THOMSON
ENVIRONMENTAL SYSTEMS

Outstanding Solutions. Exceptional Service.

- **Dust Monitoring**
- **Weather & Meteorology**
- **CEMS, Stack & Process**
- **Gas Analysers**
- **Indoor Air Quality**
- **Data Services**
- **Calibration**
- **Maintenance & Service**

www.thomsongroup.com.au

THOMSON
ENVIRONMENTAL SYSTEMS

WE ARE COMMITTED TO YOUR SUCCESS

Welcome to Thomson Environmental Systems!

We have been supporting engineers, technicians and scientists with quality environmental instruments since 1997.

When you need an instrument to solve a complex environmental monitoring project, you need a reliable supplier who can support your purchase with expert advice. And you need a supplier who will support that purchase in the long-run.

Thomson Environmental Systems is a team of professionals dedicated to deliver the products and services you need for project success. We are a family company that takes pride in our reputation for customer-focused service on our range of world-leading products.

We are committed to continual improvement of our processes. We are now certified in Safety, Quality and Environmental – ISO 9001:2015 / AS/NZS 4801 and ISO 14001:2015.

We have focused on building our Service and Maintenance team to help ensure your equipment keeps running the way it should at the lowest cost of ownership.

From our offices in Brisbane, Sydney, Canberra, Melbourne and Perth, we are ready to assist you on your next project.

Call us on +61 2 9526 8199 or email tes@thomsongroup.com.au

Yours sincerely,

Paul Thomson
Managing Director

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System Integration

Specialised monitoring requirements for Weather Stations, Ambient Monitoring, Process and Continuous Emissions need customised solutions. Thomson Environmental Systems specialise in designing a solution that monitors all the inputs you need to capture.

We provide a complete solution, configured to your site-specific needs.

Maintenance & Repair

Scientific equipment requires scheduled service and maintenance - not only for accurate results, but to minimise the cost of operation. Our team of expert technicians and engineers provide skilled maintenance and support on your equipment - either on-site, in our facilities and/or by the manufacturer.

Calibration

We maintain certified standards for calibration of:

- Flow - dust & gas instrumentation
- Ozone - generators in NOx, ozone analysers & transfer standards
- Dust monitors - FH62 calibration foils
- Gasmet Multi-Gas Analysers.

Rental Equipment

Thomson Environmental Systems offer a wide variety of instruments for rental. Whether you require equipment for ambient monitoring, gas analysis or mobile monitoring of continuous emissions, TES can provide you with a solution for the short or long term. Our equipment is calibrated and maintained before dispatch to the highest standard to ensure that the unit is ready for use once received.

TES offer the combined unique service of data download and reporting for the duration of your rental. We also offer competitive service and commissioning prices.

When you require equipment on short notice or when unexpected opportunities arise, renting is a fast and effective solution. There are no ongoing maintenance fees, and we can provide options for budgetary restrictions.

If you require a rental solution that is not listed in this catalogue, please call on +61 2 9526 8199 as we are continually updating our rental stock with new equipment and technology.

Please note, due to a number of factors, not all products in this catalogue are available for rental.

About us

"We have worked closely with TES on a number of projects... I've always found them to be open and honest and always willing to work with you to find the right solution for our clients. Their new Queensland team is very responsive and a pleasure to work with."

- Dave Claughton

Principal Environmental Engineer, AECOM

SUSTAINABLE CERTIFICATION
ISO 9001
AS/NZS 4801
ISO 14001

Quality Assurance

Environmental monitoring and scientific instruments are complex and their operation is mission-critical. TES has developed an end-to-end process for systematic preparation of our products that includes:

- Delivery check
- Soak Testing
- Calibration
- Factory Acceptance Testing
- Scheduled Maintenance.

Our processes are managed under an integrated management system to the following standards:

- ISO 9001:2015
- AS/NZS 4801
- ISO 14001:2015.

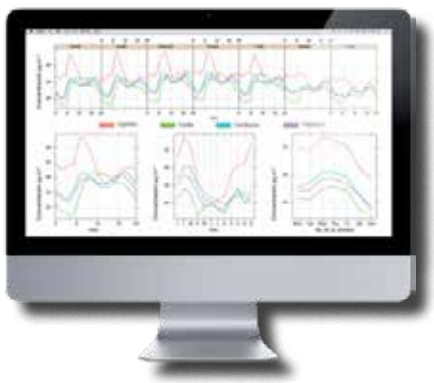
Installation & Commissioning

TES' factory-trained technicians have installed, commissioned and maintained thousands of instruments and monitoring stations all over the world.

TES provide on-site installation and commissioning services to the highest quality, backed by years of expertise.

User Training

We understand your need for User Training on the equipment we provide. We can help maximise your capabilities and reduce your overall cost of ownership by providing on-site or in-house user training for your technicians, both at the time of install and commissioning and in the future. We're here to support you as our customer and the industry as a whole.



Data Services

Our team of experienced technicians deliver a range of services including data reporting. Reporting translates raw data into information, helping our customers to monitor and be alerted when data falls outside of their expected range. Tailored to your needs, we can provide weekly or monthly reports, including charts and data summaries, to allow you to identify compliance or specific events over the monitoring period.

Weather Sensors

Lufft Weather Sensors

Thomson Environmental Systems recommends Lufft Weather Sensors because they are simply the best in the market. Lufft has been making professional components and systems for climate and environment measurement for more than 135 years. Lufft's intelligent meteorological sensors form the basis of highly available measuring networks along roads, rail and at airports all over the world.
The product's precision and durability is valued by meteorological services, environmental bodies, building equipment manufacturers and energy suppliers.
Lufft has achieved ISO 9001 standards since 1995.
It operates its own calibrating laboratory and is part of the OTT Hydromet Group, comprising six companies (OTT, Hydrolab, ADCON Telemetry, Sutron, Lufft and Kipp & Zonen), which is part of the Danaher Corporation.

Lufft Model	Wind Direction & Speed	Air Temp	Relative Humidity	Air Pressure	Rain	Global Radiation
WS10	✔	✔	✔	✔	Radar[2]	✔
WS200	✔	-	-	-	-	-
WS300	-	✔	✔	✔	-	-
WS301	-	✔	✔	✔	-	✔
WS302	-	✔	✔	✔	-	✔
WS303	-	✔	✔	✔	-	✔ 4 5
WS304	-	✔	✔	✔	-	✔ 5
WS310	-	✔	✔	✔	-	✔
WS3000 [6]	-	✔	✔	✔	-	
WS3100 [6]	-	✔	✔	✔	-	✔
WS400	-	✔	✔	✔	Radar[2]	-
WS401 [1]	-	✔	✔	✔	Gauge[3]	-
WS500	✔	✔	✔	✔	-	-
WS501	✔	✔	✔	✔	-	✔ 4
WS502	✔	✔	✔	✔	-	✔
WS503	✔	✔	✔	✔	-	✔ 4 5
WS504	✔	✔	✔	✔	-	✔ 5
WS510	✔	✔	✔	✔	-	✔ 5
WS600	✔	✔	✔	✔	Radar[2]	-
WS601 [1]	✔	✔	✔	✔	Gauge[3]	-
WS700	✔	✔	✔	✔	Radar[2]	-
WS800	✔	✔	✔	✔	Radar[2, 7]	✔
WS100	-	-	-	-	Radar [2,	-
WTB100	-	-	-	-	Gauge[3]	-

1. WLW100 = Leaf Wetness (for agriculture applications)
2. Radar = Precipitation Intensity, Quantity, Type
3. Gauge = Precipitation Quantity only (Tipping Bucket)
4. Kipp & Zonen radiation
5. Tiltable
6. Climate reference sensor for calibration/verification
7. Detects lightning

Weather/Met Stations

Thomson Environmental Systems offer a wide variety of custom-made meteorological monitoring solutions. We work closely with you to supply high quality components using proven technologies to deliver well-designed, easy-to-use weather stations that deliver the results you need. TES can provide both portable and fixed solutions for harsh environmental conditions.

