

บริษัท เอ็มบี เซลส์ แอนด์ เซอร์วิส จำกัด

**MB Sales and Services Co., Ltd.**

**Analyzer**

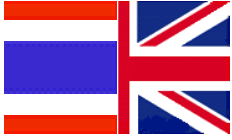
**Product Guide**



**Established 2005**

**[www.mbsalesandservices.com](http://www.mbsalesandservices.com)**





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**Services**

**Market Leading Equipment Supply**

**Calibration Services**

**Sales Consultancy**

**Bespoke Solutions**

**World Class Customer Support**

**40+ Years of Experience**

**Access to the latest Technologies**

**Scheduled Maintenance Servicing**

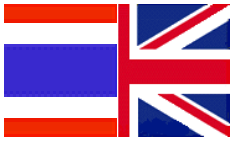
**Our Mission**

**At MB Sales and Services, we are committed to providing our customers with the highest quality products to meet their industrial needs. Our team is dedicated to staying up-to-date with the latest advancements in the industry to ensure that we are always offering the best solutions possible. Our team is dedicated to optimizing industrial applications for our customers, with a focus on improving efficiency and accuracy.**

**We understand the importance of streamlining processes and maximizing productivity, and we work tirelessly to ensure that our solutions meet the unique needs of each client. Let us help you take your operations to the next level.**

**With over 40 years of experience, we have developed unrivalled, extensive application and product knowledge, as well as our fast and comprehensive calibration services.**

**Our Engineering Sales team works closely with industry-leading clients, utilizing the latest technologies from world-class manufacturers. Trust us to provide you with the best solutions for your needs.**



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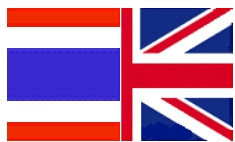


### PST Brands

PST brings together well-established brands, each of which are trusted for the precision and reliability of their products, strong innovation and singular focus on customer service. With a history of development and innovation starting in 1964 and continuing to the present day, we look forward to many more milestones to come.

Part of DwyerOmega since November 2024.





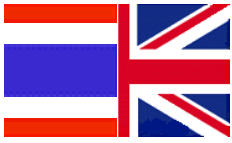
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**Michell Instruments offer a wide range of high-precision trace moisture analyzers, dew point meters, dew point sensors or transmitters, moisture transmitters, chilled mirror reference hygrometers and process moisture analyzers designed by Michell Instruments and other PST brands.**

### **Products**

- **Chilled Mirror Hygrometers**
- **Portable Hygrometers**
- **Dew Point Transmitters and Sensors**
- **Process Moisture Analyzers**
- **Moisture in Liquid Analyzers**
- **Hydrocarbon Dew Point Analyzers**
- **Humidity and Temperature Calibration Systems**
- **Oxygen Analyzers**



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## Chilled Mirror Hygrometers

### Optidew



#### Highlights

- New chilled mirror hybrid sensor gives fast dynamic response to changes in humidity
- Accurate to  $\pm 0.15^{\circ}\text{C}$  ( $\pm 0.27^{\circ}\text{F}$ ) dew point,  $\pm 0.1^{\circ}\text{C}$  ( $\pm 0.18^{\circ}\text{F}$ ) temperature
- Wide measurement range from  $-40$  to  $+120^{\circ}\text{C}$  ( $-40$ ... $+248^{\circ}\text{F}$ ) dew point
- Choice of communication methods, including Modbus TCP over Ethernet communication for easy networking
- Optional pressure transmitter for accurate calculation of  $\text{ppm}_v$  &  $\text{g/kg}$

#### Applications

- Reference humidity instrument for climatic and environmental chambers
- Inlet air measurement for engine testing
- HVAC testing
- Environmental monitoring in clean rooms
- Coating process monitoring—for confectionary and pharmaceuticals
- Control of humidity for metallurgical processes

### S8000 Remote



#### Highlights

- Fundamental, accurate and drift-free measurement
- Remote sensor
- Open design allows remote sensor to be mounted into a sample flow or simply placed in an environment to be monitored
- $-40$ ... $+120^{\circ}\text{C}$  dew-point range with  $\pm 0.1^{\circ}\text{C}$  accuracy
- Data logging via USB, Ethernet and SD card
- 'FAST' guarantees frost formation below  $0^{\circ}\text{C}$
- Sensor operates in pressures up to 20 barg

#### Applications

- Engine test cell monitoring – from commercial vehicle to high performance engines
- Environmental chamber verification for:
  - Component testing
  - Corrosion testing
  - Pharmaceutical validation
- Precision HVAC control
- Lithium Ion battery manufacture

### S8000



#### Highlights

- $\pm 0.1^{\circ}\text{Cdp}$  ( $\pm 0.18^{\circ}\text{Fdp}$ ) accuracy
- Fundamental, accurate and low-drift measurement
- Simple configuration and operation via touchscreen interface
- Precision measurements to  $-60^{\circ}\text{C}$  ( $-76^{\circ}\text{F}$ ) dew point
- FAST – guaranteed frost formation below  $0^{\circ}\text{C}$  ( $+32^{\circ}\text{F}$ )
- Measure at pressures up to 2 MPa (20 barg)
- USB and Ethernet connectivity
- Datalogging to SD card or via digital comms

#### Applications

- Standards laboratory reference instrument
- Transformer vacuum drying verification
- Clean/dry room environmental monitoring
- Metallurgical process monitoring
- Reference instrument for commercial calibration laboratory
- Compressed air dryer R&D
- Hydrogen fuel cell R&D

### S8000 RS

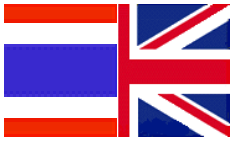


#### Highlights

- Accuracy of  $\pm 0.1^{\circ}\text{C}$  ( $\pm 0.18^{\circ}\text{F}$ )
- Precision measurement to  $-90^{\circ}\text{C}$  ( $-130^{\circ}\text{F}$ ) frost point ( $95.4 \text{ ppb}_v$ ) with no need for additional cooling
- $\pm 0.05^{\circ}\text{Cdp}$  ( $\pm 0.09^{\circ}\text{Fdp}$ ) stability at  $-90^{\circ}\text{C}$  ( $-130^{\circ}\text{F}$ )
- $\pm 0.05^{\circ}\text{Cdp}$  ( $\pm 0.09^{\circ}\text{Fdp}$ ) reproducibility at  $-90^{\circ}\text{C}$  ( $-130^{\circ}\text{F}$ ) for S8000 RS -90;  $\pm 0.025^{\circ}\text{Cdp}$  ( $\pm 0.045^{\circ}\text{Fdp}$ ) reproducibility at  $-80^{\circ}\text{C}$  ( $-112^{\circ}\text{F}$ ) for S8000 RS -80
- Simple configuration and operation via touchscreen interface
- Sensor optimized for fast response to low moisture levels
- Microscope for visual inspection of condensate on mirror
- Compact 19" x 4U package for flexibility of installation
- Ethernet or USB connections
- SD card datalogging

#### Applications

- Reference humidity measurements in standards laboratories
- Reference instrument in humidity calibration facilities
- Precision moisture measurements in research and development
- Measurement standard for high-purity gas manufacture
- Measurement standard for semiconductor dry gas supply
- Clean/dry room monitoring
- Metallurgical processes



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## Chilled Mirror Hygrometers

### S8000-100



#### Highlights

- Accuracy of  $\pm 0.1$  °C ( $\pm 0.18$  °F)
- Precision measurement to  $-100$  °C ( $-148$  °F) frost point (13.8 ppb<sub>v</sub>) with no need for additional cooling
- $\pm 0.15$  °Cfp ( $\pm 0.27$  °Ffp) reproducibility at  $-100$  °Cfp ( $-148$  °Ffp)
- Simple configuration and operation via touch screen interface
- Sensor optimized for fast response to low moisture levels
- External 4-wire Pt100 connections
- Microscope for visual inspection of condensate on mirror
- Compact 19" x 4U package for flexibility of installation
- Ethernet or USB connections
- SD card datalogging

#### Applications

- Reference humidity measurements in standards laboratories
- Reference instrument in humidity calibration facilities
- Precision moisture measurements in research and development

### S8000-HT (High Temperature)



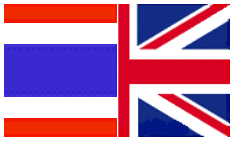
#### Highlights

- Accuracy of  $\pm 0.1$  °C ( $\pm 0.18$  °F)
- Precision measurement to  $-30$  °C to  $+95$  °C ( $-22$  °F to  $+203$  °F) dew point
- $\pm 0.05$  °Cdp ( $\pm 0.09$  °Fdp) stability
- $\pm 0.05$  °Cdp ( $\pm 0.09$  °Fdp) reproducibility
- External PRT for RH measurements
- Simple configuration and operation via touchscreen interface
- Compact 19 in x 4U package for flexibility of installation
- USB + Ethernet or RS485 connections
- SD card datalogging
- Supplied with 2 m Heat Trace Lines

#### Applications

- Reference humidity measurements in standards laboratories
- Reference instrument in humidity calibration facilities
- Reference instrument for RH sensor manufacturing
- Precision moisture measurements in research and development





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## Hygrometers with Display

### EasiDew Advanced Online



#### Highlights

- Measurement range -110...+20 °C (-166...+68 °F) dew point
- Dew point or moisture content output
- Accuracy  $\pm 1$  °C ( $\pm 1.8$  °F) dew point
- Pressure indication and compensation
- Touch screen reconfiguration
- 3 x 4...20 mA outputs and 4 relay outputs
- Modbus RTU over RS485 output
- Choice of AC or DC Power Supply
- Sample block and cable included
- Traceable 13-point calibration certificate

#### Applications

- Medical and surgical air
- Glove boxes
- Additive manufacturing
- Pharmaceutical
- Hydrogen refilling stations
- Welding gases
- Semiconductor manufacturing
- Membrane and adsorption dryers

### EasiDew Online



#### Highlights

- Measurement range -100 to +20 °C (-148 to +68 °F) dew point
- Dew point or ppm<sub>v</sub> moisture content output
- Accuracy  $\pm 2$  °C ( $\pm 3.6$  °F) dew point
- 4 to 20 mA output
- Modbus RTU over RS485 output
- Dual configurable alarm outputs
- Choice of AC or DC Power Supply
- Sample block and cable included
- Traceable 13-point calibration certificate

#### Applications

- Membrane dryers
- Adsorption dryers
- Medical and surgical air
- Breathing air
- Additive manufacturing
- Glove boxes
- Plastic injection molding

### SF82 Online



#### Highlights

- Measurement range -60 to +60 °C (-76 to +140 °F) dew point
- Accuracy  $\pm 2$  °C ( $\pm 3.6$  °F) dew point
- 4 to 20 mA output
- Modbus RTU over RS485 output
- Dual configurable alarm outputs
- Sample block and cable included
- Traceable 9-point calibration certificate
- Ultra-fast response to moisture change

