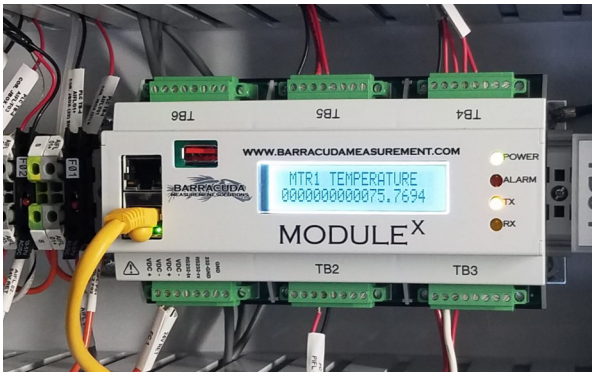
MODULE^{X}
Liquid flow computer

Accurate, Innovative, Simple



MODULE^{X} DIN rail mount computer

Flow Computer

The MODULE^{X} is a custody transfer capable, multi-stream, bi-directional 4 meter capable, batching flow computer.

This advanced flow computer was designed from the ground up as a modular system to simplify and improve the users interaction. Designed for flexibility the MODULE^{X} allows for complete customization in I/O functionality which results in cost savings for unneeded I/O or increases the ultimate usability of the flow computer. The flow computer also allows for expansion beyond capabilities of one single unit by linking multiple flow computers or stand alone expansion modules for greater capability.

The MODULE^{X} is capable of measuring up to 4 bi-directional meter runs. This is accomplished through the various available I/O function modules. With interface for digital and analog transmitters for differential and linear style meters.

The MODULE^{X} incorporates 5 card edge style peripheral module slots. These peripheral modules can be equipped in any order or quantity. The operating system at initial power-up detects the installed modules and flags the user as to their orientation in relation to the terminal blocks and their available functionality.

Applications

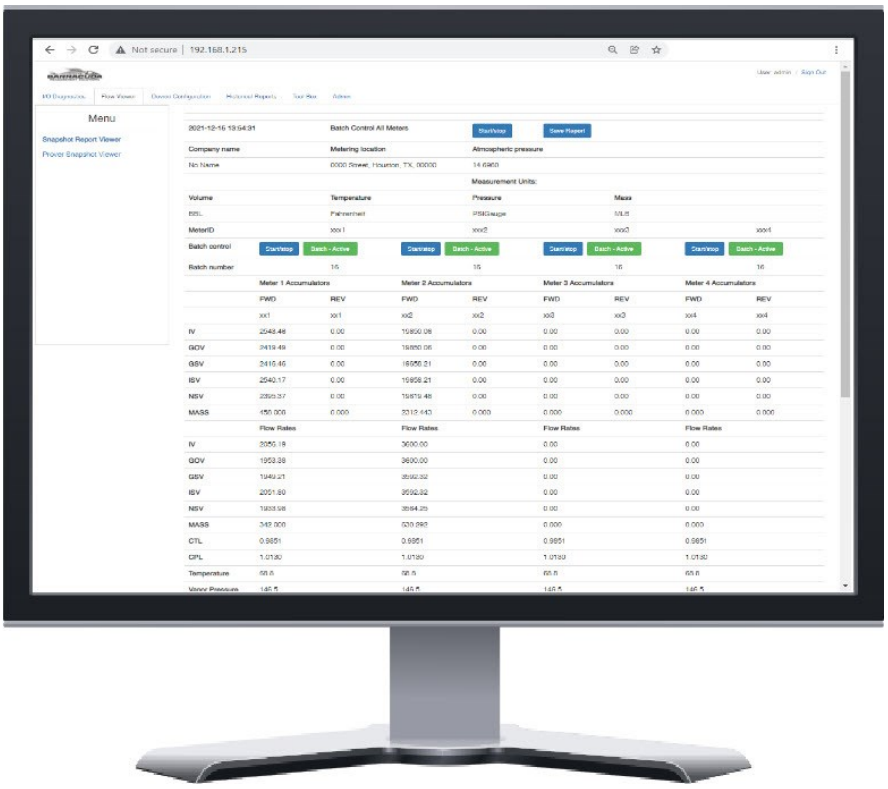
- Pipeline measurement
- Exploration and production
- Drilling
- Refining / Chemical Manufacture
- LACT metering
- Meter Proving

