AGAR CORPORATION

Process Measurement & Control

OW-300 Series Oil/Water Meters

Liquid/Liquid Concentration

DESCRIPTION

The AGAR OW-300 Series oil/water meter determines liquid-in-liquid concentrations by measuring the complex permittivity properties of the flow stream using a multiple high frequency method. Typical applications include crude oil and finished product pipeline monitoring, water in slop oil, glycol and water, and aqueous/organic measurement. The OW-300 probe is offered in a spool-type configuration and insertion-type assembly.

Introduced in 1985 as the industry's first 0-100% oil/water meter, this third-generation leading design is the only device in which the accuracy of the measurement is not affected by changing salinity, density, viscosity, temperature or velocity of the components being analyzed. The high frequency signal will maintain accuracy in the presence of process coatings that are detrimental to optical instruments. The instruments are calibrated using Windows-based software from a laptop computer. The software is also used for troubleshooting, viewing trends, and retrieving historical data.

The OW-300 Series utilizes explosion-proof enclosures that provide signal outputs/inputs to the probe. The DAS is also a flow computer that can provide net oil, net water and flow rates when flow meter input is supplied. The data system is transmitted with 4-20mA signals and MODBUS.

TYPICAL APPLICATIONS

- Pipeline BS&W measurement for refined products
- Crude pipelines
- Desalter crude feed
- Well testing
- LACT units
- Separation control
- Shipping terminals

OW-302 Series Installation - Venezuela

OW-301 Spool Piece Design

Sizes: 1” to 4”

DESCRIPTION

The AGAR OW-301 is a Spool Piece design available for 1” to 4” flow lines. The sensor should be mounted in a location where the fluid will be well mixed (normal recommendation is vertical flow upwards). The spool piece is available in an “L” or “S” shaped design. In addition, the OW-301 will have a stable performance in common pipelines when the fluid composition changes regularly.

The AGAR OW-300 measures hydrocarbon/water mixtures over the range of 0-40%, water (oil continuous emulsions).

SYSTEM CONFIGUATION

The OW-301 system consists of an in-line probe, the measurement electronics, and a Data Analysis System (DAS) that can be remotely mounted from the field sensor. The probe is offered in a spool type configuration.

OW-301 Series

PHYSICAL DIMENSIONS

Electrical Enclosure	Diameter: 6”
Spool Design	for 1” to 4” pipeline sizes
Flange Rating	150#; 300#; 600#; 900#; 1500# Consult factory for others
Maximum Pressure Rating	5000PSI
Shipping Weight	Approximately 25lbs for 2” ANSI 150#

OW-302 Insertion Type

DESCRIPTION

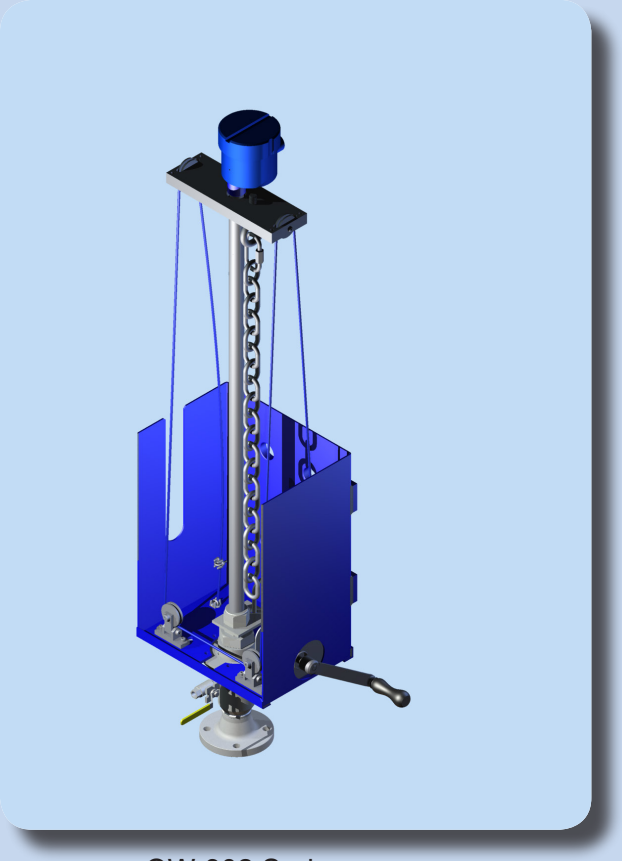
The OW-302 system consists of a primary insertion-type probe featuring an insertable sensor with a seal housing for installation and retraction while the pipeline is in service and under pressure for flow lines 6” and larger. A tool is also availalbe for insertion into high pressure lines.

