

Revolutionary water cut meter optimises transmission

US-headquartered eProduction Solutions (eP) provides an inexpensive water cut meter that actually increases its accuracy as the water cut approaches 100 per cent. The Red Eye water cut meter uses technology involving infrared light to determine the precise percentage of water to oil, especially at extremely high water-cut levels.

The metering solution uses state-of-the-art infrared spectroscopy to provide precise oil and water composition in real time. Real-time flow measurement provides critical information for optimisation for oil and gas transmission. eP's metering solution is built on the Red Eye product line and Red Eye Multiphase Metering Systems (REMMS).



Water cut meter

Red Eye water cut meter typical applications include:

- Individual well monitoring
- Continuous well testing
- Net oil measurement in periodic tests
- Group production testing at centralised facilities
- Dewatering monitoring systems for crude oil tanks

Three factors contribute to the high accuracy level of the Red Eye water-cut meter. First, the meter detects oil rather than water, so its accuracy actually improves as the water cut increases. At the highest water cuts, accuracy reaches 0.25 per cent of full scale or better. As water cut approaches zero, accuracy approaches 5 per cent, which meets or exceeds most well testing requirements.

The second factor improving the accuracy of the Red Eye is how gas is interpreted. Gas looks essentially like water with the Red Eye meter's light so it has little effect on net oil measurement. With other meters, gas bubbles can cause a misinterpretation, making them see excessive oil.

Finally, the content of field-produced water can and does vary from well to well even in the same formation. Since the Red Eye's measurements are independent of salinity, acidity (pH), solids content (TDS), and density, water content changes do not require recalibration. Additionally, the Red Eye does not use gravity in its calibrations, so its accuracy does not suffer when the oil is nearly as heavy as the water.

The Advantages of the Red Eye water cut meter include:

- Unmatched accuracy at high water cuts
- Insensitive to entrained gas
- Ignores salinity and dissolved gas
- Field-proven ruggedness and reliability
- In-line for continuous real-time accuracy
- Affordable for widespread automation
- Convenient one-point field calibration
- Easy installation and service

eP's Red Eye Multiphase Metering Systems (REMMS) are compact continuous cyclonic separators with conventional metering for gas and liquid, and a flow computer for data communication and process control.

The principle of operation is based on creating a cyclonic flow pattern in the vertical piping to separate the gas from the liquid. Although this concept and its advantages have been known for some years, recent advances in technology have brought continuous cyclonic separators to the forefront in multiphase metering and oil and gas process facilities design.

The Red Eye Multiphase Metering Systems are used for the following applications:

- Well testing
- Individual well monitoring
- Process separator
- Gas Scrubber
- Subsea well tie-back applications

The major advantage of eP's REMMS is that it is small in size and weight making it an excellent metering system for use offshore. Also, the multiphase meters are built to ANSI B31.3 piping code, which can eliminate the need for a pressure safety valve, or they can be built as an ASME section VIII vessel depending on customer requirements. These systems can be designed to handle maximum well head or process pressures and temperatures up to 450 degrees Fahrenheit.

The Red Eye water-cut meter reads oil-in-water concentrations per cent in the 2-phase liquid leg of the system. With liquid and gas flow meters and the flow computer, the system provides exceptional 2-phase separation and accurate metering of the oil, water and gas streams. These streams can then be recombined, or kept separate and sent to other process components downstream.

Advantages of the Multiphase Metering Systems

- Compact
- Non-nuclear
- Real-time data for continuous mode monitoring
- Low initial cost
- Lower operating cost
- Low-pressure drop
- Slugging capability

Founded in 2001, eProduction Solutions, is a leading production operations automation/optimisation company. The company provides solutions that help lower production costs and increase production by delivering tools and training that foster innovative approaches to optimising production. eP helps customers leverage technology to work better, faster, and smarter ■



Red Eye Multiphase Metering System