Features

- Class 1 Division 2; T5 @ -40°C to 85°C
- Browser based configuration (Web server)
- High retention USB port (High Speed)
- Removable flash storage (µSD)
- Dual independent ethernet bus
- User defined i/o module deployment
- Compact DIN rail mount design

Ease of Use

- Plug and play: Optional Rosemount 215 Digital Multi-Variable Transmitter
- Wide operating voltage range (10-36 vDC)

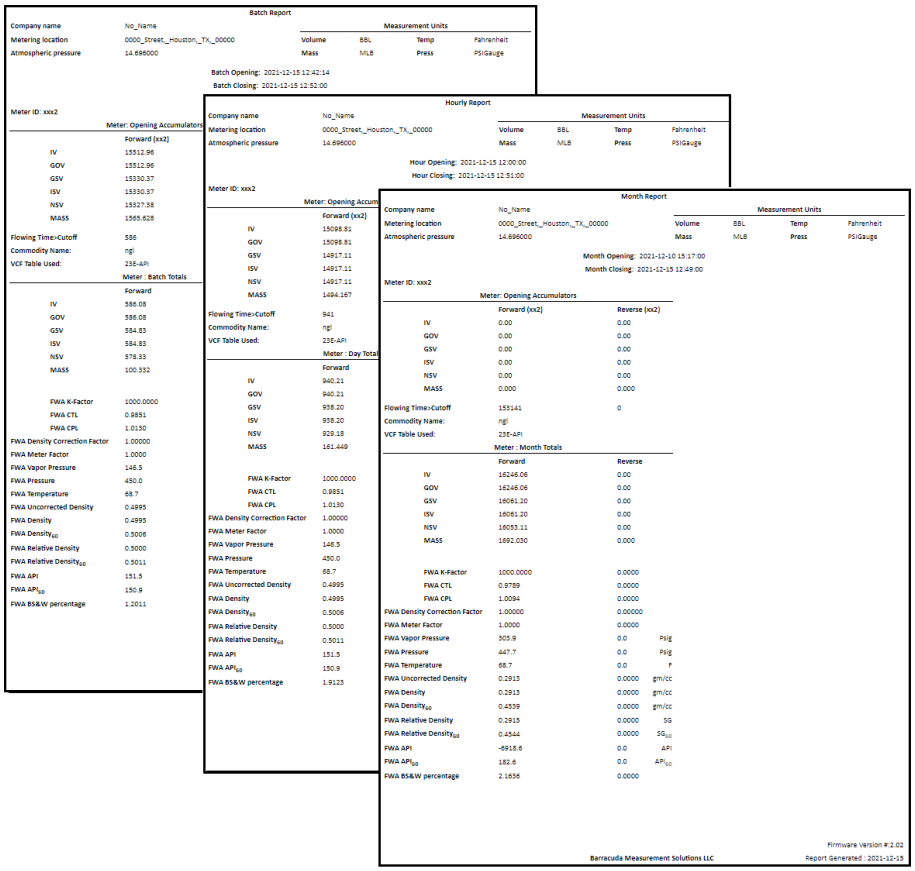


Software Features

- Liquid Metering
  - Volumetric Pulse Meters
  - Mass Pulse Meters
- Meter Proving
  - Small Volume Provers
  - Master Meter Provers
- Web Server User Interface
- Online Densitometers
  - 4-20 mA
  - MicroMotion / Solartron
- Digital Transmitter Integration
  - Rosemount 215 DP & P
- Extensive Modbus Data Availability

Ticketing / Reporting

- Batch Report
- Hourly Report
- Daily Report
- Monthly Report
- Snapshot Report
- Audit Trail Report



