TROLEX

Tunnelling

Industry proven technology
designed to ensure safety during
tunnelling operations worldwide

Leading safety technology

Contents

The leading name in safety technology

We are a leading global supplier of gas, dust and environmental monitoring systems to the tunnel construction industry.

Our products are deployed in over 35 countries by some of the world's leading corporations to protect their people and assets, which in turn maximises efficiency. We offer the latest in gas detection systems, particulate monitoring technology and environmental monitoring solutions to meet the diverse needs of our customers.

We regularly review our performance against our own charter commitments and develop action-plans to ensure that we constantly improve and develop – bringing benefits to our customers, our employees, our partners, our community and those whose lives and livelihoods are entrusted to our products and services.

What are we trying to achieve?
Trolex is a unique company with a distinctive culture and we aim to be the best in everything that we do. We are serious about remaining independent and being different, and are committed to achieving the very highest standards of business practice and delivering the best in quality and value for our customers.

Our Innovations
Trolex is a company that has innovation at its heart. We innovate to save lives, save money and to make life better for our customers and the people they employ. This brochure highlights a few examples of our world-class innovations, and the benefits they bring.
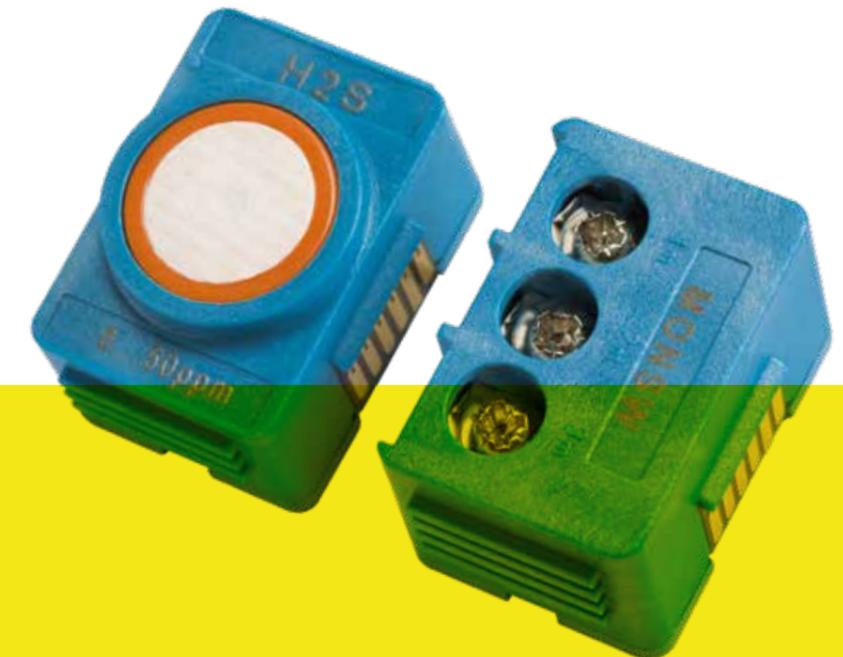
35+
countries that Trolex products are currently deployed in

Sentro 8

The market leading Sentro 8 is the core of our environmental monitoring system, providing up to 8 different points of monitoring, Full datalogging capabilities provide both realtime and historical data. RS485 output comes as standard, as do 4 user programmable relays.

Sentro 1

Sentro 1 is the single gas version of our market leading Sentro 8. The Sentro 1 comes with any one of the following output options; RS485, 4-20mA, 0.4-2V, or dual relays.

eModules and rModules

At the heart of Sentro range is the eModule; intelligent gas sensing modules to cover a range of toxic and flammable gases. Dynamic and historic data is stored within each module together with the condition of the gas sensing element and its service history.

The rModule allows for external monitors such as temperature or air flow to be linked into the Sentro 8 base station or as an integrated system as remote sensors.

Methane (CH$_4$)	**Nitrogen Dioxide (NO$_2$)**
Oxygen (O$_2$)	**Nitric Oxide (NO)**
Carbon Dioxide (CO$_2$)	**Hydrogen (H)**
Carbon Monoxide (CO)	**Acetylene (C$_2$H$_2$)**
Hydrogen Sulphide (H$_2$S)	**Ammonia (NH$_3$)**
Sulphur Dioxide (SO$_2$)	

AIR XD Real-Time Dust Monitor

The Air XD Real-Time Dust Monitor is a new generation of sensor combining lab-grade dust and particulate monitoring precision with the ability to function continuously in the harshest environments.

This dust monitoring unit is simple, durable and lightweight and contains no pumps or filters meaning ultra-high reliability and low maintenance.

