

# REAL-TIME PARTICULATE MONITORING FOR INDUSTRY.

Designed for the worker

PRODUCT BROCHURE





# SUPPORTING CRITICAL AIR MONITORING SYSTEMS WHEREVER IT'S NEEDED.

The AIR X range of particulate monitors allows you to design, monitor and control your air quality systems in hazardous industrial environments, in real time — wherever and whenever it's needed.

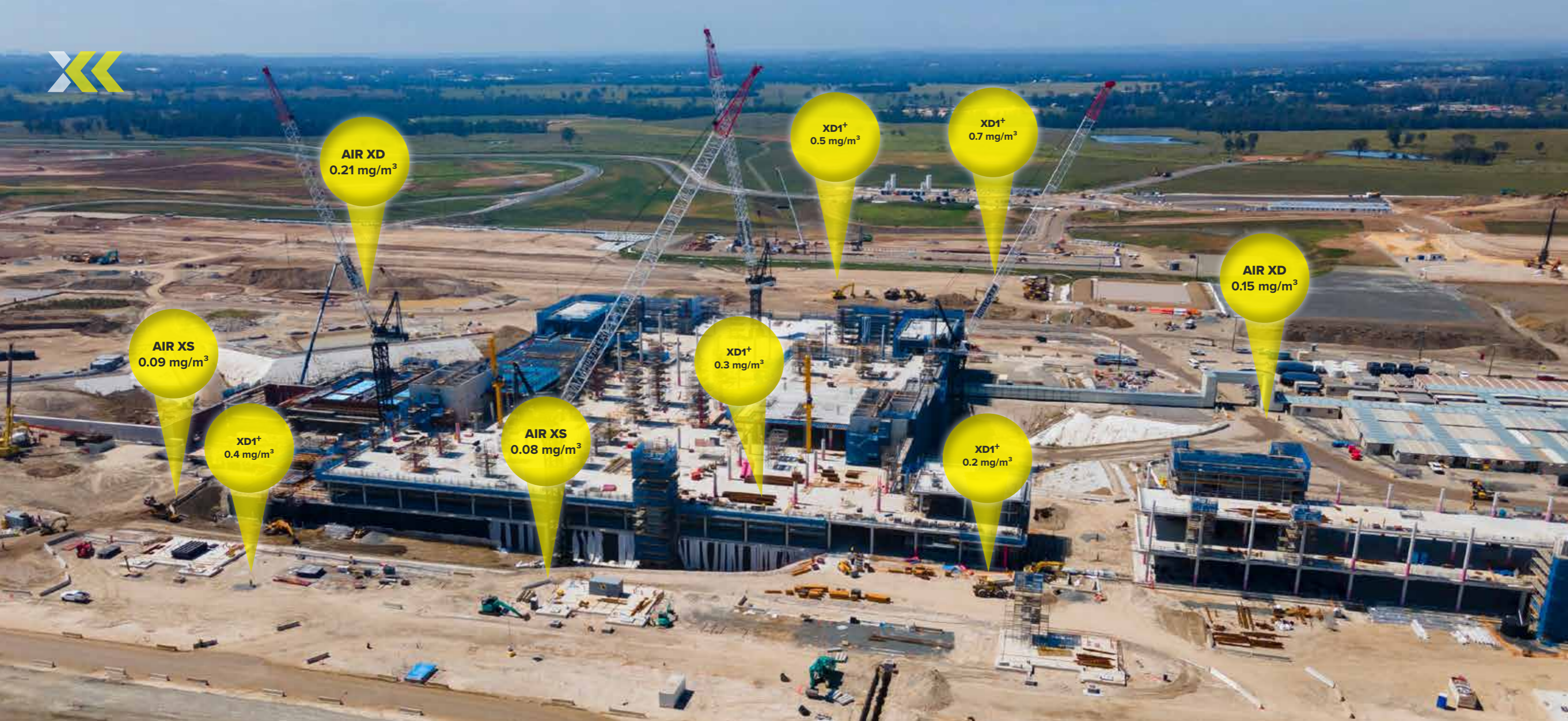
From multi-site global integrated control systems, to simple individual protective alarms, AIR X can provide the highest quality analytical data via the dedicated AIR X software and third-party connectivity platforms — allowing you to maximise the efficiency of your facility and processes and provide the highest levels of protection for your people.

