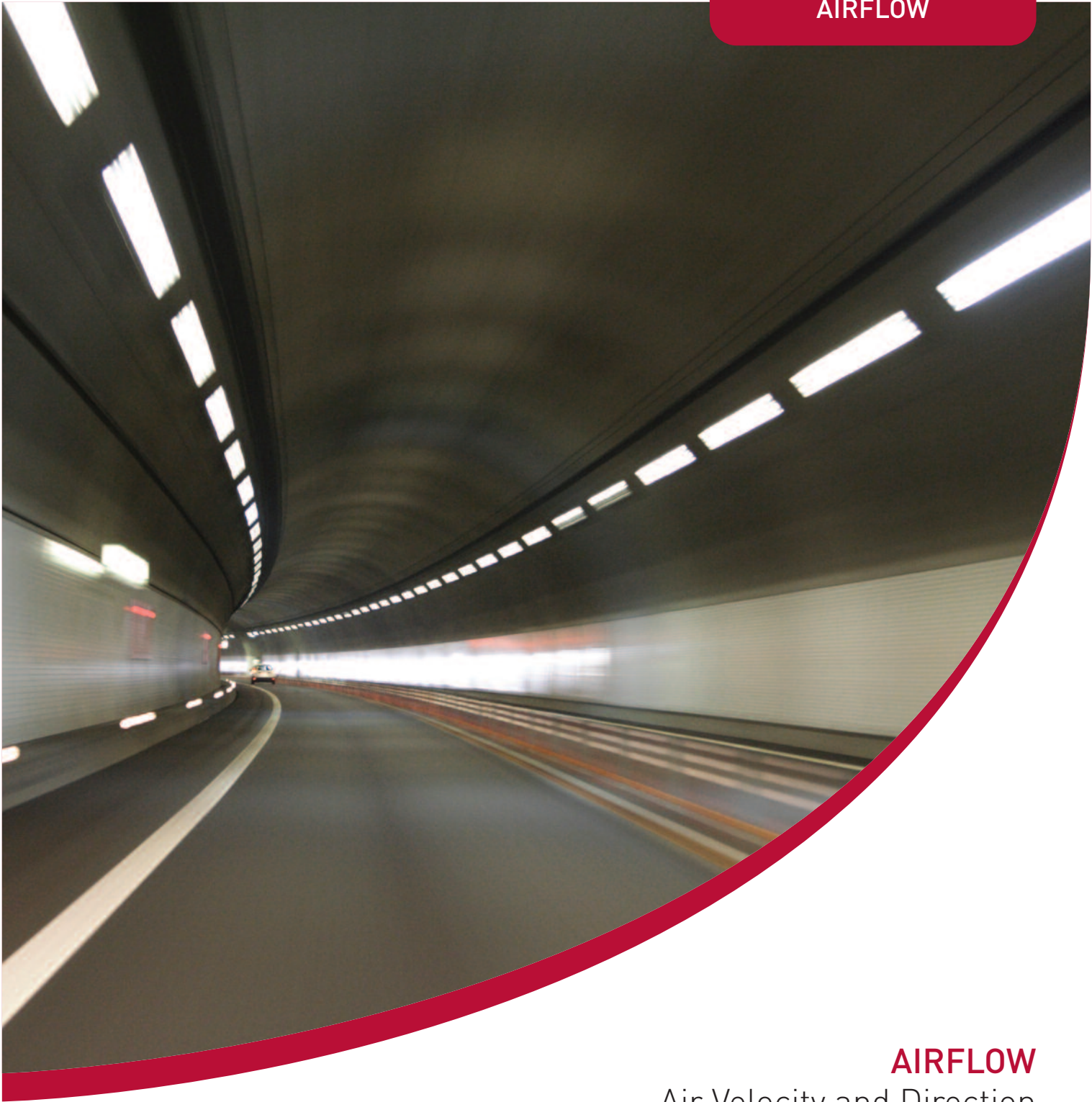


AIRFLOW



AIRFLOW

Air Velocity and Direction
Monitor for Tunnels



TUNNEL SENSORS

AIRFLOW

Air Velocity and Direction Monitor for Tunnels

FEATURES

- Proven ultrasonic transit time measurement technology
- Measurement independent of temperature, pressure and composition of the tunnel atmosphere
- Pre-calibrated “Fit and Forget” sensor with fixed ultrasonic path length
- Single and dual axis mode available
- Intelligent analyser with optional TSCU operator interface
- Choice of interface options enabling easy integration into tunnel control system
- AIRFLOW-T model with integrated temperature sensor



