DATASHEET

Liquid and Gas Flow Computer for Quantum

PTQ-AFC

The PTQ Liquid & Gas Flow Computer Module is a Quantum® backplane compatible module that allows Quantum processors to easily support flow applications performing measurement of hydrocarbon gases or liquids using AGA 3, 7, 8 and API 2540 measurement standards.

The module calculates flow rates, accumulated volumes, accumulated mass and accumulated energy (heating value). The calculation results are transferred back to processor memory for use in the application ladder program or for transfer back to a SCADA host.

The PTQ-AFC Liquid and Gas Flow Computer has been approved by Industry Canada – Measurement for complying with Provisional Specifications and Procedures for the approval of Correction Devices and Linearization Functions Incorporated in Meters and Flow Computers.

Features	Benefits
Certified for Custody Transfer	♦ Gas measurement is accurate to the degree that it is Industry Canada Certified for custody transfer ♦ Assurance to users the flow computer's values can be used in the transfer of ownership applications
Automatic Flow Computer	♦ 16 meter runs with four streams per run ♦ Monitor each meter run (flow rates, accumulator values and other calculation results). All alarm data is displayed on the screen ♦ Download and view the archives and events ♦ Audit scan shows the process input variables and calculation results as "snapshots," allowing verification of the calculations ♦ Access Modbus Slave data (130,000 registers) and Virtual Modbus Slave data (20,000 registers) ♦ Remap Modbus data to optimize the data polling
Includes AFC Manager Configuration Software	♦ Configure, monitor, archive and view status from your desktop PC ♦ Modbus Master port can send Modbus commands to connected devices ♦ Precise configuration of meter types, streams, fluids and gases, component with high precision analysis ♦ Allows for meter proving with 4 configurable prover types (version 2.07.000 or higher)

Configuration

The AFC Manager is an easy-to-use Windows 98/NT/2000/XP based configuration, reporting, and monitoring tool provided with AFC modules. Project configurations may be uploaded, downloaded and saved to the PC under user selectable file names.

General Specifications

- Single Slot - Quantum backplane compatible
- The module is recognized as an Options module and has access to PLC memory for data transfer
- Configuration data is stored in non-volatile memory in the ProTalk® module
- Up to six modules can be placed in a rack
- Local rack - The module must be placed in the same rack as processor
- Quantum data types supported: 0x, 1x, 3x, 4x
- High speed data transfer across backplane provides quick data update times
- Does not currently support Hot-Standby processors or applications

AFC

The AFC module operates as a powerful flow computer module, augmenting the operation of the Quantum® processor by providing a dedicated and accurate set of flow calculations, the results of which are easily available to process monitoring and control applications developed on the Quantum platform.

The module is highly-configurable (see PSW-AFC), allowing each of the meter runs to be individually set up to meet the specific requirements of an application.

Configurable options

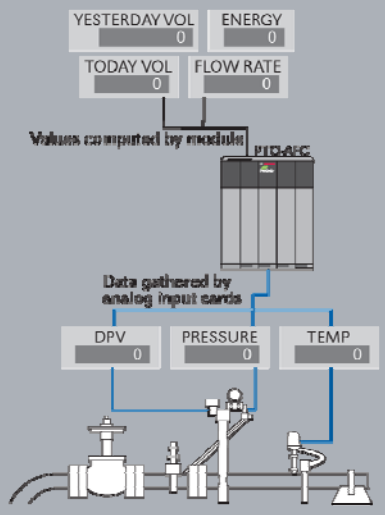
- Gas analysis concentrations for any or all 21 components
- Physical data for all meter runs including orifice and pipe diameters, selection of type of taps and tap location
- Reference pressure, temperature and local atmospheric conditions
- Default process and operating parameters including DP threshold for flow cutoff
- Metric or imperial units
- User selectable units for totalizers and flow rates on a per channel basis
- Resettable and/or non-resettable totalizers for every meter channel
- Process I/O: analog inputs (pressure, temperature, diff pressure) from analog modules and pulse inputs from pulse/frequency input modules in Quantum I/O rack
- Number of meter channels: 16 differential (AGA3) or linear (AGA7) Gas; MPMS 12.2 Liquid
- Number of streams per meter channel: 4 streams
- Calculation methods: AGA3-1992, AGA 7, AGA8-1992 (detail characterization method), API MPMS Ch12.2 API 2540
- Meter scan time under 1 second for all 16 channels
- Product measurement: hydrocarbon gases and liquids
- Data archiving: For each meter run, hourly for two days (48 records) and daily for one month (35 records) under default configuration, with optional extended archives up to 1440 hourly (60 days) and 1440 daily. Archive size and contents are fully configurable. All archived data is available in the onboard Modbus memory.
- Event log report for all security sensitive configuration data (for example, orifice diameter) are date and time stamped and mapped to the local Modbus memory map. This data can be imported into any spreadsheet program and saved to disk or printed as hard copy

