Turnkey Instruments Ltd

Tel: +44 (0)1606 330020 www.turnkey.tel



APM

Osiris Monitor
Sira MC 090157/01

Topas Monitor
Sira MC 090158/01

Airborne Particulate Monitors

- **Real time air quality monitoring**
- **Simultaneous TSP, PM10, PM2.5 & PM1**
- **Multi-monitor networks**
- **Spot monitoring, portable or permanent installations**
- **Meteorological instruments**

Turnkey Instruments design and manufacture a range of easy to use instruments which continuously measure and record the concentration of airborne particles. In their environmental mode, these instruments can simultaneously monitor the concentrations of TSP, PM10, PM2.5 and PM1 particles. Alternatively, in their workplace mode, the inhalable, thoracic and respirable fractions can be monitored.

An internal reference filter can be used to confirm the gravimetric calibration of the instruments.

All instruments feature internal data logging for the particle concentrations. Osiris and Topas also allow wind speed and direction, temperature, humidity, rainfall and two external gas or noise meter inputs to be recorded at the same time.

All instruments use our own proprietary nephelometer. A pump continuously draws an air sample through the nephelometer, which analyses the individual particles as they pass through a laser beam. These same particles are then collected on the reference filter. The nephelometer's dedicated microprocessor can analyse individual particles even if there are millions of them per litre. This allows size fractions to be determined at concentrations up to several mg/m^3. Above this there is an indicator range which can be used without sizing up to 60 mg/m^3.

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Osiris (Particulate Monitoring)

The Osiris is a small and compact instrument that can be used to study short to long term particulate monitoring. Powered by various power options to suit your application. The Osiris can be used effectively to determine exceedance areas.

DustMate

DustMate is a hand-held detector ideal for short term sampling. Highly effective for monitoring air quality within buildings and clean rooms. It measures TSP, PM10, PM2.5 and PM1 simultaneously in real time. Data can then be transferred to a PC via PC-Link.





Topas (Particulate Monitoring)

The Topas fixed station monitor is intended for long term installation. Several sites can be networked together to form a city wide monitoring system, which can be controlled by various communication means including GSM, 3G router or radio modem.

Osiris (site sentry, full site monitoring system)

When Osiris is used with i-dB, Turnkey's latest noise monitor, a full site monitoring station can be used to meet all regulations. The system is designed to provide remote online monitoring of dust and noise emissions to meet regulatory requirements. This innovative web based remote system simultaneously measures multi-parameter dust, noise, wind speed and direction, temperature & humidity and rainfall from a single UK based manufacturer. All data is stored on a web based secure system with private login.





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AirQ Software, AirQWeb & AirQApp

Environmental Monitoring Software

AirQ the user friendly and quick reporting PC software, designed in-house will manage and display results from our range of environment sensors.

AirQ can be used to control sensors and record measurements in real time

- "Live" graphs and tables appearing on the PC screen.
- Software automatically starts and stops sensors.
- Change parameters and configurations.
- Upload stored results.
- Powerful database engine.

With **AirQ** a live "on-screen" pollution rose can be created which plots measurements against wind direction on a polar chart.

Networked Environmental Monitoring

Creating a network of sensors is easy. Any number of sensors can be connected to an **AirQ** network created with fixed wiring (up to 10km), licence free radio telemetry (up to 20km), telephone and GSM cellular modems.

A network can include alarm facilities such as beacons or sirens for early warning and response to high readings. It can also active water sprinkler systems for damping down exceedance levels of dust.

