Liquid & Gas Flow Computer
MVI71-AFC

The MVI71-AFC module is the ideal solution for the many applications where hydrocarbon flow and SCADA communication must be added to the PLC platform. Applications using the MVI71-AFC module can be found mainly in the oil and gas industrial sectors.

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Liquid & Gas Flow Computer

MVI71-AFC
The MVI71 Liquid & Gas Flow Computer Module is a PLC backplane compatible module that allows PLC processors to easily support flow applications with 8 meter runs performing measurement of hydrocarbon gases or liquids using AGA 3, 7, 8 and API MPMS Chapters 11 and 12 measurement standards.

Features and Benefits
The MVI71-AFC is an in-rack Liquid & Gas Flow Computer Module for the PLC platform. The MVI71-AFC Flow computer module supports 8 meter channels for the measurement of hydrocarbon gases and liquids using currently accepted industry measurement standards.

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

General Specifications
- Single Slot – 1771 backplane compatible
- The module is recognized as an Input/Output module and has access to processor memory for data transfer between processor and module
- Ladder Logic is used for data transfer between module and processor.
- Configuration data obtained through user-defined ladder. Sample ladder file included

Hardware Specifications

Specification	Description
Form Factor	Single Slot 1771 chassis compatible BTR/BTW data transfer Local or remote rack
Backplane current load	800 mA @ 5 V
Operating temperature	0 to 60°C (32 to 140°F)
Storage temperature	–40 to 85°C (–40 to 185°F)
Shock	30g operational 50g non-operational
Vibration	5 g from 10150 Hz
Relative humidity	5 to 95% (non-condensing)

Specification	Description
LED Indicators	Module status Backplane transfer status Application status Serial activity and error LED status
Debug/Configuration port (CFG)	
CFG Port (P1)	RJ45 (DB-9M with supplied cable) RS-232 only
Configuration Connector	RJ45 RS-232 Connector (RJ45 to DB-9 cable shipped with unit)
Application Ports	
Application Serial port (P2, P3) (Serial Modules)	(2) RJ45 RS-232/422/485 Application ports

Functional Specifications

The AFC module operates as a powerful flow computer module, augmenting the operation of the PLC 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 in the PLC.

The module is highly-configurable, allowing each of the 8 meter runs to be individually setup to meet the specific requirement of an application. Some of the configurable parameters include:

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 etc.
- Reference pressure, temperature and local atmospheric conditions
- Default process and operating parameters such as DP threshold for flow cutoff etc.
- 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 PLC I/O rack
- Number of meter channels: 8 differential (AGA3) or linear (AGA7) Gas; API MPMS Chap. 11 & 12 Liquid
- Calculation methods: AGA3-1992, AGA 7, AGA8-1992 (detailed characterization method), API MPMS Chapters 11 & 12
- Meter scan time under 1 second for all 8 channels
- Product measurement: hydrocarbon gases and liquids
- Data archiving: Hourly for 2 days for each meter run (48 records per channel), Daily for 35 days (optional extended archives up to 1260 hourly and 350 daily). All archived data is available in the onboard Modbus memory map (archive size and contents are fully-configurable)
- 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.

Additional Products

ProSoft Technology offers a full complement of hardware and software solutions for a wide variety of industrial communication platforms.

Visit our web site at http://www.prosoft-technology.com for a complete list of products.

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