

# CODEL

Monitoring Solutions

## TunnelTech 400 Series - CO, NO, NO<sub>2</sub>, SO<sub>2</sub> & O<sub>2</sub> Air Quality Monitor

A low cost precision road & rail tunnel monitor using well-proven technology to provide accurate and rapid results.

The TunnelTech 400 advanced electro-chemical cell technology offers a low-cost and flexible choice for a single cell analyser delivering superb accuracy and reliability at a very competitive price.



- ✓ Single species gas analyser housed in a compact stainless steel sensor
- ✓ Advanced electrochemical cell technology
- ✓ Fully configurable 4-20mA - Passive Output
- ✓ Easy installation with minimal wiring required
- ✓ Minimal maintenance requirements
- ✓ Easy to calibrate

ISO 9001:2015  
Quality Certification

ISO 14001:2015  
Environmental Certification

Designed exclusively for road and rail tunnel applications building on years of experience and proven technology.

Uses the latest Electrochemical Cell Technology for the measurement of CO, NO, NO<sub>2</sub>, SO<sub>2</sub> or O<sub>2</sub>.



## Single Cell gas analyser in a compact tunnel sensor.

Class leading accuracy, repeatability and resolution using advanced electrochemical cell technology

Adaptable fitting feature allows for replacement of any type of existing single cell analyser

Easy mounting arrangement for a simple installation

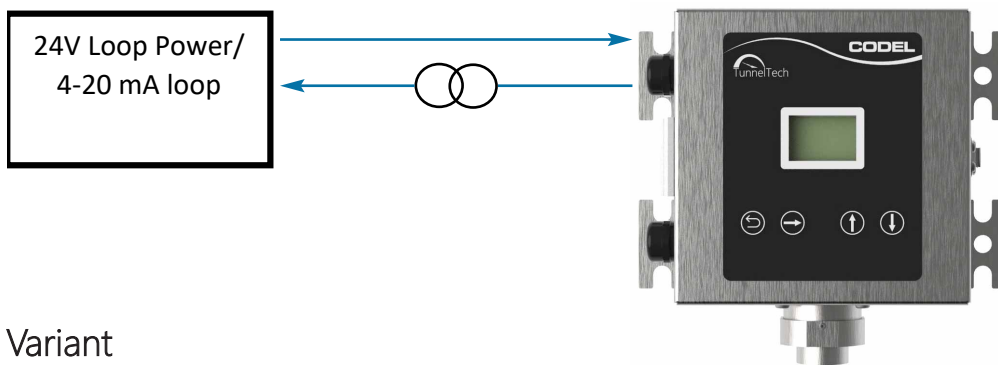
The TunnelTech 400 Air Quality Monitor, is an essential part of any road or rail tunnel safety system. Firstly, it monitors the atmosphere within the tunnel and ensures that the tunnel ventilation system provides sufficient clean air to protect tunnel users health and for drivers to clearly see the road ahead.

The TunnelTech 400 analyser electrochemical cell technology determines CO, NO NO<sub>2</sub>, SO<sub>2</sub> or O<sub>2</sub> concentrations. With no moving parts, reliability levels are extremely high and maintenance requirements are very low.

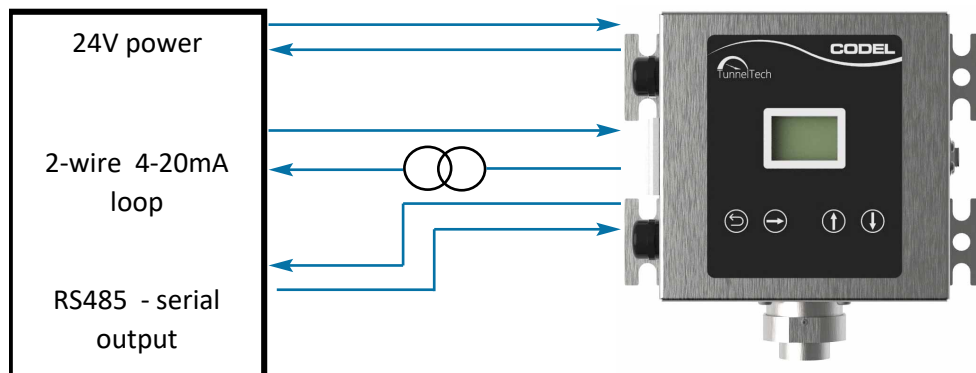
Designed for it's accuracy and ease of use the TunnelTech 400 single cell gas analyser is the perfect replacement for existing current single cell analysers.

It's adaptable fitting feature allows the analyser to replace any type of existing single cell analyser with an easy installation process requiring minimal wiring.

## 2 Wire Variant



## 4 Wire Variant



A serial data link via an RS485 interface (hardware switch enabled) allows communication directly with the TunnelTech 400 sensor via Modbus RTU or CODEL protocol.

# Technical Specification

## Sensor Unit

Gas Species Options	Single CO, NO, NO <sub>2</sub> , SO <sub>2</sub> & O <sub>2</sub>				
Measuring units	ppm for CO, NO, NO <sub>2</sub> , SO <sub>2</sub> & % for O <sub>2</sub>				
Calibration					
Measurement	<b>CO</b>	<b>NO</b>	<b>NO<sub>2</sub></b>	<b>SO<sub>2</sub></b>	<b>O<sub>2</sub></b>
Measurement Technique	EC	EC	EC	EC	EC
Measurement Range (Typical)	0 - 300 ppm	0 to 30 ppm	0 to 5 ppm	0 to 20 ppm	0 to 25%
Accuracy	0.5 ppm	0.5 ppm	0.1 ppm	0.5 ppm	+/- 0.1%
Resolution	0.1 ppm	0.1 ppm	0.001 ppm	0.1 ppm	+/- 0.1%
Response Time	30 seconds				
Detection Limit	2 ppm	2 ppm	100 ppb	2 ppm	0%
Zero Drift	< +/- 100 ppb	< +/- 50 ppb	< +/- 20 ppb	< +/- 20ppb	< +/- 0.1%
Measurement Drift	< 10% Per Year	< 20% Per Year	< 20% Per Year	< 15% Per Year	< 4% Per Year
Calibration Flowrate	1L/m				
Power supply	24V DC				
Ambient Conditions	-20°C to +60°C				
Construction	SS316 (Standard) Silver / Brushed Metal ABS Plastic (Optional) Black Mat				

## Compliances

EMC	Designed to EN61326-1:2006 & EN50270:2006
IK Code	IK07
Enclosure IP	Designed to IP66 (IP6K9 Optional)

## Customer Interface

Display	Monochrome LCD Display & Keypad Membrane
LED	Tricolour LED enabled on 4 wires version
Serial Communication Port	RS485 ModBUS RTU (Optional)

## Output

Power Supply	24V
Output	RS485
Analogue Outputs	2 wires mA outputs (Passive) 4-20mA 500Ω load max, not isolated, fully configurable 4 wires mA outputs (Active/Passive) 4-20mA 500Ω load max, not isolated, fully configurable
Span Check	NO, NO <sub>2</sub> , CO, SO <sub>2</sub> , O <sub>2</sub> via separate calibration port
Screen Protector	Optional

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