

Data Sheet

THE SURE-CUT® HI ANALYZER

Delivers repeatable and reliable
high Water Cut measurement

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The Sure-Cut® Hi Analyzer delivers
repeatable and reliable high Water
Cut measurement



Achieve **effective and efficient process monitoring** and net oil allocation with Sure-Cut® Hi

- Inversion point to 100% from a single analyzer
- Suitable for all oil densities, including heavy oil
- Unique design avoids contact with process fluids
- No fouling or sensor damage
- No maintenance or recalibration required
- Repeatable multi-year performance

The Ideal Analyzer for Process Monitoring



Measurement of Water Cut in water continuous flows is a key process monitoring parameter for the efficient use of oil field facilities and reliable allocation of production. In these situations, where fluid and process parameters are varying, an analyzer must provide:

- Long term instrument stability.
- Robustness in harsh production environments.
- Predictable compensation for changes in temperature.
- Tolerance to entrained gas.

M-Flow delivers this through the unique design and construction of Sure-Cut® Hi, incorporating microwave measurement through a non-intrusive composite pipe spool and fully digital electronics.

Changes in analyzer response can be directly correlated with changes in process fluids and not short or long term variation of instrument performance.

Applications:

- Liquid outlet on process and measurements separators.
- Detection of oil slugs in well effluent and process water.
- Monitoring of Water Cut in heavy oil flows where oil water separation or sampling is impossible.

To support these applications, the Sure-Cut® Hi has been subject to long term oil field proving:

Field Performance in Wellhead Deployments

Heavy oil (970 kg/m ³) - Background water cut 90-100%, with oil slugs. <10% GVF, comparison vs 24 hour test tank	Uncertainty ± 2% absolute
Medium oil - water cut 70-80%. 60% GVF, comparison to daily samples over 3 months	± 2% absolute

Laboratory Calibration Performance

Water Cut Range	Inversion to 100% (Typical Inversion 40%)	
Operating Ranges	Oil Type/Density: Condensate to Heavy oil (600 to 1000 kg / m ³) Water Density: 990 to 1240 kg / m ³	
Laboratory Measurement Accuracy*	Repeatability Accuracy	Uncertainty ± 0.3% absolute ± 1.0% absolute

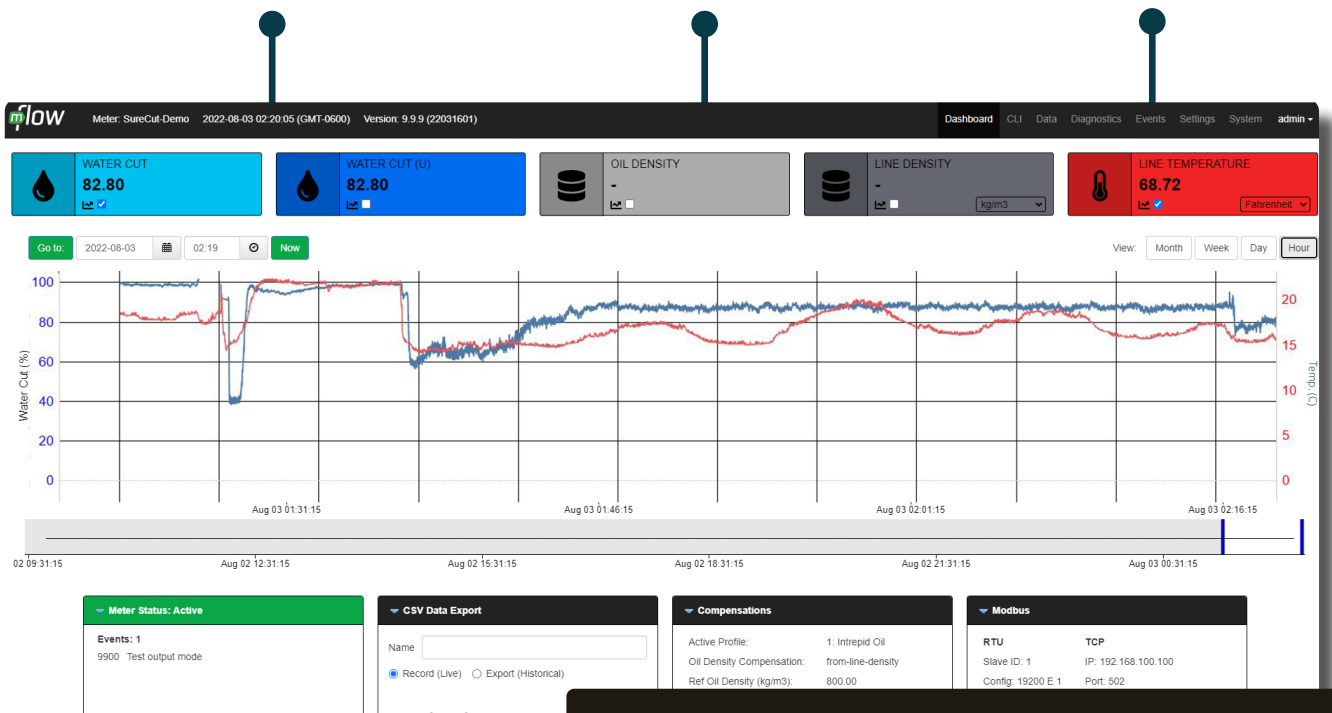
*Uncertainty quoted is 2 x SD to 95% confidence

