

## Technical Specification

### Sensor Unit

Gas Species Options	Single or multi-gas measurements available: CO, NO <sub>2</sub> , NO & Visibility			
Measuring units	ppm for CO & NO, m <sup>-1</sup> or m for visibility, PPb for NO <sub>2</sub>			
Path Length	3m (6m folded beam)			
Calibration	Automatic zero calibration - manual span check			
Measurement	<b>Carbon Monoxide (CO)</b>	<b>Nitric Oxide (NO)</b>	<b>Nitric Dioxide (NO<sub>2</sub>)</b>	<b>Visibility</b>
Measurement Technique	Electrochemical Cell	Electrochemical Cell	Electrochemical Cell	LED Transmittivity
Measurement range (typical)	0 - 300ppm *	0 - 30ppm	0 - 5/10ppm	0 - 0.015 m <sup>-1</sup>
Accuracy	+/- 2ppm or 2% span	+/- 2ppm or 2% span	100ppb	+/- 0.002 m <sup>-1</sup>
Resolution	+/- 1ppm	1ppm	50ppb	+/- 0.001 m <sup>-1</sup>
Response Time	30 Seconds	30 Seconds	30 Seconds	10s - 2min Selectable
Ambient Temperature	-20°C to +50°C			
Power supply	24V DC, 30 VA from separate power supply.			
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66 Optional 316 Stainless Steel and 316 Stainless Steel TI for heads & Brackets			

### Compliances

EMC	EN61326-1:2006 & EN50270:2006 directive compliant
Low Voltage	73/23/EEC directive compliant)

### Customer Interface

Serial Data	Bi-directional RS485 Modbus Protocol
Display	32 Character alpha-numeric back-lit LCD)
Keypad	4-key soft-touch entry

### Optional Items

Power Supply	90/264V AC, 47-63Hz, (24V DC @ 2.5A)
Tunnel Display Unit	For local display of sensors outputs (TunnelTech 710)
Analogue Outputs	2 or 4 x 4-20mA current outputs as standard, isolated, 500Ω load max, fully configurable
Relay Outputs	2 or 4 x volt-free SPCO contacts, 50V, 1A max, configurable as alarm contacts
Check Filter	Visibility span check optical cell available in different values
Span Check	NO, NO <sub>2</sub> , CO span check using bottled audit gases

CODEL International LTD  
Station Building  
Station Road  
Bakewell  
Derbyshire  
DE45 1GE

Tel : +44 (0)1629 814351  
Fax : +44 (0)1629 566307  
Web : www.codel.co.uk  
email : Sales@codel.co.uk

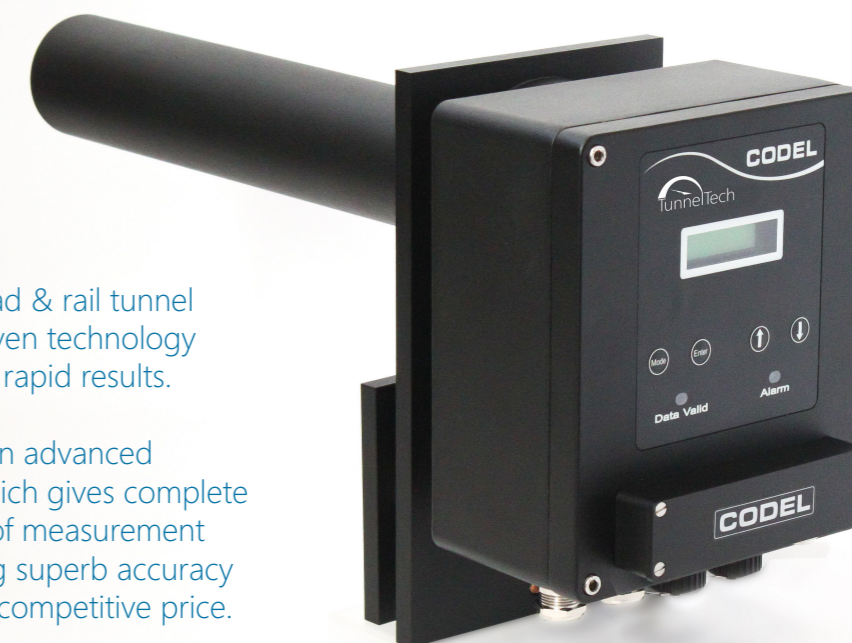


Distributor

# CODEL

## Monitoring Solutions

### TunnelTech 700 Series - CO, NO, NO<sub>2</sub> & Visibility Air Quality Monitor



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

The tunnelTech 700 is an advanced technology analyser which gives complete flexibility in the choice of measurement options whilst delivering superb accuracy and reliability at a very competitive price.