#### Applications

- Membrane dryers
- Adsorption dryers
- Medical and surgical air
- Breathing air
- Additive manufacturing
- Glove boxes
- Plastic injection molding

### Pura

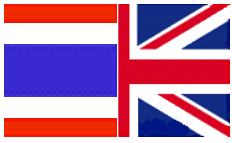


#### Highlights

- Measures down to -120 °Cdp (-184 °Fdp) (1 ppb<sub>v</sub>)
- Stable and repeatable measurement
- Fast response
- Economical and advanced monitor solutions
- Dew-point or moisture content output
- 4...20 mA and Modbus RTU over RS485 outputs
- Traceable 7-point calibration certificate
- 1/2", 1/4" male VCR process connections
- MiniDIN 43650 C, M12 electrical connectors
- Optional hazardous area approval
- Sensor exchange program

#### Applications

- Gas purification systems
- Semiconductor manufacture
- Pure gases
- Fibre optic production
- Optical coating processes
- Electronic component manufacture
- Speciality gas production and distribution



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## Dew Point Transmitters for Gas Applications

### EasiDew EA2



#### Highlights

- Measurement ranges -110 up to +20 °Cdp (-166 up to +68°Fdp)
- Dew point or ppm, moisture content output
- 2-wire loop power connection
- Accuracy  $\pm 2$  °Cdp ( $\pm 3.6$ °Fdp)
- Traceable calibration certificate
- Easidew I.S. IECEx, cQPSus, ATEX and UKCA approvals
- Low cost of ownership and easy maintenance with sensor exchange program
- 316 Stainless steel sensor and sample blocks
- 5/8" UNF, 3/4" UNF, G 1/2" process connections
- KF40 Glove Box flange
- MiniDIN 43650, M12 electrical connectors
- Oxygen Service cleaned

#### Applications

- Compressed air Class 1 to Class 6 dryers
- Breathing air
- Hydrogen coolant
- Inert and bulk gases
- Glove boxes
- Welding gases
- Hazardous areas
- Oxygen purity

### EasiDew I.S.



#### Highlights

- IECEx, QPS, ATEX, UKCA certified transmitter for use in hazardous areas
- 5/8" UNF, G1/2" BSP or 3/4" UNF process connection
- Dew-point or ppm, moisture content
- 2-wire loop powered connection
- Rugged 316 stainless steel IP66 construction
- Measurement range -100...+20 °C (-148...+68 °F)
- Accuracy  $\pm 2$  °Cdp ( $\pm 3.6$ °Fdp)
- Calibration Certificate (NPL, NIST)

#### Applications

- Moisture in Liquids
- Compressed air
- Medical Gas
- CNG Stations
- Trace Moisture

### SF82



#### Highlights

- Dew point or ppm, moisture content output
- Accuracy  $\pm 2$  °C ( $\pm 3.6$  °F) dew point
- Modbus RTU over RS485 digital communication
- 4...20 mA 2 wire
- Traceable 9 point calibration certificate
- Ultra-fast response to moisture change
- Low cost of ownership and easy maintenance with sensor exchange program
- 316 stainless steel sensor and sample blocks
- 5/8" UNF, 3/4" UNF, G 1/2" process connections
- KF40 Glove Box flange
- MiniDIN 43650 C, M12 electrical connectors

#### Applications

- Refrigeration dryers
- Membrane dryers
- Adsorption dryers
- Medical and surgical air
- Breathing air
- Additive manufacturing
- Plastic injection moulding
- Portable dew point checkers

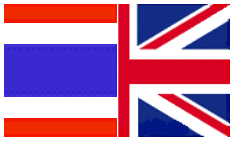
### SF52



#### Highlights

- Ideal for OEM dryer use
- Dew-point measurement range -40 to +60°C (-40 to +140°F)
- Fast response
- Rugged IP65 construction
- 3-Point traceable calibration certificate
- Accuracy  $\pm 2$ °C ( $\pm 3.6$ °F)
- Voltage or mA outputs





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## Dew Point Transmitters and Sensors for Gas Phase

### Pura



#### Highlights

- Measures down to  $-120^{\circ}\text{Cdp}$  ( $-184^{\circ}\text{Fdp}$ ) (1ppb<sub>v</sub>)
- Stable and repeatable measurement
- Fast response
- Modbus RTU over RS485 communication
- 4...20 mA 2 wire
- Traceable 7-point calibration certificate
- 1/2", 1/4" male VCR process connections
- Optional monitor/controller
- MiniDIN 43650 C, M12 electrical connectors
- Optional hazardous area approval
- Service exchange program

#### Applications

- Gas purification systems
- Semiconductor manufacture
- Pure gases
- Fibre optic production
- Optical coating processes
- Electronic component manufacture
- Speciality gas production and distribution

### EasiDew Pro I.S.



#### Highlights

- Measurement range  $-110...+20^{\circ}\text{Cdp}$  ( $-166...+68^{\circ}\text{Fdp}$ )
- ATEX, IECEx, UKCA, cQPSus certified
- Accuracy  $\pm 1^{\circ}\text{Cdp}$  ( $\pm 1.8^{\circ}\text{Fdp}$ )
- 2-wire 4...20 mA output
- Traceable 13-point calibration certificate
- 525 barg (7614 psig) pressure rating
- Alternative process connections available
- Material certification to BS EN 10204 3.1
- Moisture in gases and liquids
- Service exchange program
- Oxygen Service cleaned

#### Applications

- Natural gas production and processing
- Pipeline drying
- Fiscal metering of gas
- LNG production processing and receiving terminals
- Petrochemical process liquids
- Catalyst protection
- Polymer production
- CNG drying
- Metallurgical furnace blanket gas
- Compressed air in hazardous areas

### Intrinsically Safe Field Display



#### Highlights

- Loop powered 4-20mA indicator. Intrinsically safe certified with ATEX, IECEx, UKCA, and FM
- Operating temperature between  $-40$  and  $+70^{\circ}\text{C}$  ( $-40$  and  $+158^{\circ}\text{F}$ )
- Bold 34mm high 4 digit display with optional backlight
- Robust GRP enclosure providing IP66 protection. Can be mounted by itself or inside a sampling system enclosure
- Built-in terminal compartment for easy wiring
- Two optional galvanically isolated solid state alarm outputs

### EAsiDew Pro XP

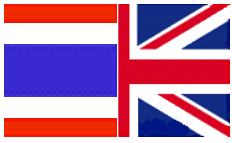


#### Highlights

- Measurement ranges  $-110$  up to  $+20^{\circ}\text{Cdp}$  ( $-166...68^{\circ}\text{Fdp}$ )
- Global explosion / flameproof certification
- Accuracy  $\pm 1^{\circ}\text{Cdp}$  ( $\pm 1.8^{\circ}\text{Fdp}$ )
- 2-wire 4...20 mA output
- Traceable 13-point calibration certificate
- 450 bar (6527 psi) pressure rating
- Low cost of ownership and easy maintenance with sensor exchange program
- 3/4" UNF industry standard process connection
- EN 10204 3.1 material certification
- Moisture in gases and liquids
- Integral display meter
- Oxygen Service Cleaned

#### Applications

- Natural gas processing / transmission
- Polymer production
- Biomethane gas production
- Hydrogen coolants
- LNG & LPG production
- Inert & bulk gases
- CNG production
- Hydrocarbon refinery processing
- Heat treating furnaces
- Catalyst protection



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## Dew Point Transmitters for Liquid Applications

### EasiDew Pro LQ I.S.



#### Highlights

- Measurement range -110...+20 °Cdp (-166...+68 °Fdp)
- ATEX, IECEx, UKCA, cQPSus certified
- Accuracy  $\pm 1$  °Cdp ( $\pm 1.8$  °Fdp)
- 2-wire 4...20 mA output
- Traceable 13-point calibration certificate
- 525 barg (7614 psig) pressure rating
- Alternative process connections available
- Material certification to BS EN 10204 3.1
- Moisture in gases and liquids
- Service exchange program
- Oxygen Service cleaned

#### Applications

- Natural gas production and processing
- Pipeline drying
- Fiscal metering of gas
- LNG production processing and receiving terminals
- Petrochemical process liquids
- Catalyst protection
- Polymer production
- CNG drying
- Metallurgical furnace blanket gas
- Compressed air in hazardous areas

### EasiDew Pro XP LQ



#### Highlights

- Measurement ranges -110 up to +20 °Cdp (-166...68 °Fdp)
- Global explosion / flameproof certification
- Accuracy  $\pm 1$  °Cdp ( $\pm 1.8$  °Fdp)
- 2-wire 4...20 mA output
- Traceable 13-point calibration certificate
- 450 bar (6527 psi) pressure rating
- Low cost of ownership and easy maintenance with sensor exchange program
- 3/4" UNF industry standard process connection
- EN 10204 3.1 material certification
- Moisture in gases and liquids
- Integral display meter
- Oxygen Service Cleaned

#### Applications

- Natural gas processing / transmission
- Polymer production
- Biomethane gas production
- Hydrogen coolants
- LNG & LPG production
- Inert & bulk gases
- CNG production
- Hydrocarbon refinery processing
- Heat treating furnaces
- Catalyst protection

### Liquidew I.S

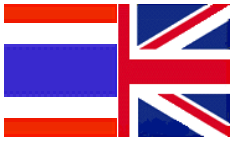


#### Highlights

- Indoor panel or outdoor enclosure mounting options
- Process connection via 6mm or 1/4" tube fittings
- High quality components, stainless steel tubing and fittings
- Sample inlet pressure up to 138 barg
- Flexible filtration options
- Choice of transmitter, flow and pressure control
- Comprehensive documentation options with BS EN 10204 3.1 certification and NACE MR0175 available

#### Applications

- Natural gas production, processing & transmission
- Biomethane gas production
- Fiscal metering of gas
- LNG production processing and receiving terminals
- Hydrocarbon refinery processing
- Catalyst protection
- Polymer production
- CNG production
- Heat treating furnaces
- Petrochemical process liquids



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## Integrated Instrument and Sampling Systems

### EasiDew Sampler



#### Highlights

- Universal configuration for atmospheric or line pressure dew point measurements
- Integral particulate filter
- Metering valve for flow control
- Single block design for faster measurement response
- Gas pressure to 1 MPa (10 barg/145 psig) with a high pressure option to 21 MPa (210 barg/3046) psig available

#### Applications

- Compressed air dryers
- Plastic molding
- Ozone generators
- Medical gases
- Pneumatics
- Breathing air
- Welding gases

### DryCheck



#### Highlights

- Integrated instrument and sampling system
- Simple installation
- Wide measurement range
- Dew point or moisture content
- Analog output, display and dual alarms
- IP65 (NEMA 12) enclosure

#### Applications

- Compressed air dryers
- Plastic moulding
- Ozone generators
- Medical gases
- Pneumatics
- Breathing air
- Welding gases

