# XMTCpro Process Gas Analysis

## XMTCPRO

**New Generation Thermal Conductivity Binary Gas Analyzer**


## USER BENEFITS

- Highly accurate and durable thermal conductivity sensor
- Compact design for cost-effective intergration into the process
- Intuitive operator interface
- MODBUS digital communication
- Minimal maintenance; user controlled

## HIGHLIGHTS

1 

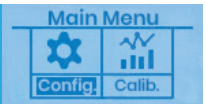
Functional safety, SIL2 by design

2 
Latest digital communication

3 
Status LED indicators

4 

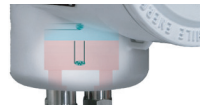
Multi-parameter display

5 

Menu structure, intuitive navigation

6 
Easy control under all conditions

7 
Certified for use in hazardous area environments

8 
Ultra stable sensor, no moving parts

## GAS ANALYSIS

Gases such as hydrogen, methane or carbon dioxide must be measured and continuously monitored in many processes, from explosion prevention to ensuring that process conditions meet the requirements for successful process operation.

## XMTCPRO

By combining proven thermal conductivity technology with enhanced performance, the XMTCpro delivers what customers really care about: accuracy, endurance, reliability and ease of use.

Thermal conductivity is the preferred technology for measuring concentrations in binary gas mixtures. This technology relies on each gas in a binary gas mixture having a different thermal conductivity.

Ultra-stable, temperature-controlled measuring elements reliably quantify one gas in a two-gas mixture or in a multi-gas (pseudo-binary) mixture

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where the thermal conductivity of the background is stable.

Safety requirements are stringent and space is at a premium in the critical applications where gas analyzers are commonly used. XMTCpro is innovative due to the combination of the SIL-rating, time-proven sensor performance, intuitive user interface, digital communication protocol, and compact explosion-proof housing.

XMTCpro users benefit of all these advantages in applications such as electrolyzer hydrogen and oxygen purity applications. The reliable measurements that the XMTCpro provides increase user's confidence in processes where stability, efficiency and safety are critical.

## INDUSTRIES

### Typical Applications

**Hydrogen Economy**
Hydrogen in various applications along the hydrogen value chain

**Industrial Gases**
Control of high-purity gases
Synthesis gas measurements

**Power Plant**
Hydrogen-cooled generators

**Metal Processing**
Monitor furnace atmospheres

**Natural Gas**
Measure methane and carbon dioxide at various points in the plant

**Refinery/Petrochemical**
Hydrogen in recycle gas
Steam methane reforming, CCUS
Hydrogen purity

**Landfill/Biogas**
Measure carbon dioxide in methane of raw gas and after separation

**Food/Beverage**
Carbon dioxide in fermentation processes

## SAMPLE SYSTEMS

**Save money and time with the right sample systems from the application experts.**

Sample systems are an essential piece of equipment for obtaining optimal information from your process analyzers. For customized design of your sample system, turn to Panametrics, the application experts with more than 60 years' experience in custom application engineering.

## BENEFITS:

Designed specifically to meet the needs of your Panametrics analyzer, Panametrics sample systems reduce cost and downtime by:

- Providing a properly-conditioned representative sample, for best measurement accuracy and reliability
- Extending analyzer life
- Minimizing analyzer maintenance and associated parts and labor
- Facilitating field calibration

# XMTCpro New Generation Thermal Conductivity Binary Gas Analyzer

Panametrics' XMTCpro is a compact, and robust analyzer with SIL 2 by design for continuous measurement of gas concentrations in binary gas mixtures, including hydrogen, carbon dioxide, methane, helium, and many others.

## KEY BENEFITS

Gases such as hydrogen, methane or carbon dioxide must be measured and continuously monitored in many processes, from explosion prevention to ensuring that process conditions meet the requirements for successful process operation. XMTCpro brings the user:

- Ultra-stable thermal conductivity sensor,
- Compact design for economic sample system integration
- Intuitive operating interface allows short learning curve, easy and flexible to use,
- Integrated high contrast, easy-to-read multiparameter display,
- MODBUS digital communication provides measurement and configuration data,
- High level of reliability with SIL 2 by design.