Graphical Interface and Connectivity

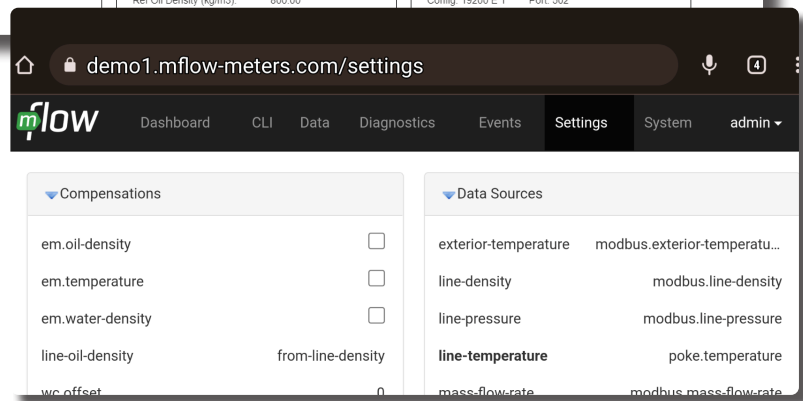
A transparent system to process and present accurate production and diagnostic data.

Reliable data is accessible remotely via a secure online interface from any connected device.

M-Flow provides modern instrumentation for the digital oilfield.



Continued display of Water Cut parameters



GUI set-up page, viewed on mobile

- Fully digital electronics deliver wide operating envelope without sacrificing precision
- Modbus 485 or TCP to flow computer, SCADA or PLC
- GUI for monitoring, set-up and diagnostics
- 24/7 access to real-time and historical data
- Accessible, locally or remotely via wired or Wi-Fi connection to laptops or handheld devices

Specification Details

Design Specification

Sensor Type	Microwave	Hazardous Area Certification	ATEX, UKEX, IECEx, CSA, UL
Water Cut Range	Inversion Point to 100%	Ambient Temperature Range	-40 to +60° C (-40 to +140° F) Electronics certification
Sizing	2" - 4" nominal flange sizing Flow area determined on throughput.	Mechanical Design Temperature Range	-40 to +110° C (-40 to +230° F)
Pressure Range	Up to 426 barg (6180 psig)	Ingress Protection	IP66, NEMA 4X
Flange Rating	ASME B16.5 #150, #300, #600, #900, #1500, #2500	Materials	Electronics enclosure: Painted Aluminium Core: PEEK/Carbon Fibre composite Sour Service Compatible Flange (and wetted metal parts): 316 SS as standard. Other materials as options
Pressure Drop	0 barg achievable (no intrusion)	Material Compliance	NACE MR 0175 / ISO 15156
Fluid Temperature Range	-35 to +110° C (-31 to +230° F)	Power	Power supply: Typical 24VDC, Min 18 VDC, Max 30 VDC Power consumption: Typical 5W
Dimensions / Weight	694 to 920 mm face to face / 62 to 147 kg		
Mounting	Horizontal or vertical No up/downstream requirement		

Digital Interface

Comms	Modbus RTU, Serial Settings: 19200E1 Modbus TCP: 10,100Base-T Ethernet
Transmission Length	1200 m (RS-485 / TIA-485-A) 100 m (Ethernet)
GUI	Access to System Config, Modbus Comms Set-Up, Measurement Config & System Diagnostics
WIFI	Full access to Graphical User Interface (GUI)
Screen	Display: 2.42" OLED, 128 x 64 pixels Dimensions: 57mm x 29mm

