# ENTECH
Difference For Greater Value

**Smart**
# Industrial IoT Solution



Industrial Internet of Things
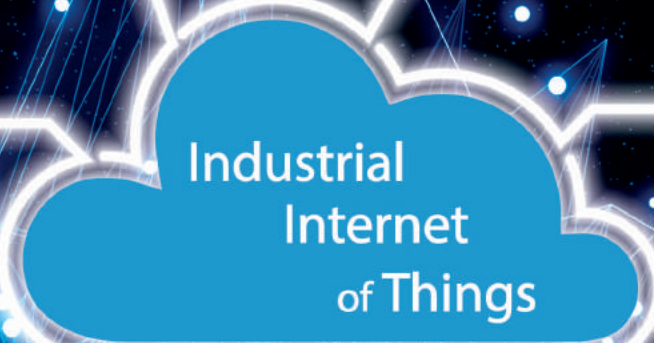
SAFETY
ENERGY
ENVIRONMENT
PROCESS CONTROL

# รู้จักกับเอ็นเทค



## ENTECH INDUSTRIAL SOLUTION CO., LTD.

บริษัท เอ็นเทค อินดัสเทรียล โซลูชั่น จำกัด ก่อตั้งขึ้นในปี 2536 ดำเนินธุรกิจนำเข้าและจำหน่ายเครื่องมือวัดและวิเคราะห์สำหรับงานอุตสาหกรรม พลังงาน ความปลอดภัยและสิ่งแวดล้อม (Analytical Instrumentation) ในปัจจุบันได้ขยายธุรกิจไปในส่วนธุรกิจด้านระบบงานวิศวกรรมของอุปกรณ์เครื่องมือวัดและควบคุม กระบวนการ (System Integration) หน่วยธุรกิจระบบรักษาความปลอดภัย กล้องวงจรปิด รถดับเพลิง อุปกรณ์บรรเทาสาธารณภัยและกู้ภัย (Security & Rescue) นอกจากนี้ยังมีหน่วยงานให้บริการหลังการขาย บริการซ่อม สอบเทียบเครื่องมือวัดโดยห้องปฏิบัติการมาตรฐาน ISO 17025 ให้เช่าเครื่องมือวัด

เพื่อให้องค์กรเติบโตอย่างต่อเนื่อง และยั่งยืน บริษัทฯ ได้ให้ความสำคัญกับการพัฒนาพนักงานและระบบคุณภาพอย่างต่อเนื่องโดยคำนึงถึงผู้มีส่วนได้ส่วนเสีย ทุกกลุ่มทั้งพนักงาน ลูกค้า คู่ค้า ผู้ถือหุ้น และสังคม

## Process Monitoring Solutions

- เครื่องวัดความชื้นในกระบวนการผลิตแบบต่อเนื่อง (Moisture Analyzer)
- เครื่องวัดอัตราการไหลของของเหลว ไอน้ำ และก๊าซ
  (Liquid/Steam/Gas Flow Meter)
- เครื่องวัดอัตราการไหลของอากาศอัด (Compressed Air Flow Meter)
- เครื่องวัดความดัน (Pressure Sensor)
- เครื่องวัดอุณหภูมิจุดน้ำค้าง (Dew point Sensor)
- เครื่องนับจำนวนอนุภาคฝุ่น (Particle Counter)
- เครื่องวัดก๊าซออกซิเจนในกระบวนการผลิต (Oxygen Analyzer)
- เครื่องวัดก๊าซชีวภาพ (Biogas Analyzer)
- กล้องตรวจวัดอุณหภูมิในเตาเผา (High Temperature Camera)
- กล้องถ่ายภาพความร้อนแบบต่อเนื่อง
  (Online Real-time Infrared Camera)
- ระบบตรวจวัดก๊าซไอเสียจากปล่องระบายแบบต่อเนื่อง
  (Continueus Emission Monitoring System)

## Environmental Monitoring Solutions

- เครื่องตรวจวัดฝุ่นในปล่องระบาย (Opacity/Dust Monitoring System)
- เครื่องวัดฝุ่นในบรรยากาศ (Dust Analyzer)
- สถานีตรวจวัดคุณภาพอากาศขนาดย่อม (Air Pollution Station)
- สถานีตรวจวัดทางอุตุนิยมวิทยา (Meteorological Station)
- สถานีตรวจวัดสารอินทรีย์ระเหยง่ายในบรรยากาศ
  (VOCs Monitoring Station)
- เครื่องมือตรวจวัดคุณภาพน้ำแบบต่อเนื่อง
  (Online Water Quality Analyzer)
- เครื่องวัดน้ำมันในน้ำ (Oil in Water Analyzer)
- เครื่องตรวจวัดระดับและอัตราการไหลของน้ำ
  (Level and Liquid Flow Meter)
- ระบบกำจัดน้ำจากถังเก็บน้ำมัน
  (Automatic Water Drainage from Oil Storage Tank)

## Safety and Climate Monitoring Solutions

- ระบบตรวจวัดก๊าซรั่ว (Gas Leak Monitoring System)
- ระบบวัดอุณหภูมิและความชื้นสัมพัทธ์
  (Temperature and Humidity Monitoring System)
- กล้องอินฟราเรดสำหรับตรวจจับการรั่วของก๊าซ
  (Fugitive Emissions Detection Automatic Camera)
- ระบบดับเพลิงอัตโนมัติ (Automatic Fire Extinguishing System)

## Biogas 3000
### Fixed Biogas and Landfill Gas Analyser / Anaerobic Digestion

The ATEX and IECEx certified BIOGAS 3000 builds on field proven, robust gas analysis technology to offer cost effective online monitoring with local data outputs.

