

# DATASHEET

## Liquid & Gas Flow Computer MVI56-AFC

The MVI56 Liquid & Gas Flow Computer Module is a ControlLogix® backplane compatible module that allows ControlLogix 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 the Processor memory for use in the application ladder program or for transfer back to a SCADA host.

The MVI56-AFC Liquid and Gas Flow Computer product 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 Custody Transfer	<ul style="list-style-type: none"> <li>Gas measurement is accurate to the degree that it is Industry Canada Certified for custody transfer</li> <li>Assurance to users the flow computer's values can be used in the transfer of ownership applications</li> </ul>
Licensed Backplane Technology	<ul style="list-style-type: none"> <li>Manufactured under license from Rockwell Automation®</li> <li>High-speed data transfer between MVI56 module and ControlLogix processor</li> </ul>
Automatic Flow Computer	<ul style="list-style-type: none"> <li>16 meter runs with four streams per run</li> <li>Monitor each meter run (flow rates, accumulator values and other calculation results). All alarm data is displayed on the screen</li> <li>Download and view the archives and events</li> <li>Audit scan shows the process input variables and calculation results as "snapshots," allowing verification of the calculations</li> <li>Access Modbus Slave data (130,000 registers) and Virtual Modbus Slave data (20,000 registers)</li> <li>Remap Modbus data to optimize the data polling</li> </ul>
Includes AFC Manager Configuration Software	<ul style="list-style-type: none"> <li>Configure, monitor, archive and view status from your desktop PC</li> <li>Modbus Master port can send Modbus commands to connected devices</li> <li>Precise configuration of meter types, streams, fluids and gases, component analysis</li> </ul>
Backed by ProSoft Technology®	<ul style="list-style-type: none"> <li>20-year history of delivering high-quality, reliable solutions designed with you in mind</li> <li>Free, unlimited, worldwide Technical Support by phone anytime for pre-sale, set-up, or troubleshooting support help you get going sooner and stay running longer</li> <li>Three-Year Warranty ensures reliability and protects against equipment failures</li> </ul>

### Configuration

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

## General Specifications

- Single Slot - 1756 backplane compatible
- Local or remote rack
- 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

## AFC

The AFC module operates as a powerful flow computer module, augmenting the operation of the ControlLogix<sup>®</sup> processor by providing a dedicated and accurate set of flow calculations. The calculated results are available to process monitoring and control applications through the ControlLogix processor memory or directly from the module Modbus port.

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

- 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
- Number of meter channels: 16 differential (AGA3) or linear (AGA7) Gas; MPMS 12.2 Liquid
- Number of streams per meter channel: 4 streams
- Product measurement: hydrocarbon gases and liquids

## Functional Specifications

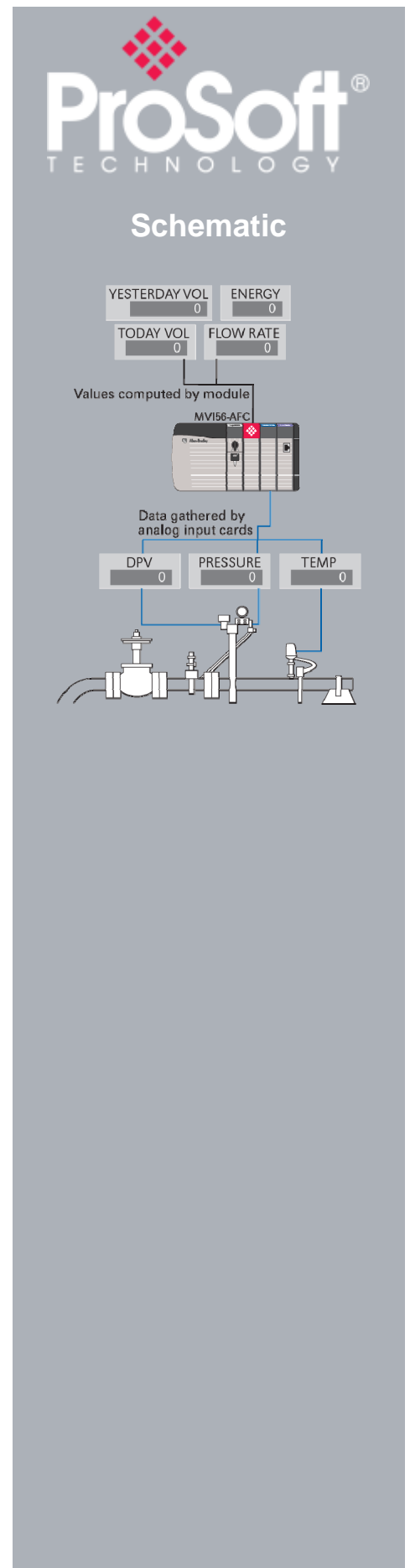
### Data Exchange

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
- Can be used in local or remote rack
- User configurable allowing each of the meter runs to be individually set up to meet the specific requirements of an application

### Configurable options

- 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 ControlLogix I/O rack
- 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
- 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

- Two Modbus slave ports allow for SCADA communication and the Modbus client can be configured for RTU or ASCII mode
- Modbus table may be re-mapped for user assigned contiguous register polling from a SCADA master (up to 20,000 registers)
- Additional Port can be configured as a Modbus Master port to poll data from a remote chromatograph device

## Archiving

- Supports data archiving and event logging
- 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.

## Hardware Specifications

Specification	Description
Backplane Current Load	800 mA @ 5 V DC 3mA @ 24V DC
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 10 to 150 Hz
Relative Humidity	5% to 95% (non-condensing)
LED Indicators	Module Status, Backplane Transfer Status, Application Status, Serial Activity
<b>Debug/Configuration port (CFG)</b>	
CFG Port (CFG)	RJ45 (DB-9M with supplied cable), RS-232 only
<b>Application ports (MODBUS 2 &amp; MODBUS 3)</b>	
Full hardware handshaking control, providing radio, modem and multi-drop support	
App Ports (MODBUS 2 & MODBUS 3)	RJ45 (DB-9M with supplied cable) RS-232, RS-485, RS-422 jumper selectable 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 Approval & Certification

ANSI / ISA	ISA 12.12.01 Class 1 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



243333



## 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.

## Ordering Information

To order this product, please use the following. If you are unsure which product to select, please contact your local distributor.

## Liquid & Gas Flow Computer

MVI56-AFC

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to <http://www.prosoft-technology.com>

Distributors:

Place your order by email or fax to:

North American / Latin American / Asia Pacific

[orders@prosoft-technology.com](mailto:orders@prosoft-technology.com),  
fax to +1 661.716.5101

Europe  
[europe@prosoft-technology.com](mailto:europe@prosoft-technology.com),  
fax to +33 (0) 5.61.78.40.52

Copyright © ProSoft Technology, Inc. 2009. All Rights Reserved.. February 24, 2009

Specifications subject to change without notice.