



The Micro 100 is a three meter bi-directional field mounted flow computer which can be used for all liquid and gas applications, including custody or non-custody measurements. The Micro 100 flow computer is the most powerful flow computer of its kind and represents one of the latest advancements in operation, performance, and modularity.

The Micro 100 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 worldwide operation, the Micro 100 is indicative of Dynamic Flow Computers' intense commitment to our customer's needs and expectations.

The Micro 100 flow computer can be found operating under the most extreme conditions: the hot Saudi Arabian desert, the humid forests of Colombia, the snow-covered valleys of Canada, and the corrosive salt air of offshore platforms. You can be assured that the Micro 100 will be reliable under the rigors of any environmental conditions that you can imagine.

All the standards of measurement for liquids or gas (API, AGA, ISO, NIST, etc.) are available in the Micro 100. We also include special equations at the request of our clients. Here are just a few of the ways we have you covered:

### **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 chromatography interface
- Custody transfer accuracy
- Smart field I/O

### **Communications**

- RS232 Modbus
- RS485 Modbus
- Analog and digital I/O
- Zigbee wireless radio
- FreeWave wireless radio
- Bluetooth

### **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

### **Reports/Storage**

- Daily
- Hourly
- Monthly
- Monthly day by day
- Calibration and audit

### **Alternative Power**

- Extended length battery backup
- Solar powered

The Micro 100 flow computer has the capacity to handle up to THREE bi-directional gas or liquid measurement trains. Multiple equations are included among which are AGA3/API14.3, API5.7, API2540, AGA7, AGA9, with more being added continuously. The Micro MV AAA accepts any type of primary element: Venturi, Annubar, Turbine, PD, Ultrasonic, V-Cone, Wedge, Vortex, etc. Additionally, it can carry out density calculations according to the following standards: 5A,B; 6A,B,C; 23A,B,C; 24A,B,C; 53A,B; 54A,B,C; 23 and 24; API12, AGA8, NBS1048 for hydrogenate and oxygenate, NBS for steam, NBS1045 for ethylene, saturated and supersaturated steam, etc. Contact our offices or visit our website for available equation updates.

Another exceptional characteristic of the Micro 100 is its ability to communicate directly with a gas chromatograph via MODBUS® or proprietary protocol for highly precise flow measurements. It can also control pneumatic or electrical valves (on-off or variable by means of analog outputs or process PID control).

The display screen of the Micro 100 is four lines of twenty characters each. Process parameter values that are displayed on the screen are user-selectable and are alternately displayed, up to three at a time, at user-defined intervals.

The front of the Micro 100 includes four non-intrusive touch keys for configuration and operation of the flow computer. This design avoids violation of the area classification by allowing the user to interact with the flow computer without having to remove the cover.

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 on 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

Historic data is available in the memory of the flow computer for download or display.

#### **Maximum Report Storage:**

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

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

**PHYSICAL SPECIFICATIONS**

<b>Electrical/Conduit Connections</b>	Two 3/4" NPT One 1" NPT
<b>Housing (Flow Computer)</b>	Material: copper free aluminum Painting: epoxy or polyurethane. Classification: NEMA 4X class 1 div. 1 – IP66
<b>RTD Connection</b>	To flow computer terminal block
<b>Display</b>	Plasma; 4 lines x 20 characters each line. With back light; four non-intrusive keys for configuration, operation, and calibration
<b>Certifications</b>	CSA for class 1, civ. 1, groups B, C and D UL for class I, zone 1, AEx d IIB+H2
<b>Temperature Limits</b>	Operation: -40 to 185 °F (-40 to 85 °C) Storage: -50 to 190 °F (-46 to 87 °C)
<b>Humidity</b>	100%

**ELECTRICAL SPECIFICATIONS**

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

**INPUT SPECIFICATIONS**

<b>Optic Isolation</b>	Each input is optically isolated with $\pm 250$ VDC chassis isolation
<b>Analog Input</b>	Four 4-20mA (or 0-5Vdc) inputs (expandable to 9 inputs) Resolution 24 bits
<b>Pulse/Frequency Input</b>	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>
<b>Digital/Switch Input</b>	Four inputs (4 mutual contacts software selectable to be input or output – see Digital Output*) 7-28Vdc 0.25 Amp rating
<b>RTD Input</b>	Direct connection to flow computer (RTD connection to flow computer uses two of the analog input channels) 24 bit resolution

**OUTPUT SPECIFICATIONS**

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

**COMMUNICATION SPECIFICATIONS**

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

**DIAGNOSTIC SPECIFICATIONS**

<b>Monitor/Alarm</b>	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**

<b>Number of Trains</b>	Three bi-directional (dependent on application)
<b>Flow Calculation</b>	Simultaneous gas and liquid
<b>Primary Elements</b>	Differential: Orifice, V-Cone, Wedge, Annubar, Venturi, etc. Pulse/Frequency: Turbine, PD, Vortex, Ultrasonic, etc.
<b>Engineering Units</b>	US and Metric
<b>Base Conditions</b>	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> )
<b>Equations</b>	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

## Optional Accessories

Analog Output Expansion



Analog Input Expansion



RS-232 Elbow



SmartCone®



Armored RTD Cable



Solar Panel



Back-Up Battery

