

## ROCNOG 107 – SPARTAN CONTROLS WELL HEAD FLOW COMPUTER MODEL FB107

- Provides oil, water and gas volumes
- Provides 0–100% water cut
- Up to two 2-phase or 3-phase separators
- Density and temperature compensation
- Compliant with:
  - AER Directive 17
  - API 2540 2004 calculations



### By Design

The ROC Net Oil Computer (NOC) ideally uses a Micro Motion Coriolis Meter as both a flow sensor and water cut analyzer to calculate net oil and water present in an emulsion stream. Mass flow rate is measured using the Coriolis principle. Density of the emulsion is continuously monitored by the Coriolis meter using the natural frequency and temperature of the vibrating element. Combining mass flow and density, the gross emulsion volume is computed in cubic meters. Water cut determination is made by comparing the measured emulsion density to the reference densities of free oil and water. The net oil computer calculates the temperature effect on volume using a solution based on Chapter 11 of the American Petroleum Institute, Manual of Petroleum Measurement Standards. Using the water cut and volume correction factors the emulsion flow is factored to determine net oil and water at standard conditions, 15 °C.

Various parameters can be viewed on the NOC control panel during the well test:

- test time
- gross volumetric flow
- net oil and water totals
- flow rate
- average water cut
- instantaneous water cut



A digital interface port allows the user to print or transmit data. Power interruptions will not cause loss of valuable well test data, as all data from the last 120 tests are held in non-volatile memory.

The NOC is designed to work with a Micro Motion Coriolis meter or a turbine flow meter.

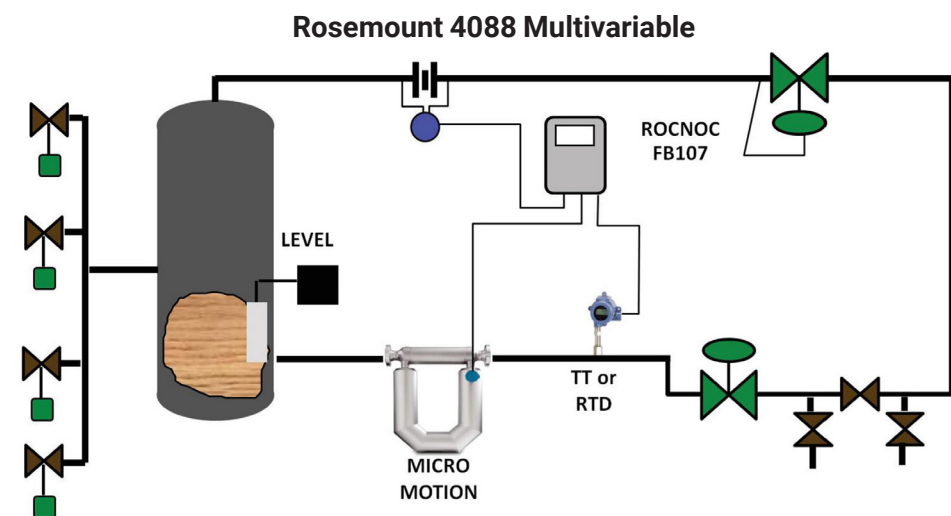
### Two Modes of Operation

The ROCNOC may be run in two modes of operation; Well Test and LACT modes. In Well Test mode the test runs for 24 hours and then automatically stops or if the test is stopped within 24 hours all totals are averaged to a 24 hour test. In LACT mode the daily test data is stored every 24 hours into a monthly running total.

### Standard Specifications

Well Database:	15 with independent shrinkage factors
Historical Records:	12 historical meter factors 120 well test record history
Access/Inputs:	MODBUS or Pulse
	Micro Motion or Turbine Flow Input Temperature (RTD or 4-20mA), Pressure Inputs
	Optional Phase Dynamics or Drexelbrook Input Supports 1 or 2 separators
	24-hour or continuous tests Supports test case calculations
Cut Measurement:	0 to 100% water
Accuracy:	
Cut :	±2.0% water typical
Gross Volume:	±0.1%
Density:	±0.5 kg/m3
Mass:	±0.1%
Minimum Density Difference:	100 Kg/M3 when using density for inferred water cut
Pressure Drop:	≤ 35 kPa (5 Psi)
Operating Temperature:	-40 to 70 °C (When used with heated enclosure)
Panel Power:	120 VAC, 200 Watts (with heater installed)
Area Class:	Class 1 Div2 (On standard panel design with no printer)

