

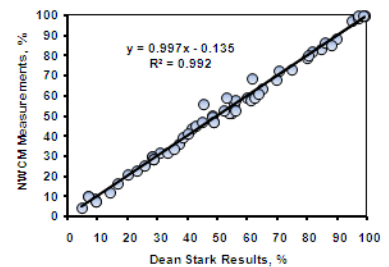
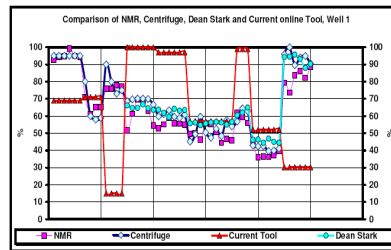


Oil Field Rate & Cut Measurement Systems

PERM Instruments Inc. has developed a series of instruments including a water cut meter, a multiphase cut meter and an integrated flow/cut meter that use low field magnetic resonance technology to determine the oil and water content of emulsified fluid streams. These systems can measure water content in hazardous environments and high viscosity oil reservoirs, at thermal or non-thermal operations and all emulsion conditions.

Features

- ▶ Non-Intrusive, accurate and repeatable measurements from 0-100% oil or water cut.
- ▶ Recalibration of instrument is not required with emulsion phase changes.
- ▶ Measurements are not affected by the following stream conditions
 - Salinity
 - Density
 - Electrical conductivity
 - Emulsion consistency
 - Gas/vapour components
- ▶ Detects the presence of solvents.
- ▶ Offline mode available.
- ▶ Simultaneous viscosity predictions for the produced oil.
- ▶ Highest operating range available in the market.



Rendering of Magnetic Resonance Meter



Picture of Electronics Cabinet

SPECIFICATIONS	MR-WCM	MR-MCM	MR-IS
Process	Single Phase Water Cut	Multi-Phase Water Cut	Multi-Phase Water Cut & Mass Flow
Oil/Water Cut Range	0-100%	0-100%	0-100%
Max Process Conditions (Pipe)	600 PSIG, 260 Deg C	600 PSIG, 260 Deg C	600 PSIG, 260 Deg C
Environmental Operating Conditions	Indoors/Outdoors Nema 14, -20 to +40 Deg C	Indoors/Outdoors Nema 14, -20 to +40 Deg C	Indoors/Outdoors Nema 14, -20 to +40 Deg C
Rating	Class I Div II Group D	Class I Div II Group D	Class I Div II Group D
Process Connections	4" 600# SS Flange	4" 600# SS Flange	4" 600# SS Flange
Power Requirements	120VAC 60Hz @ 2A (24VDC Optional Available)	120VAC 60Hz @ 2A (24VDC Optional Available)	120VAC 60Hz @ 2A (24VDC Optional Available)
Outputs	MODBUS over 485 or Ethernet	MODBUS over 485 or Ethernet	MODBUS over 485 or Ethernet
TYPICAL DIMENSIONS			
Shipping Weight	~500 lbs	~500 lbs	TBD
Electronics (W X H X D)	24" x 24" x 12"	24" x 24" x 12"	24" x 24" x 12"
Magnet (W x H x D)	16.5" x 12.18" x 15.25"	16.5" x 12.18" x 15.25"	16.5" x 12.18" x 15.25"
		4.1' Flange to Flange (Titanium Pipe)	

PRODUCT LINE

MR-WCM
(Water Cut Meter)

MR-MCM
(Multi-Phase Meter)

MR-IS
(Integrated Solutions)



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