

Micro ML4

Introduction

The Micro ML4 is a **four (4) meter run**, custody flow computer with an ultra-low power, 32-bit microprocessor used for measuring a large selection of liquids. Standard features include **on-demand batching**, **daily batching** and **product scheduling**.

Net oil computer functionality using a water cut meter or a mass meter with a density output. Well testing up to 20 wells can be preselected with a purge time, well test time, as well as a daily oil and water production.

Historical data for each well test is stored in the flow computer memory for archive using Modbus protocol. Up to 4 meters can test on each well test.

The water cut calculations can be determined when the flowing density is known alongside the base crude oil gravity, water salinity, and shrinkage factor.

A Modbus master port to retrieve flowing density or flowing BS&W from a slave device.

A **Stack DP** can be used for differential pressure measurement for high range ability. In addition, a frequency or analog signal can be accepted from a **Densitometer**.

An optional **Multivariable Module 205 Sensor** may be connected to the flow computer to determine **differential pressure, static pressure and temperature**.



Micro ML4 Details

Specification

32 Bit Processor
7-28 VDC @ 0.5 WATT
NEMA 7, 4X Class 1 Div. 1
Group B, C and D Housing

Display

4 Lines, 20 Characters
Backlit Display
Minutes, Hours or Days
Automatic Scrolling

Standard Interfacing

Serial Modbus
(3) Frequency Channels
(4) Analog Inputs
(1) Analog Output
(4) Digital I/O's
(1) RS-232 Port
(2) RS-485 ports
(1) Printer Output
Rosemount Multivariable-
DP, Press., & Temp.
0.075 % Accuracy of
Calibrated Range

****Input OR Output Expansion
Module Available**

Interrogation Upgrade Options

TCP/IP Encapsulated Modbus
GSM/ Radio
Satellite

Applications

Batching
Product Scheduling
Well Head Measurement
Custody Measurement
Allocation Measurement
Gas Process Plants
PID Control
Smart Field I/O

Standardization

API, ISO, AGA

Units of Measurement

US Customary

Metered Products

Crude Oil (23A/24A, 24A,
53A/54A, 54A, 59A/60A, 60A)
Refined Products (53B/54B, 54B,
59B/60B, 60B)
Specialized Products (24C, 54C)
LPG (New 23/24, New 24, Old
53/54, Old 54)
Lube Oil (59D/60D, 60D)
Water

Instrumentation

Orifice Meter (API 14.3/AGA3)
Turbine/ Freq. Meter (AGA7)
Wedge
Venturi
Foxboro™ Mass Meter

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Technical Data- Micro ML4	
POWER	
VOLTAGE RANGE	7-28 VDC
POWER CONSUMPTION	0.5 WATT
OPERATING CONDITIONS	
UNITS	US or METRIC
TEMPERATURE	- 40 TO 185 °F
HUMIDITY	100%
HOUSING	NEMA 4X CLASS 1 DIV. 1
FEATURES	
DISPLAY	PLASMA 4 LINES 20 CHARACTERS BACKLIT DISPLAY WITH FOUR (4) INFRARED REFLECTIVE SENSORS
PROCESSOR	32-BIT MOTOROLA 68332 @ 16.7 MHz
FLASH ROM	4 MB @ 70 NANO SECONDS
RAM	2 MB @ 70 NANO SECONDS
FREQUENCY INPUT	THREE (3) CHANNELS CHANNELS 1 & 2 ARE SINE/SQUARE WAVE CAPABLE CHANNEL 3 IS SQUARE WAVE ONLY SQUARE WAVE RANGE: 0-6000 HZ SINE WAVE RANGE: 0-1200 HZ SIGNAL > 40 Mv FOR SINE WAVE SIGNAL > 3v FOR SQUARE WAVE
MULTIVARIABLE	BUILT-IN ROSEMOUNT MULTIVARIABLE TRANSMITTER WITH DIRECT SPI DIGITAL CONNECTION. MAXIMUM UPDATE SPEED ONCE EVERY 109 MILLISECONDS. TEMPERATURE RANGE: - 200 thru 1200 F PRESSURE RANGE: 0 thru 3626 PSIG DP RANGE: 0 thru 250 inches OR 0 thru 1000 inches
ANALOG INPUT	FOUR (4) INPUTS STANDARD EXPANDABLE UP TO NINE (9) ANALOG INPUTS OR SEVEN (7) WITH ADDITIONAL 3-WIRE RTD
ANALOG OUTPUT	ONE (1) 16-BITS OPTICALLY ISOLATED OUTPUT EXPANDABLE TO FOUR (4)
DIGITAL I/O	FOUR (4) DIGITAL INPUTS OR OUTPUTS DIGITAL OUTPUTS HAVE 0.25 AMPS RATING
SERIAL COMMUNICATION	TWO (2) RS-485 @ 19200 BAUDS VARIABLE ONE (1) RS-232 @ 9600 BAUDS VARIABLE ONE (1) PRINTER OUTPUT
COMMUNICATION PROTOCOL	MODBUS