## TYPICAL SYSTEM



## PRODUCT SELECTION

Part Number	Description
ROCNOC-107	ROCNOC FB107 Panel (Inc NOC Software)
F or Elite Micro Motion meter & transmitter	Sizing required
RTD-1.5 (FOR 2' PIPING)	RTD With Thermowell
Rosemount 4088 3-1 Gas Flow Meter	Sizing required

*Note: (SIZING REQUIRED) is to insure the correct hardware is specified for installation.*

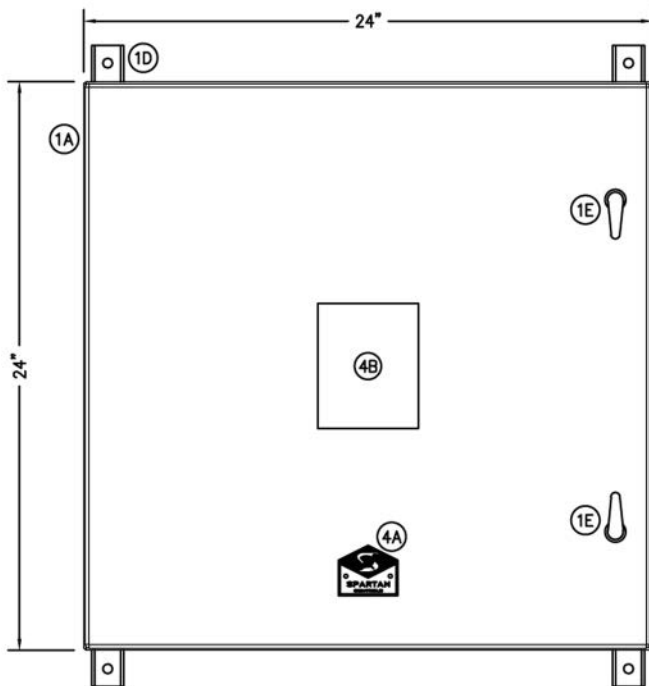
The Micro Motion meter can be ordered with Meter Verification diagnostics to eliminate or minimize meter proving for well production measurement.

Per Directive 17 Exception 2.6.1 if a meter used to measure fluids at flow-line conditions is a type that uses no internal moving parts (e.g., orifice meter, vortex meter, cone meter, Coriolis meter, ultrasonic meter), it does not require proving. Please consult Directive 17 to see what conditions may apply.

*Note: For live fluids a shrinkage factor has to be implemented to account for stock tank conditions if the shrinkage is not accounted in the meter factor. Consult Spartan Controls or the AER for details.*



## MOUNTING ENCLOSURE DIMENSIONS



External Door Layout - Front View

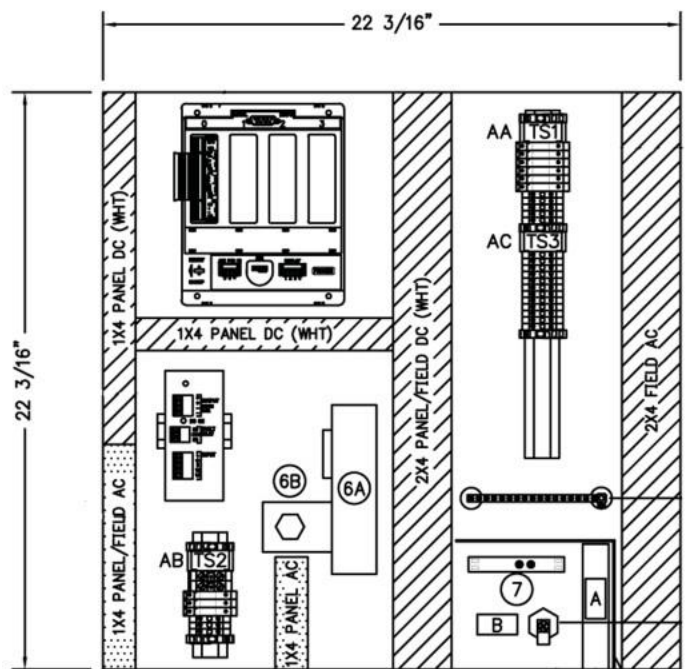


Plate Layout

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