Identify exposure sources, respond immediately to critical incidents, assess control measures and analyse trends over time — and provide real-time safety-critical warnings matched to time location and activity for your workers. AIR X is there when you need it.

See how the AIR X range has helped some of the world's biggest businesses maximise efficiency and protect their workers.



See AIR X in action



# REAL-TIME DATA. WHENEVER. WHEREVER.

- » Critical incident monitoring
- » Exposure source monitoring
- » Control measure impact monitoring
- » Exposure trends over time
- » Personal exposure levels matched to time, location + activity
- » Warning to individuals at risk



# PARTICULATE MONITORING FOR THE WORKERS.

The AIR X particulate monitoring range is designed for the worker. Easy to use, easy to understand, rapidly deployed products that deliver reliable data on hazardous particulates, instantly. No messing about.

Trolex fixed and personal real-time particulate monitors need virtually no maintenance, typically run off a single or

2-button press, and provide critical support to air monitoring systems, wherever and whenever it's needed.

We've been protecting people in some of the world's most hazardous industries for nearly 70 years. Real-time information on the presence of killer particulates in your workplace isn't a luxury. It's a right.

The AIR X range from Trolex. Designed for the worker.



Easy to use + easy to understand



Reliable data on hazardous particulates



Virtually no maintenance



Typically run off a single or 2-button press



# AIR XS FOR REAL-TIME RCS MONITORING.



It's time we gave workers information about the presence of this known killer particulate in their workplace. Immediately and all of the time.

AIR XS is the world's first silica monitor that directly detects changing levels of respirable crystalline particles in the environment, and has demonstrated in independent benchmarked studies to deliver reliable data at and below the regulated workplace exposure limits – in real time.

It's easy to deploy, easy to use, and can be compliance checked in around 2 minutes.

Data is provided through the on-device display and via the BreatheXS software directly to your PC in real time. AIR XS Transportable Pack provides a mobile option with dedicated portable battery.

Deployed alongside compliance monitoring systems AIR XS can support air monitoring and RCS control in many ways – providing immediate indicative data that allows you to understand your specific working environment, and constantly evolving analytical data to help develop your response to the presence of RCS and to maximise the safety of your workers.