TES integrate each system locally and we support you locally. Our trained technicians are available to provide commissioning, training and installation assistance. TES also provide quick response for any technical advice you may require.

Incorporated into a weather resistant IP66 enclosure, the TES Met Station is a robust, low maintenance, reliable solution for collecting all your meteorological data:

- Wind Speed and Direction
- Air Temperature
- Relative Humidity
- Barometric pressure
- Precipitation Intensity / Type and Quantity
- Solar Radiation
- Lightning Strikes (WS800)
- Data Logging
- Remote communication options
- Range of power options: mains, solar, battery

Weather Sensors

Ceilometers

CHM 15k NIMBUS and CHM 8k

The LIDAR-based cloud height sensor / ceilometer CHM 15k and 8k are prepared to work throughout the year and in any climate.

Lufft ceilometers measure aerosol backscatter profile, cloud heights, cloud coverage, height of the mixture layer and boundary layer. Reliable and accurate results at any time of the day or night are ensured by the use of long-life laser sources, filters with narrow bandwidth and high-sensitivity photodetectors.

They provide optimised detection of several cloud layers, simple eye-safe operation, service-friendly modular device design and various data formats, including raw data.

The CHM 15k has a double-walled housing combined with integrated fan and automatic heating system. Interfaces: RS485, LAN, RS232 oder Modem V.21, V22.

Visibility

VS2k-UMB | VS20k-UMB | VS100k-UMB*

Lufft VS range of visibility sensors are deal for road traffic applications on motorways, highways or bridges; airport weather observation systems and coastal navigation systems. VS2k measures visibility up to 2000m. VS20k measures longer distances (10-20,000m) with forward light scattering technology. A calibration device is available (optional).

The VS2k-UMB and the VS20k-UMB are configured via the software UMB Config Tool to enable reading / changing of the current configuration, calibration, polling of the current measurement values, and loading/storing of configurations.

The measurement data is available for further processing. Features include:

- First and only visibility sensor with active spider defense
- Easy and smart calibration thanks to a calibration kit (optional)
- Forward light scattering technique
- Long lifetime thanks to sea waterproof housing
- Open & free to use communication protocol for easy integration to existing systems.

***VS100k coming soon.**

Laser-based Snow Depth Sensors

The Lufft SHM 31 provides millimeter-accurate snow level detection over long distances in all weather conditions, with opto-electronic/laser-based rangefinder technology.

Reliable snow depth is given up to 15 meters within seconds.

Various heating functions significantly extend the lifetime of the laser diode and allow high quality measurement data in all weather conditions.

No need for regular maintenance - its robust housing and operation principle allows almost no maintenance work throughout the lifetime of the sensor.

Road Sensors

Road and Runway Sensors

Lufft offers a wide range of built-in or non-invasive, active and/or passive road sensors to measure road conditions (dry, moist, wet, ice, snow, critical wet, chemically wet), road surface temperature, water film height, dew point temperature, relative humidity, ice percentage, freezing temperature, friction (calculated) below-ground temperature measurement. Road Weather Information Systems (RWIS), Aviation Weather Observation Systems (AWOS) and Ice Detection Systems (IDS) around the globe trust in road sensors from Lufft.

MARWIS-UMB - The First Mobile Advanced Road Weather Information Sensor

Detects road conditions in real time from driving vehicles. Measures temperatures, waterfilm heights, dew points, road conditions (dry, moist, wet, snow, ice), ice percentages, relative humidity and friction with a frequency of up to 100 times per second and a maximum output rate of 10 Hz. With open interface protocols, MARWIS can be integrated into existing winter maintenance monitoring networks. Similarly, the mobile road sensor can communicate directly with the control system on gritting vehicles. The measurement data output supports the protocol UMB binary. Ideal for airport runway monitoring, highway monitoring, weather data collection and weather forecast model improvement.

QAMS - the user-friendly dust monitoring range

Proudly manufactured in Australia, we developed the QAMS range specifically for outdoor monitoring in Australia's harsh conditions. Rather than adapt a product, we built QAMS from the ground up with ease-of-use, robustness and suitability for a diverse number of applications as our design goals.

Since we launched the first QAMS system in 2008, we have continually improved the product. With years of field operation and strong positive response from our users, the QAMS range has become a leader in monitoring, construction, mining and industrial monitoring applications. Features that set QAMS apart from the competition include:

- Relative humidity (RH) controlled inlet heating
- A uniquely designed water trap
- The highest flow rate
- Full MET sensors connectivity
- Filters for correlation
- Remote instrument control; and more.

Backed by our local, expert support, the QAMS Dust Master Pro is the premium real-time dust monitoring solution for site management. It allows you to accurately monitor dust pollution on site in real-time, giving you the information you need to take immediate action.

Protect your organisation from environmental pollution fines by investing in the QAMS Dust Master Pro real-time dust monitoring solution for your sites.

Weather Parameters

Lufft weather sensors an be added to QAMS units (except DDG and DDDG) to measure:

- Wind Speed and Direction
- Air Temperature
- Relative Humidity
- Barometric pressure
- Precipitation Intensity/ Type and Quantity
- Solar Radiation
- Lightning Strikes (WS800)

Complete service

We can also assist with:

- Installation and User Training
- Service, Repairs, Maintenance and Calibration
- Rental Equipment
- Sample exchanges
- Facilitating samples to lab (TES does not do the analysis, a NATA accredited lab is recommended)
- Data gathering (downloads) and validation (QA)
- Compiling the data into a report (note we only provide data reports, not interpretative reports).

QAMS Range (Australian Made	Dust Deposition	Impinged (Directional Dust)	TSP	PM Total	PM_{10}	PM Coarse	$PM_{2.5}$	PM_7 PM_4 PM_1	Power	Typical Mode	Flow rate	US-EPA
QAMS Dust Deposition Gauges (DDG)	AS3580.10.1	-	-	-	-	-	-	-	-	30 +/- 2 days	-	-
QAMS Directional Dust Deposition Gauges (DDDG)	-	AS3580.10.2	-	-	-	-	-	-	-	14/30 days	-	-
QAMS High Volume Master Pro (HVMP) High Volume Sampler	-	-	AS3580.9.3	-	AS3580.9.6	-	No Standard	-	M	24-h	1000-1300 LPM	FRM TSP/ PM_{10}
QAMS Filter Master Pro 5000 (Low Volume sampler)	-	-	-	No Standard	AS3580.9.9	-	AS3580.9.10	No Standard PM_7/PM_4/PM_1	M/S/B		5 LPM	-
QAMS Dust Master Pro 6000	-	-	-	-	AS3580.9.9 (with filter)	-	AS3580.9.10 (with filter)	No Standard PM_7/PM_4/PM_1	M/S/B	Continuous	5 LPM	-
QAMS Dust Master Pro 7000	-	-	-	-	AS3580.9.6 (with filter)	-	AS3580.9.10 (with filter)	No Standard PM_7/PM_4/PM_1	M/S/B	Continuous	5 LPM	-
OTHER MANUFACTURERS												
Teledyne API T640	-	-	-	-				-	M	Continuous	16.7 / 5 LPM	FEM PM_{10} $PM_{2.5}$ PM_{Coarse}
Beta Gauge (BAM)	-	-	-	No Standard		-		-	M	Continuous	16.7 LPM	FEM PM_{10} /$PM_{2.5}$
Mesa PQ100	-	-	No Standard	-	No Standard	-	No Standard	No Standard PM_4/PM_1	M/S	24-h	2 - 25 LPM	FRM PM_{10}
Mesa PQ200	-	-	No Standard	-	No Standard	No Standard	No Standard	No Standard PM_1	M/S	24-h	10-20 LPM	FRM PM_{10} /$PM_{2.5}$

