

CODEL

A Forbes Marshall Company

Product Brochure

TunnelTech 700 Series

CO, NO, NO2 & Visibility analyser



Class leading Accuracy, Repeatability and Resolution

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.

ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

Monitoring Solutions



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TunnelTech 700 Series

The TunnelTech 700 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.

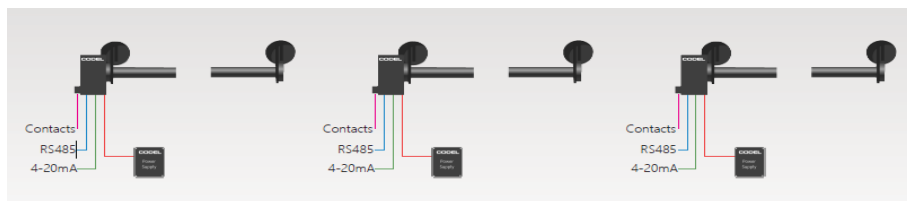
The TunnelTech 700 analyser uses electrochemical cell technology to determine CO, NO & NO2 concentrations and optical attenuation to monitor visibility levels. As there are no moving parts, reliability levels are very high and maintenance requirements are low. The sight tubes have been designed to ensure 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.

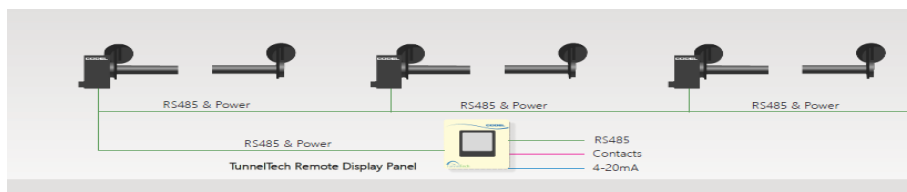
Optional 4-20mA and contact outputs are available, to be mounted either directly in the sensor heads or in the TunnelTech remote display panel providing flexibility of installation and reduced cabling costs.

Fully configurable analogue and alarm outputs are provided. An RS485 link can be utilised to deliver via MODBUS protocol to a SCADA system located in the tunnel control centre.

System Layout Option 1 - Stand-alone Systems



System Layout Option 2 - Intergrated Package



The TunnelTech 700 Series consist of varying configurations such as:

TunnelTech 701 : CO · NO · NO2 · Vis

TunnelTech 702 : CO · NO · Vis

TunnelTech 703 : CO · Vis

TunnelTech 704 : NO · Vis

TunnelTech 705 : NO2 · Vis

TunnelTech 706 : CO · NO2 · Vis

TunnelTech 707 : NO · NO2 · Vis

TunnelTech 708 : Vis Only

- ▶ Class leading NO2 Measurement
- ▶ Advanced electrochemical cell technology
- ▶ Measure CO, NO, NO2 & Visibility in one compact sensor
- ▶ Minimal maintenance requirements
- ▶ Easy to calibrate
- ▶ Integrated display and keypad, no external computer required

Technical Specification

Sensor Unit

Gas Species Options	Single or multi-gas measurements available: CO, NO ₂ , NO & Visibility			
Measuring units	ppm for CO & NO, PPb for NO ₂ , m-1 or m Visibility			
Path Length	Automatic zero - Manual span check (Visibility) / Manual Zero - Manual span check (Gas)			
Calibration	Carbon Monoxide (CO)	Nitric Oxide (NO)	Nitric Dioxide (NO ₂)	Visibility
Measurement Technique	Electrochemical Cell	Electrochemical Cell	Electrochemical Cell	LED Transmittivity
Measurement Range (typical)	0 - 300ppm	0 - 30ppm	0 - 5/10ppm	0 - 0.015m ⁻¹
Accuracy	1ppm	1ppm	< 100ppb	+/- 0.0002 m-1
Resolution	< 0.1ppm	< 0.1ppm	1ppb	+/- 0.0001 m-1
Response Time	< 1 Minute	< 1 Minute	< 1 Minute	10s - 2min Selectable
Detection Limit	< 2ppm	< 2ppm	10ppb	
Zero Drift	< 1ppm per month	< 1ppm per month	< 0.05ppm per month	
Measurement Drift	< 5% per year	< 5% per year	< 5% per year	
Ambient Conditions	20°C to +55°C			
Power supply	24V DC, 30 VA from separate power supply.			

Compliances

EMC	Designed to EN50270:2015
Low Voltage	Designed to 73/23/EEC (as per datasheet) or 73/23/EEC Low voltage & 89/336/EEC -EMC (as per manual)
IK Code	IK07 to EN60529
Enclosure IP	Corrosion resistant epoxy coated aluminium housing sealed to IP66 (EN60529). S/S version available in 316L (1.4404) or Ti (1.4571) to IP6K9K (EN60529).

Customer Interface

Serial Data	Designed to EN50270:2015
Display	Designed to 73/23/EEC (as per datasheet) or 73/23/EEC Low voltage & 89/336/EEC -EMC (as per manual)
Keypad	IK07 to EN60529

Optional Extras

Power Supply	90/264V AC, 47-63Hz, (24V DC @ 2.5A)
Tunnel Display Unit	For local display of sensors outputs
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 ₂ , CO span check using bottled audit gases

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