ABB

NGC8106
Natural gas chromatograph

Measurement made easy

The NGC8106 is a field mounted GC capable of a C6+ natural gas analysis. By bringing real-time gas quality data closer to the wellhead, the NGC8106 is the perfect choice to replace automatic samplers.

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Innovations include:
- Compact design
- Extreme serviceability
- Low installation costs
- Low utility requirements
- Low maintenance
- Unmatched performance

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Simple, reliable, easy to service, low cost measurement

The NGC8106 is a field mounted GC capable of a C6+ natural gas analysis. By bringing real-time gas quality data closer to the wellhead, the NGC8106 is the perfect choice to replace automatic samplers. Not only will users enjoy real time measurement to correct their flow calculations, users will no longer have to deal with the cumbersome tasks of shipping samples and the sample handling errors that can result.

Real time measurement and heating value computation
ABB flow computers, analyzers and sensors customarily set defacto standards for natural gas custody transfer measurement. As an extension of the NGC8206, the NGC8106 introduces a new paradigm by allowing real-time measurement at lower volume stations where it was previously cost-prohibitive to put a GC.

The NGC8106 is a perfect replacement for automatic samples. The user will enjoy real-time data instead of monthly averages, and shipping and handling errors have been virtually eliminated. The NGC8106 is based upon the industry leading NGC8206 platform.

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Standard features

The NGC8106 performs on-site, real-time gas analysis and heating value computation. The 8106 can also be used as a total energy meter with the addition of a multivariable transmitter.

Modular design includes
- Modular software – application-based, plug-in software modules
- Manifold module (internal tubing now replaced manifold)
- Analysis section contains stream selection solenoids, pressure regulation, 32-bit digital detector electronics, and a single-train chromatograph in a single, replaceable module
- 32-bit digital, low power, controlling electronics. Using Windows CE® (internal to GC unit)
- Microsoft® Windows® 2000 or XP-based, remote user interface software
- Lithium battery-backed RAM
- Two remote serial digital communications ports; one local port
- Comprehensive diagnostics and wizards available to users
- Two-level security for user access control
- Audit-quality historical data; date and time stamped
- Operational alarms available with each analysis cycle
- Detectors - constant temperature, glass encapsulated thermister beads for rugged service and long life. Will not burn out on loss of carrier
- Valves have no moving metal parts
- Single stream - Manual Calibration
- On demand diagnostics
- Available standard sample conditioning system
- USB (host and client) and ethernet ports
- SD memory cards
- Optional Feed-through heater
- AGA3/AGA7 flow calculations
- API 21.2 compliant flow computer functionality

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Operator interface

Functional set up and operation of the NGC8106 is accomplished by using a graphical user interface software package called PCCU (supplied with each unit) operating on a laptop or workstation PC.

The Windows® utilities, combined with software designed specifically for the NGC8106, provide a powerful tool for operations, diagnostics, and downstream data handling.

The PC can be directly connected to the NGC8106 via an RS-232, USB, or Ethernet connection. The user is prompted through push-buttons, drop-down boxes, wizards, and dialog boxes for setup, operations, data collection, and monitoring.

In addition, the unit has a front panel display consisting of 6 LED's as status indicators:
• Normal
• Warning
• Fault
• Run
• Hold
• Warm-up

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Maintenance

The NGC8106 was designed from the ground up to be maintained by personnel with little or no prior knowledge of gas chromatography.

Both hardware and software are designed to provide low maintenance through easily replaceable electro-mechanical modules such as:
• Termination panel
• Analytical module, an easily removable chromatograph subassembly, containing: manifold, stream selector solenoid valves, GC valve assembly, dual electronic carrier pressure regulator valves, chromatograph pilot valve, and the analytical processor.
• Heated NGC8106 feed-through
• Sample conditioning module (SCM)
• Digital controller (32-bit Processor)

Other maintenance support features
• Intuitive local operator interface PCCU
• Diagnostic software and wizards for maintenance
• Digitized detector output (chromatogram) to PCCU
• Remote or local operation of PCCU
• Quick start guide, start-up manual

Historical data

The NGC8106 is designed to retain historical data. This data can be used for audit trails, maintenance, and troubleshooting to verify transmitter operation over time and provide a limited data backup for communication link reliability.

The user is allowed to configure the period of the data retained by the NGC8106 via the Operator Interface.

The default[1] memory configuration provides the most recent 480 analysis cycles containing:
- Stream averages for the (default[1]) 840 last hours, 35 last days and the most recent last month analyses. Operational parameters for the (default[1]) last 480 cycles (Diagnostics Report):
- Audit logs (default[1])
- Data retained by the NGC8106 can be collected via a remote communication link or by the laptop PC local operator interface PCCU.