M = Mains; S = Solar; B = Battery; FRM = Federal Reference Method; FEM = Federal Equivalent Method

Dust Monitoring

QAMS Real-time Dust & Weather Monitors

The DMP series particle counters use laser technology for real-time PM monitoring. The 5LPM flow rate ensures you gain the most accurate data as even heavier particles remain entrained to be collected onto the 37mm filter for gravimetric reference and real-time data correlation.

- Heated inlet eliminates moisture interference
- Mains, battery or solar panel power option to meet your needs
- Visual, audio or SMS alarm which means you receive information fast
- Single channel PM monitor (DMP 6000) allows you to choose from most popular PM fractions (PM_{10}, PM_4, $PM_{2.5}$, PM_1 or Total PM)
- Five channels PM monitor (DMP 7000) simultaneously measures five popular PM fractions (PM_{10}, PM_4, $PM_{2.5}$, PM_1 or Total PM)
- Meets Australian Standard 3580.9.9 (2017).

QAMS HVMP (High Volume Sampler)

The HVMP, from the QAMS range by TES, utilises a precise and versatile venturi sampling system, featuring electronic flow control. Manufactured in Australia to the highest standards, the HVMP complies with the latest international methods for atmospheric particulate matter measurement. Each instrument has a 60-78m3/hour flow rate and includes a speed controlled brushless blower for accurate, quiet operation.
The HVMP's intuitive menu structure, graphical display and dedicated keypad make it effortless to program and adjust settings, including QAMS EPA Mode.

All measured parameters are logged every five seconds and recorded as five minute averages for the 24 hour run period. Run time, average flow and standard deviation are just some of the readings from the HVMP allowing the user to validate the sample run. All data, including weather parameters (if applicable) is accessible in real-time on the display, or available for remote live viewing and download using Visual Master Pro software.

Dust Deposition Gauge (DDG) and Directional Dust Deposition Gauge (DDDG)

- High quality, standard and directional dust deposition gauges for compliance to AS3580 Australian standards and/or other regulatory standards.
- Low cost, rugged and reliable for monitoring in accordance with AS3580.10.1 (DDG)
- The package comes with glass bottle, glass funnel, rubber stopper and bird deterrent ring
- Options of tripod or picket stand
- DDDG: An omni-directional dust deposition gauge capable of measuring dust deposition in 4 directions according to AS3580.10.2.

Visual Master Pro (VMP) Data Logging Software

Introducing the revolutionary remote interface software for our QAMS range. No additional cost on coding or need to change programs. This software allows non-technical users to access data and adjust instrument settings at an advanced level.

- Live data display allows you to access first-hand information
- Real-time data display, real-time decision making
- Remote access for data downloading and configuration
- Unique EPA mode allows user to simply set up the system to meet EPA requirements
- Operating on Windows 7 through to Windows 10
- Compatible with QAMS Dust Master Pro and Met Master Pro
- Format available in CSV, HTML and ASCII.

Mesa Lab Gravimetric Dust Monitoring

The BGI PQ200 FRM Sampler uses BGI pioneering technology to meet and exceed US EPA requirements for ambient particulate sampling. This includes the design of reliable PM_{10}, $PM_{2.5}$ and PM_1 Inlets, volumetric sample flow rate control, data logging and software for report and data processing.

- Portable sampler for TSP, PM_{10}, $PM_{2.5}$, PM_{Coarse}, and PM_1
- USEPA Reference Method for PM_{10} sampling (Designation No. RFPS-1298-125)
- USEPA $PM_{2.5}$ Reference Method sampler (Designation No. RFPS-0498-116)
- USEPA PM_{Coarse} approved sampler
- Internal battery provides power during AC power outages
- Optional solar panel.

Thomson Environmental Systems specialise in the design, installation, maintenance and support of quality, multi-function Air Quality Monitoring Systems in a wide range of form factors and data connectivity options.

Shelter

- TES air quality monitoring stations are custom designed to suit your needs
- Fixed or portable, walk-in or reach-in
- All with built-in air conditioning to provide the best operation environment for instruments.

Your AQMS can be designed to suit your specific requirements

Gas Analyser

- TES AQMS systems utilise industry-leading Teledyne API gas analysers to provide the best data quality and accuracy
- Parameters include SO_2, H_2S, TRS, NO, NOX, NO_Y, NH_3, O_3, O_2, CO, CO_2, NO_2 etc.
- Easy in-field service.

Gas Calibrators and Zero Air Generator

- Local, remote and pre-programmed calibration available to meet your needs
- Trace level with additional MFC's available
- Dew point sensor indicator
- Simple, fast and intuitive menu makes the operation extremely easy.

PM Monitoring

- EPA approved Dust Monitor
- Measures $PM_{2.5}$, PM_{10} and Total Suspended Particulate (TSP).

Weather Sensors and Mast

- Choosing from temperature, humidity, pressure, precipitation, solar radiation, lightning detection, wind speed and wind direction weather sensors
- No moving parts on the weather sensor which means less maintenance required
- 4m, 6m or 10m mast available for your needs.
- AS3580.14.1 compliant weather stations.

Air Quality Monitoring Systems

Software and Data Connectivity

- Database, local or cloud server
- Real-time online display
- Alarms by SMS, email or web
- RFID location tracking (optional)
- Export to CSV, XLS, and PDF formats.

Special instruments

- Sigma Space Scanning Lidar for tracking dust plumes and quantifying
- Plair Pollen counting and speciation
- SYFT Selective Ion Flow Tube Mass Spec for VOCs
- Chromatotec BTEX, VOCs, PAMS 56, TO-14 and TO-15, as well as odours
- Tekran Mercury Analysers for Ambient and CEMS
- Ecomesure electro-chemical ambient gas monitoring
- FPI Heavy metals, trace HF and NH_3 Analyser
- MESA – BGI $PM_{2.5}$ and PM_{10} FRM filter samplers
  And more....

Service and Support

- Pre-sale application consultation ensuring the best solution for your needs
- Factory trained technicians for installation and commissioning
- TES AQMS station annual service and maintenance is available to ensure the station runs efficiently and reliably
- Track record of success in remote and difficult sites and environments.

Australian-made and owned

Thomson AQMS structures and connections are proudly designed and made in Australia using locally-sourced materials. The instruments fitted, with the exception of QAMS, are sourced from world-leading instrument manufacturers such as Teledyne API, Lufft, Syft and many more.

TES has over two decades of experience in the design, installation and maintenance of Air Quality Monitoring Systems

Mobile AQMS units give flexible deployment options

TELEDYNE API
Everywhereyoulook™

Teledyne API

Teledyne API (TAPI) is a global market leader in precision air quality and process gas monitoring instrumentation.

TAPI gas analysers have been used widely across the world in ambient air quality monitoring systems (AQMS), continuous emissions monitoring systems (CEMS), and industrial process applications.

