Monitoring Solutions
Leaders in Environmental Monitoring Systems & Services

CODEL Monitoring Solutions

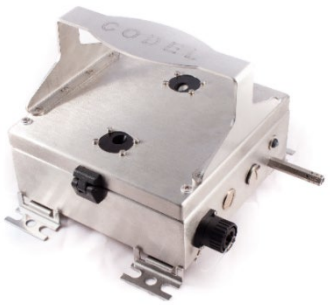
TUNNELTECH 305 Series
AIR FLOW MONITOR

The TunnelTech 305 is an advanced technology air flow monitor developed to provide superb accuracy and reliability at a very competitive price.

The **TunnelTech 305 Air Flow Monitor** is an essential part of any road or rail tunnel safety system. It monitors both the air flow and the direction of air flow inside a tunnel. It also ensures that a tunnel ventilation system can provide sufficient clean air to protect tunnel users health and allows for drivers to clearly see the road ahead.

The **TunnelTech 305** uses dual path ultrasonic technology to ensure high accuracy. It has no moving parts which insures high reliability and minimal maintenance. The sensor is constructed using stainless steel for ultimate protection against the harsh environments found in tunnels.

Fully configurable 4-20mA analog outputs are provided along with digital alarm outputs. A RS485 output is also available allowing data delivery via MODBUS protocol to a SCADA system located in a tunnel control center.



Features

- Single point ultrasonic measurement technology
- Uninterrupted by traffic flow and sound reflections
- Maintenance free operation with no moving parts
- Stainless steel construction
- Integral temperature measurement

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

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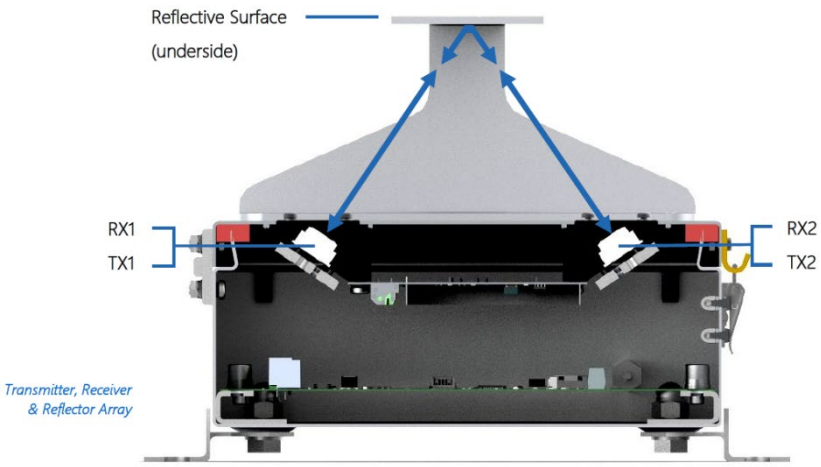
TUNNELTECH SOFTWARE

Airflow Principle: To measure airflow the TunnelTech 305 uses a pair of transceivers sensors.

A signal is sent simultaneously from both sensor positions TX1 and TX2, which due to the angle of the sensors is reflected off the underside of the bridge back to the opposite side receivers RX1 and RX2. When air flow is present across the device, the time of flight for the signal is either increased or decreased, depending upon the direction of the flow Vs. the direction of the traveling signal. This change of the time of flight is due to the airflow moving the air molecule in which the signal is traveling through, providing assistance or resistance. By measuring the time of flight of both the signals, then comparing the results, the velocity of the airflow can be calculated.



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

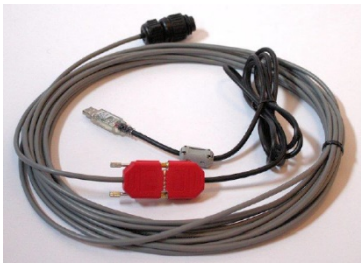
TunnelTech Software enables the sensor's complete data and control functions to be accessed via a laptop from the Station Control unit (SCU) using an RS485 cable supplied with the sensor.

Zero calibrations and span checking 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
- Allows sensor configuration settings to be adjusted
- Fault diagnostic logging for sensor troubleshooting



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Technical Specifications

Sensor Unit

Measurement	Flow	Temperature
Flow Units	m/s (Meters per Second)	°C (Degrees Celsius)
Measurement Principle	Ultrasonic Time of Flight	PT100
Measurement range (typical*)	-40 to +40 m/s	-20°C to +65°C
Accuracy	+/- 0.1m/sec @ 20m/s, 0.2m/s @ 20-40m/s	0.5 °C
Response Time	Minimum of 1 second	Minimum of 1 second
Resolution	±0.01 m/s	±0.01 °C
Operating Temperature	-20°C to +65°C	
Power supply requirement	9 to 36V DC, 1% pk-pk, 20 MHz bandwidth (3VA Max) from separate power supply	
Construction	Stainless Steel 316 to IP66	

Compliances

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

Customer Interface

Flow Analog output	1 x 4-20mA current output, 500Ω max load, configurable range
Temperature Analog output	1 x 4-20mA current output, 500Ω max load, configurable range
Relay Outputs	2 x volt-free SP contacts, 60V 500mA max, for flow direction and alarm
Communications Port	RS485 for local communication with laptop or MODBUS RTU protocol

Optional Items

Power Supply	90/264V AC, 47-63Hz, 60W 12V DC @5A (or 24V DC @ 2.5A)
Serial Data	RS485 MODBUS Protocol

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