



## Micro MV

The Micro MV is a four meter bi-directional field mounted flow computer which can be used for all liquid and gas applications, including custody or non-custody measurement. The Micro MV is the most powerful flow computer of its kind and represents one of the latest advancements in operation, performance, and modularity.

The Micro MV has been designed to meet the requirements of a wide variety of specialized industries using a single hardware platform thus reducing spare parts requirements, training and calibration costs, and lowers the overall cost of ownership.

With over 5,000 units in operation worldwide, the Micro MV is indicative of Dynamic Flow Computers' intense commitment to our customer's needs and expectations. The Micro MV flow computer can be found operating under the most extreme conditions, including the hot Saudi Arabian desert, humid forests of Colombia, snow-covered valleys of Canada, and the corrosive salt air of offshore platforms. You can expect the Micro MV to be reliable under the rigors of any environmental conditions you can imagine.

All the standards of measurement for liquids or gas (API, AGA, ISO, NIST, etc.) are available in the Micro MV. We can also include special equations at the request of our clients.

### Standard Features

- Ultra low power (0.5 watts)
- 32-bit processor
- Touch screen interface
- Turbine diagnostics
- Battery backup/UPS
- Multiple I/O options
- Wireless Radio/Modem ready
- Gas chromatograph interface
- Custody transfer accuracy

### Field Applications

- Liquid and gas measurement
- Wellhead measurement & automation
- Custody measurement and control
- Compressor stations
- Well optimization
- PID control
- Liquid and gas pipelines
- Injection index testing

### Alternative Power Options

- Extended length battery backup
- Solar powered

### Communication Options

- RS232 Modbus
- RS485 Modbus
- Analog and Digital I/O
- Zigbee Wireless Radio
- FreeWave Wireless Radio
- DNP3
- Bluetooth

### Reports & Storage

- Hourly reports - up to 1536 hours\*
- Daily reports - up to 64 days\*
- Daily reports, hour by hour - up to 64 days\*
- Monthly reports - up to 6 months\*
- Monthly, day by day - up to 2 months\*
- Calibration reports - up to 20\*
- Audit reports - up to 100\*
- Alarm reports - up to 100\*
- Special reports - HTML and others

\*The number of reports stored can vary according to application.

The input/output assignment, flow equations, historical data storage, and other functions are carried out using Dynamic Flow Computers' DYNACOM® software. This software is Windows based, free of charge, and available for download/update at any time from our website.

**DYNACOM® Software Capabilities:**

- Flow computer diagnostics
- Configure inputs and outputs
- Configure PID control
- Personalize report time and content
- Configure and select the local LCD screen displayed parameters
- Reassign and customize MODBUS® registers and values
- Create and implement custom math and formulas
- Input and output calibration
- Automatic and periodic downloading of flow computer reports
- Obtain historic data for display, saving, exportation, or printing

**PHYSICAL SPECIFICATIONS**

Electrical/Conduit Connections	Two 3/4" NPT
Housing	Material: Copper-Free Aluminum Paint: Epoxy or Polyurethane Classification: NEMA 4X class 1 div. 1 – IP66
Display	Plasma; 4 lines x 20 characters each line with backlight; four non-intrusive keys for configuration, operation and calibration
Certifications	CSA for class 1, div. 1, groups B, C and D UL for class I, zone 1, AEx d IIB+H2
Temperature Limits	Operation: -40 to 185 °F (-40 to 85 °C) Storage: -50 to 190 °F (-46 to 87 °C)
Humidity	0 to 100% relative humidity

**ELECTRICAL SPECIFICATIONS**

Voltage	7 to 28 VDC
Power Consumption	0.5 watt
Solar Board (Optional)	10/20 watts, 12 volts
UPS (Optional)	2 day operation
Polarity	Reverse polarity protected
Processor	32 bits @ 16.7Mhz
Memory	2 MB, 35 day storage
Extended Memory (Optional)	128 MB virtual hard disk
Real Time Clock	Years/Months/Days/Hours/Minutes
Internal Battery	Lithium ion

