HIGH ACCURACY

measurement instruments

PRODUCT DATASHEET

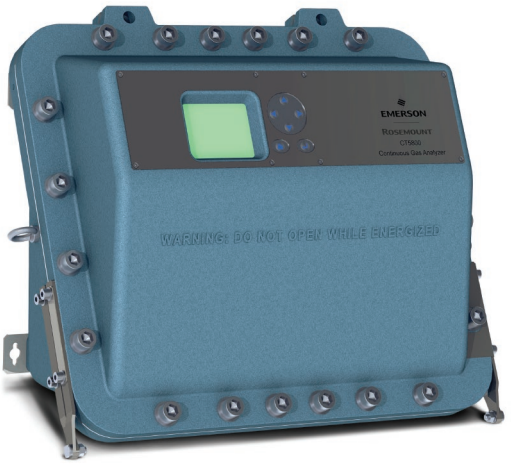
www.high-accuracy.com

Rosemount™ CT5800

Flameproof Process Gas Analyzer

The Rosemount™ CT5800 Flameproof Process Gas Analyzer is the first Quantum Cascade Laser (QCL) analyzer designed for industrial process applications requiring Class I, Division 2 hazardous area certification.

Built within a flameproof enclosure, the Rosemount CT5800's unique cell design enables high accuracy measurement of concentrations of impurities down to low ppm levels in the gas streams, and is ideal for hydrogen purity, nitrogen purity, and ethylene purity applications. With up to six laser modules housed inside the same enclosure, the Rosemount CT5800 analyzer can measure up to twelve components simultaneously, greatly reducing the need for multiple analyzers.



Rosemount CT5800 Flameproof Process Gas Analyzer

Features and benefits

Multi-component QCL analyzer

- Measures up to twelve gases simultaneously
- Accurate and sensitive gas measurements
- Excellent linearity of response and repeatability
- Low long term drift minimizes calibration intervals
- Low maintenance and low lifetime costs
- Continuous health diagnostic reporting
- Embedded ARM processor for fully autonomous operation
- Intuitive simple front panel user interface allows access to all instrument functions

Field serviceable and field configurable

- Interchangeable modular configuration for up to six lasers

Hazardous certification

- Europe: ATEX II 2G Ex d IIB+H2 T4
  IECEx: IECEx SIR 17.0026X ATEX: Sira 17ATEX1094X
- North America: Class I, Division 2, groups B, C, D

Engineered sample handling systems

A process gas analyzer is only as good as the quality of the sample it measures, which is why Emerson™ provides custom-engineered sample handling systems designed to the meet the application's specifications and rigorously tested before they ship to the customer.

Applications

Process gas stream purity applications including:

- Hydrogen purity
- Nitrogen purity
- Ethylene purity
- Natural gas purity

Specifications

Table 1 - Rosemount CT5800 Flameproof Process Gas Analyzer

Specifications	
Value	
Application	Flameproof Process Gas Analyzer
Measurement technique	IR absorption spectroscopy
IR source	QCL / TDL up to 6
Laser classification	Class 1 BS EN 60825-12007: Safety of laser products Equipment classification and requirements (identical to IEC 60825-1:2007)
Performance	
Repeatability	±1 % of measurement or limit of detection (LOD) whichever is greater
Linearity	$R^2 > 0.999$
Measurement rate	1 Hz (up to 10 Hz on request)
Environmental	
Ambient temperature	-20 to 55 °C (-4 to 131 °F)
Sample gas temperature range	4 to 60 °C (39 to 140 °F)
Humidity range	10–95 %, non-condensing
Protection class	IP66/NEMA® 4X
Hazardous area classification	Europe: ATEX II 2G Ex d IIB+H2 T4 North America: Class I, Division 2, Groups B, C, D, T4
Certification number	IECEx: IECEx SIR 17.0026X ATEX: Sira 17ATEX1094X
Communications	
Analog signal out	4–20 mA (one per measurement)
Digital signal out	Modbus® over TCP/IP or RS-232
Health monitoring	Digital healthline (one per measurement) or NAMUR status report
Inlet gas port connector	6 mm (¼ in.) Swagelok® type (specify on order)
Outlet gas port connector	6 mm (¼ in.) Swagelok type (specify on order)
Electrical Rating	
Power supply	120 Vac 60 Hz / 240 Vac 50 Hz 200 V/A
Mechanical	
External dimensions (closed)	694.5 x 292 x 515 mm 27.34 x 11.5 x 20.28 in. (nominal dimensions)
External dimensions (open)	694.5 x 292 x 1047.5 mm 27.34 x 11.5 x 41.24 in. (nominal dimensions, front panel at lowest point)
Front panel swept radius	545 mm 21.46 in. (nominal dimension, 180° arc)
Weight	80 kg 176.37 lb (approximate weight)
Installation	Wall mount