## MINIMAL CALIBRATION AND SERVICE

The XMTCpro is the most stable thermal conductivity analyzer on the market today. The rugged XMTCpro measuring cell resists contamination and remains insensitive to flow variations. Since the design uses no moving parts, the transmitter can easily withstand the shock, vibration and harsh environments found in many industrial applications. If the transmitter requires maintenance, its modular construction permits fast and easy servicing. Users can field-calibrate it quickly and replace the plugin measuring cell with a pre-calibrated spare in minutes.

**Sample system**

Sample systems deliver a clean, representative sample to the XMTCpro at optimal temperatures, pressures and flow rates.

Panametrics offers sample systems for a wide variety of applications. For assistance in designing your own sample system, please consult our application engineering team.

## APPLICATIONS

The stable and accurate thermal conductivity sensor, certified globally for use in hazardous area environments, make the XMTCpro the tool of choice for use in:

**Hydrogen Economy**

$H_2$ in various applications along the hydrogen value chain

**Metals industry**

$H_2$ in $N_2$ atmosphere in metal heat-treating furnaces

**Electric power industry**

$H_2$ in cooling systems for generators Petroleum industry

$H_2$ in hydrocarbon streams

**Chemical industry**

$H_2$ in $NH_3$ and in $CH_3OH$ synthesis gas

$H_2$ in chlorine plants

**Methane industry**

$CO_2$ in $CH_4$

**Landfill/biogas industry**

$CO_2$ in biogas

$CH_4$ in biogas

**Gas production industry**

Purity monitoring of Ar, $H_2$, N, and He

Food Industry

$CO_2$ in fermentation process

# XMTCpro New Generation Thermal Conductivity Binary Gas Analyzer

## PERFORMANCE

**Accuracy:** ±2% of span*
**Linearity:** ±1% of span
**Repeatability:** ±0.5% of span
**Zero Stability:** ±0.5% of span per week
**Span Stability:** ±0.5% of span per week
**Response Time:** 20 seconds for 90% step change

**Measurement Ranges**

- 0% to 1%
- 0% to 2%
- 0% to 5%
- 0% to 10%
- 0% to 25%
- 0% to 50%
- 0% to 100%
- 50% to 100%
- 80% to 100%
- 90% to 100%
- 95% to 100%
- 98% to 100%

**Measurement Gases (Typical)**

- $H_2$ in $N_2$, air, $O_2$ or $CO_2$ • He in $N_2$ or air
- $CO_2$ in $N_2$ or air
- $SO_2$ in air
- Ar in $N_2$ or air
- $H_2$/$CO_2$/air for hydrogen-cooled generators

**Required Sample Flow Rate**
0.1 to 4.0 SCFH (10 to 2,000 cc/min);
0.5 SCFH (250 cc/min) nominal

## FUNCTIONAL

**Functional Safety**
IEC61508 SIL 2 (optional)
**Analog Output**
Two 4 to 20 mA isolated, 550 Ω maximum load, fieldprogrammable
**Digital Output**
Modbus RS232/RS485
**Power**
24 VDC ±4 VDC, 1.2 A maximum
**Temperature**
Ambient Operating temperature range (2 options)
Option 1: -20°C to +50°C
Option 2: -5°C to +65°C
Storage temperature range: -20°C to +65°C

## PHYSICAL

**Sensor wetted materials**

- Standard: 316 stainless steel, glass and Viton® O-rings
- Optional: Hastelloy C276 and Chemraz® O-rings

**Dimensions**

- Wp. (H x D x W): 228 x 178 x 142mm (9 x 7 x 6in)
- Ex-proof (H x D x W): 252 x 178 x 142mm (10 x 7 x 6in)

**Weight**

- Aluminum version: 4.5kg / 9.9 lb
- Stainless Steel version: 11.0 kg / 24.2 lb

**Connections**

- 3/4 in NPT (electrical)
- 1/4 in NPTF (sample gas inlet/outlet)

**Environmental**

- IP66, Type 4X

**IECEx compliance**

- Ex db IIC T6 Gb,

Ex tb IIIC T78°C Db,
-20°C < Tamb < +65°C

**European Union compliance**

- EMC Directive 2014/30/EU
- ATEX 2014/34/EU: II 2 GD Ex db IIC T6 Gb, Ex tb IIIC T78°C Db, -20°C < Tamb < +65°C

**NEC/CEC**

- Cl I, II, III Div 1. Groups ABCDEFG, T6
- Cl I, Zn 1 AEx/Ex db IIC T6 Gb
- Cl II, Zn 21 AEx/Ex tb IIIC T78°C Db
- Cl I, II, III Div 2, Groups ABCDEFG, T6/T5**
- -20°C < Tamb < +65°C

* Accuracy may vary and depends on the gases and concentration ranges measured.
** T5 applies for higher max ambient temperatures (from +55°C to +65°C) for Division 2 (US/Canada).

