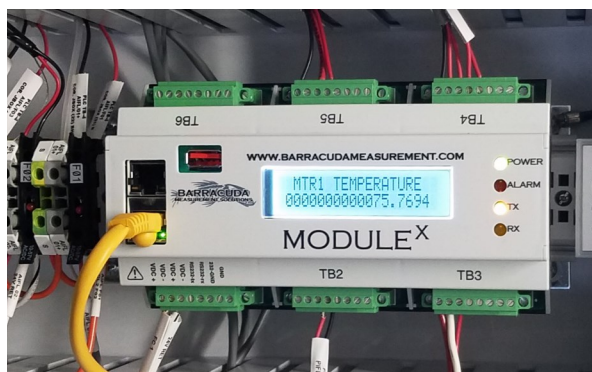




MODULE^X

Liquid flow computer

Accurate, Innovative, Simple



MODULE^X DIN rail mount computer

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)



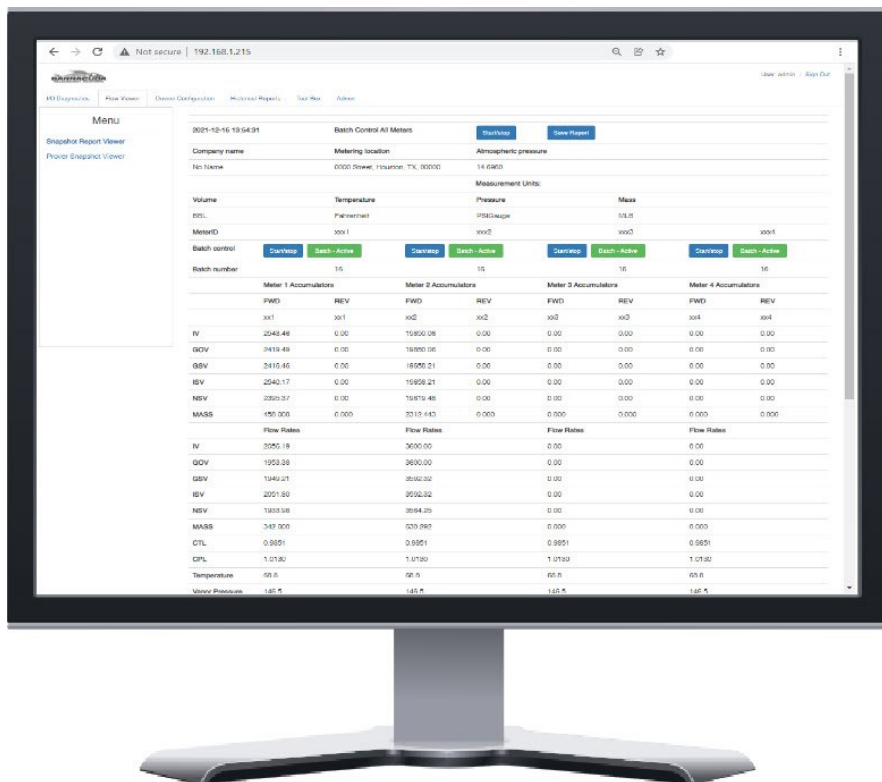
Flow Computer

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.