Modbus interface

- The two Modbus slave ports allow the unit to be used as a SCADA interface and to broaden access to the AFC module's data table
- Either port may be configured for RTU or ASCII Modbus mode
- Modbus table may be re-mapped for user assigned contiguous register polling from a SCADA master (up to 20,000 registers)
- Port 3 can be configured as a Modbus Master port to poll data from a remote chromatograph device

ProSoft® TECHNOLOGY

Schematic



Functional Specifications

Data Exchange

Seamless data exchange between processor and Flow Computer with backplane compatibility

- Supports 16 meter runs with 4 streams per meter run for the measurement of hydrocarbon gases and liquids using currently accepted industry measurement standards
- Measurement standards supported: AGA 3, 7, 8 and API 2540
- Calculates flow rates, accumulated volumes, accumulated mass and accumulated energy
- Calculation results are transferred back to the processor memory or to a SCADA host
- User configurable allowing each of the meter runs to be individually set up to meet the specific requirements of an application

Archiving

Data archiving feature provides 35 regular daily, 48 regular hourly archives or a total of 1,440 daily and hourly extended archives per meter. Event logging feature provides storage up to 1999 events station-wide.

- Supports data archiving and event logging
- Two Modbus slave ports allow the unit to be used as a SCADA interface and to broaden access to the flow computer's data table
- Port 3 can be configured as a Modbus Master port to poll data from a remote chromatograph device

Additional Products

ProSoft Technology® offers a full complement of hardware and software solutions for a wide variety of industrial communication platforms. For a complete list of products, visit our web site at: www.prosoft-technology.com

Ordering Information

To order this product, please use the following:

Liquid and Gas Flow Computer for Quantum

PTQ-AFC

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to: www.prosoft-technology.com and select Distributors from the menu.

Place your order by email or fax to:

North American / Latin American / Asia Pacific
orders@prosoft-technology.com
fax to +1 661.716.5101

Europe / Middle East / Africa
europe@prosoft-technology.com
fax to +33 (0) 5.61.78.40.52

Hardware Specifications

Specification	Value
Backplane Current Load	1100 mA maximum @ 5 Vdc ± 5%
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Relative Humidity	5% to 95% (without condensation)
Vibration	Sine vibration 4-100 Hz in each of the 3 orthogonal axes
Shock	30G, 11 mSec. in each of the 3 orthogonal axes
Dimensions (HxWxD), Approx.	250 x 103.85 x 40.34 mm 9.84 x 4.09 x 1.59 in
LED Indicators	Module Status Backplane Transfer Status Serial Port Activity Serial Activity and Error Status
Debug/Configuration Port (Debug)	
CFG Port (DEBUG)	DB-9M PC Compatible RS-232 only No hardware handshaking
Application Ports	
Application Serial Ports (PRT1, PRT2)	DB-9M PC Compatible RS-232/422/485 jumper selectable RS-422/485 screw termination included RS-232 handshaking configurable 500V Optical isolation from backplane

Agency Approvals & Certifications

ANSI / ISA	ISA 12.12.01 Class I Div 2, GPs A, B, C, D
CSA/cUL	C22.2 No. 213-1987
CSA CB Certified	IEC61010
ATEX	EN60079-0 Category 3, Zone 2 EN60079-15
IC	Industry Canada Certification for Custody Transfer

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