MODULE^{X} Flow Computer

CPU's

Main Terminal Board	(MXT)
Processor	32 Bit ARM Cortex M7, 216 MHz with 1 Mb internal Flash
Clock	Real Time Clock. Power maintained by 285 mA coin cell @ 12.5 pF. +-5 ppm resolution maintains time accurate to 13 seconds per Month at –40 to 85 °C

Computation Board	(MXL)
Processor	32 Bit ARM Cortex A7, 528 MHz with Linux Operating System

Peripheral Boards	(MXP-C, MXP-215, MXP-F, MXP-AI, MXP-AO, MXP-DO)
Processor	32 Bit ARM Cortex M3, 72 MHz I2C/SPI

Power

Main Terminal Board	(MXT)
External Power Supply	10 - 36 Vdc, 24 Vdc nominal. 4 Watt max

Peripheral Boards	(MXP-C, MXP-215, MXP-F, MXP-AI, MXP-AO, MXP-DO, MXP-P)	
Digital Output Peripheral Module	(MXP-DO)	Switch output - 50 mA max sourcing current

Communications

Standard Equipped

Type	Quantity	Function
Rs-232	1	LOI and Programming Port 4.8 - 115.2 Kbps R/W MOD-BUS
Ethernet	2	Full duplex communications buss R/W
USB (High Speed)	1	High retention style USB assignable as master or slave R/W

Optionally Equipped	Communication Peripheral Module (MXP-C)	
Type	**Quantity**	**Function**
Rs-232	1	Serial interface 4.8 - 115.2 Kbps R/W selectable
Rs-485	1	Serial interface 4.8 - 115.2 Kbps R/W selectable
CANBUS	1	CANBUS digital communications port

Peripheral Modules

Frequency Module (MXP-F)

Type	Quantity	Function
Frequency	2	Frequency input [square or sine wave] up to 10Khz
Time Period Detection	2	Time period detection for use with online densitometers
Digital Input	2	Software selectable digital input [status]

Analog Input Module (MXP-AI)

Type	Quantity	Function
Analog Input/HART	3: 4-20mA 1: 4-20mA HART	24 Bit optically isolated 4-20 mA or 1-5 Vdc with HART capability
RTD	2	24 Bit 3-wire RTD Input

Analog Output Module (MXP-AO)

Type	Quantity	Function
Analog Output	4	16 Bit optically isolated 4-20 mA

Digital Output Module (MXP-DO)

Type	Quantity	Function
Digital Output	4	Software selectable digital output [high side switch]

Rosemount 215 MVS Module (MXP-215)

Type	Quantity	Function
Rs-485	1	Optically isolated serial Rs-485
CANBUS (single wire)	1	Single wire CANBUS for transmitter interface

Meter Proving Module (MXP-P)

Type	Quantity	Function
Detector Switch	2	Double Chronometry high speed timing gates
Frequency	2	Frequency input [square or sine wave] up to 10Khz
Digital Input	2	Software selectable digital input [status]

Physical

Module^X	**Din Rail Packaging**
Dimensions	161.6 [mm] x 89.7 [mm] , 6.362 [in] x 3.532 [in]
Mounting Fixture	EN 60715 DIN Rail
Weight	1.5 lbs
Wiring	14-26 AWG solid core or stranded tinned copper. Termination ferrule recommended.

Optional Packaging

	Dimensions (H x W x D)	**Weight**
Large	16" x 14" x 6"	24 lbs
Medium	14" x 12" x 6"	19 lbs
Small	12" x 10" x 6"	12 lbs

Enclosure Materials	Cold Rolled Carbon Steel, Stainless, Aluminum
Enclosure Type	NEMA 4/4X Wall mount JIC
Finish	Painted or Brushed Mill Finish

Transmitter Options	**Rosemount 215 MultiVariable Sensor (Differential and Static Pressure)**
Option A - 215A1P23G42E12L4	1000" DP, 3626 PSIg Static
Option B - 215A1P22G42E12L4	250" DP, 3626 PSIg Static
Option C - 215A1P24G42E12L4	150 PSI DP, 3626 PSIg Static