Sizes 6” and above

SYSTEM CONFIGURATION

The OW-302 is mounted perpendicular to the flow in a vertical section with ascending flow at a point where the fluids are well mixed to ensure proper measurement. Common installation requires a 2” full port isolation valve connected directly to the nozzle flow line.

The Agar patented “seal-housing” connects to the isolation valve. After installation, the OW-302 probe is inserted through the valve and nozzle into the flow line. The sensor has a blow-out preventer to ensure that the sensor is not removed from the seal housing without the isolation valve being closed.



OW-302 Series

PHYSICAL DIMENSIONS

Electrical Enclosure	Diameter: 6”
Probe Diameter	1.25” diameter shaft 1.8” diameter sensor
Probe Length	Active Length: 6” to 12” to match the diameter of the pipe Overall Length is determined by the pipe diameter, nozzle, and valve size with standard lengths
Insertion Design	for 6” and larger pipeline sizes Process connection minimum 2” full port ball or gate valve 2” schedule 80 or larger ID nozzle
Flange Rating	150#; 300#; 600#; 900#; 1500# Consult factory for others
Maximum Pressure Rating	5000PSI
Shipping Weight	Approximately 25lbs for 2” ANSI 150# carbon steel
Insertion Tool	Recommended for OW-302 when operating pressure is over 60PSI and flange rating is 600# or less

PROCESS CONDITIONS

Ambient Temperature	0°F to 140°F (-15°C to 60°C) Optional Low Temp -40°F to 140°F (-40°C to 60°C) with insulation
Process Temperature	Standard Model 32°F to 212°F (0°C to 100°C) High Temperature Model 32°F to 450°F (0°C to 232°C)
Wetted Parts*	Stainless Steel; Ceramic; PEEK; Viton; NACE Compliant
Options	Metallic parts: Duplex, Monel, Hastelloy, Elastomers - Teflon, PDMA
Vibration	5g at 500 Hz

* Consult factory for other available materials

POWER SUPPLY

Standard: 12 to 36 VDC ± 15% Isolated
Optional: 110 to 220 VAC
Others available upon request
Power Requirements: 25 Watts
Optional: Solar powered and battery back-up

SAFETY CERTIFICATION

ATEX Ex d (Standard Version):

Probe - Ⓔx II 2 G Ex db IIB+H2 T2..T6 (-20ºC ≤ Ta ≤ 70/85ºC)

DAS Enclosure - Ⓔx II 2 G Ex d IIB T6 (-20ºC ≤ Ta ≤ 60ºC)

Sensor Enclosure - Ⓔx II 2 G Ex d IIB + H2 T5..T6 (-20ºC ≤Ta ≤ 70/85ºC)

ATEX Ex ia (Optional Version):

Sensor - Ⓔx II 1 G Ex ia IIB T4 (-20ºC ≤ Ta ≤ 60ºC)

DAS Enclosure - Ⓔx II 2 G Ex d[ia] IIB T6 (-20ºC ≤ Ta ≤ 60ºC)

Sensor Enclosure - Ⓔx II 2 G Ex d[ia] IIB + H2 T6 (-20ºC ≤Ta ≤ 50ºC)

CSA-US - Class 1, Division 1, Group C&D, T6
ROSTECHNADZOR (Russia, CIS), GOST-R, Metrology Pattern Approval

DATA OUTPUT/INPUT

Output Data:	Oil/water concentration, error status, and temperature standard. If customer's flow meter input provided, Net Oil, Net Water, and Flow Rates are calculated.
Input Data:	Flow; 1 pulse (0-5 to 0-30 V <2KHz) or 1 analog (4-20 mA)
User Communication:	Modicon Modbus: RS-232/422/485 ASCII or RTU mode, Modbus TCP
Outputs:	Analog 6 X 4-20mA, Relay 1 X DPDT dry contact, Digital 3 X SPST isolated for totalizer or alarm
Update Time:	1.0 sec
Local Display:	LCD with four lines, live display of process parameters
User Interface:	Ethernet HTML user interface Optional: Cellular modem and/or WiFi communication

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