**INPUT SPECIFICATIONS**

Optic Isolation	Each input is optically isolated with ±250 VDC chassis isolation
Analog Input	Four 4-20mA (or 0-5V) inputs (expandable to 9 inputs) Resolution 24 bits
Pulse/Frequency Input	Three inputs Square wave frequency range 0 - 6000 HZ Sine wave frequency range 0 – 1200 HZ Signal must be > 40 mV for sine wave Signal must be > 3 volts for square wave <i>Input 3 is for square wave only</i>

Digital/Switch Input	Four* (Software selectable to be input or output – see Digital Output) 7-28Vdc 0.25 Amp rating
RTD Input	Direct connection to flow computer uses two Analog Input channels 24 bit resolution

**OUTPUT SPECIFICATIONS**

Optic Isolation	Each output is optically isolated with ±250 VDC chassis/ground isolation
Digital/Switch/Pulse Output	Four* (Software selectable to be input or output – see Digital Input) 7-28Vdc 0.25 Amp rating On/Off or pulses (to 125 pulses/sec.)
Analog Output	One (Expandable to 4) 4-20mA (external power required) For PID control or for data transmission Resolution 16 bits

**COMMUNICATION SPECIFICATIONS**

RS485	Quantity 2 @ 1200 – 19200 bps
RS232	Quantity 1 @ 1200 – 19200 bps
Printer Port	Quantity 1
Protocol	MODBUS® RTU/ASCII, DPN3
Optional	Modem, Radio, Ethernet, Bluetooth

**DIAGNOSTIC SPECIFICATIONS**

Monitor/Alarm	Multivariable: P, DP, T Analog inputs/outputs Digital/switch Inputs Digital/switch outputs Pulse/frequency inputs Internal temperature Battery voltage Internal power supply
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**FLOW COMPUTATION SPECIFICATIONS**

Number of Trains	Four bi-directional (dependent on application)
Flow Calculation	Simultaneous gas and liquid
Primary Elements	Differential: Orifice, V-Cone, Wedge, Annubar, Venturi, etc. Pulse/Frequency: Turbine, PD, Vortex, Ultrasonic, etc.
Engineering Units	US and Metric
Base Conditions	60 °F, 14.7 PSIA (15 °C and 1 Kg. /Cm <sup>2</sup> ) 68 °F, 14.7 PSIA (20 °C and 1 Kg/Cm <sup>2</sup> )
Equations	AGA3, API14.3, AGA7, AGA9, API5.6, API5.7, AGA8 methods 1, 2, and detailed; API 2540; API11-2-1, 11-2-1M; 11-2,2, 11-2-2M; GPA15, 16; API2565; tables 5A,B; 6A,B,C; 23A,B,C; 24A,B,C; 53A,B; 54A,B,C; 23 and 24. Others added continuously, consult factory for complete list



### E2DAAA Upgrade

The 205 Multivariable Sensor is a 3-in-1 transmitter manufactured by Rosemount® for Dynamic Flow Computers. This sensor measures absolute/static pressure, differential pressure, and using an optional RTD, process temperature. These three process variables are available all the time and updates are sent to the flow computer up to NINE times per second.

The 205 Multivariable Sensor is a culmination of the vast technological experience that Rosemount® Inc. has in the multivariable field. It includes the well-recognized and tested 3051C technology using capacitive cells for differential pressure as well as a patented piezoresistive/silicon sensors for measurement of absolute/static pressures. The digital technology utilized in the production of the 205 module is the most advanced measurement technology on the market, assuring maximum

accuracy and rangeability. The extensive use of patented technology in the sensor's internal circuitry significantly reduces the size and weight of the 205 sensor.







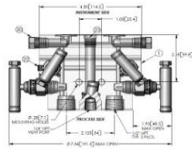
The 205 Multivariable Sensor measures three process variables at one time. It incorporates a capacitive differential pressure sensor, a piezoresistive absolute/static pressure sensor, and an optional connection for a two, three, or four wire RTD. The sensors convert the process variables to a digital format for direct communication with the Micro MV.