### ES20



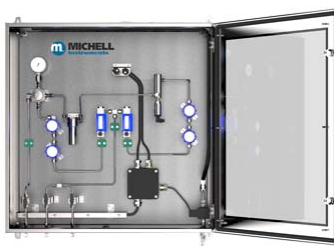
#### Highlights

- Process connection via 6mm or 1/4" tube fittings
- Dew point, moisture content, flow, contamination and pressure control
- Sample inlet pressure up to 20 barg
- Modular design
- Stainless steel tubing and fittings
- Flexible filtration options
- High quality components
- Designed for challenging process environments
- Optional displays

#### Applications

- Compressed air dryers
- Pneumatics
- Plastic moulding
- Instrument air
- Hydrogen coolants
- Breathing air
- Pure feed gases
- Heat treatment gases
- Inert gases

### ES70



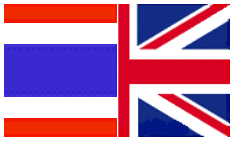
#### Highlights

- Indoor panel or outdoor enclosure mounting options
- Process connection via 6mm or 1/4" tube fittings
- High quality components, stainless steel tubing and fittings
- Sample inlet pressure up to 138 barg
- Flexible filtration options
- Choice of transmitter, flow and pressure control
- Comprehensive documentation options with BS EN 10204 3.1 certification and NACE MR0175 available

#### Applications

- Natural gas production, processing & transmission
- Biomethane gas production
- Fiscal metering of gas
- LNG production processing and receiving terminals
- Hydrocarbon refinery processing
- Catalyst protection
- Polymer production
- CNG production
- Heat treating furnaces
- Petrochemical process liquids





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## Process Moisture Analyzers

### OptiPeak TDL600



#### Highlights

- D-MET system: Factory ready for varying gas compositions e.g. after stream blending, in shale gas or biomethane
- Operating range down to 1 ppm<sub>v</sub>
- Sour gas compatible
- Simple installation and setup
- Low maintenance
- ATEX, IECEx, UKEX and cQPSus certified
- Integrated sample handling
- Proven Michell Instruments quality: 50 years of expertise in moisture measurement built into the design

#### Applications

- Natural gas glycol dehydration
- Natural gas transmission monitoring
- Custody transfer
- Natural gas storage
- Offshore export pipeline natural gas
- LNG receiving / re-gasification plants
- Vaporized NGL
- Biomethane
- Suitable for use with natural gas containing up to 20% hydrogen with no further modification required

### QMA601



#### Highlights

- Fast and reliable measurement from 0.1 to 2000 ppm<sub>v</sub>
- Accuracy of  $\pm 0.1$  ppm<sub>v</sub> at  $< 1$  ppm<sub>v</sub> and 10% of reading from 1 to 2000 ppm<sub>v</sub>
- Maintenance-free for 3 years
- Built-in verification of customer process gas
- IECEx, ATEX, UKCA, TR CU Ex certified for Exd flameproof, cQPSus certified for explosion proof
- Intuitive, color HMI with touch-screen keypad; no 'hot work' permit required
- 14 internal alarms
- 21 predefined carrier gases and 3 user-defined gases
- Proven Michell Instruments quality: 40 years of expertise in moisture measurement built into the design

#### Applications

- Glycol dehydration of natural gas
- Molecular sieve dehydration of natural gas
- Natural Gas transmission and storage
- Refinery catalytic reforming – recycle gas monitoring
- Ethylene and propylene production
- LNG production / revaporization
- Suitable for use with natural gas containing up to 20% hydrogen with no further modification required

### QMA601-LR



#### Highlights

- Reliable low-range measurement from 0.02 to 100 ppm<sub>v</sub>
- Accuracy of  $\pm 0.03$  ppm<sub>v</sub> or  $\pm 10$  % reading, whichever is greater
- Maintenance free for 3 years
- Built-in verification of customer process gas
- IECEx, ATEX, UKCA, TR CU Ex certified for Exd flameproof, cQPSus certified for explosion proof
- Intuitive, color HMI with touch-screen keypad; no 'hot work' permit required
- 14 internal alarms
- 21 predefined carrier gases and 3 user-defined gases
- Proven Michell Instruments quality: 40 years of expertise in moisture measurement built into the design

#### Applications

- Molecular sieve dehydration of natural gas
- LNG production
- NGL extraction
- Suitable for use with natural gas containing up to 20 % hydrogen with no further modification required

### ES70 Sampling System

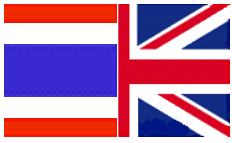


#### Highlights

- Indoor panel or outdoor enclosure mounting options
- Process connection via 6mm or 1/4" tube fittings
- High quality components, stainless steel tubing and fittings
- Sample inlet pressure up to 138 barg
- Flexible filtration options
- Choice of transmitter, flow and pressure control
- Comprehensive documentation options with BS EN 10204 3.1 certification and NACE MR0175 available

#### Applications

- Natural gas production, processing & transmission
- Biomethane gas production
- Fiscal metering of gas
- LNG production processing and receiving terminals
- Hydrocarbon refinery processing
- Catalyst protection
- Polymer production
- CNG production
- Heat treating furnaces
- Petrochemical process liquids



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## Process Moisture Analyzers

### Promet I.S



#### Highlights

- Simple, cost-efficient operation and low maintenance
- Immune to chemical attack from  $H_2S$ , mercaptans and other sulphides
- Protected against glycol or other liquid contaminants
- Accurate direct dew-point measurement at process pressure up to 45 MPa (450 barg/6526.7 psig)
- Moisture range from ambient to ppb level with exhaustive list of hygrometric units, including key parameters of natural gas
- Three 4...20 mA configurable outputs and digital Modbus RTU-based communication.
- Assured calibration integrity traceable to NPL (UK) and NIST (USA)
- User programmable or real-time active pressure compensation for moisture content calculation
- Multi-channel with up to 4 independent measurement channels
- Optional, highly reliable and cost-effective 2-wire, loop-powered  $O_2$  transmitter

#### Applications

- Natural gas production and processing
- Pipeline drying
- Offshore export pipeline natural gas
- Transmission pipeline monitoring
- Fiscal metering of gas
- Gas storage facilities
- Hydrogen production, storage and transportation including natural gas injection
- LNG production processing and receiving terminals
- Gas Generation industries

### Multi Channel Process Monitor



#### Highlights

- Enhanced functionality 6-channel capable process monitor, utilizing a single 7" touchscreen HMI
- Provides up to six independent measurement channels with any combination of moisture in gas, moisture in liquids or oxygen
- 7" color touchscreen LCD, displaying moisture content/dew point or  $O_2$  and analysis pressure, with configurable, on-display, tag names/numbers
- Integrated galvanic isolation-type barriers
- Three 4...20 mA configurable outputs per channel
- Modbus RTU over RS485 and Modbus TCP/IP communication
- Alarm indicators based on the NAMUR 102 standard
- Two alarm relays with user-programmable set points per channel, with additional system alarm
- Data logging to SD card, including measurement parameters and error codes

#### Applications

- Natural gas production and processing
- Pipeline drying
- Offshore export pipeline natural gas
- Transmission pipeline monitoring
- Fiscal metering/custody transfer of gas
- Gas storage facilities
- Hydrogen production, storage and transportation including natural gas injection
- LNG production processing and receiving terminals
- Gas generation industries
- Refining, including ethylene/polyethylene plants

### QMA-401



#### Highlights

- Precision measurement from 0.1 to 2000 ppm<sub>v</sub>
- Simple, low cost, on-site maintenance
- Accuracy of 0.1 ppm<sub>v</sub> or 10% of reading, whichever is greater
- Reliable measurement even in varying sample conditions – analyzer corrects automatically for flow variations
- Unaffected by changes in background gas composition
- Long intervals between maintenance
- Dryer can be replaced by the user in 10 minutes
- Intuitive user interface
- Ethernet or USB digital communications
- SD card datalogging
- Optional internal sample handling and bypass loop

#### Applications

- High purity gas production
- Air separation plants
- Semiconductor CVD chamber cleaning
- Semiconductor etching chambers
- $H_2$  coolant for generators
- Polymer chip drying
- Suitable for use with natural gas containing up to 20% hydrogen with no further modification required

### OptiPEAK TDL600

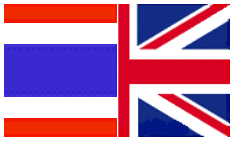


Visit the product pages for [Condumax II](#) and [OptiPEAK TDL600](#) for full technical specifications.



[www.mbsalesandservices.com](http://www.mbsalesandservices.com)





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## Portable Hygrometers

### MDM 300 and MDM 300 I.S.



#### Highlights

- Repeatedly fast measurements at low pressure from less than 15 minutes for T95 to -60 °C (-76 °F)
- Higher pressure measurements possible up to 350 barg (5076 psig)
- Long battery life: up to 48 hours of typical use between charges
- Intuitive application kits allow quick and straightforward connection to your sample point
- Durable, yet easy to handle and operate: designed for use in industrial environments
- Lightweight: less than 1.5kg (3.3lb)
- 13-point traceable calibration certificate

#### Applications

- Dew point in natural gas processing and pipelines
- Monitoring of desiccant dryers for compressed air or plastic moulding equipment
- Moisture measurement in high-voltage switchgear quench gas
- Moisture measurement in petrochemical refineries
- Industrial gas production and transportation
- Medical gas quality
- Dew-point measurement in metallurgical applications

### EasiDew Portable Dryer



#### Highlights

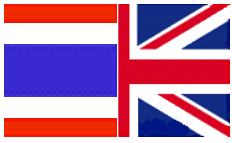
- Air-quality compliance to ISO 8573-1 Class 1-4
- Pressure dew-point monitoring to 20 barg
- Multi-parameter datalogging/downloading
- Touchscreen user-friendly interface
- Dew-point and pressure dryer outlet graphing
- Rugged construction for tough field conditions
- Designed for high electrical noise environments
- Integrated self-contained travel case
- Easy to maintain
- Stainless-steel gas-wetted parts compliant to -70 °C dew-point measurements
- Battery life of two working days

#### Applications

- Refrigeration and Desiccant Dryers
- Nitrogen Gas Generators
- Oxygen Gas Generators
- Railway Pneumatics
- Hydrogen Gas Generators
- Medical Gas Quality
- Inert Gas Blanketing
- Plastic Moulding Dryers
- Additive Manufacturing
- Benchtop Gas Generators

### MDM 300 Sampling System





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## Oxygen Analyzers

### XTP501



#### Highlights

- ATEX, IECEx, UKCA, TR CU Ex & cQPSus rated (XTP601)
- XTP601 can be supplied meeting the requirements of IEC 61508 (SIL2 Capable)
- Touch-screen display allows calibration or adjustment without a hot works permit (XTP601)
- Low cost of ownership due to minimal maintenance
- Measurement ranges from 0...0.5 % to 0...50 % O<sub>2</sub> and 20/80/90...100 % O<sub>2</sub>
- Accuracy of better than  $\pm 1$  % full scale ( $\pm 0.2$  % O<sub>2</sub> between 80 and 100 %)
- IP55 or IP66 enclosure options
- Light guide to NAMUR 44 standard (XTP501 only)
- 2 x 4...20 mA outputs and Modbus RTU over RS485 as standard