- $CH_4$ $CO_2$ & $O_2$ - standard measurements
- $H_2S$, $H_2$ and CO - choice of up to two optional measurements
- Modular design enabling hot-swap for serviceability and onsite maintenance
- User calibration function to maintain accuracy & ensure data reliability in extreme temperatures
- ATEX and IECEx certified for use in potentially explosive gas atmospheres - zone 2
- ISO / IEC 17025 calibration for optimal accuracy
- Continuous monitoring option
- Up to 4 sample points to monitor the complete gas control process
- IP65 rated for weather proofing
- Built in liquid level monitoring with a dedicated alarm to inform the user that the contents of the catchpot requires emptying or an optional automated moisture removal drain
- Gas alarms & fault notifications
- 6 x 4-20mA outputs
- Modbus RTU communication
- Optional Profibus and Profinet communication



| Measuring Range | |
|---|---|
| $CH_4$ | 0 - 100% Vol. |
| $CO_2$ | 0 - 100% Vol. |
| $O_2$ | 0 - 25% Vol. |
| $H_2S$ | 0 - 50 ppm, 0 - 200 ppm, 0 - 500 ppm, 0 - 1,000 ppm, 0 - 5,000 ppm or 0 - 10,000 ppm |
| $H_2$ | 0 - 1,000 ppm |
| CO | 0 - 1,000 ppm |

## VPFlowScope® in-line

The VPFlowScope® in-line is the ideal flow meter for point of use consumption measurement. It measures mass flow, temperature and pressure simultaneously and in both directions.

- ThermabridgeTM technology
- High dynamic range
- Three sensors in one instrument
- Standard Modbus and 4 ... 20 mA
- Bi-directional
- Quick return on investment

## VPFlowScope Probe

The VPFlowScope® Probe measures mass flow, temperature and pressure simultaneously. This probe can handle various diameters and measures in both directions.

- ThermabridgeTM technology
- High dynamic range
- Three sensors in one instrument
- Standard Modbus and 4 ... 20 mA
- Bi-directional
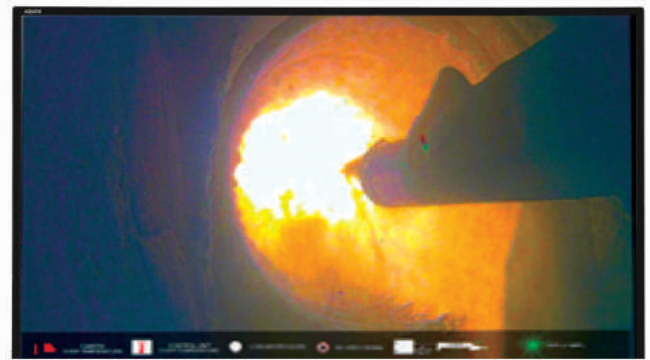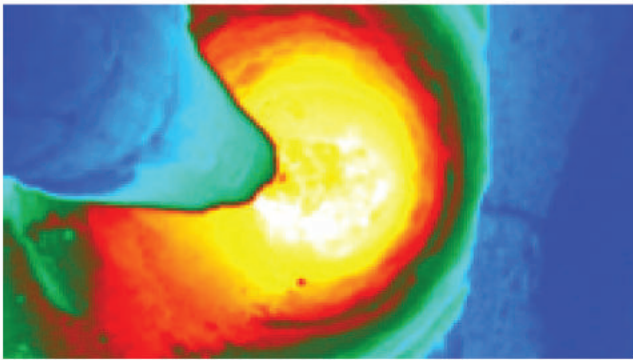- Quick return on investment

## VPFlowScope DP

The VPFlowScope® DP measures mass flow, temperature and pressure simultaneously and is optimized for wet compressed air measurements.

- For wet compressed air
- Three sensors in one instrument
- Standard Modbus and 4 ... 20 mA
- Bi-directional

# ThermalScope HD Kiln and Cooler Camera Video
กล้องถ่ายภาพความร้อนและกล้องวิดีโอสำหรับเตาเผา

**Typical ThermaScope SLK and ThermaScope HTV camera setup on a cement kiln:**



Rotary cement kiln

Kiln Hood

Air & Water Services

Fibre Optic Communication

Burner Pipe

Burner

ThermaScope SLK

Control Room PC

ThermaScope SLK and ThermaScope HTV cameras monitoring the kiln burning zone and cooler

Air & Water Services

ThermaScope HTV

Fibre Optic Communication

Control Room TV Monitor

Clinker Bed

**Centurion TK50**

Plant Central Computer System

**CENTURION® TK50**

Mass Storage Devices

PC Client Viewer

PC Client Viewer

Kiln Speed

Tyre Slip

**PC Server (I/O Manager)**

Relay Output (Temperature Alarms)

4-20 mA (Spot/Zone Temperatures) - Optional

O.P.C. - Optional

LAN/NETWORK

**ConveyIR™**

ConveyIR Scan

Optional Window Air Purge

Configurable Scan Angle 15°- 90°

Conveyor Belt

2048 samples per scan line at 30Hz

Power & Comms Unit

Fibre Optic

ConveyIR Digital Interface/Output Unit

USB 2.0

Control Room PC

### Gas Sample Probe

- Convenient filter replacement
- Rapid availability
- Low maintenance operation

### Heated Sample Line

- Replaces rigid connections and connection elements, which
- would need extra heating and insulation otherwise
- Convenient tool change
- Low maintenance operation

### Sample Gas Compressor Cooler

- Extremlely precise long term stable
- dew point even under varying loads
- High flow rates and water vapour
- dew points possible
- Easy to change heat exchangers
- Continuous condensate removal
- Low maintenance operation
- Easy to maintain design