Table 2 - Measurement Performance - Ethylene Production Purity

Measurement Range In Ethylene				
	Component	**Range (1)**	**LOD (2)**	**UOM**
Process control	Methane	0–1000	5	ppmv
	Acetylene	0–20	0.2	ppmv
	Ethane	0–500	5	ppmv
	CO	0–5	0.05	ppmv
	CO_2	0–100	0.05	ppmv
Adders for product certification	Ammonia	0–20	0.2	ppmv
	H_2S	0–50	2	ppmv
	Water	0-10	0.1	ppmv
	Methanol	0-100	1	ppmv

(1) Components and ranges are indicative. Analyzer requirements will depend on complete gas list. Detailed specs will be provided during the ordering process.

(2) Repeatability is ±1 % of reading or the Limit of Detection (LOD), whichever is greater.

Table 3 - Measurement Performance - Hydrogen / Nitrogen Purity

Component		**Measurement Range**		
Name	**Symbol**	**Range**	**LOD**	**Repeatability (1)**
Carbon monoxide	**CO**	0–5 ppm	0.05	±1 %
Carbon dioxide	**CO_2**	0–5 ppm	0.02	±1 %
Water	**H_2O**	0–10 ppm	0.1	±1 %
Methane	**CH_4**	0–50 ppm	0.5	±1 %
Ammonia	**NH_3**	0–10 ppm	0.05	±1 %

(1) Repeatability is ±1 % of reading or the Limit of Detection (LOD), whichever is greater.

