XHE601 Gas Analysis and Sample System for Hydrogen Electrolyzers

Optimized Safety, Quality and Compliance

Safety, quality, and compliance in electrolyzer applications requires specialized gas analysis solutions. The XHE601 Electrolyzer Gas Analysis Solution is based on our unique and extensive experience in hydrogen electrolyzer and gas analysis applications, providing a complete standardized and customizable product that meets international safety and certification requirements whilst maximizing analyzer performance and serviceability.

Highlights

- Includes one Michell integrated analyzer
  - Thermal Conductivity Hydrogen Measurement (XTC601)
  - Paramagnetic Oxygen Measurement (XPM601)
  - Thermo-Paramagnetic Oxygen Measurement (XTP601)
- Designed for safe maintenance procedures including N_2 purge cycles
- Backed by our worldwide network of service professionals
- In-House Design and Certification Services
- Proven in use by key industry players
- Optimized gas analyzer performance
- Increased operation analyzer time and reduced service and calibration costs

Certification and Compliance Options

- Optional Safety Integrity Level (SIL) Capable Certification on Analyzer and Flow Meter
- Hazardous Area Certifications
  - Including ATEX, IECEx, N. American approvals
- Regular Witnessed In-House Factory Acceptance Testing in UK
- Comprehensive documentation including BS EN 10204 3.1 certificates and NACE MR0175 compliance
- Additional services including SIL and NRTL (OrdLoc) on request
- In-depth factory or field-based training and commissioning services on request

Comprehensive Electrolyzer Gas Analysis

The Michell XHE601 ensures controlled temperature and moisture content in the gas stream to the integrated Michell analyzer, providing durable and reliable measurements essential for quality, safety and process control.

With our range of analyzers, we offer solutions for:

- Oxygen in Hydrogen (O_2 in H_2)
- Hydrogen in Oxygen (H_2 in O_2)

Compatible Electrolyzer Applications

- **High-Pressure H_2 & O_2 Streams**

Suitable for alkaline, PEM and AEM electrolyzers.

- **Low-Pressure O_2 Streams**

Optimized for PEM electrolyzers

- **Saturated Streams**

Enhanced for SOEC electrolyzers

Integrated Michell Analyzer

The Michell XHE601 is available with one of three possible Michell Analyzers:

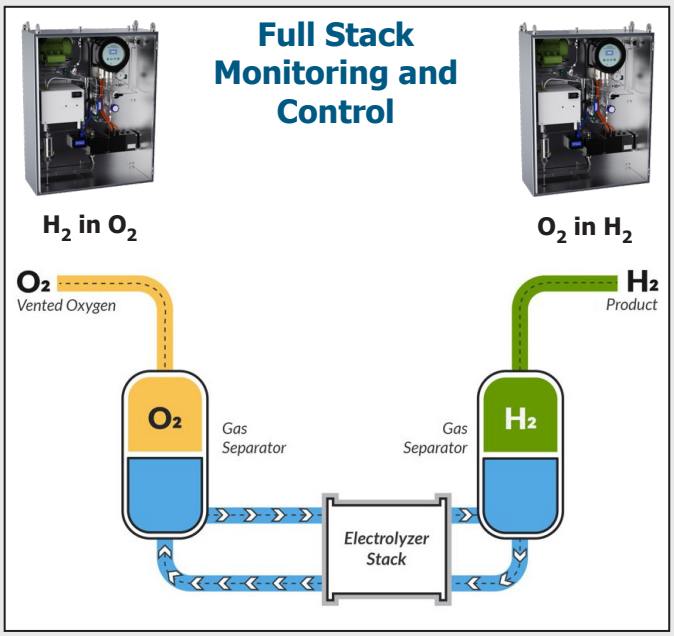
- XTC601 Thermal Conductivity Hydrogen Analyzer
- XPM601 Paramagnetic Oxygen Analyzer
- XTP601 Thermo-Paramagnetic Oxygen Analyzer

All analyzers are SIL capable.

Three industry-proven analyzers for reliable results:

Technical Features

- Integrated and optimized gas analyzer
- Filtration for gas sample with occasional liquid content
- 3-way valve for sample or calibration gas
- Stainless-steel tubing, fittings and analyzer mounting
- Top mount sample inlet
- Inlet pressure management
- Optional sample pump and sample cooling
- Optional enclosure heating / cooling



XTC601 Process Analyzer SIL
Now meets the requirements of IEC61508 SIL2

XTC601 H_2 in O_2

XPM601 Process Analyzer SIL
Now meets the requirements of IEC61508 SIL2

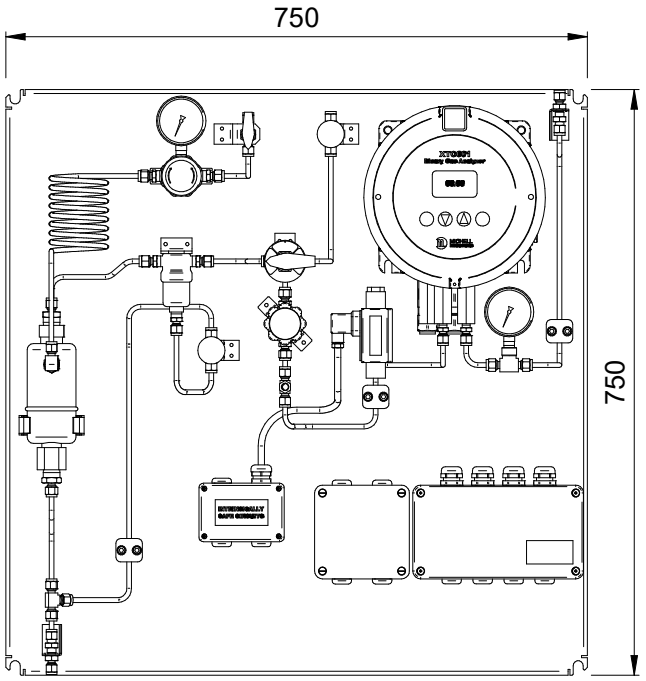
XPM601 O_2 in H_2 or N_2 (purge)