AirQWeb & AirQApp



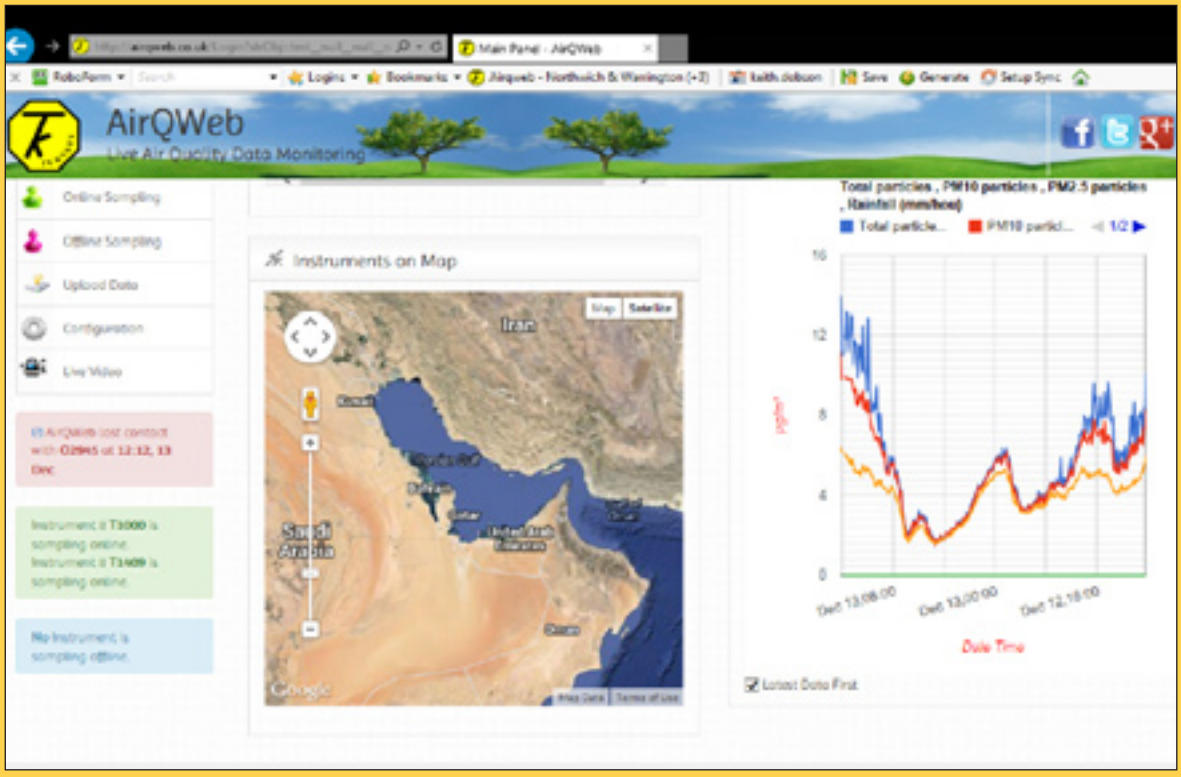


Units fitted with a web router can be accessed via the internet (M2M simcard with 2GB data, fixed or dynamic public IP address, required).

Also via smartphone app, instant alerts can be sent to your phone before a likely exceedance breach occurs.

Alerts can be set for wind direction and wind speed, as well as dust levels.

A remote pan/tilt rotate IP camera can be added when connected via the web.









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Feature	Description	TOPAS	OSIRIS	DUSTMATE
Standard inlet	TSP (1mm stainless mesh)	✓	✓	✓
Heated inlet	Heating to 60°C	✓	✓	•
Detector	Turnkey laser nephelometer	✓	✓	✓
Environmental mode	TSP, PM10, PM2.5, PM1.0	✓	✓	✓
Workplace mode	Inhalable, thoracic, respirable	✓	✓	✓
Measurement range	0 to 6000 micrograms per cubic metre	✓	✓	✓
Detection limit	0.01 micrograms per cubic metre	✓	✓	✓
Indicator range	0 to 60mg/m^3 without particle sizing	✓	✓	✓
Particle size range	0.5 to 20 micron diameter	✓	✓	✓
Particle counting mode	Three size channels in particle per cc	✓	✓	✓
Flow rate	600cc per minute	✓	✓	✓
Reference filter	25mm diameter GFA circle	✓	✓	✓
Operating temperature	-5°C to +50°C	✓	✓	✓
Security	Password protection	✓	✓	✓
Alarm	Siren, text to cellular phone, visual beacon and email	✓	✓	×
Display	Two line alphanumeric with backlight	✓	✓	✓
Data storage	Internal with separate battery backup	128k byte	128k byte	32k byte
Averaging period	1 second to 4 hours	✓	✓	✓
Battery	Sealed lead acid, rechargeable	n/a	Internal 6v 2.8 AH	Belt pack 6v 1.2 AH
Sampling current drain	Including heated inlet and backlight	1.2A	1.2A	200mA (without heated inlet)
External power pack	80 to 260v AC input, weatherpoof	•	•	×
Meteorological inputs	Wind speed and direction, rainfall, temperature and humidity	✓	✓	×
Other logging inputs	Two 0 to 5 volt analogue inputs	✓	✓	×
RS232 I/O	9600 baud via PC-link	✓	✓	✓
Telemetry I/O	1200 baud opto isolated	✓	✓	×
Analogue output	0 to 4 volt analogue of TSP or PM10 channel, 12 bit resolution	•	•	×
Wall or lamppost box	Lockable steel	✓	✓	×
Case protection	To IP66 (excluding inlet and exhaust)	✓	✓	Carry case
Dimensions	External dimensions in mm	400 x 300	260 x 160 x 150	160 x 100 x 100
Weight	Instrument and enclosure approximate weight in kg	12kg	11.8kg	1.2kg
Power options	Solar, wind, mains and battery	✓	✓	Mains and battery only

✓ Fitted as standard × Not available • Available as option

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