

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

The XMTCPRO is available with an integrated display and intuitive user interface. The XMTCPRO also combines computer enhanced signal measurement for fastest response, real-time error detection, and MODBUS digital communication.

XMTCPRO brings the user:

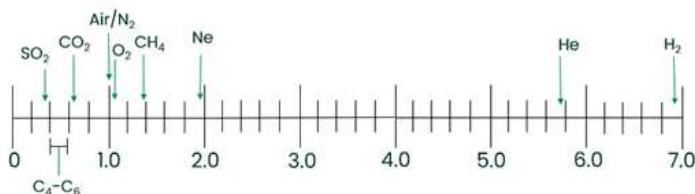
- Ultra-stable thermal conductivity sensor,
- Compact design for economic sample system integration,
- Intuitive operating interface allows short learning curve, easy and flexible to use,
- Integrated high contrast, easy-to-read multiparameter display,
- MODBUS digital communication provides measurement 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 plug-in measuring cell with a pre-calibrated spare in minutes.



Relative thermal conductivities of some common gases at 100°C (212°F). The XMTCPRO uses the difference in thermal conductivity of the sample gas compared to the background gas to determine its concentration.

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_2 , and He

Food Industry

CO_2 in fermentation process

Performance

Accuracy: $\pm 2\%$ of span*

Linearity: $\pm 1\%$ of span

Repeatability: $\pm 0.5\%$ of span

Zero Stability: $\pm 0.5\%$ of span per week
($\pm 1\%$ for 0-1% range)

Span Stability: $\pm 0.5\%$ of span per week
($\pm 1\%$ for 0-1% range)

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)

- H₂ in N₂, air, O₂ or CO₂
- He in N₂ or air
- CO₂ in N₂ or air
- SO₂ in air
- Ar in N₂ or air
- H₂/CO₂/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,
field-programmable

Digital Output

Modbus RS232/RS485

Power

24 VDC ± 4 VDC, 1.2 A maximum

Temperature

- -20°C to +50°C, Standard operating temperature
- -5°C to +65°C, High operating temperature
- -20°C to +65°C, Storage temperature

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

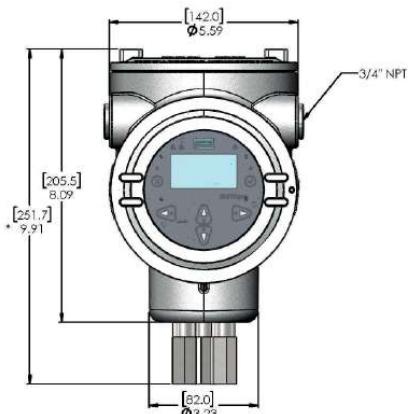
NEC/CEC

- 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

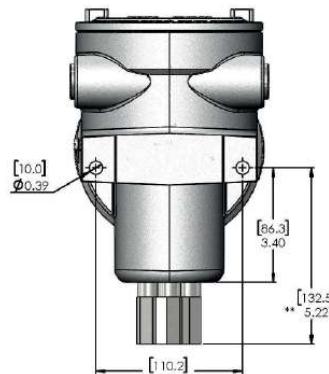
* Accuracy may vary and depends on the gases and concentration ranges measured.

** T5 applies for higher max ambient temperatures (from +55°C to +65°C) for Division 2 (US/Canada).

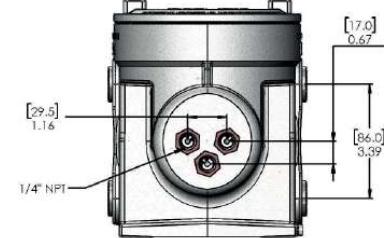
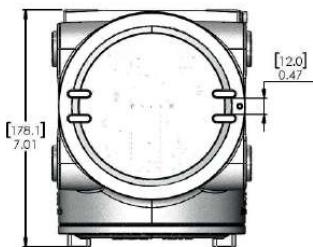
Aluminum Version