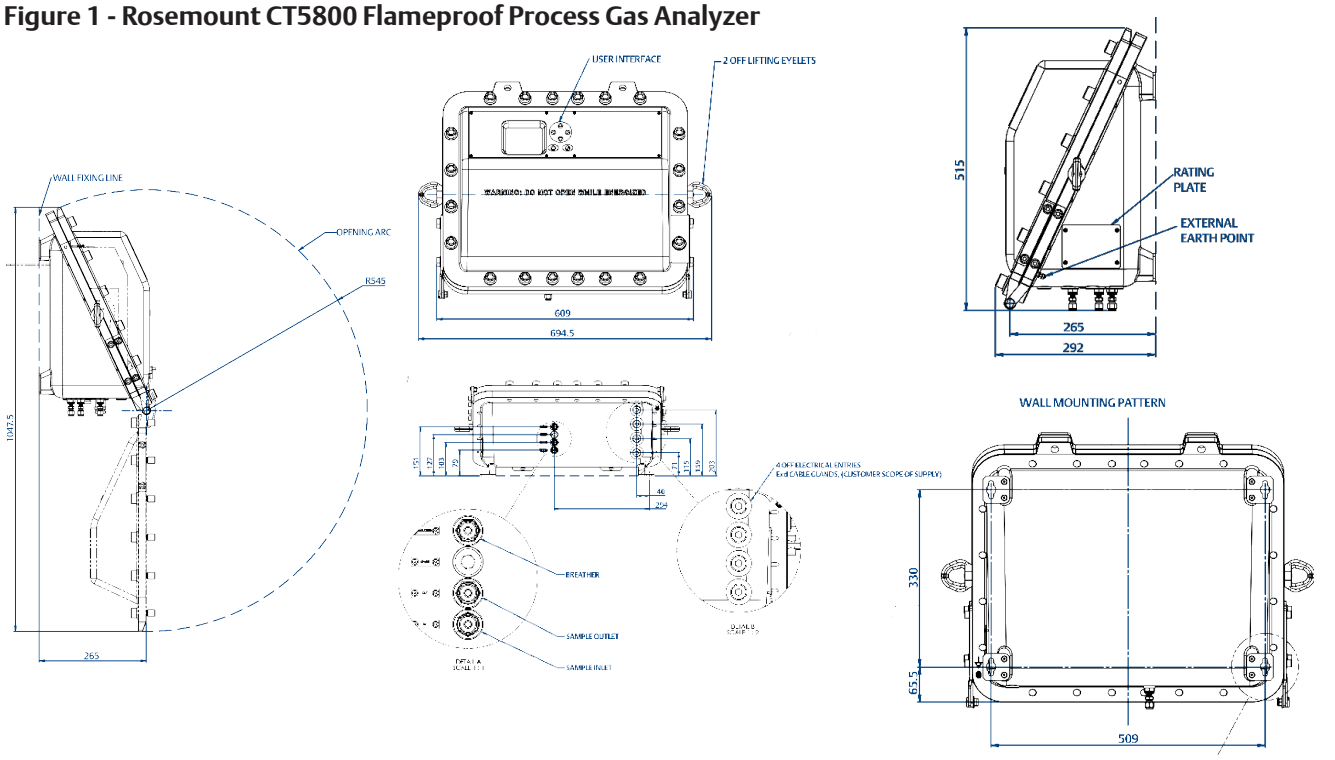
Other gases and ranges are available on request. The ranges and detection limits provided indicate typical analyzer performance but may change depending on your application. Please contact Rosemount for more information.

Recommended installation

The drawings below represent the minimum recommended installation guidelines for the Rosemount CT5800 Flameproof Process Gas Analyzer.

Please consult Rosemount for detailed installation recommendation of your application.

Figure 1 - Rosemount CT5800 Flameproof Process Gas Analyzer



YouTube.com/user/RosemountMeasurement

Twitter.com/Rosemount_News

Analyticexpert.com

Facebook.com/Rosemount

North America
Emerson Automation Solutions
10241 West Little York, Suite 200
Houston, TX 77040
Toll Free + 866 422 3683
T + 713 396 8880
F + 713 466 8175
QCL.CSC@Emerson.com

Cascade Technologies
Glendevon House
Castle Business Park
Stirling, FK9 4TZ
Scotland
T + 44 1786 447 721
F + 44 1786 475 822
QCL.CSC@Emerson.com

Middle East and Africa Regional Office
Emerson Automation Solutions
Emerson FZE
Jebel Ali Free Zone
Dubai, UAE
T + 971 4 811 8100
F + 971 4 886 5465
QCL.CSC@Emerson.com

Asia Pacific Regional Office
Emerson Automation Solutions
Asia Pacific Private LTD
1 Pandan Crescent
Singapore 0512
Singapore
T + 65 777 8211
F + 65 777 0947
QCL.CSC@Emerson.com

ROSEMOUNT™

EMERSON™

HIGH ACCURACY

measurement instruments

Our offering:

	Pressure Measurement		Level Measurement
	Temperature Measurement		Flow Measurement
	Marine Measurement & Analytical		Gas Analysis
	Liquid Analysis		Flame and Gas Detection
	Tank Gauging		Wireless Infrastructure
	Acoustic & Discrete	HIGH ACCURACY measurement instruments	

www.high-accuracy.com