#### Applications

- Monitoring inert blanketing gases for hydrocarbon processing
- Inert gas for pharmaceutical or chemical industries
- Biogas, waste, landfill and digester plants
- Furnace gas control in steel industry
- N<sub>2</sub> generators
- O<sub>2</sub> generators

### XTP601



#### Highlights

- ATEX, IECEx, UKCA, TR CU Ex & cQPSus rated (XTP601)
- XTP601 can be supplied meeting the requirements of IEC 61508 (SIL2 Capable)
- Touch-screen display allows calibration or adjustment without a hot works permit (XTP601)
- Low cost of ownership due to minimal maintenance
- Measurement ranges from 0...0.5 % to 0...50 % O<sub>2</sub> and 20/80/90...100 % O<sub>2</sub>
- Accuracy of better than  $\pm 1$  % full scale ( $\pm 0.2$  % O<sub>2</sub> between 80 and 100 %)
- IP55 or IP66 enclosure options
- Light guide to NAMUR 44 standard (XTP501 only)
- 2 x 4...20 mA outputs and Modbus RTU over RS485 as standard

#### Applications

- Monitoring inert blanketing gases for hydrocarbon processing
- Inert gas for pharmaceutical or chemical industries
- Biogas, waste, landfill and digester plants
- Furnace gas control in steel industry
- N<sub>2</sub> generators
- O<sub>2</sub> generators

### XPM601



XTP601 Process Analyzer  
Now meets the requirements of IEC61508 SIL2

#### Highlights

- Measurement range from 0 to 5 % O<sub>2</sub> in H<sub>2</sub>
- Accuracy of  $< \pm 0.1$  % O<sub>2</sub> full scale
- Low cost of ownership due to minimal maintenance
- Through-glass display allows operation and calibration without hot works permit
- Analog and digital outputs available for 2 x 4...20 mA outputs and Modbus RTU over RS485 as standard
- XPM601 can be supplied meeting the requirements of IEC 61508 (SIL2 Capable)
- ATEX, IECEx, UKCA & cQPSus certified

#### Applications

- Accurate measurement of O<sub>2</sub> in H<sub>2</sub> in process conditions
- Safe operation of electrolyzer
- Monitor electrolyzer generation performance
- Determine hydrogen purity

### XZR400

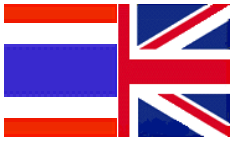


#### Highlights

- Fast response time
- Simple and easy operation
- Low maintenance and cost of ownership
- No need for reference air
- Barometric pressure compensation
- Multiple Outputs available from 4-20 mA, RS485 Modbus RTU and RS232
- Rack, wall-mount, bench-mount, and transportable versions available
- Optional built-in Easidew Transmitter with rack-mount version

#### Applications

- Gas quality measurements
- Environmental control applications
- Control of pure gas for semiconductor and nuclear industries
- Control of gas purity for industrial gas manufacturers
- Tracing leaks in glove boxes
- Measuring oxygen traces in Carbon Dioxide for breweries
- Heat-treating applications such as galvanizing furnaces
- Simulation in laboratories



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## Zirconia Oxygen Sensors

### Oxy-Flex



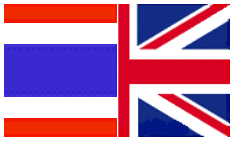
#### Highlights

- Configurable outputs: 4-20 mA and 0...10 V DC or RS232 comms interface
- Cycling 3.3 V DC logic output allows direct monitoring of the O<sub>2</sub> sensor for diagnostic purposes
- Can be calibrated in normal air, 20.7 % O<sub>2</sub>, or in any other known O<sub>2</sub> concentration
- Selectable output filtering allows fast and dynamic or slow and stable output
- Externally triggered automatic or manual calibration
- Sample temperature from -100 °C / -148 °F to +400 °C / 750 °F
- IP66 certified enclosure in either aluminum or stainless-steel
- Certified CE, UKCA, ISO9001

#### Applications

- Compressed air class 1 to Class 6 dryers
- Breathing air
- Inert and bulk gases
- Welding gases
- Combustion optimization
- Pharmaceutical oxygen control
- Oil, gas and biomass boilers
- Composting
- Commercial baking ovens
- Oxygen generation





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## Hydrocarbon Dew Point Analyzers

### Condumax II



#### Highlights

- Fully automatic on-line analysis
- Objective, highly repeatable measurement
- 0.5°C (0.9°F) hydrocarbon dew-point accuracy
- Fundamental chilled mirror principle
- Patented detection technique
- Self-cleaning
- No purge or cooling gas needed
- Optional water dew-point analysis
- Modbus RTU
- ATEX, IECEx, UKCA and cQPSus certified

#### Applications

- Natural gas processing
- Protection of turbo-expander plant
- Gas quality measurements at custody transfer
- Transmission pipeline monitoring
- Confirmation and control of fuel gas 'superheat' to turbine power plant
- Suitable for use with natural gas containing up to 20% hydrogen with no further modification required

### Condumax II Transportable



#### Highlights

- Field transportable self-contained dew-point analyzer system
- Simultaneous HC and water dew-point measurements in a single analyzer
- Automatic objective measurements by industry proven principles
- Parameter specific sensors ensure continuity of HC and water dew-point readings
- Self-contained sample handling, conditioning and analysis package
- 0.5°C (0.9°F) HC dew-point accuracy
- Fundamental cooled mirror principle

#### Applications

- Spot-check measurements of HC and water dew point
- Field verification of installed on-line dew-point analyzers
- Flexibility for periodic measurements at any gas source
- Producer process stage profiling to optimize efficiency

### CPD301



#### Highlights

- Fundamental cooled-/chilled-mirror dew-point measurement principle
- High-definition color LC display
- Visual identification of both water and hydrocarbon dew point
- Automatic mirror cooling rate control according to ISO 6327 and ASTM D1142 test methods for natural-gas dew-point measurements
- Self-contained, rechargeable battery powered
- Exd certified IECEx ATEX, UKCA Zone 1, Class I Division 1/Zone 1, IIB+H2 T3
- 100 barg (1450 psig) operating pressure rating
- Greater than 60 °C (140 °F) measurement depression range (up to 100 barg/1450 psig pressure)
- Better than ±0.5 °C (±0.9 °F) accuracy of mirror surface measurement

#### Applications

- Natural Gas Processing
- Transmission Pipeline Checking
- Sour Natural Gas
- Validation of online analyzers



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### **Analytical Industries Inc.**

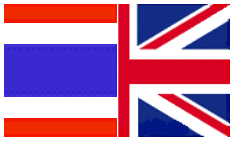
**Analytical Industries Inc (All) is renowned for its high-quality, reliable electrochemical galvanic oxygen sensors and rugged, easy to use analyzers and portable instruments. Headquartered in Pomona, California, All was established in 1994 by three engineers who wanted to use their understanding of electrochemical oxygen sensing techniques to create a new generation of sensors with superior measurement ranges and lifespan.**

**Today, All supplies instruments and sensors around the world to customers in industrial control, natural gas processing, medical and professional diving industries**

#### **The product range includes:**

- **Oxygen sensors for respiratory gas ppm and% O<sub>2</sub>**
- **Oxygen sensors for industrial gases in the range's of ppb, ppm and% O<sub>2</sub>**
- **Oxygen analyzers for PPB, PPM and% O<sub>2</sub>**
- **Analyzers for hydrogen sulphide (H<sub>2</sub>S), carbon monoxide (CO) or gas mixtures.**





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## Oxygen Analyzers

### GPR-X900



#### Highlights

- Measurement ranges from 0-10ppm up to 0-100% O<sub>2</sub>
- Barometric pressure and temperature compensation
- Accuracy of better than 2% of range
- Two user configurable alarms
- Range ID output
- 12-28 V DC or mains powered options
- XLT sensor options for CO<sub>2</sub> backgrounds

#### Applications

- Nitrogen or oxygen generators
- Glove boxes
- Oxygen injection in fish farms
- Confined space monitoring
- Sintering and other metal processing
- Delignification and bleaching in pulp & paper

### GPR-X500



#### Highlights

- Measurement ranges from 0-10ppm up to 0-25% O<sub>2</sub>
- Accuracy of better than 2% of selected range
- 24 months sensor life span (in normal use)
- 4-20 mA output
- 18-24V loop powered
- XLT sensor options for CO<sub>2</sub> backgrounds

#### Applications

- Monitoring oxygen in glove boxes
- Oxygen depletion in confined spaces (GPR-2500 only)
- Measuring oxygen in nitrogen generators

### GPR-1600/2600/3100



#### Highlights

- High accuracy ( $\pm 0.02$ ppm in lowest range)
- Four measurement ranges with manual or auto-ranging
- 24 month sensor life with normal usage
- Sample in CO<sub>2</sub> backgrounds with XLT sensor
- Bench, rack or wall mounting options
- Two Alarms
- Integrated bypass valve (for GPR-1600)
- Easy access and sensor replacement
- Easy to use HMI

#### Applications

- Purity of product in industrial gas manufacture
- Trace oxygen in hydrogen generation by electrolysis
- Monitoring oxygen generators
- Measuring oxygen in metallurgical processes-heat treatment and annealing
- Gas measurement in poultry stunners
- Analysis of gas in double glazing manufacture

### GPR-1200/3500

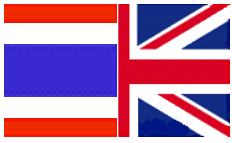


#### Highlights

- Measurement ranges from 0-10 ppm up to 0-100% O<sub>2</sub>
- Accuracy of better than 2% of range
- 24-32 months sensor life span (in normal use).
- Up to 30 days battery life
- Internal pump option
- 0-1V output
- XLT sensor options for CO<sub>2</sub> backgrounds
- Rugged industrial enclosures

#### Applications

- Servicing oxygen and nitrogen generators
- Spot checks of oxygen in tankers during delivery
- Semi-conductor pipeline validation
- Headspace checks in fermenters and brew tanks
- Leak checking processes



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## Oxygen Analyzers

### GPR-1800/2800 AIS



#### Highlights

- Four measurement ranges provided
- LDL of 50 ppb
- Measures in CO<sub>2</sub> with XLT sensor
- Sensor life of up to 24 months
- Simple, intuitive HMI
- Barometric pressure and temperature compensation
- Two user configurable alarms
- Optional Modbus
- Range of sampling options available

#### Applications

- Monitoring blanketing gas for storage or transport of hydrocarbons
- Monitoring the quality of transmission natural gas
- Pharmaceutical reactor and centrifuge safety

### GPR-18/28



#### Highlights

- High quality galvanic sensor technology
- Long sensor life 24 to 36 months for low maintenance
- No need for frequent electrolyte top-up
- Excellent stability
- Accuracy  $\pm 2\%$  of selected range
- Sensitivity  $< 0.5\%$  of range
- 4 standard measurement ranges
- Flame arrestors fitted (standard)

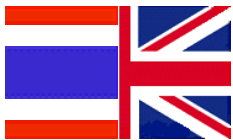
#### Applications

- Ensuring natural gas quality
- Hydrocarbon feedstock monitoring
- Ethylene pipeline quality
- Petrochemical catalyst monitoring
- Sodium benzoate production

## Electrochemical Replacement Sensors



For the full range, please visit our website



Signal Group Ltd develops and manufactures gas analysers for the professional testing of VOCs, vehicle and engine emissions, tobacco smoke, impurities in special gases, power station emissions, catalyst efficiency, and boiler/burner combustion emissions.