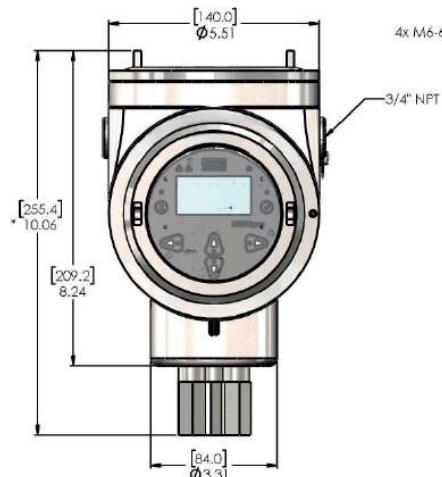
*8.96 [227.6] WEATHERPROOF VERSION



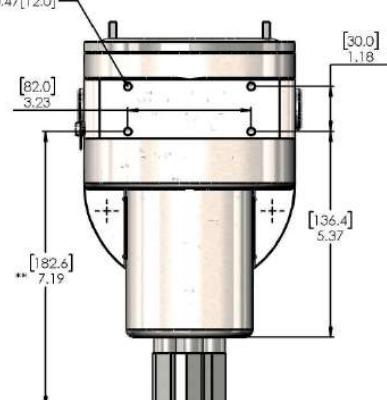
**4.27 [108.5] WEATHERPROOF VERSION



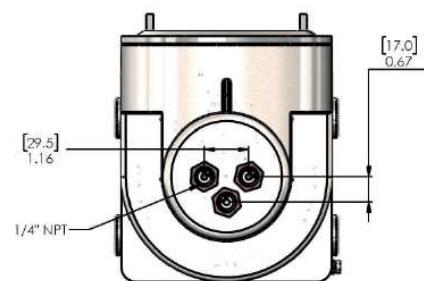
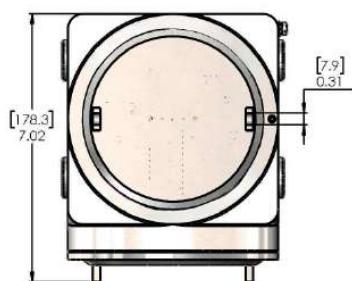
Stainless Steel Version



*9.11 [231.4] WEATHERPROOF VERSION



**6.24 [158.5] WEATHERPROOF VERSION



Order and calibration information

Model	XMTCP, Thermal Conductivity Analyzer									
	Installation Site Requirements									
XMTCP	Analytical Performance, Software, and Specials									
	1	Aluminium enclosure, weatherproof, with display								
	2	Aluminium enclosure, explosion proof, with display								
	3	Stainless steel enclosure, weatherproof, with display								
	4	Stainless steel enclosure, explosion proof, with display								
	5	Aluminium enclosure, weatherproof, no display								
	6	Aluminium enclosure, explosion proof, no display								
	7	Stainless steel enclosure, weatherproof, no display								
	8	Stainless steel enclosure, explosion proof, no display								
	9	Without enclosure								
XMTCP	Wetted Material									
	1	316 Stainless Steel, Viton O-Rings, PTFE								
	2	Hastelloy, Chemraz O-Rings, PTFE								
	3	316 Stainless Steel, Chemraz O-Rings, PTFE								
	4	316 Stainless Steel, Viton O-Rings, CPVC								
	5	Hastelloy, Chemraz O-Rings, CPVC								
	6	316 Stainless Steel, Chemraz O-Rings, CPVC								
	Certification									
	1	Safe Area/General Purpose Area								
	2	USA/CAN Div 1, Zone 1/21								
XMTCP	3	USA/CAN Div 2, Zone 2/22								
	4	ATEX/IECEx								
	Cell Temperature Set Point									
	0	Standard Operating Temperature								
	1	High Operating Temperature								
	Concentration Range									
	1	0 to 1%								
	2	0 TO 2%								
	3	0 TO 5%								
	4	0 TO 10%								
XMTCP	5	0 TO 25%								
	6	0 TO 50%								
	7	0 TO 100%								
	8	50 TO 100%								
	9	80 TO 100%								
	10	90 TO 100%								
	11	95 TO 100%								
	12	98 TO 100%								
	S	OTHER								
	Calibration Gas									
XMTCP	1	H_2/N_2								
	2	He/N_2								
	3	He/Air								
	4	CO_2/Air								
	5	CO_2/N_2								
	6	CH_4/CO_2								
	7	CO_2/CH_4								
	8	$H_2/CO_2/Air$								
	9	H_2/O_2								
	10	O_2/H_2								
XMTCP	S	OTHER								
	Software									
	0	Standard								
	1	Hydrogen Cooled Generator								
	Safety Level									
	SIL	SIL2 By Design								
	NON-SIL	Safety Model Standard								
	Special									
	0	No Special								
	S	Special								

XMTCP -2 -1 -4 0 -7 -9 0 - SIL 0

Panametrics, a Baker Hughes business, provides solutions in the toughest applications and environments for moisture, oxygen, liquid and gas flow measurement.

Experts in flare management, Panametrics technology also reduces flare emissions and optimizes performance.

With a reach that extends across the globe, Panametrics' critical measurement solutions and flare emissions management are enabling customers to drive efficiency and achieve carbon reduction targets across critical industries including: Oil & Gas; Energy; Healthcare; Water and Wastewater; Chemical Processing; Food & Beverage and many others.

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