


# AND BREATHE...



## AIR XCD

**REAL-TIME  
DUST MONITOR**

A close-up, high-contrast photograph of a person's hands and lower face. The person is wearing a dark respirator mask and light-colored, textured work gloves. They are surrounded by a dense, swirling cloud of fine brown dust or particles, which is illuminated by a bright light source, creating a dramatic, hazy atmosphere. The background is dark and out of focus.

**THE NEXT GENERATION  
OF PARTICULATE  
MONITORS HAS ARRIVED.**





# THE BIGGEST PROBLEM WITH DUST MONITORS ON THE MARKET TODAY.

They don't work very well when there's a lot of dust around. Which we think kind of defeats the objective.

So we developed the 4G-enabled Air XD range – the world's first and only open-path, full-spectrum, accurate, real-time dust monitor for harsh and hazardous environments.

No filters, no pumps, no messing around.

The Air XD is five times more accurate than the current technology, and capable of dealing with 10 times the dust loading.

With a typical maintenance cycle of 6 to 12 months, you can relax knowing you're providing the most robust and comprehensive particulate monitoring for your people and your business without the high costs and the hassle.

So everyone can breathe a little easier.



## THE D STANDS FOR DIFFERENT.

### **No filters, no pump, no messing around**

No filters, no pump, no messing around  
The Air XD has no moving parts.

All you need to maintain it is the Air XD Compliance Kit and a spare 20 minutes, typically once every 6 to 12 months.

It's as simple as that.

Your days of changing filters and expensive pumps are over.

### **Monitor all of the dust, all of the time**

You don't solve a puzzle with only one or two pieces of the jigsaw, so why monitor for only one or two sizes of dust particulate?

The Air XD simultaneously monitors every dust particulate from 0.35 to 40  $\mu\text{m}$ , continuously and in real time. No more guesswork.

The complete picture delivered with unrivalled accuracy.

### **A dust monitor that's not afraid of dust**

The open-path Air XD sensing system, combined with our advanced algorithm, means continued accuracy – whether it's low dust-volume clean air environments or heavy dust loads and complex mixtures.

Air XD stays operational in dust concentrations of 1500 mg/m – that's typically 10 times as much as our competitors.

### **Save lives, save money**

Reduce maintenance and workforce costs. Deploy PPE, dust control and suppression in intelligent ways.

Identify process leakages and inefficiency. Reduce health and safety incidences and protect your business from litigation.

The Air XD range is there to save lives, save money and improve efficiency.

Get real-time, accurate and comprehensive information that gives you absolute control over your process and facility.

# WHAT'S THE DIFFERENCE?



- 1 >** Open-path brushed stainless steel duct assembly with anti-static coating minimises dust settlement and allows free flow of air through the unit, enabling the Air XD to function in heavy dust loads.
- 2 >** No pump, pre-filtering or internal filter so the Air XD detects the real content of particulates in the space, giving accurate and reliable readings as dust concentrations change.
- 3 >** Multi-parameter detection points and a wide scatter-zone chamber allows the Air XD to monitor every particle flowing through the unit – giving comprehensive full spectrum readings at all times.
- 4 >** Advanced algorithm processes 10,000 particulates per second providing real time highly accurate information to monitor hazardous particles and improve efficiency in your process.



# WE NEED TO TALK ABOUT DUST.

Understanding your dust problem is the first step to solving it. Different sizes of dust harm different parts of the respiratory system which is why we designed the Air XD to simultaneously monitor every dust particulate from 0.35 to 40  $\mu\text{m}$ , continuously.

## DANGERS OF DUST

### 9 to 30+ $\mu\text{m}$

Visible dust – ground limestone or lead powder – is likely to be the least harmful to the human body as the body's defences will intercept and expel it successfully. Some dust particles remain harmful in this size category (e.g. silica).

### 5.5 to 9 $\mu\text{m}$

Invisible to the naked eye, cement, iron, and textile dust will often fall into this category. Most likely to settle in the nose/throat area and expelled through coughing and sneezing. It can cause irritation and short and long-term health issues such as asthma if exposure is extended and regular.