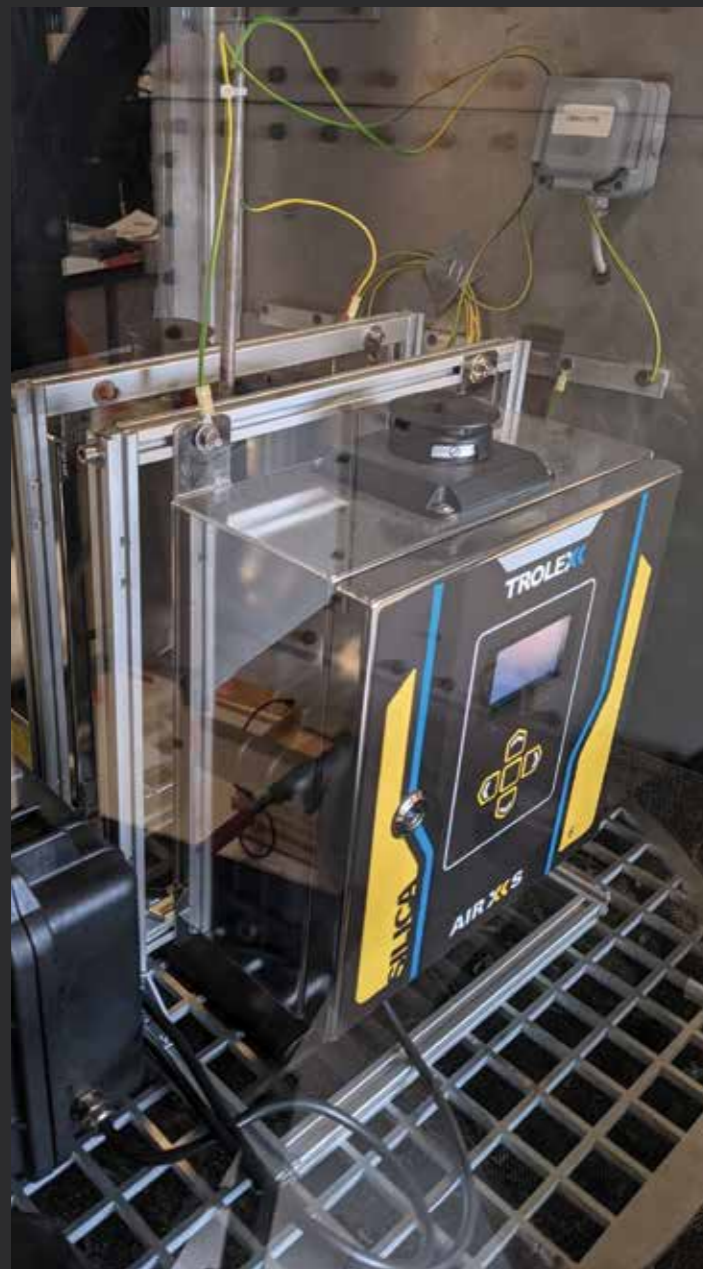
## PARTICULATE SENSING PARAMETERS

Refer to product user manual for full details

<b>Sensing technology</b>	Optical Refraction Technology (ORT) Optical Particle Counter (OPC)
<b>Respirable measurement</b>	Target RCS identification range (1 µm to 28 µm)
<b>Max. typical dust loading</b>	150 mg/m <sup>3</sup>
<b>Continuous loading</b>	25 mg/m <sup>3</sup>
<b>Displayed data</b>	25 mg/m <sup>3</sup>
<b>Measurement resolution</b>	1 µg/m <sup>3</sup> (0.001 mg/m <sup>3</sup> )



# BACKED BY INDEPENDENT TESTING.



Tests carried out on AIR XS by Bureau Veritas, one of the world's leading Occupational Hygiene and Laboratory Testing organisations demonstrate that AIR XS can provide accurate and stable real time results at the internationally recognised maximum exposure limit. Testing was carried out alongside the reference method for RCS monitoring and AIR XS units provided comparable results with data that could be acted on immediately.

Testing was in accordance with the methodology described in the Health and Safety Executive (HSE) approved document Methods for the Determination of Hazardous Substances (MDHS) 101 (2015) Crystalline silica in respirable airborne particulates and BS ISO 24095:2021 Workplace air. Guidance for the measurement of RCS.

**AIR XS isn't only delivering an accurate and stable 8-hour average result in real time at the lowest internationally recognised maximum exposure limit – as opposed to days or weeks later after laboratory analysis which the current standard technology delivers – but it's also providing stable and consistent results in real time throughout the 8-hour period.**

## TESTING OVERVIEW

### Test 1: Maximum exposure limit 0.05 mg/m<sup>3</sup>

Tested over 8 hours with 3 x Gravimetric Sample (GS) units at a dust loading around the internationally recommended maximum exposure limit (0.05mg/m<sup>3</sup>) **AIR XS delivered identical results (0.054mg/m<sup>3</sup>) to the highest GS result.**

The highest GS result was used in line with best-practice safety management principles. The other 2 GS results varied by 30% and 38%, respectively.

Unit	Measured concentration
GS 1	0.054 mg/m <sup>3</sup>
GS 2	<0.034 mg/m <sup>3</sup>
GS 3	0.038 mg/m <sup>3</sup>
<b>AIR XS</b>	<b>0.054 mg/m<sup>3</sup></b>

### Test 2: 4 x the legislated exposure limit

Also tested over 8-hours with 3 x GS units at a dust loading of around 4 x the internationally recommended maximum exposure limit, **AIR XS showed a 19% variance from the highest GS result.**

The other 2 GS results varied by 25% and 30% respectively from the highest GS result.

AIR XS showed consistent, stable responses throughout the 8-hour test indicating that it was providing actionable real-time data at, and above, the regulated exposure limit.

The variability of the GS results is broadly in line with the internationally recognised variability of the methodology at the exposure limit value (stated as ±30%).

Unit	Measured concentration
GS 1	0.20 mg/m <sup>3</sup>
GS 2	0.14 mg/m <sup>3</sup>
GS 3	0.15 mg/m <sup>3</sup>
<b>AIR XS</b>	<b>0.238 mg/m<sup>3</sup></b>



### Request full BV testing results

Please see product user manual (TX8100-UM-EM-P5633.1601) for testing and product specificities which should be considered relevant to application.



