High quality 316 stainless steel construction ensuring a long service life
- Pre-aligned quick release TX and RX heads enabling easier installation and maintenance
- IP65 rated external enclosure with quick release dust protection tubes
- Plug and socket cable connection enabling simple installation

APPLICATIONS

The VICONOX tunnel monitor is a single sensor solution for measuring NO₂, NO, CO, visibility and temperature within a traffic tunnel, rail tunnel or other confined space. These measurements can be used as part of an air quality management system for ventilation control and/or secondary smoke detection.

OPERATION

The VICONOX uses a combination of differential optical absorption and infrared spectroscopy to measure nitrogen dioxide (NO₂), nitric oxide (NO) and carbon monoxide (CO) in tunnel atmospheres whilst measuring visibility by using the standard light transmission obscuration technique. The VICONOX is able to measure up to five (5) parameters simultaneously (including temperature) or combinations thereof; with five different model options available to meet customer requirements.



SYSTEM COMPONENTS

- VICONOX sensor consisting of Transmitter (TX) and Receiver (RX)
- LSZH cable with connectors for connecting the RX and TX
- Power-Comms cable for the RX, made to suitable length (required accessory)
- Integrated wall mounting brackets
- PC based utility software package for set-up and control of the instrument
- Optional TSCU operator interface with remote or local mounting configurations
- Optional variable input AC power supply
- Optional reference filters / gas cells for routine calibration check of the instrument

TECHNICAL SPECIFICATION

NO₂ MEASUREMENT PERFORMANCE

Parameter	Comment
Measuring Principle	Differential optical absorption
Measurement Reading	Concentration in ppm or ppb (user selected)
Measuring Range	0 – 10 ppm (user configurable)
Path Length	5 – 12 m (10 m optimum)
Accuracy	+/- 0.05 ppm (at 10 m optimum path length) +/- 5% (relative)

VISIBILITY MEASUREMENT PERFORMANCE

Measuring Principle	Light transmission
Measurement Reading	Transmission Extinction Coefficient (k) Meteorological Optical Range (MOR)
Measuring Range	
Transmission	0 – 1.000
Extinction Coefficient (k)	0 – 0.1 m ⁻¹
Meteorological Optical Range (MOR)	0 – 15,000 m
Accuracy	+/- 1% as opacity

CO/NO MEASUREMENT PERFORMANCE

Measuring Principle	Infrared absorption
Measurement Reading	Concentration in ppm
Transmission	0 – 500 ppm (user configurable)
Accuracy	+/- 2 ppm

POWER REQUIREMENTS

Voltage	+24 Vdc
Nominal Current Consumption	2 Amp
Power Up Current Consumption	3 Amp

INTERFACE OPTIONS

Serial Comms	Isolated RS485 and ModBus RTU (via RS485) External USB
Analogue Outputs	0 / 2 / 4 – 20 mA (isolated and scalable)
Digital Relay Contacts	3 @ 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	316 Stainless steel (powder coated)

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