



Phase Dynamics

Technology for Precision Measurements

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Fiscal Transfer Water Analyzer System



- **Low Range (0-10%, 0-20%)**
- **Flow Through in 1", 2" or 3" System Sizes**
- **Flow and Density Measurement Using Coriolis Meter**
- **Automatic Correction for Density in Water % Calculation**
- **Follows API Working Document for On Line Electronic Measurement**
- **Average Temperature Measurement**

- **CSA, FM, ATEX & PED**
- **RTD Temperature Measurement**
- **Configurable 4-20mA & Alarm**
- **Expanded Analog Outputs Available**
- **USB Data Logging capability**

- **By-Pass Flow Rate To Assure Good Measurement**
- **Touch Screen Electronics**
- **Modbus RTU, HART (optional)**
- **24 VDC, 120 VAC and 230 VAC**

Customers have certified and approved this analyzer for Custody Transfer applications in their business. API guidelines for the new electronic water cut measurement standard have been followed. Flexibility for the user is provided for through multiple options for outputs.

Phase Dynamics' Low Range Analyzers offer the most accurate measurement possible. The Fiscal

Skid has been used on custody transfer pipeline applications by major oil companies across the world. This Fiscal Skid simplifies the correction for density and provides accurate measurement.

Phase Dynamics utilizes the unique, patented, "Oscillator Load Pull" microwave technology which provides reproducibility and accuracy required for these applications.

All functions of the analyzers are accessed through menus by four push button switches. This allows changes without opening the EX enclosure. The Touch Screen Color Display indicates the measurement value, density, flow rate and temperature. Full digital/analog access to the information is standard. Temperature averaging for pipeline batches is available.

Fiscal Skid Operational Specifications

Parameter	Low Range		Density Measurement
	0-4% & 0-10%	0-20%	90 API to 10 API 600-999 Kg/m3
RANGE	0-4% & 0-10%	0-20%	90 API to 10 API 600-999 Kg/m3
UNCERTAINTY*	0.04% 0-4% 0.1% 4-10%	0.04% 0-4% 0.1% 4-10% 0.2% 10-20%	2.0 kg/m3
REPEATABILITY	+/- 0.02%	+/- 0.1%	+/-4.0 kg/m3
RESOLUTION	0.01%	0.1%	0.1 kg/m3 0.1 API
FLUID TEMPERATURE	32 - 160° F	32 - 160° F	32 - 160° F

General Analyzer Specifications

Measurement Section:

Pressure Ratings:

Flange Sizes up to ANSI 1,500; Raised Face Flanges Standard; RTJ and Flat Face Optional

Construction:

316/316L Standard; Other Materials Available; Designed and Fabricated per ASME B31.3 & ASME IX; Full Material Certifications Optional

Certifications:

CSA Class 1, Div. 1, Groups C&D
FM Approval
CE Mark, Ex II 2 GD
EEx d IIB T5 78°C

Process Connections:

Low Range Analyzers: 1, 2, 3, 4 inch Flanges
Insertion Type Only in 3" Flange
All Other Analyzers: 2, 3, 4 inch Flanges

Electronics Enclosures:

3 to 6 Conduit Entry Explosion Proof Enclosures:

17.4 H x 14.0 W x 9.9 D inches; 59 lbs., NEMA 4X,7,9
Class 1, Div. 1, Groups C & D; Ex d IIB T5

8 Conduit Entry Explosion Proof Enclosures:

17.4 H x 14.0 W x 11.9 D inches; 71 lbs., NEMA 4X,7,9
Class 1, Div. 1, Groups C & D; Ex d IIB T5

Outputs & Alarms:

Outputs Analog: 4-20mA, Enhanced 1each, Expanded 5 each
Outputs Digital: 4 MODBUS RTU

Includes 1 Field Definable Relay, NO or NC Rated 1A, 120V
System Error Dry Contact, NO or NC Rated 1A, 120 V

Process/Ambient Temperatures:

Fluid Temperature Compensation:

Automatic with Built-in RTD Temperature Probe

Ambient Temperature Ranges:

Measurement Section: -40° to +120° F

Electronics: +32° to +120° F

- 40° to +120° F (With Optional Heater)

Operational Fluid Temperatures:

Standard 32° to 160° F, Optional 32° to 600° F

Cables:

Between Standard Analyzer Measurement Section and Electronics Enclosure:

Dedicated 19 Conductor, 22 AWG, 3 Twisted Pairs, 1/2" Diameter, Special Factory installed Military Connector (armored cable not available). 150 feet Maximum Length between Electronics and Measurement Section.

Certifications:

Explosion Proof Enclosures; CSA, FM, ATEX/PED (Optional)
NEMA4X Fiberglass Enclosure; CSA Approved (Optional)
NACE MR0175

Power Requirements:

18-28 VDC

120-230 VAC 50-60 Hz (Optional)

18 Watts Typical, 29Watts Maximum, 36 Watts Expanded