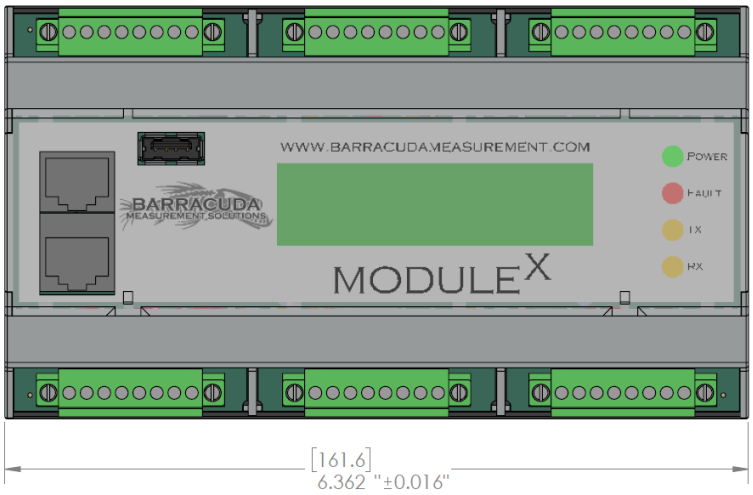
*All options include 316L SST Coplanar manifold with 1/4" - 18 NPT taps, 316 SST vents, and austenitic 316 SST bolts

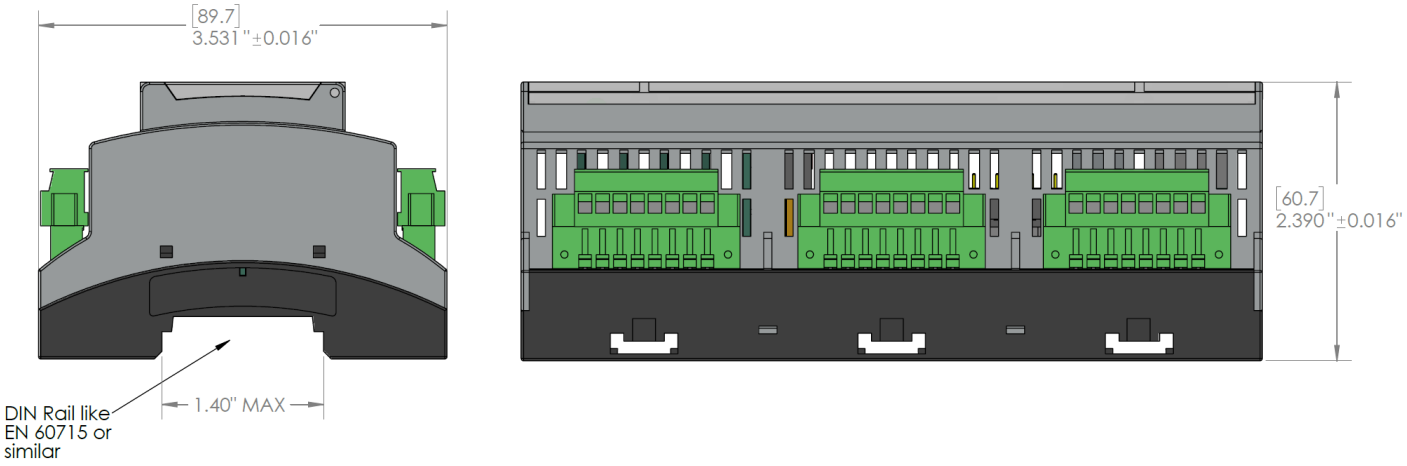
Environmental

Operating Temperature	-40 - 85 °C
Storage Temperature	-40 - 85 °C
Humidity	Up to 95% non-condensing
Radiated EMF	Available upon further testing
Vibration	Available upon further testing

Hazardous Area Approvals

Intertek—Class 1 Division 2	Certificate Number: 5015715





BARRACUDA MEASUREMENT SOLUTIONS