### 205 MULTIVARIABLE SENSOR SPECIFICATIONS

Sensor Accuracy	0205E: 0.100% Accuracy
Sensor Limits: Differential Pressure	<b>2: -250 to 250 in H2O (-0.622 to 0.622 bar)</b>
Sensor Limits: Static Pressure	<b>D: 0 to 3626 PSIG (0 to 25000 kPa)</b>
Isolator Material, Fill Fluid	<b>A: 316L SST, Silicone</b>
Flange Style, Material	<b>A: Coplanar, CS</b>
Drain/Vent Material	<b>A: SST</b>
Process Temperature Input	<b>0: Fixed Process Temperature Port (Boss), Cable/RTD not included</b>
Process Connection	<b>Two ¼"-18 NPT</b>

\* **Bold** indicates standard option offered by Dynamic Flow Computers.

## Micro MV Upgrade Options & Accessories

MVI	<p>Micro MV Analog Input Expansion Board</p> <ul style="list-style-type: none"> <li>* Adds Five 4-20mA or 0-5 VDC Analog Inputs (24 Bit)</li> </ul>	
MVO	<p>Micro MV Analog Output Expansion Board</p> <ul style="list-style-type: none"> <li>* Adds Three 4-20mA Analog Outputs (16 Bit)</li> </ul>	
RS-232E	<p>Upgrade Flow Computer with RS-232E Elbow Assembly</p> <ul style="list-style-type: none"> <li>* Plug and Play Serial Connectivity</li> <li>* Explosion Proof; Class 1, Groups B, C &amp; D</li> <li>* Wires into Primary (CPU) Serial Port</li> <li>* Serial Cable Is Not Included</li> </ul>	
L-Shaped Bracket	<p>SST L-Shaped Mounting Bracket</p> <ul style="list-style-type: none"> <li>* Mounts Flow Computer to 2" pipe</li> <li>* Includes Mounting Hardware</li> <li>* For Use with 205 Multivariable Sensor</li> </ul>	
Armored 12-08P-W	<p>Armored Cable w/ Temperature Sensor Assembly</p> <ul style="list-style-type: none"> <li>* 12' Armored Shielded Cable</li> <li>* Maximum 8" Immersion Length Sensor</li> <li>* PTFE insulated, nickel-coated, 22-gauge stranded copper wire</li> <li>* Plugs into 205 Multivariable Sensor (Boss)</li> <li>* 1/2" Male NPT RTD Gland for Thermowell Connection</li> <li>* Thermowell Not Included</li> </ul>	
Armored 12-08P-S	<p>Armored Cable w/ Temperature Sensor Assembly</p> <ul style="list-style-type: none"> <li>* 12' Armored Shielded Cable</li> <li>* Maximum 8" Immersion Length Sensor</li> <li>* Wires directly into flow computer via 3/4" NPT conduit entry</li> <li>* PTFE insulated, nickel-coated, 22-gauge stranded copper wire</li> <li>* 1/2" Male NPT RTD Gland for Thermowell Connection</li> <li>* Thermowell Not Included</li> </ul>	
MAN5NFC	<p>Five Valve Manifold</p> <ul style="list-style-type: none"> <li>* Inlet: 1/2" NPT Female</li> <li>* Outlet: Flange Type B IEC 61518</li> <li>* Material: ASTM A105</li> <li>* Max Pressure: 6,000 PSI (420 bar)</li> </ul>	
MAN5NFS	<p>Five Valve Manifold</p> <ul style="list-style-type: none"> <li>* Inlet: 1/2" NPT Female</li> <li>* Outlet: Flange Type B IEC 61518</li> <li>* Material: 316L Stainless Steel</li> <li>* Max Pressure: 6,000 PSI (420 bar)</li> </ul>	