AGAR CORPORATION

Process Measurement & Control

OW-300 Series Oil/Water Meters

Liquid/Liquid Concentration

DESCRIPTION

The AGAR OW-300 Series oil/water meters measure 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 Series is the third-generation design, liquid/liquid analyzer developed by Agar Corporation. Agar introduced the industry's first 0-100% oil/water meter to the market in 1985.

OW-302 Series Installation - Venezuela

System Configuration

The OW-300 system consists of a primary probe, the measurement electronics, and a data analysis system (DAS) that can be remotely mounted from the field sensor. The OW-300 probe is offered in a spool-type configuration and insertion-type assembly.

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 a combination of explosion-proof enclosures and intrinsically-safe electronics 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, HART and MODBUS.

TYPICAL APPLICATIONS:

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

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OW-301 Spool Piece Design

Sizes: 1” to 4”

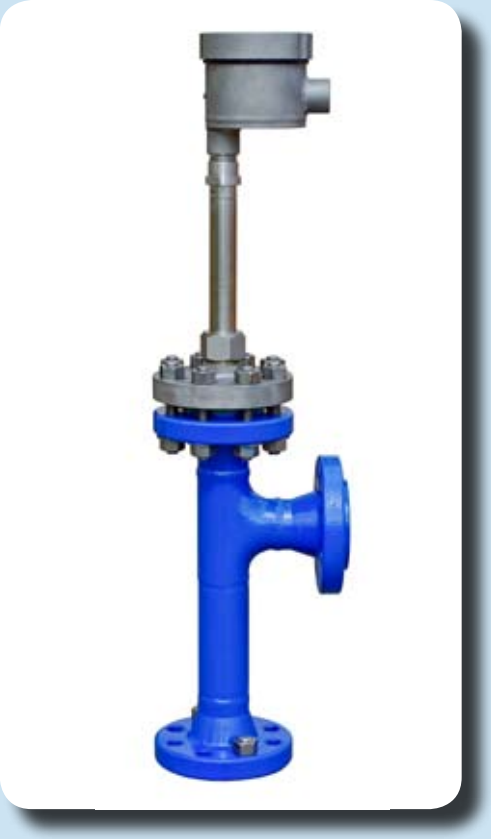
DESCRIPTION

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). The Agar OW-301 accuracy of measurement will not be affected by changing salinity, density, viscosity, and temperature of the components being analyzed.

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” Length: 12”
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

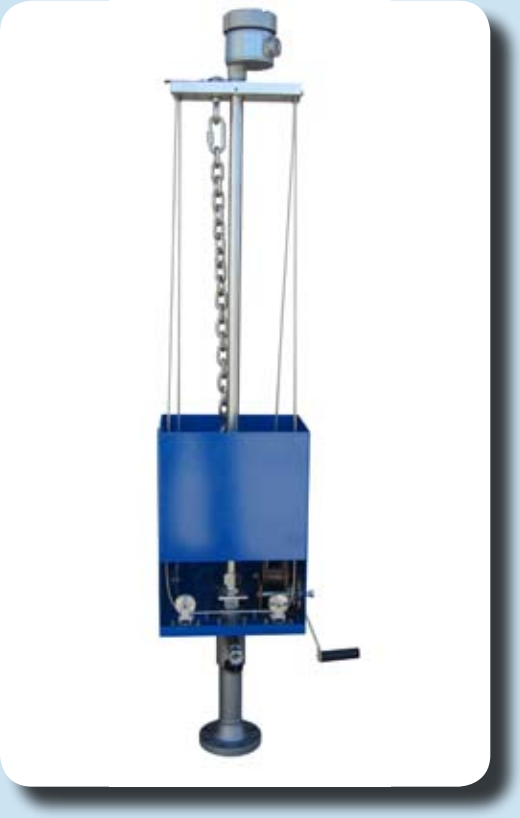
Unlike other microwave, density or capacitance based instruments; Agar's OW series meters are the only devices in which the accuracy of the measurement is not affected by changing salinity, density, viscosity, temperature or velocity of the components being analyzed. The high frequency signal will maintain accuracy in the presence of process coatings that would be detrimental to optical instruments.

Sizes 6" and above

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. Agar's OW-302 monitor features 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. An insertion tool is available for insertion into high pressure lines. 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.

SYSTEM CONFIGURATION

The OW-302 system consists of a primary insertion-type probe, the measurement electronics, and a Data Analysis System (DAS) that can be remotely mounted from the field sensor. The probe is offered in an insertion type assembly. The OW-302 probe 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 on the flow line.



OW-302 Series

PHYSICAL DIMENSIONS

Electrical Enclosure	Diameter: 6" Length: 12"
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#
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
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

MEASUREMENT CAPABILITIES & ACCURACY

Model	Range*	Absolute Accuracy	Repeatability of Span
OW-301/302	0 to 1%	±0.05%	±0.1%
	0 to 5%	±0.05%	±0.1%
	0 to 10%	±0.1%	±0.1%
	0 to 20%	±0.2%	±0.1%

* Water Concentration. Contact Factory For Additional Range Options

SAFETY CERTIFICATION

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

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

Barrier 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

Standard

Output Data:	Oil/water concentration, error status, and temperature standard.
Input Data:	Flow; 1 pulse (0-5 to 0-30 V <2KHz) or 1 analog (4-20 mA)
User Communication:	RS-232/422/485 Full Duplex
Protocol:	Modicon MODBUS: RS-232/422/485 ASCII or RTU mode; HART: 4-20mA or RS-232
Update Time:	1.0 sec
Display with four lines:	%Water, Temperature, Total Oil, Total Water or Flow rates configurable

If customer's flow meter input provided, Net Oil, Net Water, and Flow Rates are calculated.

Options

Pulse or Relay: 3-SPST relay isolated output (30V - .05a) - Selectable for totalizer or alarm

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