# TECHNICAL SPECIFICATION

Operating temperature	-10 °C to +45 °C
Humidity	0 to 95% RH (non-condensing)
Housing material	PC/ABS – stainless steel
Ingress protection	Main enclosure: IP66 Particle flow path, cap open: IP22 Particulate flow path (cap closed): IPX6
Weight	8.2 kg
Cabel entries	3 x M20 with removable blanks 1 x M20 breather gland 1 x M20 USB connector
Nominal power supply	100 V ac to 240 V ac 50/60 Hz 9 V dc to 18 V dc
Power consumption	15 W
Communications	RS485 data output with MODBUS RTU protocol Ethernet (MODBUS TCP/IP)
External power output	2 x 15 V dc 1 A outputs (for powering external devices)
Connectivity	Trolex BreatheXS software
Data download	External USB interface
Instrument data storage	32 GB
User interface	128 x 64 dot matrix display with RGB backlight Navigation keypad (membrane)
Visual alarms	Custom alarm setpoints Latching/non-latching
Self-test routine	Sensor hardware, circuitry and communications on power on manual self-test during use
Certification	CE compliant

# ORDER REFERENCE

Option	Description	Option	Description
00	General Purpose	00	Standard Connectivity
		01	Wireless Ready
		02	Wireless Ready + 1 Year Cloud

# ACCESSORIES

Option	Description
P5628.5000	Transportable Pack (Tripod, Mounting Plate + TX6650 Battery Pack)
P5633.5001	Tripod Kit (Tripod + Mounting Plate)
P5633.4000	Compliance Pack S (12 x Dust Samples, 12 x Applicators, 24 x Filters + 1 x Hood)
P5633.4001	High Frequency Compliance Pack S (12 x Dust Samples, 12 x Applicators, 48 x Filters + 1 x Hood)
P5633.800	BreatheXS Software License Online (Annual license per device)
P5625.19.01	Replacement display
P5642.500	Spare Battery for Transportable Pack (TX6650)



# AIR XD FOR TOTAL AREA DUST MONITORING.

An open-path real-time fixed general dust monitor with no moving parts, no filters, no pumps and no messing around.

AIR XD detects particles from 0.35 µm to 40 µm and is capable of handling dust loads of up to 1500 mg/m<sup>3</sup>, meaning that it's suitable anywhere from low-dust clean-air environments to harsh and hazardous industrial settings.

The unit can be compliance checked in 2 minutes, and deployed into the field in a matter of minutes, providing indicative

data to support dust control systems as well as providing analytical data for critical incidence monitoring, identifying exposure sources, and for tracking exposure trends over time.

Access all data on the dedicated Breathe Software platform which can be configured to provide approved audit certification and quality assurance as well as instant alert messaging.

## PARTICULATE SENSING PARAMETERS

Refer to product user manual for full details

<b>PM size range</b>	PM1.0, PM2.5, PM4.25, PM10 + TSP
<b>TSP range</b>	Up to +40 µm displayed in mg/m <sup>3</sup> or µg/m <sup>3</sup>
<b>PM measurement range</b>	150 mg/m <sup>3</sup>
<b>PM density</b>	25 mg/m <sup>3</sup>
<b>Averaging period</b>	25 mg/m <sup>3</sup>
<b>Particle count</b>	1 µg/m <sup>3</sup> (0.001 mg/m <sup>3</sup> )
<b>Total flow rate</b>	5.5 l/min (typical)
<b>Accuracy</b>	± 5%



# TECHNICAL SPECIFICATION

Ambient temperature limits	-10 °C to +45 °C
Humidity	0 to 95% RH (non-condensing)
Protection classification	Main enclosure: IP66 Particle flow path, cap open: IP22 Particulate flow path (cap closed): IPX6
Housing material	Polymer coated stainless steel
Weight	8.2 kg
Cabel entries	5 x M20 with removable blanks 1 x M20 USB connector
Power	+100 V to +240 V ac 50/60 Hz +9 V to +36 V dc
Supply current	100 mA nominal ac 660 mA nominal dc
Power consumption	6 W
Inrush current	350 mA peak
Relay outputs	2 x configurable (alarm outputs) Dry contact Max. rating 36 V ac/dc 300 mA
4 to 20 mA outputs	2 x configurable (real time or average) R1 + R2 with adjustable setpoints Max. attached load: 280 Ω
Communications	RS485 data output with MODBUS RTU protocol Ethernet (MODBUS TCP/IP)
Data download	External USB interface
Instrument data storage	8 GB > 10 years (log rate dependent)
User interface	128 x 64 dot matrix display with RGB backlight
Visual alarms	Display RGB backlight
Certification	GP, ATEX, MASC + IECEx Grp I