### Compact Sample Gas Pumps

- Reliable continuous sample gas delivery
- No alteration of sample gas
- High suction power
- Easy mounting and integration in gas analysis systems
- Long life time
- Maintenance free construction
- Corrosion resistant Gas tight

# Emission and Process Gas Analyzer
## เครื่องวิเคราะห์ก๊าซสำหรับปล่องระบายและกระบวนการผลิต



### INFRALYT80

The INFRALYT 80 is a customer specific configurable gas analyzer for applications at industry and laboratory. It measures up to 8 gases at once, special features are the simple touch configuration and the high stability. By combination of detection ranges it can measure concentration differences up to 1: 50,000. Further features are the full automatic operation as well as the interfaces to the process control of the plant. Configurable analog outputs and free programmable limit value switches complete the analyzer especially for industrial applications.

| | Minimum | Miximum |
|---|---|---|
| **Ranges NDIR** | | |
| CO | 0…1,000 ppm | 0…100 % Vol. |
| $CO_2$ | 0…50 ppm | 0…100 % Vol. |
| HC | 0…500 ppm | 0…1 % Vol. (equiv. $C_6H_{14}$) |
| $C_3H_8$ | 0…1,000 ppm | 0…2 % Vol. |
| $CH_4$ | 0…1 % Vol. | 0…100 % Vol. |
| NO | 0…2,000 ppm | 0…5,000 ppm |
| $SO_2$ | 0…1,000 ppm | 0…2,000 ppm |
| **Ranges electro-chemical** | | |
| $O_2$ | 0…21 % Vol. | |
| NO | 0…2,500 ppm | 0…5,000 ppm |
| **Ranges paramagnetic** | | |
| $O_2$ | 0…21 % Vol. | |

- Gas analysis system for up to 8 (special solution 10) gases, ranges simultaneously
- High-contrast color touch screen, intuitive operation
- Suitable for fully automatic operation in process control and monitoring

9

## Moisture measuring technology

The TEWS instruments were specially developed for the determination of material moisture in solid products. For this reason, the microwave resonance method offers special advantages such as speed, color and density independence, accuracy, determination of the core moisture, and independence from surface effects.

## Moisture Resonance Produre

From TEWS' patented moisture measuring method, which is based on the measurement of two independent parameters correlated with moisture and density, the displacement of a resonance frequency, and the absorbability of the resonance peak. For this purpose a product loaded with water is brought into a resonance field. The water influences the field and the field changes are measured and specifically, mathematically prepared.

# Infrared Camera

กล้องถ่ายภาพความร้อนชนิดต่อเนื่อง
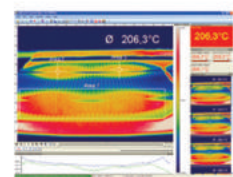


## optris infrared cameras

Optris' infrared cameras are fully radiometric stationary thermographic systems with an excellent price-performance ratio. The thermal imaging cameras are connected to a PC via USB and they are immediately ready to be used. Temperature data is displayed through the license-free analysis software optris PIX Connect. The software also includes two SDKs for Windows and Linux as well as drivers for LabVIEW and MATLAB.
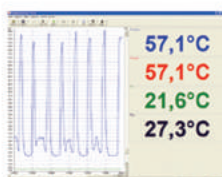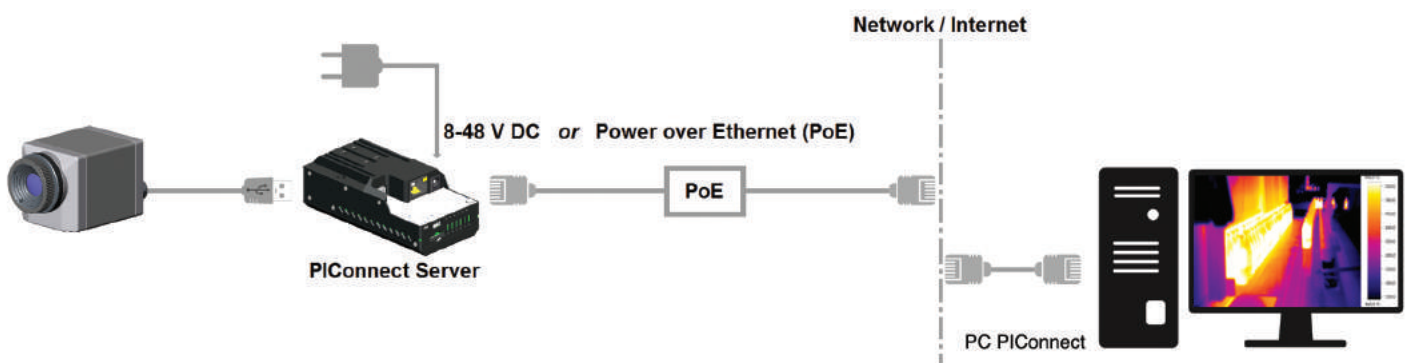


The software optris Compact Connect is compatible with all thermometers of the compact as well as the high performance series. it is best suited for the quick and easy documentation of temperature measurement data. When using the optris CT / CT laser, the software even offers the possibility to enter up to 8 different emissivity measurements with different alarm levels.
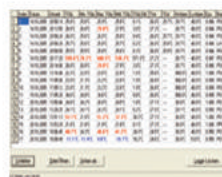
The software optris Connect is delivered with all portable thermometers and enables a quick and easy parameterization of the devices. The flexibel presentation of temperature measurements in a temperature-time diagram or a digital display is only one of the software's many additional features.

With the support of the license-free analysis software optris PIX Connect, the infrared cameras of the optris PI series allow the recording and detailed analysis of thermal image video sequenzes. By allowing an individual setup of process-related alarm levels, for example, the software helps in the automatic process and quality control. Further, the software includes two SDKs for Windows and Linux as well as drivers for LabVIEW and MATLAB.

