

The TunnelTech 200 Air Quality Monitors continuously measure CO, NO, NO<sub>2</sub> and Visibility in road and rail tunnels.

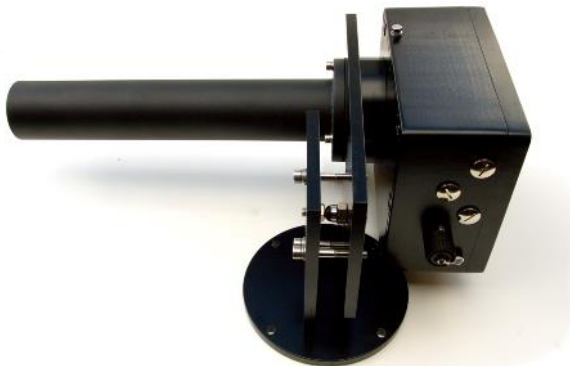
The TunnelTech 200 Series (201, 202 & 204) monitors the atmosphere within the tunnel to insure a tunnel ventilation system provides sufficient clean air to protect tunnel user's health and for drivers to clearly see the road ahead.

The TunnelTech 200 (201, 202, & 203) analyzers use well proven infra-red 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. Sight tubes are designed to ensure that airborne dust and contaminants do not reach the optical windows and cause drift.

Fully configurable analog and alarm outputs are exportable to the tunnel data acquisition system to provide real-time CO, NO and Visibility data.

#### Features

- > Continuous measurement of CO, NO, and NO<sub>2</sub> in road tunnels
- > High accuracy down to low ppb levels
- > Rugged, corrosion resistant construction
- > Minimal maintenance requirements, low cost of ownership
- > PC based software for commissioning and maintenance
- > Optional RS485 (MODBUS) Output
- > Auto zero and span check by audit gas



#### APPLICATIONS:

- > Road tunnels
- > Rail Tunnels

#### MONITORING SOLUTIONS

Complete source for all your Continuous Emissions Monitoring (CEMS) needs:

- > Both Dilution and Extraction CEMS systems
- > Data Acquisition Systems (DAS)
- > Flow Monitoring
- > Opacity Monitoring
- > Oxygen Monitoring Systems
- > Particulate (PM) Monitoring
- > Process Monitoring Systems

TunnelTech Software is supplied with all CODEL Tunnel Sensor's as standard for the purpose of commissioning and maintenance of the sensors. With simple installation and set-up routine to any Windows based laptop PC, the program takes only minutes to load and configure and comes with a comprehensive on-board help feature.

## Description

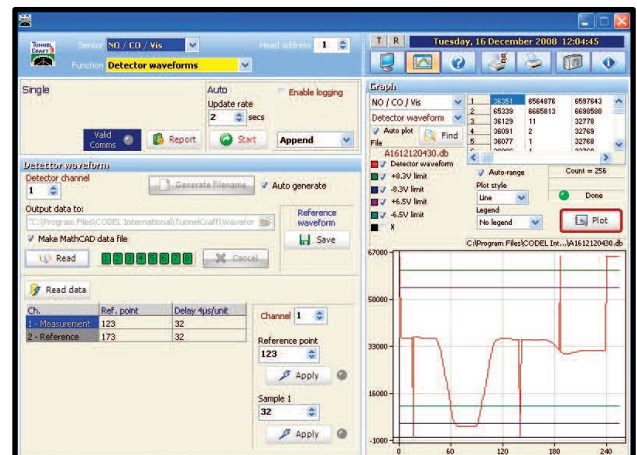
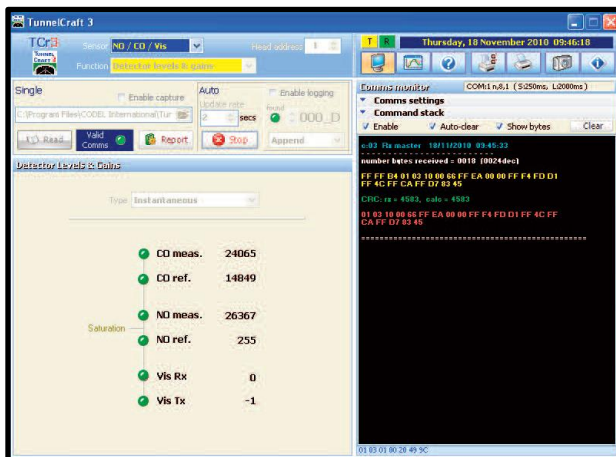
**TunnelTech Software** enables the sensor's complete data and control functions to be accessed via a laptop from the Station Control unit (SCU) using an RS485 cable supplied with the sensor.

Zero calibrations and span checking (using a CODEL sealed Check Cell or Flow Through Check Cell) can be initiated via the software after commissioning or a maintenance period. Altering the initial factory-set current and relay output configuration can be carried out with ease.

For maintenance, the software includes short-term logging and trending of diagnostic data for fault analysis.

## Features

- > Easy installation and set-up
- > Will operate on any windows based operating system
- > User friendly alignment Mode to aid initial set-up and optical alignment
- > Allows sensor configuration settings to be adjusted
- > Fault diagnostic logging for sensor troubleshooting



### Sensor Unit

<b>Gas Species Options</b>	Single or multi-gas measurements available: CO, NO & Visibility		
<b>Measuring units</b>	ppm for CO & NO, m <sup>-1</sup> or m for visibility		
<b>Path Length</b>	3m (6m folded beam)		
<b>Calibration</b>	Automatic zero calibration - manual span check by sealed check cell		
<b>Ambient Temperature</b>	-20°C to +50°C		
<b>Power supply</b>	12V DC, 20 VA from separate power supply. Optional 24V DC available upon request		
<b>Construction</b>	Corrosion resistant epoxy coated aluminum housing sealed to IP65		
<b>Measurement</b>	<b>Carbon Monoxide (CO)</b> TunnelTech 201, 202, 203, 204	<b>Nitric Oxide (NO)</b> TunnelTech 201,203	<b>Visibility</b> TunnelTech 201, 202
<b>Measurement Technique</b>	Infrared Gas Cell Correlation	Infrared Gas Cell Correlation	Optical Transmissivity
<b>Measurement range (typical*)</b>	CO: 0 - 100ppm	NO: 0 - 30ppm	0 - 0.015 m <sup>-1</sup>
<b>Accuracy</b>	CO +/- 1ppm or 2% of span	NO +/- 2ppm or 2% of span	Vis +/- 0.0002 m <sup>-1</sup>
<b>Resolution</b>	CO +/- 1ppm	NO +/- 1ppm	Vis +/- 0.0001 m <sup>-1</sup>
<b>Response Time</b>	CO 2mins	NO 2mins	Vis 10s - 2min Selectable

### Communications & Outputs

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

### Optional Items

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

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Contact Us

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