# ORDER REFERENCE

Option	Description	Option	Description
00	GP	02	9 to 16 V dc (Grp I only)
05	MASC Grp I	03	100 to 230 V ac 9 to 36 V dc (GP only)
06	IECEX Grp I (Aus)		
19	ATEX/IECEX Grp I		

# ACCESSORIES

Option	Description
EXTWARRANTY2	Extended warranty (3 years)
P5628.5000	Transportable Pack (Tripod, Mounting Plate + TX6650 Battery Pack)
P5628.5001	Tripod Kit (Tripod + Mounting Plate)
P5650.4000	Compliance Pack <sup>+</sup> (4 x Samples, 4 x Applicators, 1 x Hood)
P5644.4004	Sample Replacement Kit (12 x Samples + 12 x Applicators)
P5628.800.001	Breathe Software License Online (Annual license per device)
P5625.19.01	Display Assembly
P5628.156	S/A Duct GP
P5628.100.02	S/A Duct with Sensor Grp I
P5642.5000	Spare Battery for Transportable Pack (TX6650)



# XD1<sup>+</sup> FOR PERSONAL DUST MONITORING.

Providing workers with a simple, lightweight, easy-to-use indicative personal dust monitor can be critical to protecting their health, and to providing a better understanding of the dust hazards in their environment.

XD1<sup>+</sup> needs no specialist skills to use. Operated via a single button press and with a simple 2-minute compliance-check routine, it can be deployed in a matter of seconds and provides up to 8 hours of continuous monitoring on a single charge.

The units have selectable PM1, 2.5, 4.5 and 10 measurement ranges and are set up to deliver short-term exposure limit (STEL) and time-weighted average (TWA) warnings to workers in danger.

Deployed in combination with our BreatheLITE software XD1<sup>+</sup> can now overlay exposure data onto real-time video uploads, providing time and location stamps to identify critical exposure incidents. Other features include multiple device overlays, alarm trigger data, multiple size graphing and industry accepted density settings for various types of environments.

## PARTICULATE SENSING PARAMETERS

Refer to product user manual for full details

<b>Sensing technology</b>	Optical Particle Counter
<b>TSP range</b>	0.1 µm to 10 µm
<b>PM measurement capability</b>	PM1.0, PM2.5, PM4.25 and PM10
<b>Operating range</b>	Up to ~150 mg/m <sup>3</sup>
<b>PM density range</b>	0.8 g/ml to +8.0 g/ml (default: 1.65 g/ml)
<b>Units of measurement</b>	µg/m <sup>3</sup> – logged on-device mg/m <sup>3</sup> or µg/m <sup>3</sup> – BreatheLITE/BreatheMOBILE
<b>Accuracy</b>	± 10%





# TECHNICAL SPECIFICATION

<b>Operating temperature</b>	+10 °C to +40 °C (optimum performance) -10 °C to +40 °C (max. performance)
<b>Humidity</b>	20% to 80% RH, non-condensing (optimum performance) 0 to 95% RH, non-condensing (max. performance)
<b>Housing material</b>	PC/ABS polymer housing
<b>Ingress protection</b>	Main enclosure: IPX4 Particle flow path: IP4X
<b>Weight</b>	170 g
<b>Data connections</b>	USB-C (charging + data transfer) Bluetooth LE 5.3
<b>Connectivity</b>	BreatheLITE desktop application BreatheMOBILE application
<b>User options</b>	STEL + TWA alarm setpoints Latching alarms Particulate measurement
<b>User interface/alarms</b>	Visual icon illumination (STEL, TWA + battery indication) Audible (85 dB) Vibration alert
<b>Self-test</b>	Sensor hardware, circuitry + battery test on activation 'Push to test' during operation
<b>Response test</b>	Custom particle compliance test
<b>Battery capacity + run time</b>	8.2 Wh lithium ion + 8+ hours full health at ambient
<b>Charging temperature limits</b>	0 to +45 °C
<b>Max operating altitude</b>	2,000 m
<b>Charging time</b>	0 to 100%: 3 hours
<b>Memory capacity</b>	1 GB (6 months data logging at 10 second intervals)
<b>Certification</b>	CE + UKCA compliant