### 2 to 5.5 $\mu\text{m}$

Bakers dust and coarse clay dust are often in this size category. These particulates will lodge in the main and small breathing passages causing short and long term health issues such as asthma and bronchitis.

### 2 $\mu\text{m}$ and below

Many industrial dusts fall into this category, including paint pigments, lead dust, metallurgic dust and fumes, wood dust, carbon black dust and coal flue gas. These particulates will lodge in the bronchi, bronchioles and alveoli, causing irreparable damage and potentially fatal diseases such as lung cancer, silicosis, black lung disease and COPD.

## JARGON BUSTER

### $\mu\text{m}$

The unit of measurement used to describe the size of an individual particle. 1  $\mu\text{m}$  or micrometre/micron = 1 millionth of a metre.

### PM

Particulates, specifically particulate matter (PM) – are a mix of solid particles and liquid droplets suspended in air. PM10 refers to all particles of 10  $\mu\text{m}$  and below in a sample.

### nm

Short for nanometre. These are particulate sizes smaller than 1  $\mu\text{m}$ . So, the Air XD's ability to detect a range of particulate sizes from 0.38  $\mu\text{m}$  means it can detect particles sized at 380 nm and above.

### $\mu\text{g}/\text{m}^3$ or $\text{mg}/\text{m}^3$

This measurement refers to particle density or for the amount of particulate matter present in a single cubic metre of air. It's the measurement most frequently referred to in legislation for respirable particulates. Typically, respirable dust should not exceed 4  $\text{mg}/\text{m}^3$  – equivalent to four teaspoons of flour spread over an entire soccer field up to a height of 1 m!



## **MONITOR HAZARDS, SAVE MONEY AND TIME IN THE REAL WORLD.**

We've helped many customers improve their operational performance with the Air XD. Here's just one example:

We worked with a top-three building/construction company in the UK, installing an Air XD at their mineral processing site to investigate the effectiveness of their dust control measures.

By monitoring all of the dust present, all of the time, they were able to establish that certain control measures were ineffective whilst others had a significant impact on dangerous dust levels. Within a few weeks, they were able to:

- Guarantee worker safety in the area monitored by the Air XD.
- Reduce costs and wastage associated with dust suppression and control measures.
- Introduce smart dust control – using control methods only when dangerous dust was present.
- Reduce RPE usage by keeping workers informed at all times of dust levels.
- Massively reduce maintenance through the Air XD's six-monthly compliance test.

Return on investment from a financial perspective was almost instant. From the point of view of employee safety and corporate responsibility, the returns are priceless.

### **USEFUL INFORMATION**

Go to [www.trolex.com/product/air-xd](http://www.trolex.com/product/air-xd) or a full list useful information and references, including dust legislation, dust types and sizes and other useful resources.





## PRODUCT AND ACCESSORIES



### AIR XD

Real-time, highly accurate dust monitor, able to simultaneously detect particulates from 0.35 to 40  $\mu\text{m}$  and capable of handling dust loads of up to 1500 mg/m. whilst remaining functional and accurate. Fully configurable in-field and 4G-enabled, delivering clear and straightforward information where you need it most.

No filters, no pump and almost zero maintenance.

A new generation of particulate monitor designed to protect lives and deliver results in the most harsh and hazardous industries.



### AIR XD TRANSPORTABLE PACK

For use in remote locations or where power is not available. The lightweight Air XD Transportable Pack powers up your Air XD 24 hours a day without interruption. Featuring our unique twin-battery system with built-in prioritisation (the system automatically switches to the battery with power available), the Air XD Transportable pack allows you to swap out and recharge spare batteries quickly and easily without interruption to your work and without ever powering down.

Mounted on a high-quality robust tripod and powered by dual lithium-ion batteries with a typical run cycle of 30 hours per battery. The Standard Air XD can be converted into the transportable mode in around 20 minutes.





### AIR XD COMPLIANCE PACK

A single, easy-to-use pack for all your service, audit, compliance, QA needs and to verify your Air XD in-situ. All you need is around 20 minutes typically once every 6 to 12 months to ensure your Air XD is compliant, fully functional and ready for use. That's it. No filter change, no pump replacement, no return-to-base or complicated calibration routines.