# Liquids and Gases Flow Meter

เครื่องวัดอัตราการไหลของน้ำและก๊าซ

| | | | |
|---|---|---|---|
| Oval Gear Meter | Vortex Meter | CoriolisMaster Meter | Differential Pressure Flow Meter |

| | | | |
|---|---|---|---|
| Electromagnetic Meter | Turbine Meter | Nutating disc flow meter | Ultrasonic Flow Meter |

**Badger Meter**

| | Coriolis Mass Flow Meters | Electromagnetic Meters | Impeller Meters | Disc Meters | Turbine Meters | Oscillating Piston Meters | Oval Gear Meters | Control Valves | Ultrasonic Meters | Vortex Meters | Variable Area Meters | Differential Pressure Meters | Hydraulic Diagnostic Products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Drinking Water | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | | | |
| Waste Water | | ✓ | ✓ | | | | | ✓ | ✓ | | | ✓ | |
| Irrigation | | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | | | |
| Process Water/ Semiconductor | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Chemicals | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Food | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | |
| Oil/Automotive Fluids | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | |
| Petrol | | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | |
| Pharmaceutical/ Biotechnology | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | | ✓ | |
| HVAC | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Industrial | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Concrete Batching | | ✓ | ✓ | ✓ | | | | | | | | | |
| Test & Measurement | ✓ | | | | ✓ | | | ✓ | | | ✓ | ✓ | ✓ |
| Oil & Gas | | | | | ✓ | | | ✓ | ✓ | | | ✓ | |
| Petrochem | | | | | ✓ | | | ✓ | | ✓ | | ✓ | |
| Mining | | | | | ✓ | | | ✓ | ✓ | | ✓ | | ✓ |
| Machine Tools | | | | | ✓ | | | | ✓ | | ✓ | | ✓ |
| Power Generation | ✓ | ✓ | | | | | | | ✓ | | | ✓ | |
| Aerospace | | | | | ✓ | | | ✓ | | | ✓ | | ✓ |
| Hydraulic/Fluid Power | | | | | ✓ | | | | ✓ | | ✓ | | ✓ |

Badger Meter provides solutions for a variety of unique flow measurement and control challenges, serving a wide array of industries. Use this chart as a first step in matching our flow technologies with your application.
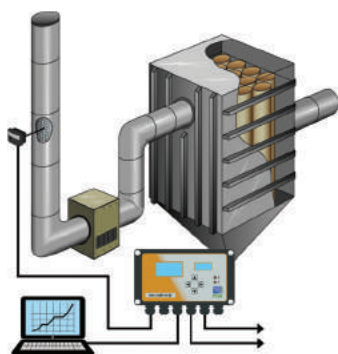
## Filter Leak Monitors

Filter Leak Monitors, track changes in emissions from particulate arrestment plant and provide a tool to minimise emissions and monitor for arrestment plant malfunction (e.g. damaged filtration media). PCME's range includes approved Filter Leak Monitors where quality assurance features are required – performance standards are similar to ASTM standard D7392-07 for Bag Leak Detectors Instruments not verified under an approval scheme retain a variety of quality assurance and functionality options.



### LEAK ALERT 65 - 02

- High temperature for stack temperatures up to 400°C
- Fully insulated PTFE coated option for conductive dust or humid flue gas applications
- Acid resistant adaptors for corrosive applications
- Alarming: 1x relay output or RS232/RS485 data output option for Modbus networking, PC interface



### LEAK ALERT DM 210

- Stack temperature ranges 0-250°C, 0-400°C
- 316 stainless, or fully insulated PTFE coated option for conductive dust or humid flue gas application
- Alarming: Local and via 2x relay outputs
- RS232/RS485 data output option for Modbus networking, PC interface



### LEAK ALERT DM 80

- 4 digit display and set up buttons with menu selectable items
- Stack temperature ranges 0 - 250°C, 0 - 400°C
- Alarming: Local and via 2 x relay outputs
- RS232/RS485 data output option for Modbus networking, PC interface
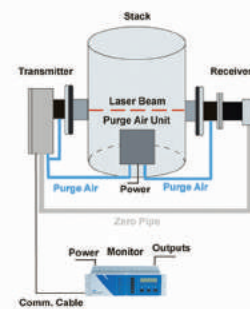


### LEAK ALERT DM 75

- Built in LED display
- Stack temperature ranges 0 - 250°C, 0 - 400°C
- Alarming: Local and via 2 x relay outputs
- RS232/RS485 data output option for Modbus networking, PC interface



### LEAK ALERT DM 73

- Stack temperature ranges 0 - 250°C, 0 - 400°C
- Alarming: Local and via 2 x relay outputs
- RS232/RS485 data output option for Modbus networking, PC interface

Product range for dust and opacity monitoring
TÜV approved and US EPA compliant models
Unique laser based technology
25 years of experience in production

Advantages of using optical reference path:
Dirt in optics is eliminated from the measurement values,
providing real long term accuracy and stability
Automatic calibration and zero 40 times per second
Low need of maintenance

## MEASUREMENT FUNCTIONS AND RANGES

| Function | Range | Resolution |
|---|---|---|
| Opacity % | 0 ... 99.9 % | 0.1 % |
| Optical density | 0 ... 3.0 | 0.001 D |
| Mass / g/m$^3$ | 0 ... 100.0 | 1 mg/m$^3$ |

## CALIBRATION AND ZERO DRIFT

| PS-1/Test time | 1 h | 24 h | 336 h |
|---|---|---|---|
| Calibration drift | < 0.2 % | < 0.2 % | < 0.2 % |
| Zero Drift | < 0.2 % | < 0.2 % | < 0.2 % |