# ORDER REFERENCE

Option	Description	Option	Description
00	General Purpose	01	Single unit
		02	Team Pack (x5 XD1 <sup>+</sup> + DCD)

# ACCESSORIES

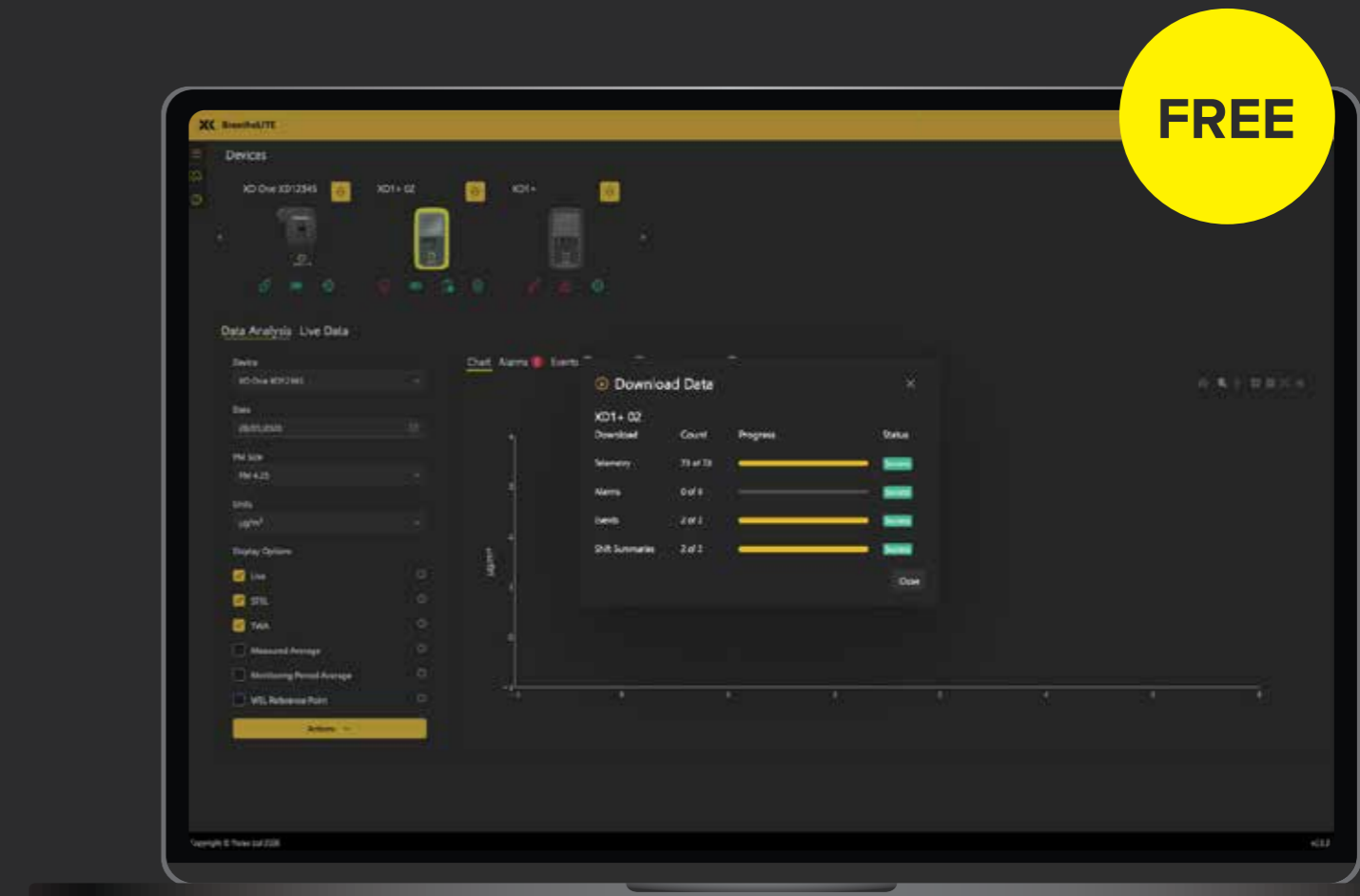
Option	Description
P5644.4001	Body Mount Kit
P5644.4002	Pole/Wall Mount Kit
P5650.4002	Yellow Protective Case
P5650.4003	Green Protective Case
P5650.4001	Data and Charging Dock (DCD)
P5650.4000	Compliance Pack <sup>+</sup> (4 x Samples, 4 x Applicators + 1 x Hood)
P5644.4004	Sample Replacement Kit (12 x Samples + 12 x Applicators)
P5650.4004	XD1 <sup>+</sup> Insta360 Camera Bracket
<a href="https://trolex.com/air-x-software">trolex.com/air-x-software</a>	BreatheLITE + BreatheMOBILE