The AQMS and CEMS analysers comply with US EPA methods and many AS/NZS standards for the measurement of criteria pollutants, some of which are NOx, SO_2, CO, CO_2, O_2, O_3, PM_{10} and $PM_{2.5}$.

TAPI also provides a variety of precision Zero Air Generators (ZAG) and calibration instruments for standard and trace-level application.

TAPI "T" series analysers have an outstanding array of unique industry features:

- Rack mountable instruments
- Ethernet, RS-232 standard or convenient connection to your logging systems
- Two USB ports and Touch Screen in the front panel for convenient configuration and data access
- **TWO (2) years warranty** on all T series instruments.

The gases that TAPI analysers measure:

- T1xx Series - UV Fluorescence – Sulphur compounds instruments
- T2xx Series – Chemiluminescence – Nitrogen compounds instruments
- T3xx Series - NDIR Gas Filter Correlation – carbon compounds instruments
- T4xx Series - UV Absorption – Ozone instruments.

The special "U", "M" & "H":

- U = Ultra-sensitive that detects trace-level measurement
- M = Medium range that detects middle range measurement
- H = High range measurement.

The new T640 - the next breakthrough Ambient Particulate Monitor (USEPA approved)

Teledyne API invested 5 years in developing their unique algorithm to pass US-EPA testing which is by far the most stringent for particulate equivalency.

The unit uses scattered broadband light spectrometry that minimises, if not eliminates, the refractive index impact of different particle materials. This unifies the level of light that is reflected from both bright as well as dull particles.

In addition, the system has 256 size channels that are grouped into 64 size bins, 4 channels in each bin, which means extremely accurate and repeatable resolution of the particles in both PM_{10} and PM_{25}.

Key features and benefits

- No sample collection media which means less consumables are required
- Simple to operate & maintain - low cost of ownership
- Fast data collection with no negative or false high values from moisture or vibration which means you will not miss any events nor obtain inaccurate data.
- Easy to set up, fast response & field validation via Span Dust Audit
- Configurable touch screen dashboard with custom events and warning function makes instrument diagnosis and troubleshooting easier.
- A unique **TWO (2) Years Warranty** proves TAPI's confidence with its product technology and quality.

The T640 measures $PM_{2.5}$, and the 640X Option measures $PM_{2.5}$, PM_{10}, and PM_{Coarse}.

All T Series instruments offer an advanced color display, capacitive touch screen, intuitive user interface, flexible I/O, and built-in data acquisition capability. All instrument set up, control and access to stored data and diagnostic information is available through the front panel, or via RS232, Ethernet, or USB COM ports either locally or by remote connection.

The T640 comes with NumaView™ software. NumaView™ Remote PC software allows for a remote connection with virtual interface and data downloading capability to analyzers operating NumaView™ software.

T700, T700U & T703 Calibrators – Stationary (Bench/Rackmount)

	T700 Dynamic Dilution Calibrator	T703 Ozone Calibrator
 T700	Allows the use of precise calibration gases for SO_2, H_2S, NO, NO_2, CO, O_3, and others	Primary or transfer standard for calibration of ozone analysers
	Software linearisation of mass flow controllers (MFC)	UV Lamp Feedback modes: current control; photometer control
	Four (4) calibration ports - configurable for single or multiple-blend gases	Deliver concentrations from 50 ppb to 5 ppm at flows from 1 LPM to 5 LPM.
	Optional UV Ozone generator can be used for accurate and dependable ozone calibrations and enable production of NO_2 when blended with NO gas in the internal gas phase titration chamber	
	Also available: Trace-level gas calibrator (T700U)	Also available: Trace-level ozone calibrator (T703U)

T750 & T753U Calibrators – Portable

	T750 Portable Gas Calibrator	T753U Portable Trace-Level O_3 Calibrator
 T750	Allows the use of precise calibration gases for SO_2, H_2S, NO, NO_2, CO, O_3 and others	Transfer standard for calibration of ozone analyzers
	Software linearisation of mass flow controllers (MFC)	Built-in ozone generator and photometer
	Third MFC for wide dynamic range (optional)	Stable and accurate ozone output to 2 ppb
	Ozone generator and photometer allow use as a primary or transfer standard (optional)	Flow adjustable from 2 to 5 lpm (with internal zero air source) and 2 to 15 lpm (with external zero air source)

T701 & T751 Zero Air Systems

	T701 Zero Air Generator	751 Portable Zero Air System
 T701	Long life scrubbers for SO_2, NO, NO_2, O_3, H_2S, and NH_3 together with a dew point sensor and an oil and diaphragm-free pump which means less consumables and service required	A fully self-contained portable source of clean, dry air for use with dilution calibrators
	Optional CO or CO and Hydrocarbon scrubber	Removes particulate and potential interferents from ambient air to create a true zero air suitable for calibration
	Automatic water drain which makes maintenance easier	Rugged, hand carried case makes the system extremely portable. It is also under 11.5kg, ready to use. Easy disassembly for routine maintenance
 T751	Automatic pump control based on flow demand	Silica gel dryer removes water and produce an output with a dew point of -20ºC up to a 5 SLPM flow rate
	Source of purge air for permeation tube ovens	The dew point LED indicator lets you know when desiccant should be replaced
	Zero air for Ozone Generators	Long life scrubbers for SO_2, NO, NO_2, O_3, H_2S and NH_3 with optional CO scrubber
	High range Zero Air Generator is also available – T701H	Ultra-high purity output zero air system is also available - 751H

NumaView software

- Efficient navigation by using a touch screen and graphic tools deliver results instantly
- Customise the interface to control what you see - configure the immediate view to focus on your priority parameters of your application.
- Easy data downloading thanks to the USB ports (2) and standard T series I/O ports
- Remote software support and data access by using NumaView Remote software which means you can access data at anytime and anywhere.
- Customisable alerts
- Customisable dashboard
- One touch real time graphing
- Multi-language support
- Graphical zero, span and multi-point calibrations
- Custom DAS that can be triggered conditionally
- Predictive maintenance capability.

gasmet

Gasmet FTIR Multi-Gas Analyser Technology

Fourier transform infrared (FTIR) is a powerful gas measurement technology, that offers true multicomponent capability.

Key Advantages:

- True multicomponent capability – over 300 compounds can be detected, identified and quantified, with up to 50 reported simultaneously
- Wide measurement ranges
- Reproducible and accurate results:
  - Interferences can be accounted for
  - Unknown compounds can be detected, identified, quantified.
  - Raw Spectra can be saved and post-analysed for previously unknown gases
  - High sensitivity sample cell for lowest possible detection limits
- Future Proof - adding new measurement parameters is easy, without hardware changes
- Calibration and maintenance requirements are minimal.

Portable Ambient Multi-Gas Instruments

The Gasmet DX4040 portable gas analyser, is the most compact ambient air FTIR analyser in the world.

Key Advantages:

- Portable and quick set-up
  - Built-in-pump- no need to use a separate sampling system
  - Lightweight and battery powered providing unparalleled portability for such a powerful analyser
  - Sub PPM levels possible without pre-concentration ensuring quick response time
- Battery operation
- Simultaneous measurement of up to 25 gases on the PDA in real time
- Flexible: In challenging applications, the DX4040 can be operated with Calcmet Pro on a laptop computer providing the capability to analyse complex samples and identify unexpected compounds on the field
- Suitable for ambient non-condensing applications.

