



PVT-Independent Multiphase Water Cut Meter AquaField™ GREEN

The Challenge

To enhance the extraction efficiency of oil and gas from reservoirs, the Reservoir Management Team and Departments within Oil Companies rely heavily on crucial data collected from production wells. This data is pivotal for inputting into their models to assess and determine necessary actions. Presently, vital data primarily originates from water cut meters, multiphase flow meters, and well testing procedures.

However, two significant challenges hinder this process. Firstly, data collection occurs intermittently, leading to time lapses devoid of data and creating blind spots for analytical teams.

Secondly, the maintenance of instruments utilized for data collection demands substantial effort to uphold data quality, rendering it impractical to obtain reliable and trustworthy data from all wells consistently.

Additionally, there's a pressing environmental concern, as the utilization of these solutions contributes to adverse greenhouse gas emissions.

The Solution

In the dynamic world of oil and gas extraction, precision is paramount. AquaField™ Green, our transformative multiphase water cut meter, integrates water fraction measurement capabilities to pinpoint shifts in water production from individual wells. The patented detection principle measures water content and conductivity in the multiphase flow, utilizing a compact, robust, and non-intrusive design without causing any pressure drop.

It is devoid of nuclear elements and operates without the need for PVT input, making it capable of tolerating PVT changes during operation. By spearheading digitalization in the fields and supporting the green transition, AquaField™ Green emerges as a game-changing solution. It empowers operators to embrace green practices while effectively addressing conventional issues related to produced water. This innovative technology not only eliminates the need for traditional well testing using separators but also enables continuous production optimization.

Transform your reservoir management approach with our AquaField Green. Embrace precision, reliability, and sustainability for a brighter future in oil and gas extraction.

AquaField™ Green Key Specifications

Real-Time Measurements

- Water Cut
- Water Fraction
- Gas Fraction
- Oil Fraction
- Conductivity/Salinity

Applications

- Reservoir Management
- Production Optimization
- Well Production Testing
- Well Performance Monitoring
- Water Breakthrough Detection

Features and Benefits

- No PVT input required
- Low OPEX
- Low CAPEX
- Non-Intrusive
- No Nuclear Element
- Real-Time Measurement

Installation

- AquaField™ Green can be configured for both upward and downward flow, delivering accurate and repeatable measurements regardless of the flow regime. The meter's size and operating envelope are determined by the minimum acceptable flow velocity. AquaField™ Green is designed for vertical installation, ensuring optimal performance in various flow conditions.
- The conductivity probe is integrated into a standalone flange, providing flexibility for installation downstream (at the outlet) of the AquaField™.



Technical Specifications

Typical Operating Range

Meter Body Size	1.5" ANSI 600 RF	3" ANSI 600 RF	3" ANSI 1500 RF/RTJ	4" ANSI 1500 RF/RTJ
Water Cut	0 to 100%			
Conductivity (Salinity)	0.5 – 30 S/m (3 000 to 300 000 ppm)			
Minimum Gross Liquid Production (*)	400 bbl/d (64 m3/d)	1200 bbl/d (190 m3/d)	1600 bbl/d (254 m3/d)	2100 bbl/d (334 m3/d)
* The operating envelope and size of the meter is determined by the minimum acceptable flow velocity. It is not possible to quantify the uncertainty in the measurements below the gross liquid production for the selected AquaField™ specified in table below. However, AquaField™ will continue to measure and record data. * Can be offered in Duplex, Super Duplex & Alloy material				

Typical Performance

Measurement Uncertainties at GVF Range	at 0-20 % GVF	at 20-60 % GVF	at 60-90 % GVF
Water Cut	± 1 – 2 % abs	± 2 – 3 % abs	± 3 – 5 % abs
Salinity	0,5 % abs		

Environmental

Design Life	Minimum 20 years
Ambient Temp for Storage	-10 to +55 °C
Operating Temperature	-20 to +120 °C
Design Pressure	ANSI 600 - Maximum 90 barg / ANSI 1500 - Maximum 220 barg


Material

Meter Body, Flanges & Conductivity Probe	22% Cr. Duplex
Internal Process Wetted Surface	PEEK

Electrical

Voltage Rating	Nominal 24 V dc (21 - 27 V dc)
Power Consumption	37 W at 24 VDC (50 W supply recommended)
Communication Port	RS-485 and Ethernet RJ45
Communication Protocol	Modbus RTU and Modbus TCP

Certifications

EX Certificates	EC Declaration of Compliance
IECEX / ATEX	Zone 1 II 2G Ex db eb ib [op is] IIB T3 Gb
	Zone 2  II 3G Ex ec ic IIB T3 Gc

The Value of AquaField™ Green for Your Business



Unlocking the Potential

In the dynamic world of oil and gas extraction, precision is paramount. The AquaField™ Green - a multiphase water cut meter - empowers oil companies to harness critical data, enabling informed decisions and maximizing resource extraction.



Sustainability at the Core

Environmental responsibilities is non-negotiable. Our solution not only optimizes operations, but also minimizes greenhouse gas emissions, ensuring a greener footprint for your operations.



Seamless Data Integration

Our cutting-edge technology seamlessly integrates data from production wells, providing real-time insights into reservoir dynamics. Say goodbye to intermittent data gaps and hello to a comprehensive understanding of reservoir behavior.



Production Optimization

Transform your reservoir management approach with our game-changing solution that provides accurate measurements of water fraction. Embrace precision, reliability, and sustainability for a brighter future in oil and gas extraction. This innovative technology empowers operators to make informed decisions, maximizing overall production efficiency.



Remote Well Management

Monitor and analyze water production data remotely with the AquaField™ Green, which interfaces seamlessly with RS485 MODBUS industry standard protocols. The equipment is prepared for remote operations, enabling convenient remote services and maintenance by Hammertech.




Intuitive Dashboard


Equipping operators with a comprehensive and user-friendly interface, our intuitive dashboard facilitates seamless visualization and analysis of water fraction data. Whether in the field or remotely, operators can effortlessly control reservoir management from anywhere, enhancing accessibility and efficiency in decision-making.

Product Feature	Water Cut Meters	AquaField™ Green
Direct Water Measurement	✗	✓
Conductivity/Salinity Measurement	✗	✓
Provides Oil, Water & Gas Fractions	✗	✓
Multiphase Water Cut Measurement	✗	✓
PVT Independency / Plug & Play	✗	✓

About

Hammertech AS, a subsidiary of Nordic Technology Group AS, is a Norwegian tech company specializing in multiphase flow metering solutions for the oil and gas industry. Committed to innovation and customer service, their flagship product, AquaField™, is the world's first PVT-independent Multiphase Meter. This groundbreaking technology optimizes production, enhances efficiency, and reduces greenhouse gas emissions. Hammertech AS's focus on sustainability aligns with industry trends, making them a key player in advancing cleaner energy practices. www.hammertech.no

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