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default[1]
The default memory configuration will provide for the data storage above. Users may reallocate the memory that is available.

Available accessories

- 120/240 Vac to 12Vdc GP and exp power supplies
- Pole or pipeline mounting kits
- Cold weather enclosure (also available in pipe mount configuration)
- Regulators (carrier and calibration blend)
- SD memory card
- Export crating
- Tool kit
- Various maintenance kits

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Specifications

Designed for gas streams with the following characteristics:
- Clean is defined as having no particles larger than 1 micron and no more than 1 milligram of solids per cubic meter of gas
- Dry is defined as no more than 7 psi of water per million cubic feet of gas
- Dry is also defined as having less than 0.1 ppm of liquid at the coldest ambient condition expected at the coldest point in the system (the liquid can be water, oil, synthetic lubricant, glycol, condensed sample, or any other non-vapor contaminate)
- Stable gas is defined as a vapor containing less than 0.1 ppm of liquid when the vapor is cooled to 10°C below the coldest ambient temperature possible at any point in the system
- Single stream capability. Manual calibration required

NGC8106 specifications	
Dimensions	6.75" diameter x 16" long x 9.00" tall 17.1 cm x 40.6 cm x 22.9 cm
Weight	Approximately 28 lb. / 12.7 Kg
Shipping weight	Approximately 47 lb. / 21.3 Kg
Weatherproof construction	NEMA/Type 4X/IP 56, aluminum alloy with white polyester powder coating
Carrier gas	Helium (consumption rate typically <20 cc/minute during analysis cycle)
Analysis time	Determined by application
Repeatability	± 0.025% @ ambient ± 0.05% over temperature
Temperature range (storage)	-22°F to +140°F (-30°C to 60°C)
Temperature range (normal)	0°F to 131°F (-18°C to 56°C)
Temperature range (cold weather enclosure)	-40°F to +130°F (-40°C to 55°C)
Supply voltage	10.5 to 16 V DC (Optional: 21 to 28 V DC)
Power consumption	@ 0°F (-18°C) Nominal: 7 Watts @ 15 V DC; 650 mA Start up: 45 Watts @ 15 V DC; less than 3 A
Certifications	NEC & CEC Class I, Div. 1, Groups B, C and D, T6: CFR 47, Part 15 C€: ATEX ⊛ II 2G : Ex d, IIB+H2 T6; Class I, Zone 1 EMC - EMI/RFI: EN 55022, EN 61000-6-1, EN 61000-4-2, 4-3, 4-4, 4-6, 4-8, CISPR 22-2004 IECEx Exd IIB + H2 T6; Class I, Zone 1
Communications supported	Two serial digital ports, software selectable for RS-232, RS-485, or RS-422. One USB MMI. USB hub (host and client) and Ethernet ports.
Protocols supported	OPC MODBUS ASCII or RTU MODBUS / TCP Server MODBUS / TCP Client