Gasmet DX4015 - portable FTIR gas analyser for ambient air analysis

Key Advantages:

- 12 VDC powered from an external battery so it can easily be used in field conditions where mains power is not available
- Heated sample cell (50°C) which allows measurements to be done in conditions where high humidity is expected and provides temperature stability in changing conditions
- The Gasmet DX4015 is operated with the Calcmet software running on an external laptop computer. This provides a flexible and easy to use interface for taking simultaneous measurements of up to 50 gases and viewing on-line results.

Gasmet DX4000 - Portable Stack Emission and Process Multi-Gas Instrument

Gasmet DX4000 is a portable FTIR gas analyser for applications where multiple gas compounds need to be accurately monitored in hot & humid sample gas. It is the world's smallest FTIR emissions monitoring system.

Key Advantages:

- Hot Wet Gas Analysis – No sample pre-treatment needed (no drying or diluting), giving accurate real time results
- Portable and easy set-up
- MCERTS certified for stack testing
- Simultaneous measurement of all gases
- Future-proof solution for stack testing
- Typically set-up to measure H_2O, CO_2, CO, NO, NO_2, N_2O, SO_2, NH_3, CH_4, HCl, HF and different VOC´s
- Additional gases can be added without any hardware changes.
- Measurement ranges can be selected from sub-ppm up to vol-% level
- Data can be post-analysed for additional compounds of interest
- Optional O_2 sensor.

Continuous Emission Monitoring System CEMS II

Gasmet Continuous Emission Monitoring System CEMS II e offers TUV and MCERTS certified solution (QAL1) for a wide range of demanding emission monitoring applications.

Key Advantages:

- All system parts are heated up to 180 °C, this extractive system is ideal to measure pollutants from hot, wet and corrosive gas streams
- Fully automated continuous measuring system, complete user control in manual mode and variety of I/O configuration options for remote operation and data collection
- Excellent annual availability
- 6-month maintenance interval
- Flexible design with options according to your need
- Gasmet CEM II e is generally used to simultaneously measure the following 15 gases: H_2O, CO_2, CO, N_2O, NO, NO_2, SO_2, HCl, HF, NH_3, CH_4, C_2H_6, C_3H_8, C_2H_4 and CH_2O. Total Organic Carbon (TOC) can also be measured with the FTIR analyzer.
- Thanks to the flexible and easy-to-use Calcmet software, the application can also be extended for more gases and ranges without hardware changes
- Worldwide technical service & support.

Applications

Emissions	Environment	Safety
Waste Incineration	Greenhouse Gases from Soil	Container Monitoring
Power Plants	Greenhouse Gases from Ruminants	First response
Cement Production	Carbon Capture & Storage (CCS)	Fire & Material Testing
Raw Gas Measurements	Contaminated Land	Industrial Hygiene
Compliance Measurements		Chemical Warfare Agents, Toxics, Fumigants, VOCs, TOCs, and more
Aluminium Production		
Fertiliser & Nitric Acid Production		

TES offers process analyser solutions from leading manufacturers such as Keit, Syft, Tiger Optics, Nova, Auburn and Enotec.

- Keit FTIR Spectrometer for reaction monitoring in liquids
- Stationary and portable Process Gas analysers for industrial and hazardous area applications
- Environmental Gas analysers such as mercury analyser, BTEX analyser and methane and non-methane gas analysers
- Continuous emissions monitoring systems for stacks including oxygen analysers, flue gas analysers, opacity meters, velocity meters and Tribo electric probes
- Advanced Syft Mass spectrometer for identification and quantitation of VOCs and inorganic gases
- Indoor air quality instruments
- Isokinetic Sampling Systems for stack testing.

For all the instruments and systems supplied, TES' factory-trained technicians are available for installation, commissioning, training, service and maintenance.

Enotec In-Situ Oxygen Analyser Systems

Enotec In-Situ O_2 analysers are the most robust sensors available in the market - suitable for the harshest process conditions where there is high dust load and aggressive and corrosive flue gas compositions.

Enotec explosion-proof analysers are available for hazardous area applications.

Enotec zirconium oxide oxygen sensors are leak proof due to their elaborate Enotec soldering process offering lasting accuracy and reliability over years of operation.

Enotec Probes are offered in a variety of sizes which makes the analysers suitable for monitoring oxygen in small to large size boilers and furnaces.

Auburn Tribo.dsp U3200 advanced particulate detector

Auburn Systems

Auburn invented the first triboelectric particulate device 40 years ago and have been committed to continual improvement and innovation since then.

Auburn Electrostatic/Triboelectric Particulate monitors offer high sensitivity by measuring Dust concentrations down to 0.005 mg/m_3 and low level of detection - detecting particles smaller than 1 micron is possible.

Tribo electric probes do not need calibration and are almost maintenance free - the cost of ownership is very low. Key advantages of Auburn Triboelectric probes over older technology are:

- Reliable repeatable signal
- Smart sensors (indicate probe fouling)
- Auto zero & diagnostic and multiple outputs (relay, 4-20mA, modbus/ethernet)

Auburn provides solutions for environmental and process applications across virtually every industry such as aluminium, asphalt, cement, chemical, food/dairy, metals, minerals, steel, paper and wood.

IsoStack G4 Isokinetic Automatic Sampler

Isokinetic Sampling Systems

Thomson Environmental Systems represent the world class US and European suppliers of Isokinetic Sampling Systems to sample for stack testing according to American and European Standards such as: USEPA 5, USEPA 17, USEPA 23, EN13284, EN10169 and EN1948-1.

TES supplies the complete range of Isokinetic Sampling lines from nozzle set, heated probe assembly with type "S" pitot & stack thermocouple, heated filter box, glassware set, umbilical cable to automatic sampler.

A-2000 Auto Isokinetic Flow Integrator

Keit IRmadillo FTIR Spectrometer

IRmadillo FTIR spectrometer is a solid-state instrument for real-time reaction monitoring in harsh manufacturing environments. This in-situ spectrometer is highly vibration-resistant and has been designed for extreme indoor and outdoor conditions.

IRmadillo is a compact and rugged instrument that is mounted directly on manufacturing vessels and process lines.

Real-time monitoring of multiple species has become possible by IRmadillo insitu analyser which results in a faster control of the final product and reducing waste in a broad range of industries such as fermentation and bio-ethanol/biofuel production. Another example of a very useful application for IR-madillo is detecting water in glycol after glycol dehydration process which is the most common dehydrating method at petrochemical, chemical and natural gas plants.

Tiger Optics CRDS Analysers

Based on powerful CRDS (Cavity Ring Down Spectroscopy) technology, Tiger Optics CRDS analysers offer incredibly low LDL capability, high accuracy, long term stability and low costs of ownership.

Tiger's single and multi-species analysers offer an array of detections including H_2O, CO, CO_2, O_2, CH_4, HCL, HF, N_2O, H_2S, NH_3 and some other gases.

Tiger instruments are suitable for a wide range of matrices including toxic, corrosive and hydride gases.

Key applications:

- Gas & chemical production & distribution
- Semiconductor fabrication
- Government metrology agencies
- Research and university laboratories
- Industrial laboratories
- High-brightness LED fabrications.

Nova Analytical Systems

Nova Analytical Systems have over 40 years of experience in manufacturing gas analysis systems.

Nova provide analysis of many gases including O_2, CO, CO_2, CH_4, H_2, SO_2, NOX by using NDIR Detector, Thermal Conductivity, Electrochemical Sensor and Paramagnetic Detector.

