

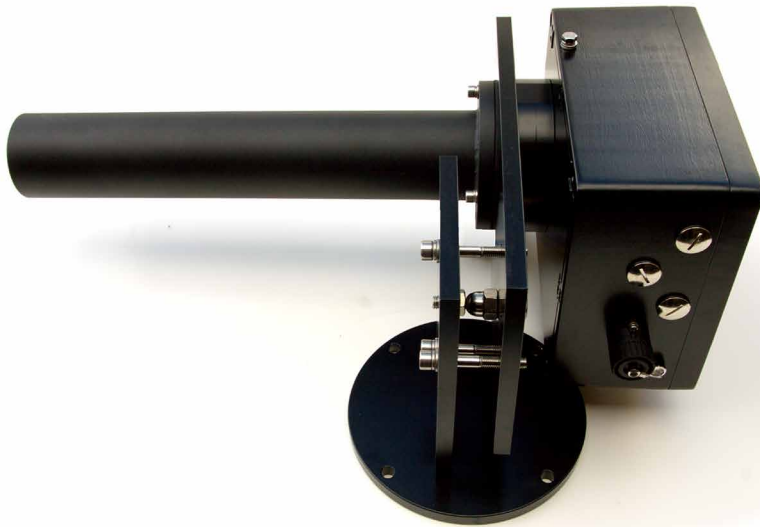
# CODEL

A Forbes Marshall Company

## Product Brochure

### TunnelTech 201

CO, NO and Visibility Monitor



Continuous measurement of CO, NO and Visibility in road and rail tunnels

ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

Monitoring Solutions



[www.codel.co.uk](http://www.codel.co.uk)

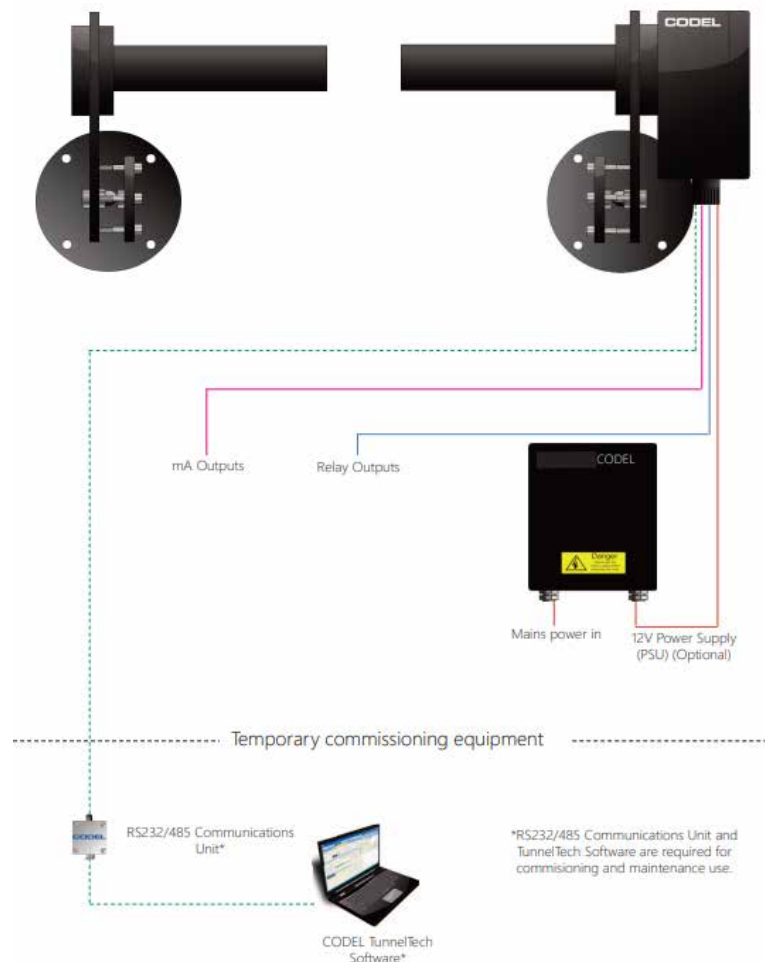
The TunnelTech 201 Air Quality Monitor is an essential part of any road or rail tunnel safety system. Firstly, it monitors the atmosphere within the tunnel and ensures that the tunnel ventilation system provides sufficient clean air to protect tunnel users health and for drivers to clearly see the road ahead.

The TunnelTech 201 analyser uses well proven infrared techniques to determine CO and NO concentrations and optical attenuation to monitor Visibility levels. As there is only one moving part, reliability levels are very high and maintenance requirements are extremely low. The sight tubes have been designed to ensure that airborne dust and contaminants do not reach the optical windows and cause drift.

Fully configurable analogue and alarm outputs are exportable to the tunnel data acquisition system to provide realtime CO, NO and Visibility data. This data may also be exported via the optional RS485 serial port which delivers MODBUS RTU encoded data to a SCADA system located in the tunnel control centre and/or a local display module. In addition, IP65 rated enclosures are constructed to resist attack from aggressive gases, road salt and the effects of heat.

In areas where extremely low temperatures may be experienced, optional transmitter and receiver insulation jackets are available to reduce the effect.

## TunnelTech 201- Air Quality Monitor - System Arrangement



- ▶ Rugged, corrosion resistant construction
- ▶ Class leading Accuracy, Repeatability and Resolution

- ▶ Minimal maintenance requirements
- ▶ PC based software for commissioning & maintenance

## Technical Specification

### Sensor Unit

Gas Species Options	Single or multi-gas measurements available: CO, NO & Visibility		
Measuring Units	ppm for CO & NO, m-1 or m for visibility		
Path Length	3m (6m folded beam)		
Calibration	Automatic zero calibration - manual span check by sealed check cell		
Measurement	Carbon Monoxide (CO)	Nitric Oxide (NO)	Visibility
Measurement Technique	Infrared Gas Cell Correlation	Infrared Gas Cell Correlation	Optical Transmissivity
Measurement (Typical*)	Range CO 0 - 100ppm	NO 0 - 30ppm	0 - 0.015 m-1
Accuracy	CO +/- 1ppm or 2% of span	NO +/- 2ppm or 2% of span	Vis +/- 0.0002 m-1
Resolution	CO +/- 1ppm	NO +/- 1ppm	Vis +/- 0.0001 m-1
Response Time	CO 2mins	NO 2mins	Vis 10s - 2min Selectable
Ambient Temperature	-20°C to +50°C		
Power Supply	12V DC, 20 VA from separate power supply. Optional 24V DC available upon request		
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66		

\*Other measurement ranges available on request

### Compliances

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

### Communications & Outputs

Analogue Outputs	3 x 4-20mA current outputs as standard, isolated, 500Ω maximum load, fully configurable through TunnelTech software
Relay Outputs	3 x volt-free SPCO contacts, 50V, 1A maximum load, configurable as alarm contacts
Communications Port	For local connection to laptop PC using RS232 or optional RS485 interface unit

### Services

Power	12V DC @1.5A/ 24V @ 2.5A
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### Optional Items

Power Supply	90/264V AC, 47-63Hz, 60W 12V DC @5A (or 24V DC @ 2.5A)
Check Cell Holder	For manual span check using sealed check cell
Sealed Check Cell	CO & Visibility span check optical cell
Flow Through Check Cell	NO span check using bottled audit gases
Tunnel Display Unit	For local display of sensors outputs
Serial Data	RS485 Modbus Protocol

# CODEL

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