We offer service and maintenance contracts with complete customer support and often offer back up instrumentation in the event of failure.

Other services provides include system audits and linearity checks using high stability analysers and traceable gas standard

Signal's highly experienced support team helps customers to specify the most appropriate monitoring equipment whilst also delivering maintenance and service contracts to ensure accurate and reliable monitoring. High calibre and well-trained representatives around the world offer the same high levels of sales and service to customers in Europe, USA, China, Asia/Pacific Rim, South America and the Middle East.

### **S4 Analyzer Range**

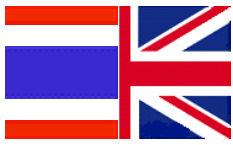
Much of the accuracy of an analyser comes from the electronics. Issues like linearisation and electronic noise or ambient temperature effects are often overlooked but have a major influence on performance.

The Series 4 provides a polynomial calibration for linearity to give a high degree of accuracy throughout the full scale. This is especially important for inherently non-linear methods for detection such as InfraRed.

User interface The S4 analysers incorporate a wireless tablet which has an intuitive menu structure for quick and easy configuration, operation, fault finding and calibration. The wireless tablet also stores measurement data, which can be downloaded via USB connection.

### **S4 analyser communications**

- RS232
- Ethernet
- (TCP/IP)
- AK protocol CAN bus (optional)
- 0-10V DC
- 4-20mA
- 35 contact closures (programmable)



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### SOLAR - Heated FID VOC analyser

Flame Ionisation Detector (FID) for measuring Total VOCs, Methane and Non-Methane hydrocarbons.



- Fixed and portable versions
- Trace PPM measurements standard
- High range % available
- 'Hot' and 'Cold' version
- Totally automatic operation
- Precision monobloc FID

### QUASAR - Heated vacuum chemiluminescence NOx analyser

Chemiluminescent Detector (CLD) for NOx measurement.

- Very high vacuum with dry vac pump or atmospheric pressure versions
- Dual detector for continuous NO<sub>2</sub>, NO and NO<sub>x</sub> readings
- High range % available
- 'Hot' and 'Cold' version
- Trace PPM measurements standard



### PULSAR - NDIR Multi-gas analyser

Up to 5 components including CO, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and O<sub>2</sub>. Gas Filter Correlation (GFC) technology to measure only the gas of interest.



- Available in 1, 2, 3, 4 or 5 gas channel configuration
- Multiple gas and range options
- Rotating gas filter design for minimal cross sensitivity
- Suitable for ultra-low measurement applications
- Software suite for use over ethernet or RS232

### AURORA - Paramagnetic Oxygen analyser

% O<sub>2</sub> accurate measurement. Paramagnetic (PMG) technology for the oxygen analysis.

- Many different configurations
- Programmable contact closure for gas path control
- 0.01% O<sub>2</sub> resolution
- 0.1% linearity
- Software suite for use over ethernet or RS232



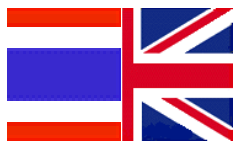
### NEBULA - TDLS Ammonia analyser

Tunable Diode Laser Spectroscopy (TDLS) based ammonia analyser for fast and accurate ammonia measurement.



- Low detection limit 0.2ppm
- Large dynamic range
- Quick warm-up time
- Contactless measurement
- High resolution
- Excellent gas sensitivity





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## Ancillary Equipment



315 NMHC CUTTER



320 CUTTER



346 FEF MODULE



360 - HEATED PUMP/FILTER/DIST. OVEN



363 PORTABLE HEATED SAMPLE PUMP/FILTER



363SM - HEATED PRE-FILTER



410 - NH<sub>3</sub> TO NO CONVERTER MODULE



418 - LUFT DETECTOR INFRA-RED (IR) GAS ANALYSER

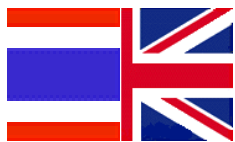


200SM SERIES COOLER / DRYER



250 PORTABLE COOLER / DRYER





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AGC Instruments manufactures a wide range of Gas Chromatographs & Gas Analysers which are completely designed and manufactured in Ireland

With over 50 years of experience in field of Gas Chromatography our team have all served their time in knowing the exact science of Chromatography and listening to what our customers want.

Our products have been long recognised in many industries as leading technologies that deliver results each time to ensure the product gas being produced or monitored meets our Clients' high standards.

We can provide these Total Gas Analysis solutions for a wide range of applications with a guarantee that we stand over.

**Products**

- **Gas Chromatographs**
- **Gas Analysers**



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NovaAIR 3000

NovaAIR 4000

## Features

- Detection to 1 ppb (application dependent)
- Large Colour 6.5" LCD Touch Screen
- Compact 19" Rack Design
- Fully Automated Use
- Integrated Configurable Alarms System
- Electronic Pressure Control of Carrier Gas
- Multi-Column Ovens with individual Temperature Control using different column switching technologies such as Backflush, Heartcut and Precut.
- Integrated Diagnostics System
- Data Handling Control by TrendVision PLUS Software of both the GC and its ancillary components e.g. as a sample multiplexer
- Increased Connectivity via RS-232, RS-485 and Field BUS communications
- Drop Down Front Panel for easy access to electronics
- Customised Chromatography Solutions
- Suited for space saving installations as single modules or mini systems
- Designed with industrial interfaces for rack integration as new cabinets or as replacement units
- Designed for both batch-type analysis and continuous monitoring.
- Ideal for Process environments with Status Signal, Alarm contacts, remote operation requirements

## Features

- Wall Mounted Single Channel
- Small Footprint - 600 mm x 600 mm x 350 mm
- Painted Mild Steel Enclosure with front lockable door
- Fast Analysis Time - <70 seconds for CH<sub>4</sub> / NMHC
- Capillary, Micro-packed or Packed Columns can be used
- Multiple Independent Temperature Controlled Ovens
- Column Regeneration In-Situ
- Large 10" Capacitive Colour Touch Screen
- Digital Display of all Temperature, Pressure and Flow Measurements
- Modern Embedded Computer Control & Operating System included
- Proven TrendVision Software Platform
- Results automatically displayed as Digital Panel Meters (DPM) / TrendLines / Chromatogram
- 10 point multi-point calibration curve can be saved
- 1000 data points storage capability
- Outputs available include: 4-20mA, Profibus, Modbus and Ethernet
- All Gas Lines have pressure/flow switches with particle filters
- Rotary or Diaphragm Valves depending on the application for extended life usage
- Swagelok® / VCR Compression fittings throughout
- 1/16" or 1/8" Stainless Steel Tubing used only
- Solenoid Switching Enabled
- Non-heated and Heated Versions available (e.g. BTEX or Stack Gas Analysis)
- Analysis from % to ppm to ppb
- Easy to Use & Service
- Low Cost of Ownership
- Internal Cooling of Enclosure available if required
- Corrosion Resistant Materials used if required
- Seamless Integration onto a Distributed Control System (DCS)
- Easy Connection to Sample Conditioning System
- Power: 110/220V, 50/60Hz
- ATEX Versions available for Zone 1 and Zone 2
- Other detectors available to cover a wide range of applications.

## Features

- Wall Mounted Single Channel
- Small Footprint - 600 mm x 600 mm x 350 mm
- Painted Mild Steel Enclosure with front lockable door
- Fast Analysis Time
- Capillary, Micro-packed or Packed Columns can be used
- Large 10" Capacitive Colour Touch Screen
- Digital Display of all Temperature, Pressure and Flow Measurements
- Modern Embedded Computer Control & Operating System included
- Proven TrendVision Software Platform
- Results automatically displayed as Digital Panel Meters (DPM) / TrendLines / Chromatogram
- 10 point multi-point calibration curve can be saved
- 1000 data points storage capability
- Outputs available include: 4-20mA, Profibus, Modbus and Ethernet
- Multiple Independent Temperature Controlled Ovens
- Column Regeneration In-Situ
- All Gas Lines have pressure/flow switches with particle filters
- Rotary or Diaphragm Valves depending on the application for extended life usage
- Swagelok® fittings throughout
- 1/8" Stainless Steel Tubing used
- Solenoid Switching Enabled
- Non-heated and Heated Versions available
- Analysis from % to ppm
- Easy to Use & Service
- Low Cost of Ownership
- Internal Cooling of Enclosure available if required
- Corrosion Resistant Materials used if required
- Seamless Integration onto a Distributed Control System (DCS)
- Easy Connection to Sample Conditioning System
- Power: 110/220V, 50/60Hz
- ATEX Versions available for Zone 1 and Zone 2
- Other detectors available to cover a wide range of applications.



novaCHROM 1000 GC



**NovaCHROM 1000**

novaCHROM 2000 GC



**NovaCHROM 2000**

novaCHROM 3000 GC



**NovaCHROM 3000**

## Features

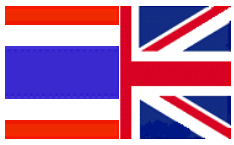
- Discharge Ionisation Detector (DID)
- Electronic Pressure & Flow Management System
- Highly Sensitive to 1 ppb (Application Dependent)
- Accuracy to  $\pm 1\%$  of Scale
- Fast Detector Response: < 0.5 seconds (90%)
- Ideal for trace impurities in numerous applications
- Finely-tuned Detector design
- Cost Effective and Reliable
- Large Colour 6.5" LCD Touch Screen
- Long Term Stability & Sensitivity
- Fully Automated Use
- Electropolished Stainless Steel Tubing
- Integrated Configurable Alarms System
- Packed, Micro-Packed & Capillary Columns for Maximum Sensitivity
- Independent Column Ovens with individual Temperature Control
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access during maintenance and servicing
- Low gas consumption - Economical Platform

## Features

- Argon Discharge Detector (ADD)
- Sensitivity to low ppb levels
- Accuracy to  $\pm 0.5\%$  full scale
- Quick Detector Response time of < 0.5 seconds (90%)
- Large Colour 6.5" LCD Touch Screen
- Long Term Stability & Sensitivity
- Fully Automated Use
- Electropolished Stainless Steel Tubing
- Integrated Configurable Alarms System
- Electronic Pressure Control of Carrier Gas
- Packed Columns for Maximum Sensitivity
- Independent Column Ovens with individual Temperature Control
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access to electronics