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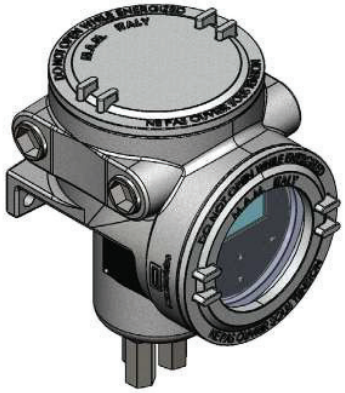
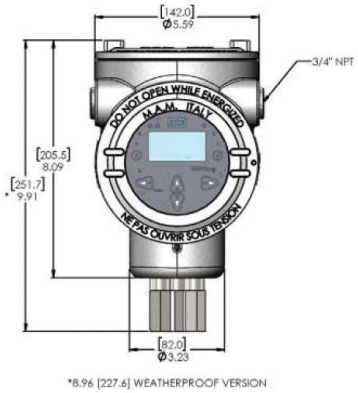
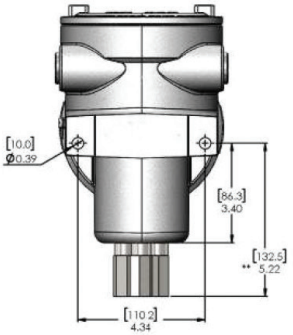
## ALUMINUM VERSION






*8.96 [227.6] WEATHERPROOF VERSION

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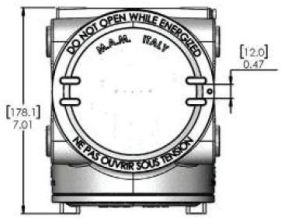


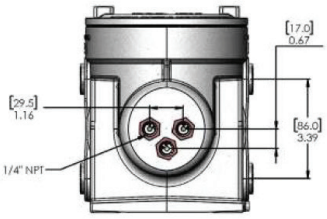


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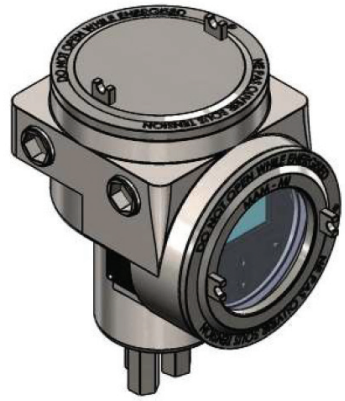
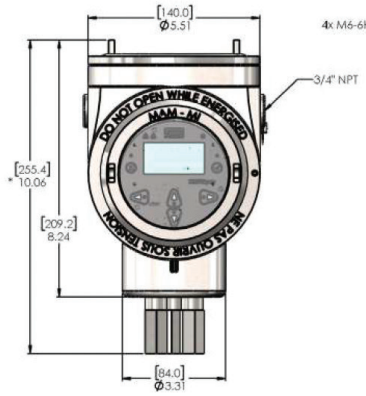
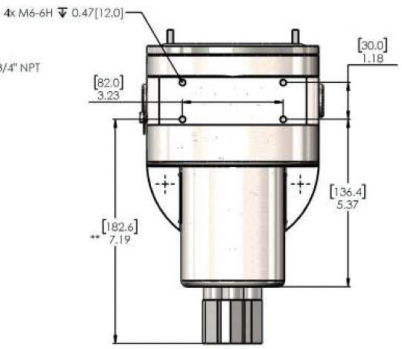





*9.11 [231.4] WEATHERPROOF VERSION

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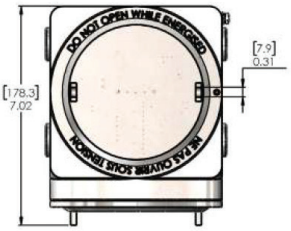