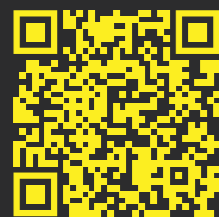
# SIMPLE + INTEGRATED DATA CONNECTIVITY.

Easy and rapid access to both historical and real-time data in a user-friendly format is a feature of all products in the AIR X range.

From our dedicated AIR X desktop software + BreatheMobile app direct to your phone to full-fleet historical data analysis and trending, our AIR X software provides an accessible, user-friendly solution.



AIR X unit	Desktop software	Global connectivity
AIR XS	BreatheXS	Aethair, Kallipr or other IoT integration via MODBUS/Ethernet
AIR XD	Breathe	
XD1 <sup>+</sup>	BreatheLITE	BreatheMOBILE + Reactec Ecosystem



See our AIR X software range

## AIR X SOFTWARE: THE FEATURES

- » No subscription or payment required. Every feature on AIR X software is free of charge
- » See exposure trends of particulate levels across entire working shifts
- » Analyse data with full graph display between selected time periods and PM sizes of your choosing
- » Customise the TWA of the data your AIR X unit picks up to local legislative limits
- » Change units of measurement between  $\text{mg}/\text{m}^3$  and  $\mu\text{g}/\text{m}^3$
- » Upload any MP4 video to view alongside downloaded data\* for more in-depth analysis
- » Get notified about upcoming or overdue compliance checks for your connected AIR X unit
- » Download all particulate data to CSV or PNG formats

\*Available for data downloaded on to BreatheLITE software.



# AIR X: POWERED BY CONNECTED TECHNOLOGY.

A highly reliable solution that connects our fixed real-time monitoring technology via MODBUS/Ethernet simplifying data access and modernising outdated solutions.

Elevate your AIR XS and AIR XD monitoring through real-time data access and advanced analytics via Environet, Kallipr Cloud or your own compatible IoT platform to simplify complex particulate data into actionable insights that make a difference to your workplace safety.

This seamless integration also allows for personalised monitoring, immediate identification of high-risk areas and efficient management of multiple health risks to your workforce.

It's data you can act upon.



[View all software solutions](#)



Unmatched data security for seamless, end-to-end encryption and integrity

## 4G

4G LTE connectivity, streamlining the process of collecting and accessing data



24/7 remote data access making all data accessible at any time and place



Plug-&-play functionality including ports for users to connect the user's device

# SPEAK TO US ABOUT REAL-TIME PARTICULATE MONITORING.

Our AIR X particulate monitoring range complements and enhances traditional particulate monitoring methods, providing real-time data to drive daily decisions while maintaining alignment with industry-recognised practices.

We're dedicated to developing innovative safety solutions that protect workers and enhance operations. AIR X exemplifies our commitment to quality, reliability and continuous improvement in occupational health and safety.

Contact a member of our sales experts who'll be able to support you with what safety instrumentation suits your operational needs.

**You can also speak to us about our servicing options.**



[Contact Technical Services](#)

**Contact Trolex Sales**  
[sales@trolex.com](mailto:sales@trolex.com)

**Find a local Distributor**  
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Brought to you by the world's leading brand in gas detection for mines and tunnels, SENTRO X is our most advanced and efficient gas detection system yet.

Available in Grp I ATEX, MASC, IECEx + NSW MDR



See [trolex.com/sentro-x](https://trolex.com/sentro-x) or scan the QR code to request a demonstration today



**At Trolex, we save lives.**

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

Our aim is 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, please contact us at:

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