## Features

- Flame Ionisation Detector (FID)
- Electronic Pressure & Flow Management System
- Sensitivity to ppb levels
- Accuracy to  $\pm 0.5\%$  Full Scale
- Fast Detector Response: < 0.5 seconds (90%)
- Ideal for analysis of Hydrocarbons
- Versatile & Robust Detector design
- Cost Effective and Reliable
- Large Colour 6.5" LCD Touch Screen
- Long Term Stability & Sensitivity
- Fully Automated Use
- Electropolished Stainless Steel Tubing
- Integrated Configurable Alarms System
- Packed, Micro-Packed & Capillary Columns for Maximum Sensitivity
- Independent Column Ovens with individual Temperature Control
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access during maintenance and servicing



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novaCHROM 4000 GC



NovaCHROM 4000

### Features

- Thermal Conductivity Detector (TCD)
- Sensitivity to ppm levels
- Accuracy to <Sppm (application dependent)
- Fast Detector Response time of < 1 second (90%)
- Ideal for Permanent Gas Analysis
- Versatile & Robust Detector design
- Universal Detector
- Cost Effective and Reliable
- Large Colour 6.5" LCD Touch Screen
- Long Term Stability & Sensitivity
- Fully Automated Use
- Electropolished Stainless Steel Tubing
- Integrated Configurable Alarms System
- Packed, Micro-Packed & Capillary Columns for Maximum Sensitivity
- Independent Column Ovens with individual Temperature Control
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access to electronics

novaCHROM 5000 GC

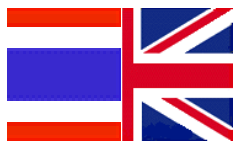


NovaCHROM 5000

### Features

- Double Flame Photometric Detector (FPD)
- Ideal for the analysis of Sulphurous species such as  $H_2S$ ,  $COS$ ,  $CS_2$ , Mercaptans and Sulfides
- Sensitivity to low ppb levels
- Accuracy Example: 0.01 ppm of 2.55ppm  $H_2S$  in Natural Gas
- Fast Detector Response: < 0.5 seconds (90%)
- Versatile & Robust Detector design
- Cost Effective and Reliable
- Electropolished Stainless Steel Tubing passivated for Sulphur
- Teflon Tubing & Heated Lines depending on application
- Packed, Micro-Packed & Capillary Columns for Maximum Sensitivity
- Multiple Column Ovens with individual temperature control, heated gas sampling & column switching valves to eliminate cold spots
- Electronic Pressure & Flow Management System
- Long Term Stability & Sensitivity
- Automated use with large colour 6.5" LCD Touch Screen
- Integrated Configurable Alarms System
- Integrated Diagnostics System
- Full Control by TrendVision PLUS Software
- Increased Connectivity with both USB, RS-232 and RS-485
- Drop Down Front Panel for easy access during maintenance
- Built-in Safety Features such as Flame-Off Protection...etc.





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**NovaSTREAM6000-TDX Ex**

**Features**

- Explosion Proof for use in Zone 1 and Zone 2
- Cabinet fitted with Purge Controller to EExP standards
- Also available in safe zone configuration
- Thermal Conductivity Detector (TCD)
- Detector variations designed and built to spec
- Ideal for Binary Gas Mixtures or Pure Gases
- Fast Detector Response: < 30 seconds ( $T_{90}$ )
- Long Term Stability & Sensitivity
- 6.5" LCD Touch Screen with 6mm Protective Glass
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System with Alarm Record
- Added Sample Flow Alarm
- Integrated Diagnostics System
- Flow Sensors
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- External I/O Connections for internally pre-wired communication modules: 2 x 4-20mA, 1 x mV Signal, VGA & USB Outputs
- Ethernet, Modbus over TCP/IP & Profibus options
- Easy Access for maintenance and servicing
- Cost Effective and Reliable



**NovaSTREAM-FID Ex**

**Features**

- Explosion Proof for use in Zone 1 and Zone 2
- Cabinet fitted with Purge Controller to EExP standards
- Also available in safe zone configuration
- Flame Ionisation Detector (FID)
- Highly Sensitive to < 30 ppb with Minimal Drift
- Fast Detector Response: < 30 seconds ( $T_{90}$ )
- Long Term Stability & Sensitivity
- 6.5" LCD Touch Screen with 6mm Protective Glass
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System with Alarm Record
- Added Sample Flow Alarm
- Integrated Diagnostics System
- Pressure Sensors
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- External I/O Connections for internally pre-wired communication modules: 2 x 4-20mA, 1 x mV Signal, VGA & USB Outputs
- Active 4-20 mA option
- Ethernet, Modbus over TCP/IP & Profibus options
- Easy Access for maintenance and servicing
- Cost Effective and Reliable





novaSTREAM 6000-N2



**NovaSTREAM 6000-N2**

#### Features

- Advanced Plasma Detector (APD)
- Finely-tuned Detector with Minimal Drift & Noise
- Highly Sensitive to < 100 ppb
- Fast Detector Response: < 5 seconds ( $T_{90}$ )
- Long Term Stability & Sensitivity
- Large Colour 7" LCD Touch Screen
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System with Alarm Record
- Added Sample Flow Alarm
- Integrated Diagnostics System
- Flow Sensors and Pressure Release Valve
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- 2 x 4-20mA, 1 x mV Signal
- VGA & 2 x USB Outputs
- Active 4-20 mA option
- Increased Connectivity with Ethernet, RS-232 and Modbus TCP/IP options
- Modular System Design & Drop-Down Front Panel for easy maintenance and servicing
- Cost Effective and Reliable
- Economical Power Usage (< 100 Watts) & Gas Consumption (minimum inlet pressure of only 30 kPa)
- Restore Factory Settings function for peace of mind.

novaSTREAM 6000-FID



**NovaSTREAM 6000-FID**

#### Features

- Flame Ionisation Detector
- Finely-tuned Detector with Minimal Drift
- Highly Sensitive to < 30 ppb
- Fast Detector Response: < 1.5 seconds ( $T_{90}$ )
- Long Term Stability & Sensitivity
- Large Colour 6.5" LCD Touch Screen
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System (7 Alarm Relays) with Alarm Record
- Automatic shutdown of sample & fuel lines if the flame extinguishes
- Integrated Diagnostics System
- Pressure Sensors
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- 2 x 4-20mA, 1 x mV Signal, VGA & USB Outputs
- Active 4-20 mA option
- Increased Connectivity with Ethernet, RS-232 and RS-485 options
- Modular System Design & Drop-Down Front Panel for easy maintenance and servicing
- Cost Effective and Reliable
- Economical Power Usage & Gas Consumption
- Restore Factory Settings function for peace of mind

novaSTREAM 6000-TCD



**NovaSTREAM 6000-TCD**

#### Features

- Thermal Conductivity Detector
- Detector variations designed and built to spec
- Ideal for Binary Gas Mixtures or Pure Gases
- Fast Detector Response: < 30 seconds ( $T_{90}$ )
- Long Term Stability & Sensitivity
- Large Colour 6.5" LCD Touch Screen
- Fully Automated use with intuitive GUI
- Integrated Configurable Alarms System with Alarm Record
- Added Sample Flow Alarm
- Integrated Diagnostics System
- Flow Sensors
- Voltage free contacts for switching in calibration gas inputs externally
- Auto-Calibration Routine with Calibration Record
- Internal storage of results up to 24 months and data trending via PC
- 2 x 4-20mA, 1 x mV Signal, VGA & USB Outputs
- Active 4-20 mA option
- Increased Connectivity with Ethernet, RS-232 and RS-485 options
- Modular System Design & Drop-Down Front Panel for easy maintenance and servicing
- Cost Effective and Reliable
- Economical Power Usage & Gas Consumption
- Restore Factory Settings function for peace of mind

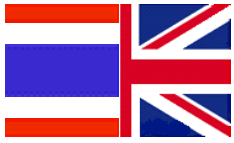


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## Features

- Explosion Proof for use in Zone 1 and Zone 2
- Cabinet fitted with Purge Controller to Exp standards
- Exp-system controllers certified for both IECEx and ATEX standards
- Available in Safe Zone Version for non-IECEx and ATEX applications
- Large Shatter Resistant Capacitive Colour Touch Screen Display for ease of use
- Electronic Pressure and Flow Controls
- Powder Coated Steel Enclosure with front secured doors - IP65
- Free Standing Floor Mount or Wall Mounted options
- Modern Embedded Industrial Computer Control with embedded operating system: NovaVIEW
- Auto Validation of the PGC Values displayed as DPM/Trend-Lines/ Chromatogram
- 8 x 4-20mA input for intelligent sample system analysis
- 4-20mA outputs, Profibus, Modbus, Modbus over TCP/IP communications available - RS232, RS485 and Ethernet
- Results Displayed as Chromatograms, Trendline or Digital Panel Meters (DPM)
- Segregated Power, Signal alarms, Communication cables & Junction Boxes
- 8 Independent Temperature Controlled Column Ovens with Temperature Ramp Chromatography
- Regeneration of Columns in-situ
- Easy Replacement of Columns
- Gas Lines fitted with flow check alarms
- Rotary or Diaphragm Valves for extended life usage
- Swagelok® or VCR Fittings
- Sample Stream Selection
- Single Channel or Dual Channel Configurations
- Analysis from % to ppm to ppb available
- Easy to Service and economical to operate
- Low Cost of Ownership
- Internal Cooling of enclosure available
- Corrosion Resistant Material Options
- Seamless Integration onto a Distributed Control System (DCS)
- Small Foot Print
- Retro Fits with other Manufacturers' Units
- Power: 110VAC - 230VAC



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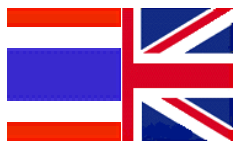


Hemera is a company that designs, produces, and sells online liquid and gas analyzers. Located in Grenoble, France, which is ranked as the fifth most innovative city in the world by Forbes magazine, Hemera has strong connections with universities and research centers.

The goal of Hemera is to measure pollutants in gaseous or liquid environments with minimal environmental impact and high selectivity. Our products are meant for users responsible for gas or liquid environmental metrology in order to comply with regulations and for manufacturers to improve their processes, reduce costs, and optimize performance. Our analyzers use a high resolution optic system, efficient mathematical algorithms, and innovative component selection processes to ensure reliability and the ability to measure pollutants at very low concentrations without interference from the environment.

### **Products**

- **Liquid Analyzers**
- **Gas Analyzers**



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**L800 ONLINE  
 WATER / LIQUID ANALYZER**

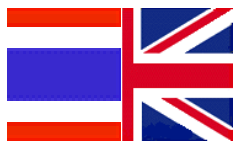
L800 Water and Liquid analyzer can be configured regarding the analysis and the installation to suit your industrial application, for example process water or wastewater.