# Oxygen Analyzer
## เครื่องวัดก๊าซออกซิเจนในกระบวนการผลิต



## MODEL 2010BR

- Trace oxygen from 0.05 ppm up to 25.0%Vol.
- Ultra-fast come-down $H_2S$ resistant sensor up to 10 ppm $H_2S$ resistant standard, 500 ppm $H_2S$ resistant optional
- Hazardous area : CSA approved Class 1 Div. 1 Group BCD
- Fully Programmable alarm logic with relay contacts
- Isolated 1-5V or 4-20mA output user selectable
- 10 user-selectable analog output ranges
- Complete ModBus RTU supported over RS485
- Data logging of oxygen readings, temperature
- Calibration factor indicates remaining sensor life

## MODEL 2001RS

- Trace oxygen from 0.05 ppm up to 25.0%Vol.
- Ultra-fast come-down sensor
- Positive pressure sample
- Sensor sealed off on power failure : protects against air contamination
- Fully Programmable alarm logic with relay contacts
- Isolated 4-20mA output
- 10 user-selectable analog output ranges
- Complete ModBus RTU supported over RS485
- Data logging of readings, temperature
- Calibration factor indicates remaining sensor life

## MODEL 221R

- Waterproof enclosure may be washed down
- Provides a warning alarm at 19.5%Vol. / 20.0%Vol.
- Alarm set points set per OSHA standards
- 10 year expected sensor life
- Virtually unaffected by temperature change
- Battery backed up against power failure
- 95dBA danger warning audible alarm
- Red backlit oxygen display
- Remote indication of readings and alarms
- UL 61010-1 approved and CE Marked for European use.

# Oxygen Analyzer for Combustion Efficiency

## เครื่องวิเคราะห์ก๊าซออกซิเจนสำหรับหม้อไอน้ำ

**Technical Specifications**

| | |
|---|---|
| Power supply | 24VDC ±10% Limited Power Supply |
| Power consumption | 700 mA maximum @ 24VDC |
| Analog outputs | Single or Dual 4 - 20mA |
| Measuring ranges (oxygen) | 0 - 25% vol. $O_2$ |
| Output ranges (pressure) | 750 - 1,260 mbar absolute |
| Relays (SPST, N/O as std.) | 1 x system alarm (SPST) |
| | 1 x user configurable $O_2$ set point alarm |
| Digital communications | RS485 Modbus RTU protocol |
| Display | 16 character, 2-line, backlit |
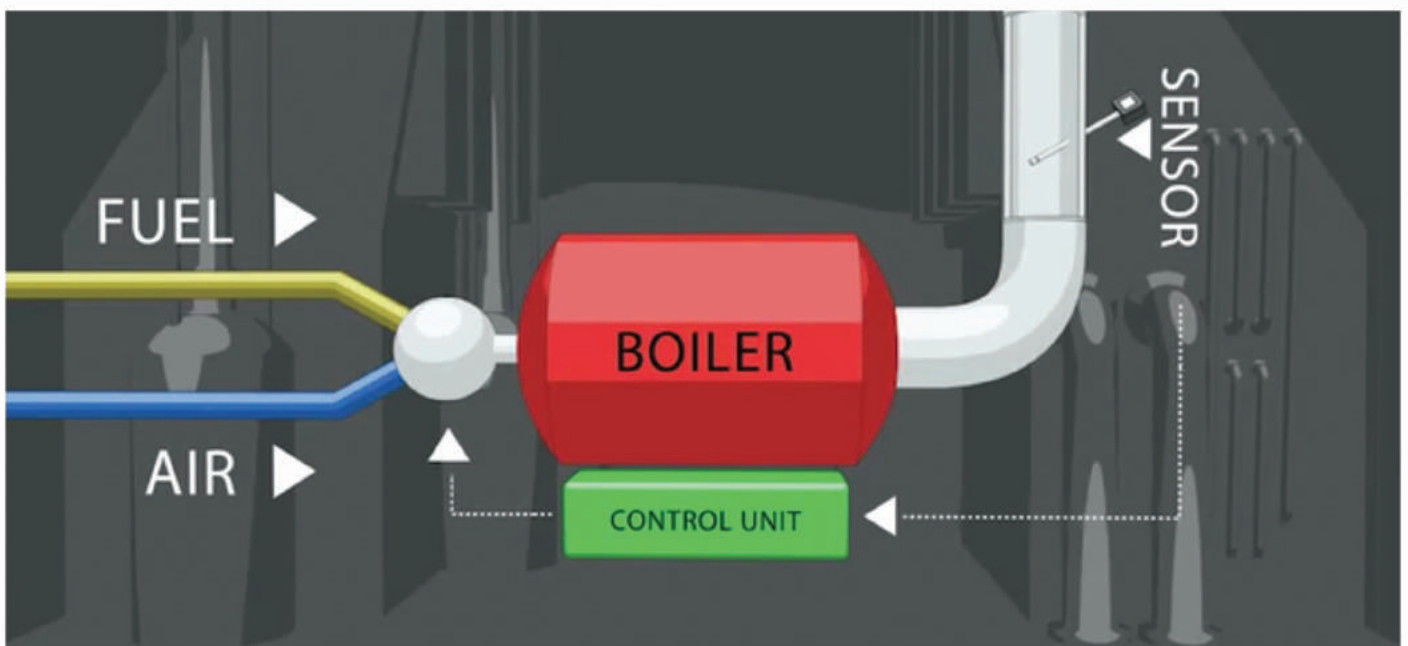
## Specifications

| Model | 5301 | 5501 |
|---|---|---|
| Size Range | 0.3 to 25 micron | 0.5 to 25 micron |
| Size Channels | Factory calibrated at 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm variable binning | Factory calibrated at 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm variable binning |
| Flow rates | 0.1 CFM (2.83 LPM | 0.1 CFM (2.83 LPM) |
| InternalVacuum Pump | Option | Option |
| Number of Channels | 6 | 6 |
| Communication Modes | Ethernet, USB | Ethernet, USB |
| Optional Communication | Wireless 802.11 RS485 or RS232 | Wireless 802.11 RS485 or RS232 |

