

CODEL

A Forbes Marshall Company

Product Brochure

TunnelTech 101 Series



Road Tunnel Atmosphere Monitoring Systems

The TunnelTech 101 Visibility Monitor (VIS) is an essential part of any road or rail tunnel safety system.

ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

Monitoring Solutions



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Firstly, it monitors the Visibility within the tunnel and ensures that the tunnel ventilation system provides sufficient clean air for drivers to clearly see the road ahead.

Secondly, used in combination with other TunnelTech 101 VIS monitors, the operator can quickly detect the focus of the fire if it is also equipped with the optional PT100 temperature sensor to accurately measure ambient air temperature in a range of -15 to 105°C.

Fully configurable analogue and alarm outputs are exportable to the tunnel data acquisition system to provide real-time visibility data.

This data is also exported via the RS 485 serial port along with the temperature data. This link delivers MODBUS RTU encoded data to a SCADA system located in the tunnel control centre and/or a local display module. In addition, the IP65 rated enclosure are coated to resist attack from aggressive gases, road salt and to resist the effects of extreme heat.

In areas where extremely low temperatures may be experienced, optional transmitter and receiver Insulation jackets are available to reduce the effect. Another option is a local display, driven from the RS485 output which enables operators to view output data, diagnostics and alarm setpoints.



Road Tunnel Atmosphere Monitoring Systems

- ▶ Continuous measurement of visibility in road and rail tunnels.
- ▶ Optional, integral ambient temperature measurement for locating fires.
- ▶ No moving components providing maintenance free operation.
- ▶ Accurate optical attenuation technology.
- ▶ Option Modbus RTU serial outputs.

Technical Specification

Sensor Unit

Measurement	Visibility
Units	K factor(M-1) or meters
Measurement Technique	Transmissometry (de Beer Lambert Law)
Measurement Range (Typical)	0 - 0.015m-1
Accuracy	+/- 0.0002 m-1
Resolution	+/- 0.0001 m-1
Averaging Time	From 10 seconds to 2 minutes
Ambient Temperature Range	-20°C to +50°C
Temperature Sensor (Optional)	PT100, -15°C to +105°C
Power Supply	24V DC
Construction	Stainless Steel 316 (Optional 316 Ti)
Power Requirements	24V DC

Compliances

EMC	EN61326-1:2006 & EN50270:2006 directive compliant
Low Voltage	73/23/EEC directive compliant
Protection Class	IP65
Tunnel Regulations	RABT 2006, RVS 09.02.22 2007

Communications & Outputs

Analogue outputs	1 x 4-20mA isolated current output, 500Ω maximum load, fully configurable through TunnelMaster software.
Relay Outputs	1 x volt-free SPCO contacts, 50V, 1A max, configurable as alarm contacts
Communications Port	RS485 - Modbus RTU

Optional Items

Power Supply	110/220VAC, 50Hz +/-10%, 60W @ 24V
Optical Density Filter	For manual calibrations
Insulated Sensor Jacket	For low temperature applications

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