**Mono or multi-parameter may be required.**

PARAMETERS	METHODS	RANGES	ACCURACY	DETECTION LIMIT	RESPONSE TIME
AMMONIUM — $\text{NH}_4^+$	UV Spectroscopy - Gas phase	0.1 ... 1000 mg/L*	From 0.1 % to 2 % of full scale	From 0.1 % to 2 % of full scale	From 10 s to 2 min
NITRATES — $\text{NO}_3^-$	UV Spectroscopy - Patented	0.1 ... 100 mg/L*			
NITRITES — $\text{NO}_2^-$	UV Spectroscopy - Patented	0.1 ... 10 mg/L*			
TOTAL NITROGEN — TN	UV Spectroscopy - Patented	0.1 ... 100 mg/L*			
PHOSPHATES — $\text{PO}_4^{3-}$	Colorimetry	0.1 ... 10 mg/L*			
TOTAL PHOSPHATES — TP	Colorimetry	0.1 ... 10 mg/L*			
ORGANIC MATTER — $\text{COD}_{\text{eq}}$	UV Spectroscopy - Correlation	0.1 ... 10000 mg/L*			
TOTAL ORGANIC CARBON — TOC	IR Spectroscopy - Gas phase	0.1 ... 10000 mg/L*			
SULFIDES — $\text{S}_2^{2-}$	UV Spectroscopy - Gas phase	0.1 ... 100 mg/L*			
SULFITES — $\text{SO}_3^{2-}$	UV Spectroscopy - Gas phase	0.1 ... 100 mg/L*			
TOTAL SULFUR — TS	UV Spectroscopy - Gas phase	0.1 ... 100 mg/L*			
TOTAL SUSPENDED SOLIDS — TSS	IR Nephelometry	0.1 ... 10000 mg/L*			
TURBIDITY — Turb	IR Nephelometry	0.1 ... 100 NTU*			
COLOR	Visible Spectroscopy	0.1 ... 1000 Pt-Co*			
CHLORINE — $\text{Cl}_2$	UV Spectroscopy - Gas phase	0.1 ... 10 mg/L*			
CHLORINE DIOXIDE — $\text{ClO}_2$	UV Spectroscopy - Gas phase	0.1 ... 10 mg/L*			
TOTAL CHLORINE — TC	UV Spectroscopy - Gas phase	0.1 ... 10 mg/L*			
HYDROCARBON (OIL) — OIW	UV Spectroscopy	0.1 ... 100 mg/L*			
AROMATIC COMPOUNDS — BTEX	UV Spectroscopy - Gas phase	0.1 ... 100 mg/L*			
PHENOL — $\text{C}_6\text{H}_5\text{OH}$	UV Spectroscopy - Gas phase	0.1 ... 100 mg/L*			
DISSOLVED OXYGEN — DO	Visible Fluorescence	0.1 ... 100 mg/L*			
CONDUCTIVITY — EC	Conductimeter	0.1 ... 1000 mS/cm*			
OZONE — $\text{O}_3$	UV Spectroscopy - Gas phase	0.1 ... 10 mg/L*			
pH — $\text{H}^+$	Potentiometry (probe)	0 ... 14*			

\*The parameter ranges are examples. Customized ranges on request.








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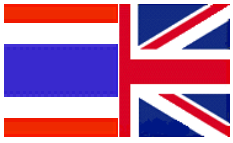
**G800 ONLINE  
 AIR / GAS ANALYZER**

G800 Air and Gas analyzer can be configured regarding the analysis and the installation to suit your industrial application, for example process gas or emissions.

**Mono or multi-parameter may be required.**

PARAMETERS	METHODS	RANGES	 ACCURACY	 DETECTION LIMIT	 RESPONSE TIME
AMMONIA — $\text{NH}_3$	UV Spectroscopy	0.1 ... 10 ppm*	From 0.1 % to 2 % of full scale	From 0.1 % to 2 % of full scale	From 10 s to 2 min
NITRIC OXIDE — NO	UV Spectroscopy	0.1 ... 1000 ppm*			
NITROGEN DIOXIDE — $\text{NO}_2$	UV Spectroscopy	0.1 ... 1000 ppm*			
HYDROGEN SULFIDE — $\text{H}_2\text{S}$	UV Spectroscopy	0.1 ... 100 ppm*			
TETRAHYDROTHIOPHENE — THT	UV Spectroscopy	0.1 ... 10 ppm*			
MERCAPTANS — R-SH	UV Spectroscopy	0.1 ... 100 ppm*			
CARBONYL SULFIDE — COS	UV Spectroscopy	0.1 ... 100 ppm*			
CARBON DISULFIDE — $\text{CS}_2$	UV Spectroscopy	0.1 ... 10 ppm*			
SULFUR DIOXIDE — $\text{SO}_2$	UV Spectroscopy	0.1 ... 1000 ppm*			
SULFUR TRIOXIDE — $\text{SO}_3$	IR Nephelometry	0.1 ... 100 ppm*			
TOTAL SULFUR — TS	UV Spectroscopy	0.1 ... 10 ppm*			
CHLORINE — $\text{Cl}_2$	UV Spectroscopy	0.1 ... 10 ppm*			
CHLORINE OXIDE — ClO	UV Spectroscopy	0.1 ... 10 ppm*			
CHLORINE DIOXIDE — $\text{ClO}_2$	UV Spectroscopy	0.1 ... 10 ppm*			
NITROGEN TRICHLORIDE — $\text{NCl}_3$	UV Spectroscopy	0.1 ... 100 ppm*			
OXYGEN — $\text{O}_2$	Visible Fluorescence	0.1 ... 21 %*			
OZONE — $\text{O}_3$	Uv Spectroscopy	0.1 ... 1000 ppm*			
CARBON DIOXIDE — $\text{CO}_2$	IR Spectroscopy	0.1 ... 100 %*			
METHANE — $\text{CH}_4$	Visible Fluorescence	0.1 ... 100 %*			
VOLATILE ORGANIC COMPOUNDS — VOC	PID	0.1 ... 10 ppm*			

\*The parameter ranges are examples. Customized ranges on request.



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We see through industrial vessels and process equipment.

We make the invisible visible.

We at Rocsole are experts in electrical tomography and its application to fluid systems, such as pipelines, refineries, or manufacturing production plants.

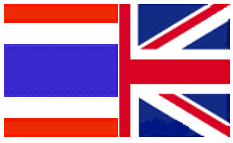
With blue-chip partners, we've worked hard to make the unique SeeBeyond technology a reliable partner for operational excellence.

Founded in 2012, taking academic R&D and transforming that in recent years into industrial solutions in Energy production systems and manufacturing processes.

We help corporate partners streamline their operations and meet their ESG goals.

## **Products**

- **Tomographic Level Sensors and Software**



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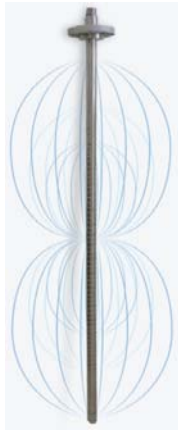


**ROCsole**  
SEE BEYOND.



**SEE BEYOND  
PRINCIPLE**

**liquiDetect 2.0**  
Get to the next level with SeeBeyond

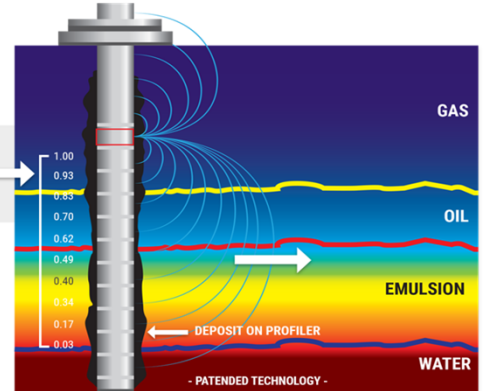


**1** LOW VOLTAGE INJECTION  
TO ONE ELECTRODE

**2** ELECTRIC FIELD PASSES DEPOSIT  
IT IS POSSIBLE TO MEASURE  
RESPONSE FROM ALL  
THE OTHER ELECTRODES

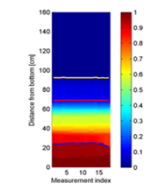
**3** TOMOGRAPHY DETERMINES  
MATERIAL DISTRIBUTION INSIDE  
THE SEPARATOR/TANK  
tomographic image represents  
conductivity or permittivity

**A**  
**B**

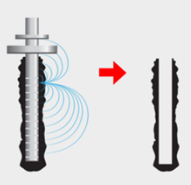


**FIELD RESULTS**

**WATER CUT PROFILE**



**DEPOSITION THICKNESS**



Rich Data.  
Actual measurement frequency:  
**OVER 10 CYCLES  
PER SECOND**

## Performance

TECHNOLOGY	Electrical Tomography	MINIMUM NOZZLE SIZE	60 mm (2.3")
TYPICAL MEASUREMENT RANGE	720-2880 mm (28-113.4")	DESIGN PRESSURE RANGE	Up to 170 bar (2465 PSI)
TYPICAL TOTAL LENGTH	400-5000 mm (17-200")	DESIGN TEMPERATURE RANGE	-40 to +120 °C (-40 to 248 °F)
TYPICAL ACCURACY (ACHIEVED)	22 mm		

## Electrical Characteristics

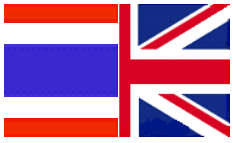
SUPPLY VOLTAGE	24Vdc	OUTPUT	• Modbus/TCP
ELECTRONICS	24Vdc @ 3A		• Modbus/RTU
COMPUTER	24Vdc @ 3A		• Analog 4-20mA
			• OPC UA

## Mechanical Characteristics

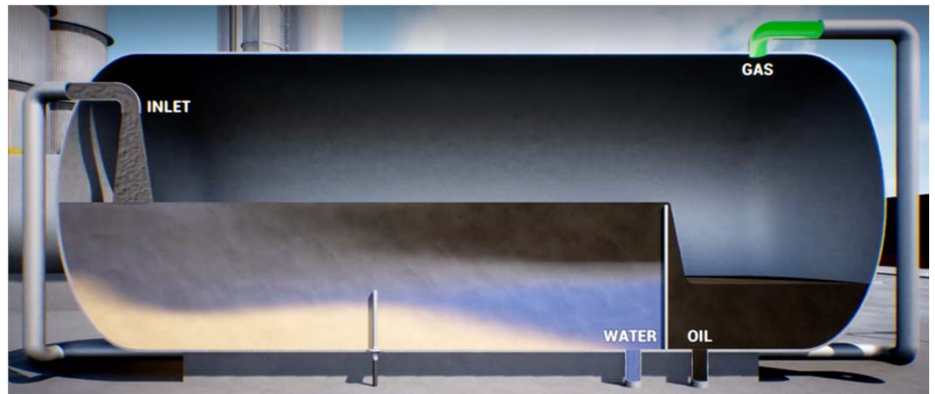
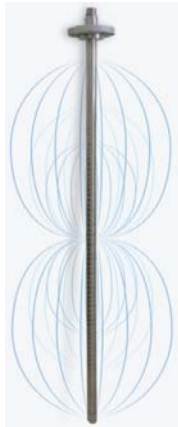
	WEIGHT	MATERIAL	ZONE
PROBE	Varies	Varies	Zone 0
ELECTRONICS CABINET	40 - 100 kg	Varies	Zone 1
COMPUTING UNIT	Varies	Varies	Safe Zone / Zone 2