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

Batch Report		Hourly Report		Month Report	
Company name	No_name	Company name	No_name	Company name	No_name
Metering location	0000_Street_Houston_Tx_00000	Metering location	0000_Street_Houston_Tx_00000	Metering location	0000_Street_Houston_Tx_00000
Atmospheric pressure	14.696000	Atmospheric pressure	14.696000	Atmospheric pressure	14.696000
Batch Opening: 2021-12-15 12:42:14 Batch Closing: 2021-12-15 12:52:00		Hour Opening: 2021-12-15 12:00:00 Hour Closing: 2021-12-15 12:51:00		Month Opening: 2021-12-10 15:17:00 Month Closing: 2021-12-15 12:49:00	
Meter ID: xxx2	Meter: Opening Accumulators	Meter ID: xxx2	Meter: Opening Accumulators	Meter ID: xxx2	Meter: Opening Accumulators
IV	15312.96	IV	15098.81	IV	15098.81
GOV	15312.96	GOV	15098.81	GOV	15098.81
GSV	15330.37	GSV	14917.11	GSV	14917.11
ISV	15330.37	ISV	14917.11	ISV	14917.11
NSV	15327.58	NSV	14917.11	NSV	14917.11
MASS	1595.628	MASS	1494.167	MASS	1494.167
Flowing Time-Cutoff	500	Flowing Time-Cutoff	500	Flowing Time-Cutoff	500
Commodity Name:	ngl	Commodity Name:	ngl	Commodity Name:	ngl
VCF Table Used:	23E-AP1	VCF Table Used:	23E-AP1	VCF Table Used:	23E-AP1
Meter: Batch Totals		Meter: Day Total		Meter: Month Totals	
IV	586.08	IV	940.21	IV	16248.06
GOV	586.08	GOV	940.21	GOV	16248.06
GSV	594.83	GSV	939.20	GSV	16061.20
ISV	594.83	ISV	939.20	ISV	16061.20
NSV	578.33	NSV	920.18	NSV	16033.11
MASS	100.352	MASS	161.449	MASS	1692.020
FWA K-Factor	1000.0000	FWA K-Factor	1000.0000	FWA K-Factor	1000.0000
FWA CTL	0.9851	FWA CTL	0.9851	FWA CTL	0.9799
FWA CPL	1.0130	FWA CPL	1.0130	FWA CPL	1.0084
FWA Density Correction Factor	1.000000	FWA Density Correction Factor	1.000000	FWA Density Correction Factor	1.000000
FWA Meter Factor	1.0000	FWA Meter Factor	1.0000	FWA Meter Factor	1.0000
FWA Vapor Pressure	148.5	FWA Vapor Pressure	148.5	FWA Vapor Pressure	303.9
FWA Pressure	450.0	FWA Pressure	450.0	FWA Pressure	447.7
FWA Temperature	68.7	FWA Temperature	68.7	FWA Temperature	68.7
FWA Uncorrected Density	0.4995	FWA Uncorrected Density	0.4995	FWA Uncorrected Density	0.2913
FWA Density	0.4995	FWA Density	0.4995	FWA Density	0.2913
FWA Density ₁₀	0.5008	FWA Density ₁₀	0.5008	FWA Density ₁₀	0.4539
FWA Relative Density	0.9000	FWA Relative Density	0.9000	FWA Relative Density	0.2919
FWA Relative Density ₁₀	0.5011	FWA Relative Density ₁₀	0.5011	FWA Relative Density ₁₀	0.4544
FWA API	151.5	FWA API	151.5	FWA API	-9518.9
FWA API ₁₀	150.9	FWA API ₁₀	150.9	FWA API ₁₀	182.6
FWA B&W percentage	1.2011	FWA B&W percentage	1.9123	FWA B&W percentage	2.2698

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

Processor	32 Bit ARM Cortex A7, 528 MHz with Linux Operating System
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Peripheral Boards

Processor	32 Bit ARM Cortex M3, 72 MHz I2C/SPI
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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

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

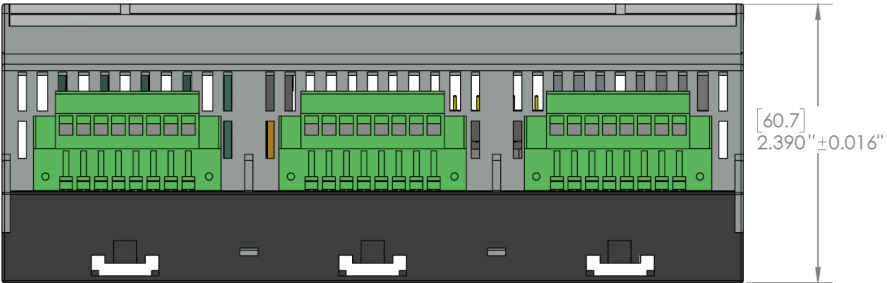
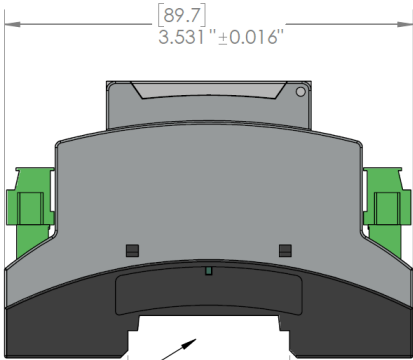
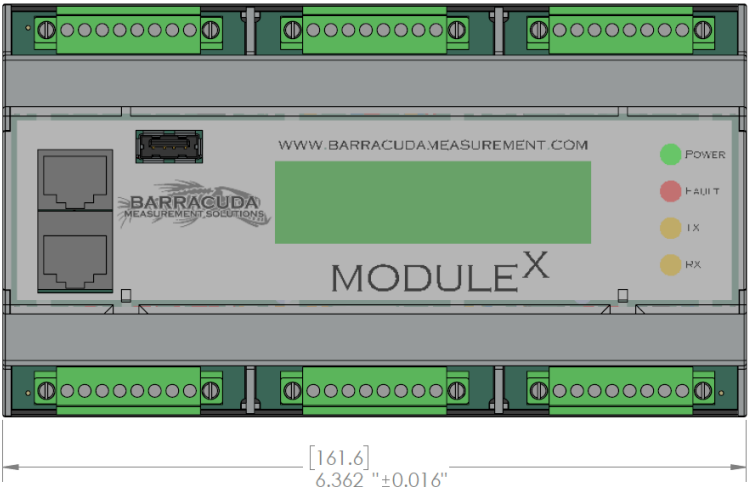
*All options include 316L SST Coplanar manifold with 1/4" - 18 NPT taps, 316 SST vents, and austenitic 316 SST bolts

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
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