Nova manufacture both continuous and portable analysers in a variety of enclosures/ cabinets suitable for a wide range of applications:

- Flue gas and smoke stack emissions
- Steel-making & furnace gas
- Hydrogen cooled electric power generators
- Steel heat-treating furnace atmospheres
- Syngas & gasification analysis
- Engine exhaust emission.

Chromatotec

Chromatotec is a French manufacturer of gas analysers/GCs that has been in the market since 1975.

Chromatotec Medor series of analysers measure sulfur compounds (H_2S, Mercaptan and sulphides) that offer gas analysis to industries such as Natural gas (wellhead gas, sales gas station and custody transfer station) and LPG (deodorisation control).

This series of analysers are utilised in explosion proof enclosures type Ex d and Ex p suitable for hazardous area rated environments.

Continuous Emissions Monitoring Systems

Thomson Environmental Systems (TES) offer a wide variety of custom-made solutions to meet your site-specific Continuous Emissions Monitoring requirements.

We offer Insitu, Direct extractive and Dilution extraction systems, providing reliable, low maintenance systems to meet challenging applications such as TRS, VOC, HCL and NH_3 monitoring as well as value monitoring solutions for CO, NOx, SO_2 and more.

For reliable data and operation year after year, we integrate trusted, well-known brands such as Teledyne API, Permapure, Gasmet, Optical Scientific and other quality components.

Systems are equipped with accessories for CEMS housing and calibration; including probe spiking, system alarms, probe blow-back and options for high temperatures up to 1200-1400C, O_2 & H_2O monitoring, data collection and reporting to Australian State, US EPA and European regulations.

Systems Engineering and Integration

TES supply complete system solutions. Our team of engineers and instrument technicians are available to discuss your stack and process monitoring application, recommend equipment and design and engineer unique turnkey systems to meet your specific needs.

Our range includes unique technologies such as optical scintillation and FTIR, allowing us to measure effortlessly where measurement has not been possible before.

Turnkey Solutions

- Insitu, Direct Extractive & Dilution Extraction Gas Analyser Systems
- Insitu Dust/Opacity Analysers
- Insitu Flow/Velocity Sensors
- System Design & Integration
- Sample Probes & Lines
- Sample Clean Up Units
- Calibration Equipment
- Data Logging and Recording
- Air-Conditioned Cabinets & Walk in Shelters.

Reliable and Durable

TES supply low maintenance, high quality gas, flow/velocity and dust/opacity monitors for the toughest on-site conditions.

Quality Assured

All system components are thoroughly tested and system operation is verified and documented during Factory Acceptance Testing.

Testing and Wiring

All wiring, labelling and plumbing is performed by experienced professionals to meet or exceed your requirements.

Parameters Measured

Gases	CO	CO_2	SO_2	NH_3	HF	NO, NO_2, NOX
	HCl	H_2S	TRS	CH_4	N_2O	VOCs
	OVER 300 MORE					

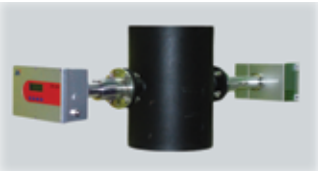
Dust	Opacity	Dust mg/m^3	Broken Bag Detection

Flow / Velocity	Ultrasonic, Optical Scintillation or Pitot

Industries Served	Gas & Coal Fired Power Plants	Manufacturing Plants	Refineries
	Research Facilities	Paper Mills	Waste to Energy Plants
	SynGas	Steel Industry	Food Industry
	Biosolids	Incinerators	Thermal Oxidisers
	Sewage Treatment Plants	Boilers	

CEMS

Combining over 65 years' experience in Australia, New Zealand and overseas Continuous Emission Monitoring Systems (CEMS) markets, Thomson Environmental Systems supply CEMS to meet relevant local state, US EPA, TUV and world best-practice requirements, dependent on your needs.



InSitu Gas CEMS

System Features:

- No cross-interference
- Fast response, less than 1 second
- Diverse optical length (0.5-20m)
- Install base of over 8000 instruments worldwide
- International ATEX Certified

FPI's Single Gas Analyser (LGA) utilises Tunable Diode Laser Absorbtion Spectroscopy (TDLAS). The LGA System can accurately measure in harsh environments and is virtually maintenance free.

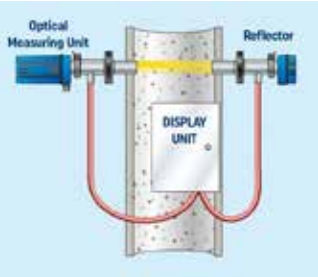
Direct Extractive & Dilution Extractive Continuous Gas Analyser Systems

- Turnkey gas monitoring systems for process and emission monitoring
- Custom design to suit your site requirements
- Reputation for quality systems that hold up in harsh environments, including corrosive gases such as TRS & H2S Applications
- Locally integrated and supported

Dilution Extraction Systems utilise an eductor-style dilution probe, non-heated sample line and Teledyne API or Tiger Optics Ambient analysers, proving accurate stack gas measurements while minimising maintenance in corrosive environments.

Direct Extraction Systems offer a simple, economical option utilising heated probe, heated sample line, sample conditioning system, probe blow back (if required) and Teledyne API Medium and High Level analyser.

Gasmet FTIR analysers are also available for mutli-gas analysis. (See Page 13)



Insitu Dust/Opacity Analysers

TES partner with various suppliers of reliable Dust and Opacity Monitors. Including:

Opacity Monitors

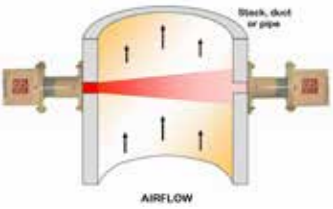
- To meet US EPA PS 1 or TUV requirements

Laser Dust Monitor

- Low maintenance, low calibration requirements, economical option
- mg/m3 or Opacity output

Triboelectric Bag Leak and Dust Monitor

- Bag leak detectors and solids flow monitors to monitor and measure dust, powders, and bulk solids for environmental and process control applications.



Insitu Flow/Velocity Sensors

TES offer Pitot Tube, Ultrasonic and Optical Flow Sensor technologies for Flow/Velocity Monitoring.

The Optical Flow Sensor (OFS) manufactured by OSI is a continuous flow measurement system for small and large stacks and ducts.

Advantages of Optical Scintillation flow measurement include:

- Temperature, pressure and humidity have no impact on the measurement
- Instrumentation is installed at a 90° angle to the gas flow, needing only one platform to access, rather than potentially two on smaller stacks
- It is a true non-contact instrument – nothing protrudes into the stack. The instrument is very rugged, they are even installed in flare stacks! And normally there is no need for blowers unless it is a really dirty application.
- Measurements are drift free
- Measurement is across the entire stack (rather than one point when a pitot is used)
- Path length and opacity do not affect the measurement
- Compliant with US EPA 40CFR 60 and 75
- Very low maintenance and ongoing cost of ownership (no consumables).