– Real time particulate monitoring
– Innovative OPC (Optical Particulate Counter)
– Full PM sizing from 0.35 to 40μm
– Measures up to 5 PM values simultaneously PM1.0, PM2.5, PM4.25, PM10 and Total dust
– No pumps or filters
– Configurable Screen
– Counts and quantifies up to 10,000 particulates a second
– Inbuilt data storage with USB download
– Standard outputs 4-20mA, two configurable relays, Modbus and Ethernet

Deployed as a stand-alone dust monitor or as part of a wider on-demand dust control and suppression system Air XD is accurate to within +/- 5%, providing reliable, convenient, and easy-to-manage protection to your personnel and assets.

Heavy duty audio/visual alarm

Fully customisable system

Measures up to 8 different environmental monitoring points

RS485 comms as standard – Ethernet connectivity optional

Programmable alarm setpoints can be user configured

Mains powered from a universal power supply, accepts supply voltages from 85 to 265 V ac

Built-in batteries give up to 12 hours of Sentro 8 Sensor Station operation in the event of mains supply failure

Sentro 8 Sensor Station

Systems Integration

At Trolex we work with our clients to design and build a bespoke system to suit the exact requirements of each individual project. This may include gas, dust, air flow, temperature, humidity and smoke.

Incorporating a power supply and battery backup, these can be designed around an individual frame or hood, for a plug and play solution.

Our systems are designed to be compatible with a range of different communication backbones.

SCADA

– Surface display and storage of live and historic environmental readings
– Audible and visual warning if any environmental set point alarms are triggered
– STEL (Short Term Exposure Level) and TWA (Time Weighted Average) gas measurements are monitored and recorded when available
– Dedicated alarm pages with acknowledgement of alarms, password protected
– Easy to view and manipulate live trending of current environmental readings

– Graphical interface customised to customer requirements
– Station activation / deactivation facility available if required
– Live trending of current readings means that any spikes can be displayed quickly, and the time and date of the incident quickly pinpointed
– Station activation / deactivation is invaluable if the installation of the complete monitoring infrastructure is to be completed in more than one stage
– Design and layout of the software screens can be tailored to suit individual project requirements.

Technical Engineering Service Options

You've invested in high quality safety systems, which means you need high quality technical engineering services to support and maintain those systems.

At Trolex, our site engineering team are highly qualified service engineers with an average of 20 years' experience in the field. We only use skilled engineers, to provide you with a managed service that gives peace-of-mind in knowing that your systems are always operating to the highest international standards.

Always available, anywhere in the world.

From our main base in Manchester UK, with its modern fully-equipped technical engineering workshop, we offer a global return-to-factory service and support function that provides rapid and reliable repairs, maintenance, replacement and advisory technical engineering services. Our return-to-base service gives you the following benefits:

– Talk directly to experienced Service Engineers not call centres or receptionists
– Bespoke service contracts
– Free-of-charge fault investigation and quotation provided
– Certified equipment specialists with the skills to retain the integrity of your product

We offer product and industrial knowledge training:

– Online
– At customer facility
– At Trolex Manchester UK facility

These training sessions can be configured specifically to your requirement and can be a combination of practical and theory.

We are also developing low cost industrial knowledge online on demand training.

Crossrail

Project Name:	Crossrail (C510 Section Construction)
Company Name:	BBMV
Application:	Environmental Monitoring System

The purpose of the overall system was to provide environmental monitoring during the construction phase of the C510 Crossrail project.

At the two sites (Finsbury & Whitechapel) 33 Environmental Monitoring Stations were installed in total with 2 SCADA systems; one at each site to be able to review underground environmental monitoring at above ground stations.

The gases specified were:

– Oxygen
– Methane
– Nitric Oxide
– Carbon Monoxide
– Nitrogen Dioxide

A Global Alarm Pushbutton is fitted on each Environmental Monitoring Station. This allows a worker to trigger the alarm if they are in any danger, which will send nearby Sensorstations, and the connected SCADA system into alarm. Alarm setpoints are in line with BS6164:2011

There is also a Traffic Light facility included. If any gas station in the system goes into an alarm condition then the station closest to the pit bottom changes the Traffic Lights to warn of potential dangers in the tunnel before human entry.

All commissioning of the sensorstations, ongoing maintenance contract and full training on the system was also supplied.

20
the average number of years experience of our service engineers

33
Environmental Monitoring Stations installed with two SCADA systems

Trolex is a progressive technology group which aims to become the leading name in safety technology, wherever and whenever workers operate in challenging environments. We bring to market products that are dramatically superior to our competition, providing outstanding real-world benefits to our customers.

For more information on Trolex or if you'd like to find out more about anything featured in this brochure, contact us at:

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