# Pressure, Temperature and Level Transmitter

เซนเซอร์วัดแรงดัน อุณหภูมิของอากาศและของเหลว และเซนเซอร์ระดับของเหลว



มีรุ่นสำหรับใช้งานใน hazadous area

## TRANSMITTER FOR PRESSURE & TEMPERATURE ATM.1ST/T

Pressure Accuracy: ≤ ± 0.1 % FS
Pressure ranges from 1 to 360 psi
Temperature range: -40 to 300º F
Temperature Accuracy: ± 2º F
High overload: 3 x FS minimum
4-20 mA, 3 or 4 wire Output

## 4 - 20 mA PRESSURE TRANSMITTER ATM.1ST

Total Error Band: typical ≤ 0.3% FS
Compensated temperature: -40 to 255°F
Full scale ranges from 1 to 15,000 psi
Gauge, absolute or sealed gauge
Accuracies of ≤ ± 0.05 or 0.1% FS available
4 to 20 mA output

## 4-20 mA DEPTH / LEVEL TRANSMITTER ATM.1ST/N

Total Error Band: typical ≤ 0.3% FS
Fully submersible, 1" diameter
Ranges 20" WC to 360 psi
Titanium or 316L SS construction
Polyurethane cable - PE/FEP option
Many installation options available

# IoT-Enanble Architecture & Platform

IN ONE ARCHITECTURE

Eco Struxure™

Smart Struxure
BUILDING

Infra Struxure
DATACENTER

Power Struxure
POWER
DISTRIBUTION

Plant Struxure
INDUSTRY

Machine Struxure
INDUSTRY

**EcoStruxure Platform Capabilities**

These capabilities allow the discovery and onboarding of connected products, configuration, and messaging with device data; the ability to perform local analytics; and easy configuration and upgrades at a device level.
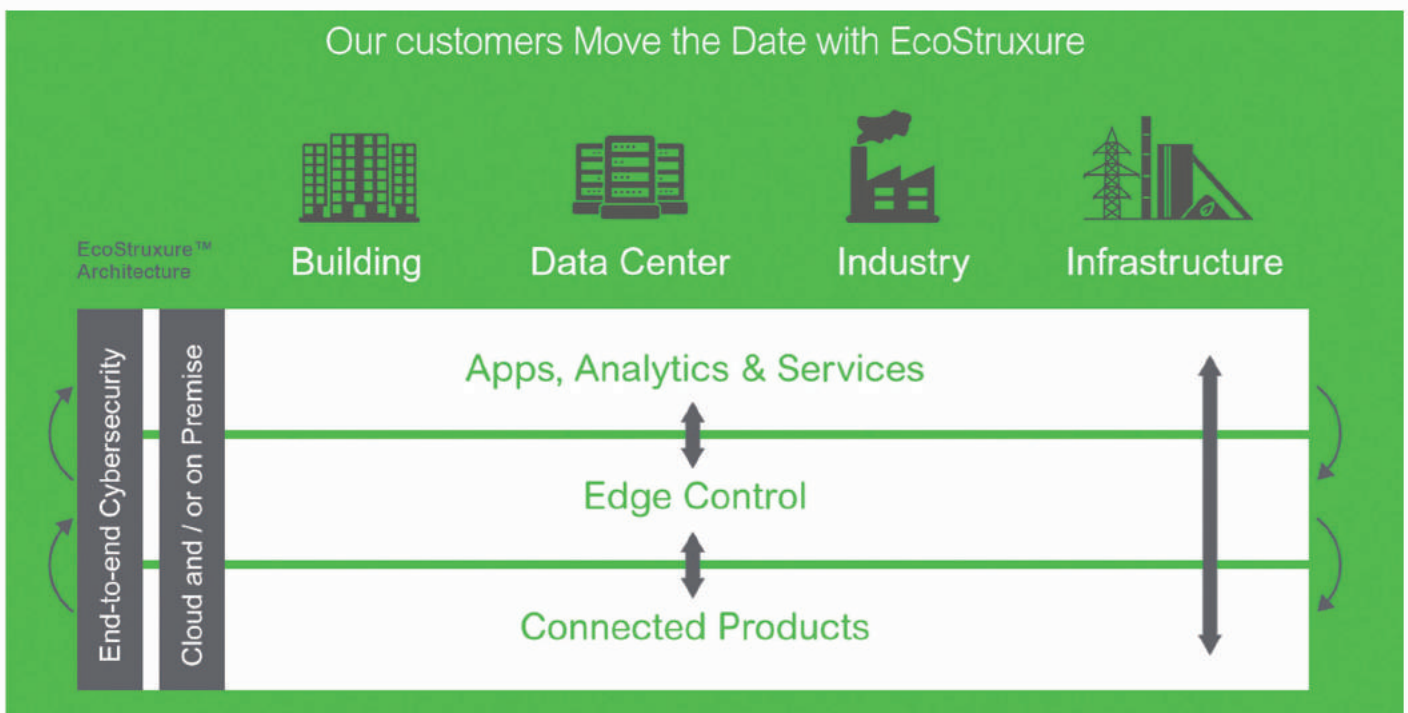
**Interoperable Foundation for Smart Operations**

This suite of hardware-agnostic connectivity functionality, drivers, tool kits, and templates enables customers to aggregate both process infomation and manufacturing and equipment data.