Lufft Handheld Measurement Devices Selection Guide

What you can measure		XA1000	XP100	XP200	XP400
Temperature (°C / °F)	Air temperature	✔	✔	✔	✔
	Surface temperature		✔		
	Infrared temperature (non-contact)				
	Dew point temperature of the air	✔			
	Dew point temperature on walls				
Humidity %r.h.	Air humidity	✔		✔	
	Absolute humidity	✔		✔	
Airflow (m3/s)	Airflow	✔			✔
Pressure (hPa)	Absolute pressure	✔			
	Air pressure	✔			
CO_2	CO_2 concentration (ppm)				

Hal Technologies Compact Gas Detectors for Indoor Air Quality Monitoring

HAL Product	Features:
HAL-HPC301 handheld particle counter	Simultaneously measures three channel sizes that are configurable
HAL-HPC601 handheld particle counter	6-channel handheld laser particle counter is the world's first of its kind hybrid handheld optical particle counter.
HAL-HFX205 Handheld Formaldehyde meter	CE certified and designed for use in a wide variety of applications.
HAL-HCO202 Handheld CO2 meter	Dual-beam, non-dispersive infrared (NDIR) absorption gas sensor, - wide measuring range & quick response to ambient changes in carbon dioxide concentration with long-term stability & durability.
HAL-HVX501 Handheld VOC meter	Quick & accurate measurement of VOC levels. Several measuring ranges available (0-2ppm, 0-20ppm, 0-200ppm or 0-2000ppm)

Buck Personal Air Samplers

A. P. BUCK provides advanced and innovative air sampling pumps and calibrators for indoor air sampling for industrial hygiene, indoor air quality, occupational health, environmental, health physics and safety. The Libra™ L-4 and LP-7 are low-cost, high performance personal air sampling pumps to detect asbestos, lead, and other airborne contaminates. Both are available in five-pump packs (pictured).

L-4 Features:	LP-7 Features:
5-800 cc/min with Universal Low Flow Holder	Built-in 5 minute countdown timer from Main Menu
ETL approved for use in Class I and II, Div. 2 & Class III, Div. I & 2 Hazardous (classified) locations.	Ideal for use with Micro5™ & moldsampling cassettes
Certified to CAN/CSA Standard CSAC22.2 No. 313-M1987	Flows up to 7 LPM for special spore trap requirements
Accuracy:± 5% of compensation range	Accuracy:± 5% of compensation range
High backpressure capable for 25mm 0.45µ asbestos filters	Rechargeable NiMH single pack batteries & optional extended run with use of triple packs
Rechargeable NiMH single pack battery, & optional extended run with use of triple packs	Displays: elapsed time, accumulated volume, & flow rate

Buck Bio Series

BUCK BioAire and Bio-Culture pumps are simple to operate and provide selectable, continuous, and constant sample flowrate.
Quiet operation allows unobtrusive sampling in medical, clean room, public and residential applications.
The key pad has functions for Timing (1, 2, 5, 10 minute samples), and Calibration (Cal mode, Increase flow, Decrease flow).
No tools are required to operate and its NiCad batteries provide six hours continuous run time. The standard charger provides 10-12 hour recharge & the optional FastOne™ charger recharges in 1-2 hours.
End of sample notice is provided by an LED "Complete" light and three short beeps.

Calibration Instruments

Defender 510 and Defender 520 - provide fast calibrations of personal sampling pumps.

- Volumetric accuracy: ± 1% of reading
- Three flow ranges: Low: 5 – 500 ccm; Medium: 50 – 50,000 ccm; High: 300 – 30,000 ccm
- Defender 510 volumetric primary flow standard
- Defender 520 enhanced volumetric primary flow standard
- Documents temperature and pressure for enhanced audit trail.

Defender 530+ - - Verify gas flow rates, in the field or in the lab.

- Three flow ranges: Low: 5 – 500 ccm; Medium: 50 – 50,000 ccm; High: 300 – 30,000 ccm
- Volumetric accuracy: ± 0.75% of reading
- Primary flow standard
- Standardised accuracy: ± 1% of reading
- Swagelok fittings
- MFC gas sensor factor for calibration of alternate gases other than clean air and N_2.

FlexCal H, FlexCal M, FlexCal L - unparalleled flow ranges, accuracy, and portability.

- Three flow ranges: Low: 5 – 500 ccm; Medium: 50 – 50,000 ccm; High: 300 – 30,000 ccm
- Standardised accuracy: ±0.5% of reading
- Primary flow standard
- Swagelok fittings
- USB connectivity.

BGI Air Flow Calibrators

The TetraCal®, DeltaCal® and HiVol Cal® air flow calibrators are simple-to-use, NIST-traceable standards for volumetric air flow, barometric pressure, and ambient temperature. Each calibrator is venturi-based with built-in compensation for changes in ambient temperature and pressure. Each instrument is built and tested at Mesa which is both a NIST-traceable Calibration Laboratory and an ISO 9001 facility.

- **TetraCal Air Flow Calibrator** (Can include NIST-traceable temperature probes for filter temperature verification) Flow ranges: 0.1 to 30 LPM and 1 to 60 LPM
- **HiVolCal Air Flow Calibrator** – Flow range: 7 to 54 CFM
- **DeltaCal Air Flow Calibrator** – Three flow ranges (Can also include NIST-traceable temperature probes for filter temperature verification.) Flow ranges: L: 0.8 to 3.5 LPM, 1.5 to 19.5 LPM and H: 10 to 60 LPM.

Metrology Series

DryCal 800 - suitable for laboratory and industrial process control requirements.

- Flow Range: 0.5 to 100,000 scm
- Five interchangeable flow cells to choose from
  - 100:1 turndown ratio
  - Volumetric and standardised accuracy: ±0.15% (5 – 100,000 ccm)
  - Low flow volumetric and standardised accuracy: ±0.25% (0.5 – 50 ccm)
  - New DryCal 800 base offers touch screen, USB and RS-232 interfaces, and a low-profile design and is compatible with all existing DryCal 800 flow cells and software.

DryCal 1020

- Flow range: 5 – 500 LPM
- Standardised accuracy: ±0.25% of reading
- Pressure range – operating (absolute): 10 – 19.5 PSI.

DryCal 1500

- Flow range: 15 – 1500 LPM
- Standardised accuracy: ±0.45% of reading
- Pressure range – operating (absolute): 45 PSI
- Upstream flow measurement capacity of 1500 LPM.

Integrator Pro - suitable for in-house verifications and multi-setpoint calibrations of critical analogue mass flow devices

- Connects to your mass flow devices via manufacturer-specific cables
- Simultaneously displays Metrology Series' flow measurements, your device's readouts and deviation percentages
- Commands mass flow controllers to generate specific flows while simultaneously indicating and verifying their output.

Environmental Cyclones

Mesa offers environmental cyclones for demanding air sampling applications.
Suitable for air monitoring stations, conducting aerosol research, or testing for air toxins, Mesa's extensive line of environmental cyclones will provide quality, high-accuracy data you can trust.

Data Software

TES offers a range of data services to meet most requirements. Our data services aim to optimise the quantity and quality of data available to you, and to provide data ready for interpretation and decision making.

Data quantity

TES can download (poll) data from monitoring stations remotely on a regular basis to check that the equipment is operating and performing to specification, and to ensure data are stored securely off site.

A typical service level would be checking the site twice per week on Tuesday and Thursday, but daily checks can be provided if you require a higher level of service.

This enables quick response to any issues such as power outages or unacceptable drift (in case of gas analysers) to prevent further data loss.

It also helps to identify recurring operational issues that need to be addressed.

This is essential to maximise data capture percentage.

Data quality review

TES reviews the data on an ongoing basis to identify any issues that could impact data quality, e.g. instruments outside performance specifications, or unacceptable zero and span drift for gas analysers.

This enables quick preventative response to any issues to minimise the need to invalidate data.

TES typically review and validate the data on a monthly basis to remove any spurious data, to remove maintenance-related data in accordance with site maintenance records, to adjust gas analyser data for baseline/span drift and to apply K-factors to dust data as might be required.

This is essential to maximise the validated data capture percentage.