Measure CO, NO, NO<sub>2</sub> & Visibility in one compact sensor

Advanced electrochemical cell technology

High resolution measurement

Minimal maintenance requirements

Available in 316 Stainless Steel

ISO 9001:2008

Quality Certification

Monitoring Solutions



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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 and NO<sub>2</sub>.

Class leading Accuracy, Repeatability and Resolution



The TunnelTech 700 Series consist of varying configurations such as:

- TunnelTech 701 : CO · NO · NO<sub>2</sub> · Vis
- TunnelTech 702 : CO · NO · Vis
- TunnelTech 703 : CO · Vis
- TunnelTech 704 : NO · Vis
- TunnelTech 705 : NO<sub>2</sub> · Vis
- TunnelTech 706 : CO · NO<sub>2</sub> · Vis
- TunnelTech 707 : NO · NO<sub>2</sub> · Vis
- TunnelTech 708 : Vis Only

The TunnelTech 701 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.

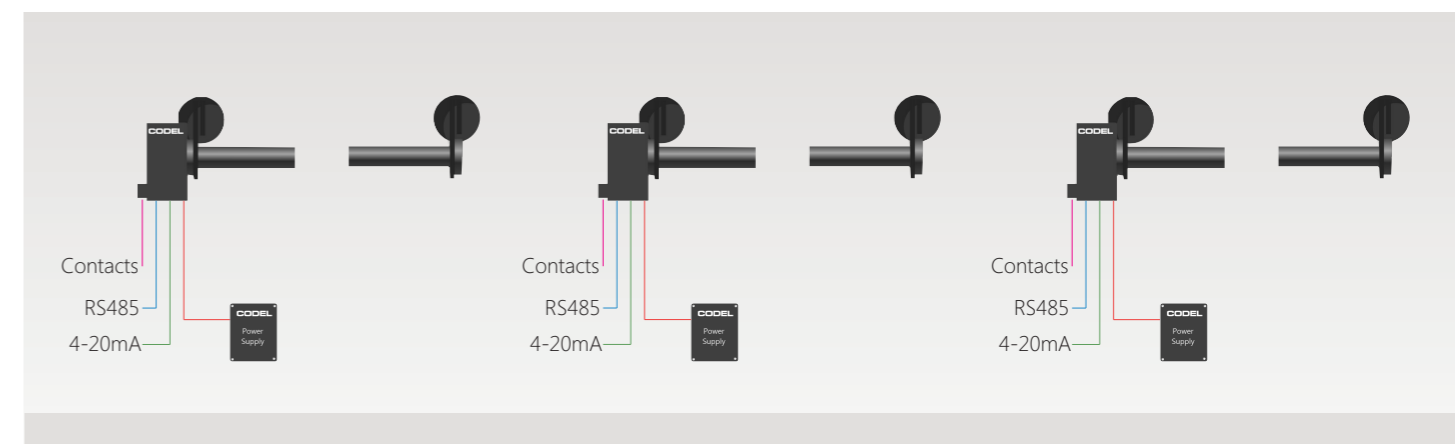
The TunnelTech 701 analyser electrochemical cell technology to determine CO, NO & NO<sub>2</sub> concentrations and optical attenuation to monitor Visibility levels. As there are no moving parts, reliability levels are very high and maintenance requirements are low. The sight tubes have been designed to ensure that airborne dust and contaminants do not reach the optical windows and cause drift.

Data is connected via RS485 serial port delivering a bi-directional modbus interface to the tunnel SCARDA system or optional CODEL TunnelTech 710 remote display panel.

Optional 4-20mA and contact outputs are available, to be mounted either directly in the sensor heads or in the TunnelTech 710 remote display panel providing flexibility of installation and reduced cabling costs.

In addition, IP65 rated enclosures are constructed to resist attack from aggressive gases, road salt and the effects of heat.

### System Layout Option 1 - Stand-alone systems



### System Layout Option 2 - Integrated package