Sales

Service

Software

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Installation dimensions

15.6"
397.3 mm

12.51"
317.8 mm

3.1"
79.5 mm

3 - ¾" / 19.1 mm
NPT Conduit entries

6.6"
168.4 mm

5.8"
146.9 mm

1.7"
43.7 mm

7.5"
190.6 mm

2.4"
62.0 mm

2" / 50.8 mm
Pipe mount

Breather / drain

2.9"
73.66 mm

4.4"
112.5 mm

3.9"
98.6 mm

1.1"
28.2 mm

1.0" / 25.4 mm
NPT entry

Optional flange
mounting kit

External PCCU
flameproof
housing

9.5"
241.3 mm

8.8"
224.0 mm

4.0"
101.6 mm

2.0"
50.8 mm

3.0"
77.1 mm

3.8"
96.1 mm

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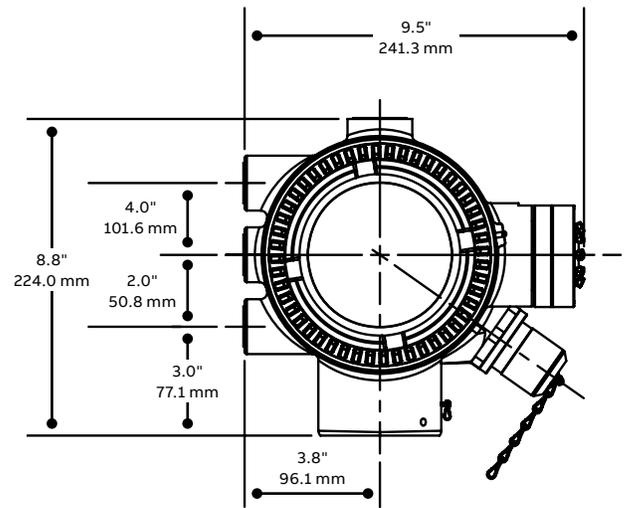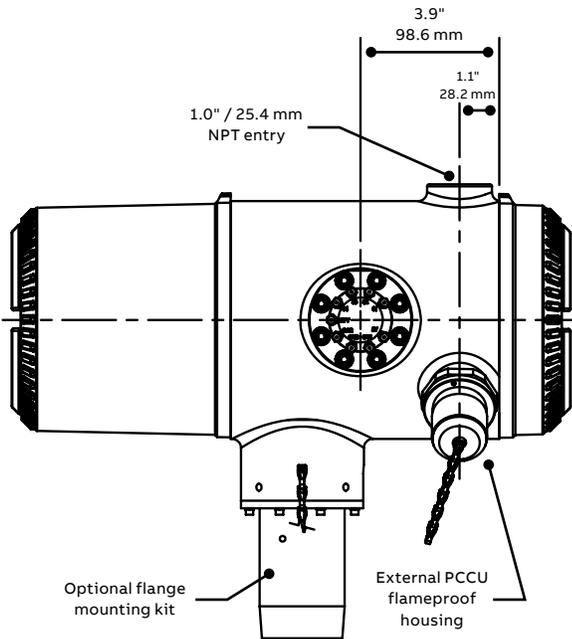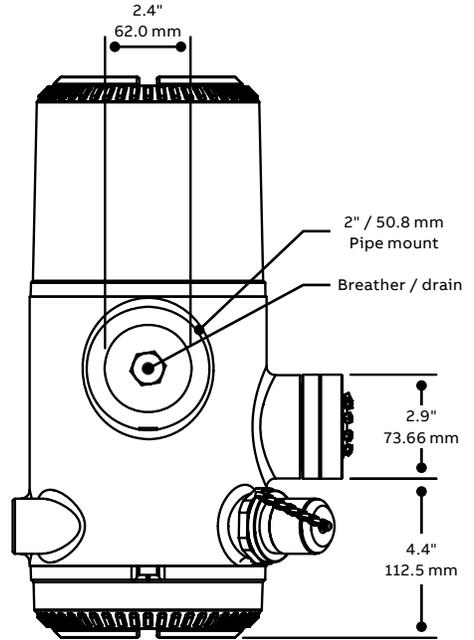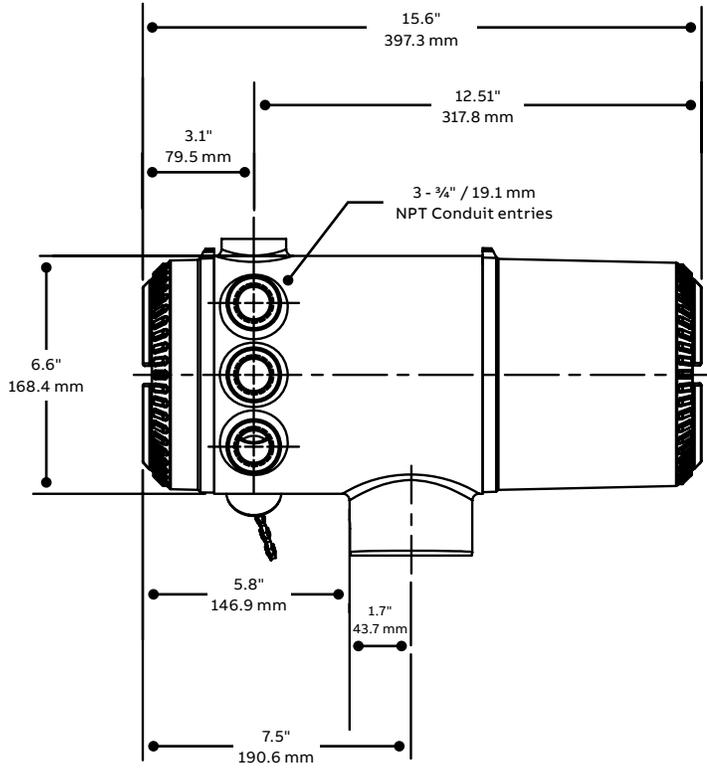
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