## Environmental

APPROVALS	ATEX, IECEx, CSA	OPERATING TEMPERATURE SENSOR	-40 .. +120 °C
INSTALLATION	With online factory support	OPERATING TEMPERATURE ELECTRONICS	-40 .. +50 °C (Al Enclosure)
COMPLIANCE	EN	OPERATING TEMPERATURE COMPUTING UNIT	-40 .. +50 °C



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## Performance

TECHNOLOGY	Electrical Tomography	MINIMUM NOZZLE SIZE	60 mm (2.3")
TYPICAL MEASUREMENT RANGE	360-1440 mm (14-56.7")	DESIGN PRESSURE RANGE	Up to 170 bar (2465 PSI)
TYPICAL TOTAL LENGTH	400-5000 mm (16-200")	DESIGN TEMPERATURE RANGE	-40 to +120 °C (-40 to 248 °F)
TYPICAL ACCURACY (ACHIEVED)	22 mm		

## Electrical Characteristics

SUPPLY VOLTAGE	24Vdc	OUTPUT	• Modbus/TCP
ELECTRONICS	24Vdc @ 3A		• Modbus/RTU
COMPUTER	24Vdc @ 3A		• Analog 4-20mA
			• OPC UA

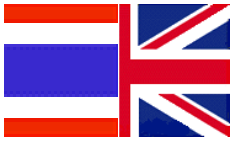
## Mechanical Characteristics

	WEIGHT	MATERIAL	ZONE
PROBE	Varies	Varies	Zone 0
ELECTRONICS CABINET	40 - 100 kg	Varies	Zone 1
COMPUTING UNIT	Varies	Varies	Safe Zone / Zone 2

## Environmental

APPROVALS	ATEX, IECEx, CSA	OPERATING TEMPERATURE SENSOR	-40 .. +120 °C
INSTALLATION	With online factory support	OPERATING TEMPERATURE ELECTRONICS	-40 .. +50 °C
COMPLIANCE	EN		(AI Enclosure)
		OPERATING TEMPERATURE COMPUTING UNIT	-40 .. +50 °C





# ROCsole

SEE BEYOND.

	DP	DISPLACER	RADAR	GWR	CAPACITANCE	HYBRID CAPACITANCE / GWR	NUCLEONIC	ELECTRICAL TOMOGRAPHY / ROCSOLE
OIL-GAS INTERFACE	✓	✓	✓	✓	✗	✓	✓	✓
CLEAN OIL-WATER INTERFACE	✓	✓	✗	✓	✓	✓	✓	✓
OIL-WATER INTERFACE WITH AN IMPORTANT EMULSION LAYER	✗	✗	✗	✗	✓	✓	✓	✓
LIQUID-LIQUID INTERFACE WITH A LITTLE EMULSION LAYER (few cm)	✓	✓	✗	✗	✓	✓	✓	✓
SOLID DEPOSIT, WATER, EMULSION, OIL & FOAM	✗	✗	✗	✗	✗	✗	✓	✓
OIL CONTINUOUS EMULSION	✗	✗	✗	✗	✗	✗	✓	✓
WATER CONTINUOUS EMULSION	✗	✗	✗	✗	✗	✗	✗	✓
LEVEL INTERFACE	✓	✓	✓	✓	✓	✓	✓	✓
PROFILING	✗	✗	✗	✗	✗	✓	✓	✓

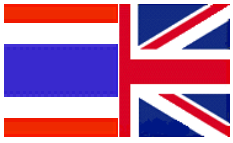
## Detection of Solids

- 24/7 monitoring system with frequent data
- Works under all circumstances and continuously
- Tailored to fit your process environment
- Allows for well-informed decision-making to reduce cost and improve financial returns

✓ = SUITABLE  
✓ = PARTIALLY SUITABLE  
✗ = NOT SUITABLE

## Detection of Liquids

- 24/7 monitoring system
- Oil/Emulsion/Water Level Detection (critical for performance)
- Tailored to operate in challenging process conditions
- Conductivity profile



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**MB Sales and Services Co., Ltd.**



Airoptic Sp. z o.o. is an ISO 9001:2015 certified high-tech company founded in Poznan, Poland in 2010. In the beginning the company provided consulting services and solutions for laser-based gas sensing to various industrial end users.

In 2016, the company released its own analyzer product line under brand name GasEye. Since first deployment in 2016 the company has provided several hundreds of GasEye analyzers around the world.

Today Airoptic has a global network of distributors and service centers. Airoptic has provided a world's first in-situ laser formaldehyde analyzer as well as has pioneered in-situ multigas multilaser sensing technology. Airoptic analyzers are characterized not only by one of the best analytical performance on the market but also include standard features like autocalibration and self diagnostics..

### **Products**

- **Cross Duct Tuned Diode Laser absorbtion Spectroscopy Analyzers**
- **Extractive Laser Gas Anayzers**
- **Open Path (TDL) Analyzers**
- **Probe (TDL) Analyzers**
- **Custom Solutions**



# AIR OPTIC™

REAL TIME GAS ANALYZERS

## Single Components we can Analyze:



- Acetylene – C<sub>2</sub>H<sub>2</sub>
- Ammonia – NH<sub>3</sub>
- Carbon dioxide – CO<sub>2</sub>
- Carbon monoxide – CO
- Ethane – C<sub>2</sub>H<sub>6</sub>
- Ethanol – C<sub>2</sub>H<sub>5</sub>OH
- Ethylene – C<sub>2</sub>H<sub>4</sub>
- Formaldehyde – HCHO
- Formic acid – HCOOH
- Hydrogen – H<sub>2</sub>
- Hydrogen chloride – HCl
- Hydrogen cyanide – HCN
- Hydrogen fluoride – HF



- Hydrogen sulfide – H<sub>2</sub>S
- iso-Butane – C<sub>4</sub>H<sub>10</sub>
- iso-Pentane – C<sub>5</sub>H<sub>12</sub>
- Methane – CH<sub>4</sub>
- N-BUTANE – C<sub>4</sub>H<sub>10</sub>
- Nitric oxide – NO
- Nitrogen dioxide – NO<sub>2</sub>
- Oxygen – O<sub>2</sub>
- Propane – C<sub>3</sub>H<sub>8</sub>
- Sulfur dioxide – SO<sub>2</sub>
- SULFUR TRIOXIDE – SO<sub>3</sub>
- Water vapor – H<sub>2</sub>O
- Custom – Single Component

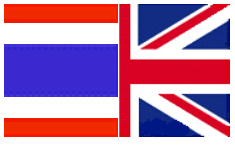
## Multiple Components We can Analyze



- CO + CO<sub>2</sub>
- CO + CH<sub>4</sub>
- CO + O<sub>2</sub>
- H<sub>2</sub>S + O<sub>2</sub>
- HCHO + H<sub>2</sub>O
- HCl + H<sub>2</sub>O
- HCOOH + CO
- NH<sub>3</sub> + H<sub>2</sub>O
- NO + NH<sub>3</sub>
- NO + NO<sub>2</sub>



- C<sub>2</sub>H<sub>2</sub> + C<sub>2</sub>H<sub>4</sub> + C<sub>2</sub>H<sub>6</sub>
- CO + CH<sub>4</sub> + O<sub>2</sub>
- CO + O<sub>2</sub> + H<sub>2</sub>O + CH<sub>4</sub>
- SO<sub>2</sub> + HCl + CO + H<sub>2</sub>O
- SO<sub>2</sub> + HCl + NH<sub>3</sub> + H<sub>2</sub>O
- SO<sub>2</sub> + HCl + NO + H<sub>2</sub>O
- Custom – Multi Components



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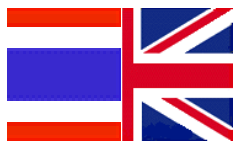
## Airoptic

### GasEye Cross Duct

#### Features

- Process temperature: 0 – 1350°C
- Real time sensing: response time below 0.2 second
- High selectivity: automatic compensation for interference effect from other constituents in the gas sample
- High sensitivity: detection limits down to ppb range
- In-situ monitoring: direct in the process, no sample preparation
- Maintenance free: equipped with a self-calibrating feature, no field calibration necessary
- Robustness: IP66 enclosure, suitable for outdoor and indoor installations and harsh environments
- Insensitive to dust and smoke in the measured process: up to 50 g/m<sup>3</sup>
- ATEX version available





AIR OPTIC™  
REAL TIME GAS ANALYZERS



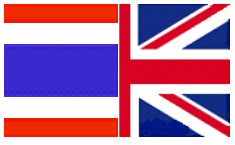
## Airoptic

### GasEye Extractive

#### Features

- Sample temperature: 0 – 200°C
- Real time sensing: response time below 1s
- High selectivity: automatic compensation for interference effect from other constituents in the gas sample
- High sensitivity: detection limits down to ppb range
- Maintenance free: equipped with a self-calibrating feature, no field calibration necessary
- ATEX version available

Model:	Minimum range:	Typical Application:
GasEye Extractive H <sub>2</sub> O	0 – 5 ppmv	Moisture in NG, LNG, H <sub>2</sub>
GasEye Extractive H <sub>2</sub> S	0 – 10 ppmv	H <sub>2</sub> S in NG, LNG, H <sub>2</sub>
GasEye Extractive H <sub>2</sub>	0 – 10 vol%	Hydrogen applications
GasEye Extractive CO/CO <sub>2</sub> /CH <sub>4</sub>	CO: 0 – 1 ppmv CO <sub>2</sub> : 0 – 2 ppmv CH <sub>4</sub> : 0 – 10 ppmv	Hydrogen purity PSA/PSA+
GasEye Extractive HCOOH/HCHO/NH <sub>3</sub>	HCOOH: 0 – 1 ppmv HCHO: 0 – 1 ppmv NH <sub>3</sub> : 0 – 1 ppmv	Hydrogen purity
GasEye Extractive H <sub>2</sub> /O <sub>2</sub>	H <sub>2</sub> : 0 – 10 vol% O <sub>2</sub> : 0 – 100 ppmv	Hydrogen applications



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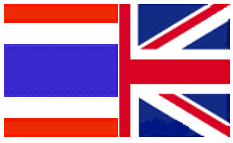


## Airoptic

### GasEye OpenPath

#### Features

- Pathlength: up to 1000m
- Process temperature: ambient
- Real time sensing: response time below 1 second
- High sensitivity: detection limits down to ppb range
- Maintenance free: equipped with a self-calibrating feature, no field calibration necessary
- High selectivity: automatic compensation for interference effect from other constituents in the gas sample



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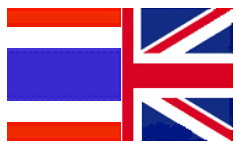


## **Airoptic**

### **GasEye Probe**

#### **Features**

- Process pressures : 0.7 – 2.0 barA
- Process temperature: 0-500°C
- Real time sensing: response time below 1 second
- High sensitivity: detection limits down to ppb range
- Maintenance free: equipped with a self-calibrating feature, no field calibration necessary
- High selectivity: automatic compensation for interference effect from other constituents in the gas sample



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