Data reporting

TES can provide raw and validated data in formats you specify. Typically, this would be in .csv or .xls format.

Data reports summarising the monitoring project (scope, sites, equipment used, monitoring outcomes, summary data and graphs, and comparison to guidelines) can also be provided.

If you want to receive data in real-time, data can be pushed from the site to your FTP server e.g. for use in real-time web displays.

Data reporting solutions enable real time site operations decision making, and reports for regulatory compliance.

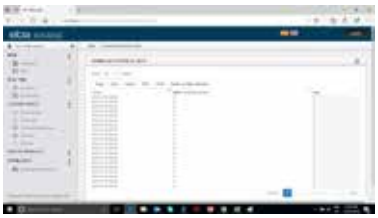
Data Software

Visual Master Pro

Visual Master Pro (VMP) is the free software supplied with all TES QAMS Dust Master Pro products and with the Met Master Pro weather station.

It is used for remote control (system configuration and setting adjustment), download of the instruments as well as live data display and setting alarms.

It can also be used to configure EPA mode (pre-program sample runs) for sampling using the TES High Volume Master Pro High volume air sampler, and the TES Filter Master Pro Low Volume Air sampler.



EBALite

EBALite is a versatile web based interface for viewing data in real-time via dashboards, and to perform investigative analysis of the data.

It offers time series graphs, scatter plots, heat maps (diurnal time series), wind rose and pollution roses.

It allows for data from different sites to be compared against each other.

Data can be downloaded in various formats and also be pushed to FTP sites.

Alarms can be set to send alerts to email and SMS.

Envira DS Log Lite

ENVIRA DS LOG Lite is a small Scada system that can be set up in remote measurement stations requiring local autonomy for working.

The system is supplied in a mini PC type Intel Nuc. All data stored in the system ENVIRA DS LOG Lite can be communicated to a centre in real time or at regular intervals, by means of the required communications protocols. This software is installed in devices with Windows 10 IOT operating system.

Features

- Tailored modular system
- Acquisition through remote acquisition modules
- Digital communications with most analysers in the market
- Automatic monitoring and control of calibrations
- Communications with control centres from other manufacturers
- Alarm control
- Several display formats (synoptic graphics, datasheets or trend graphics).

Envira DS Web

ENVIRA DS Web is a Scada system for the management and control of environmental networks.

ENVIRA DS Web receives the information or acquires it through modules connected to other systems, stores it and allows the user the access and exploitation of the information in a web environment. It is a JAVA development that can be set up with Windows or Linux operating systems.

Features:

- Management of alerts via e-mails
- Web interface with dashboards
- Communications with other systems
- Air quality statistical calculations according to current legislation
- Communications from a remote station or point of acquisition to the control centre
- Administration of the control centre, supplying a system in the cloud to be accessed both by the final client and by the people responsible for the exploitation of the network
- All data are stored in the cloud and can be downloaded to local devices with data export tools
- Access to the information through remote desktops or websites
- Web service to access data from other applications of the user, such as mobile apps.

Exceptional Service

Thomson Environmental Systems (TES) has been supplying Air Quality and Process Control Instrumentation to the Australian and New Zealand market for over two decades.

TES invests heavily in providing high quality after sales technical support and service.

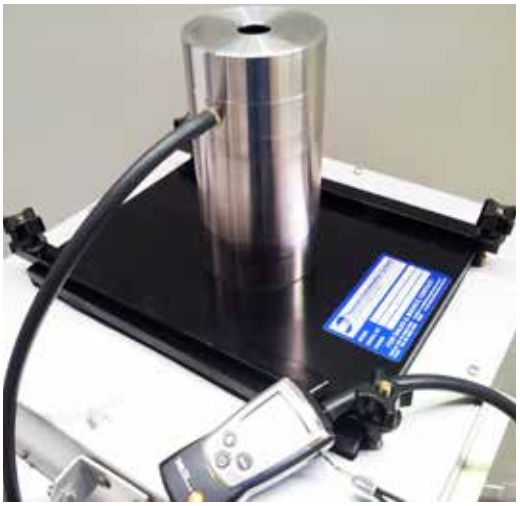
We employ dedicated service technicians and design engineers giving us the ability to support a wide range of Stack and Ambient products including Dust, Gas, Meteorological and flow analysers.

We offer a wide range of services:

- Instrumentation calibration
- Annual / scheduled service
- Repair
- Spare parts and consumables
- Ongoing maintenance and training programs.

– all these services can be conducted at our facility or at your site.

We take pride in supporting your monitoring network and delivering on our promise of ***Outstanding Products - Exceptional Service***.



Calibration Equipment Service

Save time and expenses on maintaining your calibration equipment.

We maintain certified standards for calibration of:

- Flow – dust and gas instrumentation
- Ozone – generators in NOx, ozone analysers and transfer standards
- Gas Analysers – NOx, CO, SO_2, H_2S and more
- Dust Monitors – FH62 calibration foils
- Gasmet Multi-Gas Analysers.

We can also calibrate your Gas Analyser Calibrators and Flow calibrators.

Spare Parts and Consumables

Our offices stock an extensive range of parts and consumables. Service response is offered quickly and efficiently to ensure maximum uptime of the analysers with minimum costs to the client.

TES has close relationships with our partners

Tier-one Vendor Support

Choosing Thomson Environmental Services gives you access to Tier One support from our world-leading vendors.

Our engineers have completed the necessary technical training required to become a partner.

And we have priority access to the vendor's diagnostic support and escalate issues to optimise our response times.

Service

Scheduled Maintenance

Reducing the cost of instrument ownership can be a challenge, especially when you have a number of remote sites. An appropriate maintenance schedule will minimise instrument downtime and data loss.

With many years of hands-on experience, our team is ready to assist with your scheduled maintenance requirements. Our technicians provide expert knowledge for a quick and effective annual service or repair.

Alternatively, we can provide services via an annual maintenance contract.

Onsite Assistance

Are you installing a new station, upgrading existing equipment or suffering staff shortages and need a hand with your Ambient Monitoring Equipment, Continuous Emissions Monitoring Equipment or Process Control Instrumentation?

TES can provide personnel and equipment to assist with:

- Installation
- Commissioning
- Configuration
- Calibration
- Service and repairs.

Training

Training is a very powerful tool! By ensuring you and your employees are confident in: operating, maintaining and trouble shooting instrumentation you can:

- Minimise instrument downtime
- Maximise data capture
- Prevent costly accidents damaging instrumentation
- Maintain a monitoring network that performs seamlessly.

Our factory-trained personnel provide theoretical and hands-on instrumentation training for a wide range of equipment.
Courses can be conducted at your facility or ours and can be tailored to suit your specific requirements.

SUSTAINABLE
CERTIFICATION
ISO 9001
AS/NZS 4801
ISO 14001

Quality Assurance

Environmental monitoring and scientific instruments are complex and their operation is mission-critical.

TES has developed an end-to-end process for systematic preparation of our products that includes:

- Delivery check
- Soak Testing
- Calibration
- Factory Acceptance Testing
- Scheduled Maintenance

Our processes are managed under an integrated management system to the following standards:

- ISO 9001:2015
- AS/NZS 4801
- ISO 14001:2015

THOMSON
ENVIRONMENTAL SYSTEMS

Through excellence in people, products and processes, we deliver Outstanding Solutions & Exceptional Service.

Our partners in achieving our mission:

TELEDYNE API Everywhereyoulook™ | Lufft | AMS | syft | KEIT spectrometers | gasmet

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