**Infrastructure for Clound-Connected Digital Services**

Powers the delivery of cloud-based connected apps, analytics, services for control, monitoring, remote connectivity, and asset management, all built on top of Microsoft Azure IoT suites. Schneider Electric leverages this infrastructure to deliver a full suite of high value-added digital services to our customers.

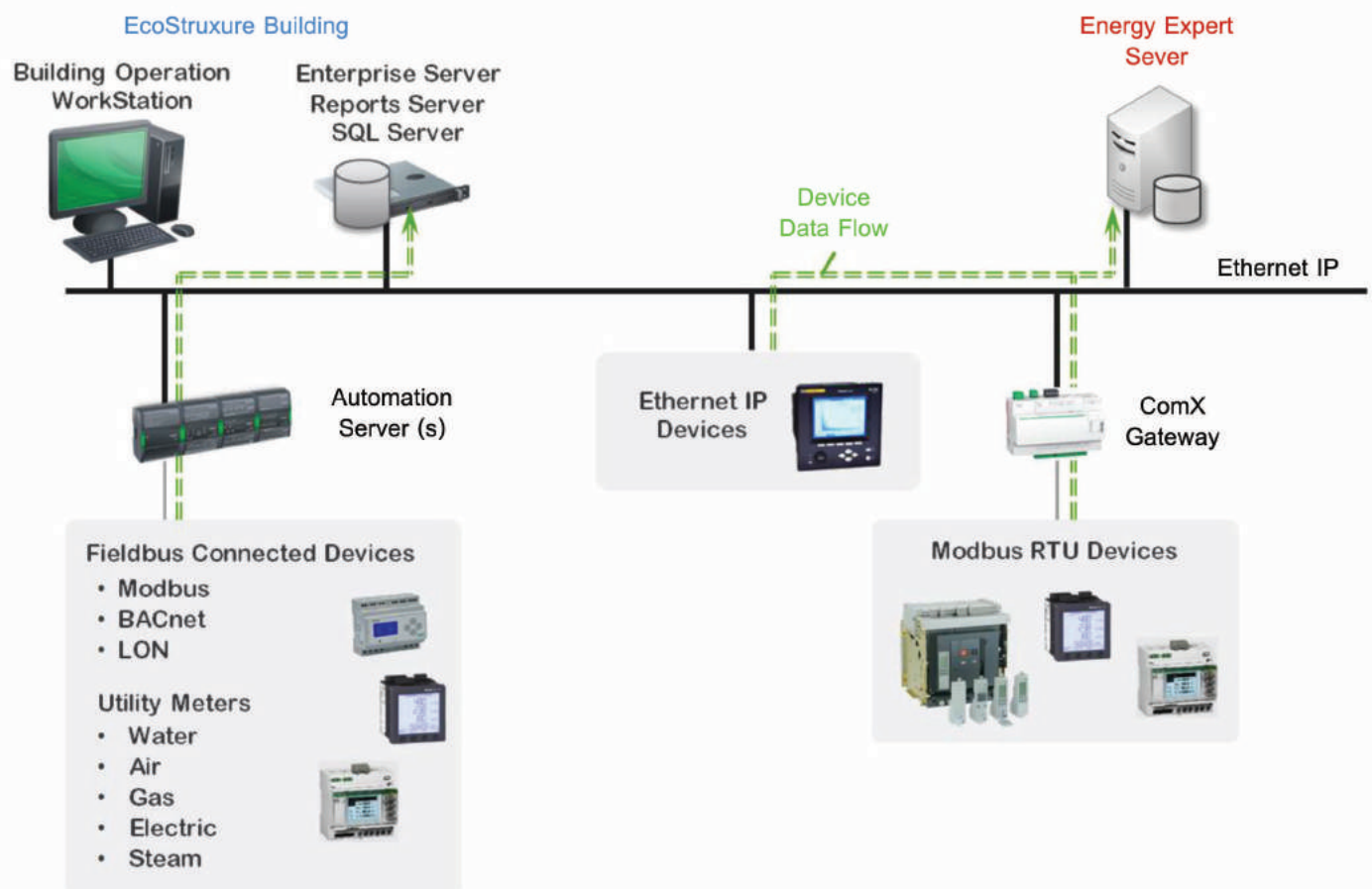## Our customers Move the Date with EcoStruxure