Contains the Trolex Approved Compliance Audit dust samples along with the Trolex Approved Compliance Audit reusable particulate delivery system.



### BREATHE SOFTWARE AND 4G

We're all about keeping it simple. Our dedicated Breathe Software for the Air XD range is a clear, easy-to-navigate, easy-to-access platform for storing, viewing and accessing all of your particulate data. It provides you with event logging, Approved Audit Certification and QA verification when required, as well as instant alert messaging through 4G connectivity.

Air XD units can be fully configured either in-field using the on-device buttons or using the Breathe Software, giving you maximum flexibility and accessibility.



### EXTENDED WARRANTY PACKAGE

The Air XD extended warranty package gives you peace-of-mind for three years from delivery, guaranteeing you a rapid no-quibble replacement wherever and whenever you need it.

Available on GP version only. Please note that units must undergo the annual Approved Compliance Audit to remain in warranty.

# SPECIFICATION

## PARTICULATE SENSING PARAMETERS

PM size range	PM1.0, PM2.5, PM4.25, PM10 and TSP
TSP range	Up to 40 µm displayed in mg/m <sup>3</sup> or µg/m <sup>3</sup>
PM measurement range	0.35 to 40 µm over 24 bins
PM measurement capability*	Up to 1500 mg/m <sup>3</sup>
PM continuous operating range**	Up to 25 mg/m <sup>3</sup>
PM density	0.8 g/ml to 8 g/ml (default 1.65 g/ml)
PM measurement units	mg/m <sup>3</sup> or µg/m <sup>3</sup>
Averaging period	1 minute to 24 hours
Averaging channels	STEL rolling average (default 15 minutes) TWA accumulative average (default 8 hours)
Sampling interval	1 second
Particle count	Up to 10,000 (particles/second)
Sample flow rate	Dynamic (1.2 L/min nominal)
Total flow rate	5.5 L/min (typical)
Accuracy	± 5%

\* The instrument can define particulate measurement peak trends up to the quantity specified.

\*\* During sustained high dust loading periods, the instrument will report on PM data up to the quantity specified.

Note: Sustained exposure to PM quantities above 25 mg/m<sup>3</sup> will be logged; however, may affect the operating life of the particulate sensor (OPC).

## TECHNICAL INFORMATION

Ambient temperature limits	-10 to 45 °C
Humidity	0-95% RH (non-condensing)
Protection classification	Main enclosure, dust and waterproof: IP66 Particulate flow path, cap open: IP22 Particulate flow path, cap closed: IPX6
Housing material	Stainless steel
Net weight	8.2 kg
Cable entries	7 x M20 with removable blanks 1 x M20 USB connector
Power	100 to 240 V – ac 50/60 Hz 9 to 36 V dc – General Purpose 9 to 16 V dc – hazardous locations
Supply current	100 mA nominal ac variant 660 mA nominal dc variant
Power consumption	6 W
Inrush current	350 mA Peak
Relay outputs	Two configurable alarm contacts. Electronically isolated Maximum rating 36 V ac/dc 300 mA (internal overcurrent and overvoltage protection fitted)
Maximum rating	Two configurable (real-time or average readings) R1 and R2 with adjustable setpoints Configurable span range Max attached load: 280 Ω
Communications	RS485 data output with MODBUS RTU protocol or Ethernet (MODBUS TCP/IP optional) 3G/4G modem (where specified)
Data download	External USB interface
Data storage	8 GB > 10 years (logging interval dependent, default 10 seconds)
User interface	128 x 64 dot matrix display with RGB backlight Navigation keypad (weatherproof membrane)
Visual alarms	Display RGB backlight
Indicators	1 x green high brightness LED – sensor heartbeat 1 x blue high brightness LED – communications



At Trolex, we save lives.

We believe that no person should risk their life to earn a living.

We aim to become the world's leading name in health and safety technology through pioneering products that provide real-world benefits to our customers whenever workers operate in hazardous environments.

For more information about Trolex products, please contact us at:

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