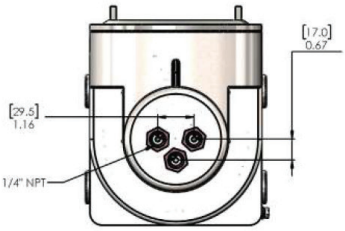


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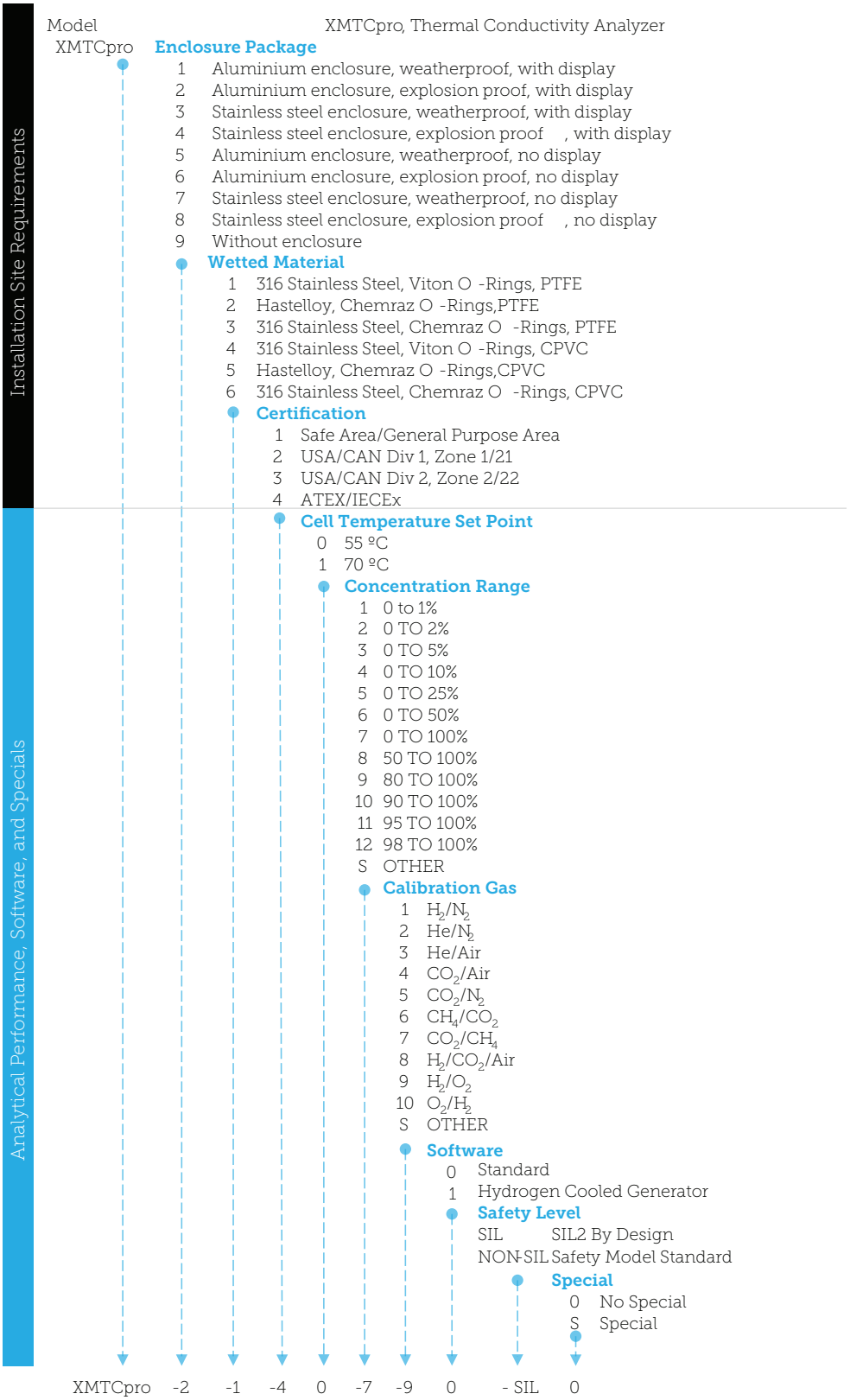
## ORDER AND CALIBRATION INFORMATION



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