| | Building | Data Center | Industry | Infrastructure |
|---|---|---|---|---|

EcoStruxure™ Architecture

End-to-end Cybersecurity

Cloud and / or on Premise

Apps, Analytics & Services

Edge Control

Connected Products
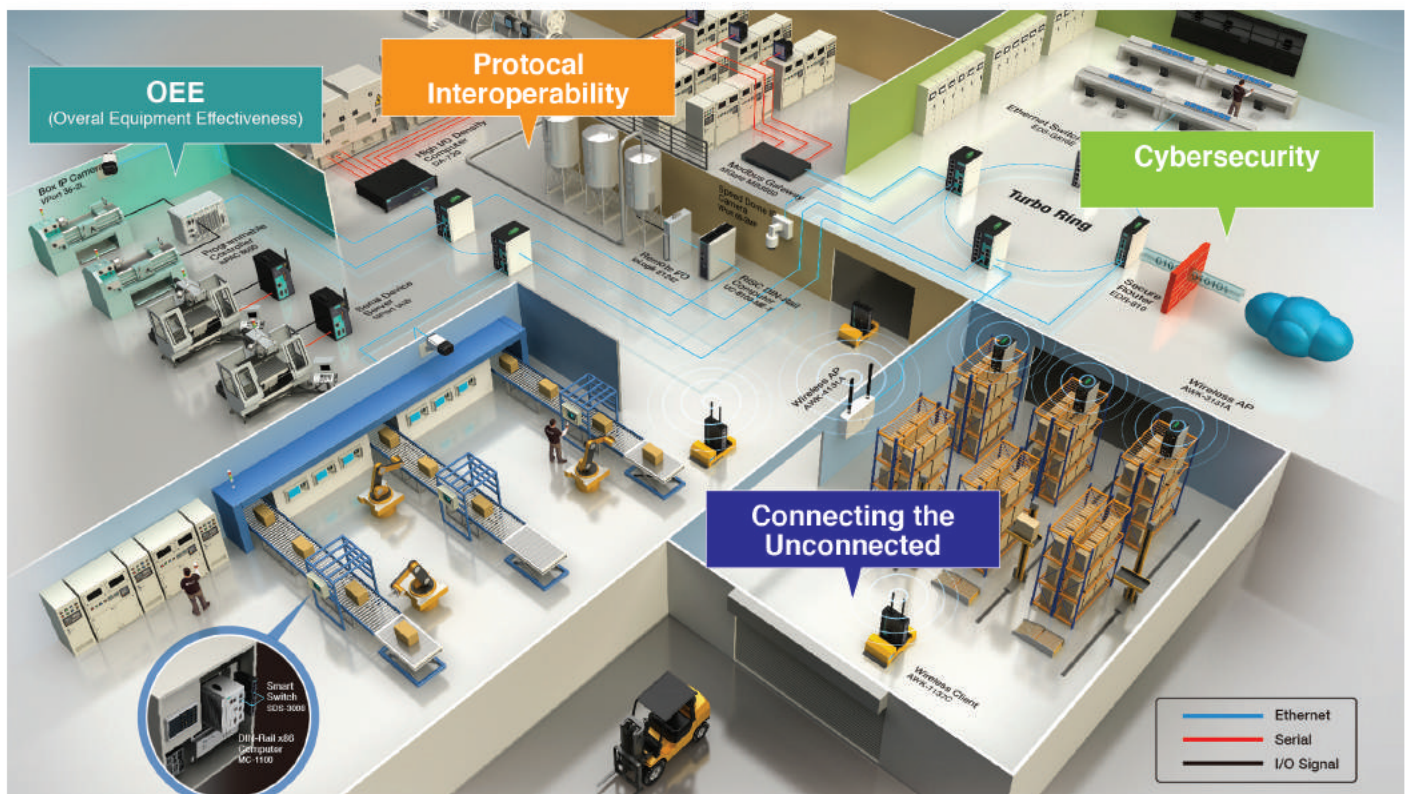
# Smart Energy Management for Any Size Buliding

Smart energy management for any size building is not only available.
It's scalable through Schneider Electric's building solution portfolio:

Simple, yet efficient HVAC management through application-specific room controllers.Wireless technology for central visibility of HVAC systems through EcoStruxure Building Expert.Integrated lighting control and occupancy sensors ensures proactive energy management. Visibility and control across your multi-site enterprise via cloud-based options. Scalability for seamless integration into larger building management systems.Field Services offers reporting, analytics and optimization strategies. Full integration of HVAC and lighting into a hotel's property management system for guestroom control.

**EcoStruxure Building**

**Building Operation WorkStation**

**Enterprise Server Reports Server SQL Server**

**Energy Expert Sever**

**Device Data Flow**

**Ethernet IP**

**Automation Server (s)**

**Ethernet IP Devices**

**ComX Gateway**

**Fieldbus Connected Devices**
- Modbus
- BACnet
- LON

**Utility Meters**
- Water
- Air
- Gas
- Electric
- Steam

**Modbus RTU Devices**

# Smart Factory Smart Connectivity
## Getting your data from the field to the cloud



**OEE**
(Overall Equipment Effectiveness)

**Protocal Interoperability**

**Cybersecurity**

**Connecting the Unconnected**

Ethernet
Serial
I/O Signal

## Industry 4.0 for Smart Connectivity in Factories

To increase production efficiency and reduce system downtime, smart factories rely on Industry 4.0 technology for connecting sensors and other devices to collect and analyze data and control equipment. As data accuracy is the key to achieving the goals of a smart factory, a reliable and secure data connection and acquisition infrastructure is a prerequisite. A smart factory solution must cater to the following four requirements :

• The ability to connect to all devices, including those that were not part of the traditional factory architecture
• Protocol interoperability among different devices
• Maximum protection against cyberattacks
• An architecture that maximizes overall equipment effectiveness (OEE)

## Technology Behind Our Solution

### Efficient OT/IT Protocol Interoperability

DNP3
PROFIBUS
SNMP
Modbus
PROFINET
Ethernet/IP

Multi-Protocol Support : I/O Data Acquisition and Protocol Conversion

ThingsPro

ThingsPro : Intelligent Data-Acquisition Solution

### Seamless Connectivity Solutions

Turbo Roaming
Seamless Wireless Connection

Turbo Roaming : Rapid Handover Time for WLAN Clients

AeroMag

AeroMag : Error-Free WLAN Configuration for Machines

### Protection of Critical and Secure Remote Access

IEC

MX-AOPC Suite : Active Data Acquisition and Automatic Data Integrity Check

Secure Remote Connection : Cloud-Bassed Connection Management Platform

### Overall Equipment Effectiveness (OEE)

MXAOPC
Active Data Acquisition Software

MX-AOPC Suite : Active Data Acquisition and Automatic Data Integrity Check

V-ON

V-On™ : Network Optimization for Non-Stop Operations in PLC Systems

As legacy field devices are most often not connected to the core network, system administrators need to visit the field site to maintain these devices manually, which makes system maintenance costly and difficult. Moxa's comprehensive solution that includes remote I/Os, industrial Ethernet switches and industrial wireless devices, ensures that all your devices with different communication needs can be connected and monitored

# Process Monitoring Solutions