BENEFITS

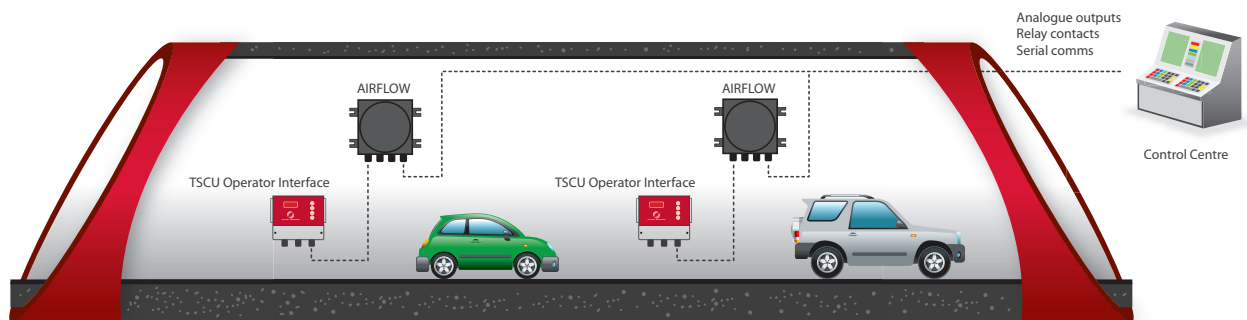
- Designed specifically for in-situ monitoring in tunnels
- Rugged design to withstand corrosive atmosphere and regular tunnel washing
- Single point installation requiring no alignment and uninterrupted by traffic flow
- No moving parts and low maintenance requirements

APPLICATIONS

The AIRFLOW tunnel monitor uses ultrasonic transit time technology to deliver a reliable measurement of air speed and direction in tunnels. These measurements can be used as part of an air quality management system for ventilation control within a tunnel or other confined space including traffic tunnels, rail tunnels and utility tunnel applications such as cable tunnels.

OPERATION

The AIRFLOW tunnel monitor is a self-contained Transceiver (TRX) which works by measuring the change in transit time of a sound wave due to the flow of air in the direction of the sound wave. The AIRFLOW contains four ultrasound transceivers from which ultrasonic signals are emitted. These ultrasonic signals are bounced off the reflection “roof” and the reflected signals are then received by the transceivers. The time taken for the ultrasound to travel this reflected path is accurately measured and the speed, (and direction) of the air can be calculated.



SYSTEM COMPONENTS

- AIRFLOW sensor
- PC based utility software package for set-up and control of the instrument
- Optional TSCU operator interface with remote or local mounting configurations
- Optional variable input AC power supply

TECHNICAL SPECIFICATION

Parameter	Comment
Measuring Principle	Ultrasonic transit time
Measurement Reading	Air flow in m/s Also available as ft/min or kph (user selected)
Measuring Range	+ / - 60 m/s (user configurable)
Resolution	0.01 m/s
Accuracy	+ / - 2 %
Lower Detectable Limit	0.02 m/s
Response Time	1 – 100 s (user configurable)

POWER REQUIREMENTS

Voltage	+24 Vdc
Nominal Current Consumption	200 mA
Power Up Current Consumption	200 mA

INTERFACE OPTIONS

Serial Comms	ModBus RTU via RS485 External USB
Analogue Outputs	0 / 2 / 4 – 20 mA (isolated and scalable)
Digital Relay Contacts	3A @ 30 Vdc (level alarms and service alarm)

PHYSICAL

Ambient Operating Temperature	-20 – +70 °C
Ambient Operating Humidity	0 – 100 %
Ingress Protection	IP65 for external use
Materials: Enclosure Transceiver	Powder coated stainless steel Flame retardant UL rated polycarbonate
Dimensions	200 x 200 x 160 mm
Weight	3.5 kg

Tunnel Sensors

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