XTP601 Process Analyzer SIL
Now meets the requirements of IEC61508 SIL2

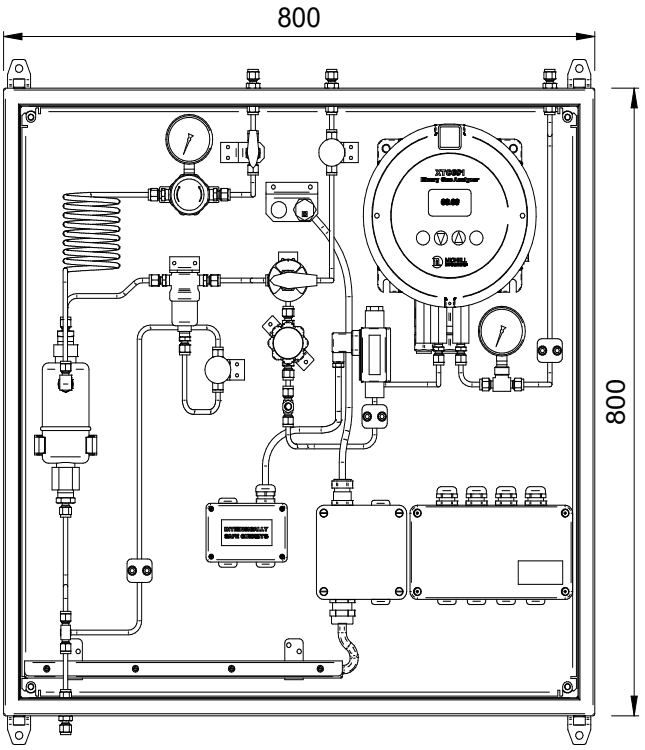
XTP601 O_2 in H_2

Product Dimensions

Indoor



Outdoor



Related Products

Easidew PRO XP

Explosion-Proof Moisture Transmitter

HyDetek

Turnkey Gas System for H2 Quality Control & Monitoring

Minox i

Intrinsically Safe Oxygen Transmitter

GPR-1800 (A)IS & GPR-2800 (A)IS

Trace and Ambient Oxygen Analyzers

Technical Specifications

Standard Specifications [Fully Customizable via our Dedicated System Engineering Teams]		
Dimensions	From 750 x 750 mm to 1000 x 800 mm	
Materials	High-quality 316 stainless steel components Optional BS EN 10204 3.1 material certificates	
Operating Pressure	Low Pressure	<0.5 barg with Ex-rated pump
	Standard Pressure	1...18 barg
	High Pressue	18...50 barg
Temperature Control	Optional Peltier sample cooler Optional Ex-rated thermostatic enclosure heater Optional Ex-rated thermostatic enclosure cooler (max 45 °C ambient)	
Flow Monitoring	Optional SIL2 capable flowmeter and flow alarm	
Process Connections	Metric or Imperial tubing and fittings	
Enriched O_2	Optional O_2 cleaning for enriched O_2 applications	
H_2 in O_2 Specifications * (XTC601)	Typical Range	0...5 %
	Accuracy	0.1 %
	Response Time	<10 s
O_2 in H_2 Specifications * (XTP601 & XPM601)	Typical Range	0...5 %
	Accuracy	XTP = 0.01 %; XPM = 0.1 %; Minox-i = 0.03 % (@ 1 %)
	Response Time	<10 s

* See analyzer datasheet for complete specifications

Analyzer Specifications			
Analyzer	**XPM601 Oxygen Analyzer**	**XTP601 Oxygen Analyzer**	**XTC601 Hydrogen Analyzer**
Measurement Technology	Paramagnetic Oxygen Sensor	Thermo-paramagnetic Oxygen Sensor	Thermal-Conductivity Sensor
Target Gas	Oxygen	Oxygen	Hydrogen
Background Gas	Hydrogen or Nitrogen	Hydrogen	Oxygen
Measurement Range	Up to 5 % O_2	Up to 5 % O_2	Up to 5 % H_2
Display Resolution	0.01 % O_2	0.01 % O_2	0.01 % H_2
LDL (Sensitivity)			
Intrinsic Error (Accuracy)	< ± 0.1 % O_2	< ± 0.05 % O_2	< ± 0.1 % H_2
Repeatability	< ± 0.012 % O_2	< ± 0.02 % O_2	< ± 0.02 % H_2
Zero Stability	± 0.25 % of range per month	± 0.25 % of range per month	± 0.25 % of range per month
Range Stability	± 0.25 % of range per month	± 0.25 % of range per month	± 0.25 % of range per month

Customization and Flexibility

The XHE601 offers a standard solution for many applications; it also serves as an ideal baseline for customized systems. Our in-house design and certification services allow us to tailor the XHE601 to specific requirements, reducing engineering, compliance and documentation costs as well as time.

Michell Expertise

With over 50 years' experience in gas analysis and sampling systems, we provide:

- Expertise in Electrolyzer Applications
- Global Service and Support
- Comprehensive Documentation

Technical Support and Service

Our global team of experts is available to provide technical support, service and training.

Contact Us

For more information or to discuss your specific requirements, visit www.ProcessSensing.com

Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.
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