DATASHEET

Liquid and Gas Flow Computer for CompactLogix®

MVI69-AFC

The Liquid & Gas Flow Computer Module is designed as an Integrated component for CompactLogix® systems to measure hydrocarbon gasses or liquids with accuracy and precision.

The flow computer calculates flow rates and accumulated totals of volume, mass, and energy (heating value) for specified liquids and gases. Selected calculated results are transferred to processor memory for use in the application ladder programs. A SCADA host may retrieve the same values through any of three front-panel Modbus serial ports.

Features	Benefits
8 Meter runs	♦ The module can calculate up to 8 meter runs with four streams per runs simultaneously, making it cost effective, since more meters can be connected to a single flow computer. ♦ Monitor gas and liquid meters for (flow rates, accumulator values and other calculation results). All alarm data is displayed on the AFC Manager screen ♦ The AFC Manager software provides ability to download and view the archives and events
Three Configurable Modbus Ports	♦ Change Configuration Online with no downtime ♦ All Data including configuration, calculated results, and historical records available using Modbus through any of the three ports. ♦ All ports can operate as Modbus slaves and one port can be configured as a Modbus Master
Customized Modbus Data Mapping	♦ Remapping to a virtual slave enables data concentration ♦ Data concentration reduces bandwidth load on the communication system
Auditability	♦ Audit Scan captures process inputs and calculated results as "snapshots", allowing verification of calculations. ♦ Event Log records significant events and alarms. ♦ Hourly and daily archives are configurable historical records of user-selected data. ♦ Using Modbus, Audit Scan, Event Log, and Archives, can be viewed online, printed, or saved to a file in .txt or .csv format.
Security	♦ Data download is secure with no data loss. ♦ Password protection schemes are available to control user access.

Configuration

The AFC Manager is a Windows 98/NT/2000/XP/Vista/7-based configuration, reporting, and monitoring tool provided with all AFC modules. Project configurations may be uploaded, downloaded and saved to the PC under user-selectable file names.

General Specifications

- Single-slot, 1769 backplane-compatible
- The module is recognized by the processor as an Input/Output module.
- The included sample ladder logic file is used for data transfer between module and processor.
- Configuration data can be downloaded over Modbus or delivered by user-defined ladder.
- Supports CompactLogix and MicroLogix 1500 LRP Controllers except 1769-L23E-QBFC1B, 1769-L16x, and 1769-L18x

Functional Specifications

The AFC module operates as a powerful flow computer module, augmenting the operation of the CompactLogix® processor by providing a dedicated and accurate set of flow calculations.

- Calculates flow rates, accumulated volumes, accumulated mass, and accumulated energy
- Calculation results are transferred to processor memory and may also be transferred to a SCADA host using Modbus.
- User configurable, allowing each of the meter runs to be individually set up to meet the specific requirements of an application

Archiving

- Supports data archiving and event logging
- Data archiving is available 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 1,440 hourly (60 days) and 1,440 daily. The actual number of archives is dependent upon the size set by the user for each archive type.
- Event logging feature provides storage of up to 1,999 station events.

Configurable Options

- User-selectable units for totalizers and flow rates on a per channel basis
- Roll-over value for resettable and non-resettable totalizers for every meter channel
- Process analog input units and ranges (pressure, temperature, differential pressure, density) from analog input modules and pulse inputs from pulse/frequency input modules in a CompactLogix chassis
- Fluid selection provides a choice of several liquid groups or gas measurement, using AGA or ISO calculations.
- Event log reports for all security-sensitive configuration data (for example, orifice diameter) are date and time stamped. This data can be saved to disk for importing into any spreadsheet or printed as a hard copy

Modbus Interface

- All three Modbus slave ports allow for SCADA communication and can be configured for RTU or ASCII mode.
- Modbus table may be re-mapped as a virtual Modbus slave for user-assigned contiguous register polling by a SCADA master (up to 20,000 registers).
- One of the three ports can be configured as a Modbus Master port to poll data from remote devices.

System Requirements - AFC Manager

This configuration software is designed for Microsoft Windows 98/NT/2000/XP/Vista/7. Minimum hardware requirements for a Windows 98 system are as listed below. More advanced operating systems have signifigantly higher minimum requirements regardless of AFC Manager minimum requirements.

- 100 MHz or faster Pentium PC
- 128 MB RAM
- DVD drive
- 100 MB available hard drive space
- Available RS-232 serial port and null modem cable

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 CompactLogix®

MVI69-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 *Where to Buy* from the menu.

Measurement Compliance Standards

- API MPMS Chapter 14.3 (AGA Report No. 3), 1992 ed.
- ISO 5167, Part 2, 2003 ed.
- AGA Report No. 7
- API MPMS Chapter 14.2 (AGA Report No, 8), 1992 ed., Detail Characterization Method (for compressibilities and densities) and Appendix C.3 (for energy content)
- API MPMS Chapter 14.9 (AGA Report No. 11) (Coriolis mass meters)
- AGA Report No. 9 (Ultrasonic meters)
- API MPMS Chapter 11.1, 2004 ed. (complete)
- API MPMS Chapter 11.2 (CPL for lower-density liquids)
- GPA Technical Paper 27 (CTL and density correction for lower-density liquids)
- GPA Technical Paper 15 (vapour pressure for lower-density liquids)
- API MPMS Chapter 12.2 (excluding provers)
- API MPMS Chapter 20.1 (measurement of liquids with high water content)
- API MPMS Chapter 21.1 (gases)
- API MPMS Chapter 21.2 (liquids)
- GPA 2145-03
- GPSA Engineering Data Book (SI)
- GPSA Engineering Data Book (FPS)

Hardware Specifications

Specification	Description
Dimensions	Standard 1769 Single-slot module
Current Load	800 mA max @ 5 VDC Power supply distance rating of 2 (L43 and L45 installations on first 2 slots of 1769 bus)
Operating Temp.	32°F to 140°F (0°C to 60°C)
Storage Temp.	-40°F to 185°F (-40°C to 85°C)
Relative Humidity	5% to 95% RH, with no condensation
LED Indicators	Battery and Module Status Application Status Serial Port Activity CFG Port Activity
CFG Port (CFG)	RJ45 (DB-9F with supplied cable) RS-232 only No hardware handshaking
App Ports (P1,P2) (Serial modules)	RS-232, RS-485 or RS-422 (jumper selectable) RJ45 (DB-9F with supplied cable) RS-232 handshaking configurable 500V Optical isolation from backplane
Shipped with Unit	RJ45 to DB-9M cables for each port 6-foot RS-232 configuration cable

Agency Approvals and Certifications

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