FLEXIM

Processing, Storage, Allocation & Distribution in Hazardous Locations

FLUXUS® H831

Area-Rated Non-Intrusive Ultrasonic Metering for the Hydrocarbon Processing Industry

ATEX/IECEx Zone 1 Rated

Rugged Explosion Proof/
Flame Proof Housing

Live Pressure & Temperature Inputs

Single & Dual Channel

Standard Volumetric Flow Rate Measurement Reporting

Analytic Functionality:
API & Density Determination According to ASTM D1250, GPA TP25 and D4311 Standards

Mass Flow Rate Measurement Reporting

FLEXIM Sets Standards
when measuring matters

“Fit for Purpose” Design

FLUXUS® H831 is specifically designed for hazardous process control applications

Whether onshore or offshore, the oil and gas industry is exposed to the severe challenges of maintaining safe working practices in potentially explosive atmospheres or hazardous areas. Instrumentation should, therefore, always be “**fit for purpose**” and reliable.

The **FLUXUS® H831** goes above and beyond the needs of the hydrocarbon industry. With its larger LCD, explosion-proof housing, hermetically sealed electronic components, and safe process inputs, the meter does not compromise operational safety. Under normal operating conditions, operators can use its magnetic pen to change meter parameters and configuration without ever needing to open the housing.

Furthermore, the combination of a rugged and robust area-rated design, single or dual measurement channels, and faster processor capabilities provides optimal performance and durability under the harshest environments. With the FLUXUS® H831, operators can safely and conveniently monitor their flows every step of the way, improve field management, and increase efficiencies.

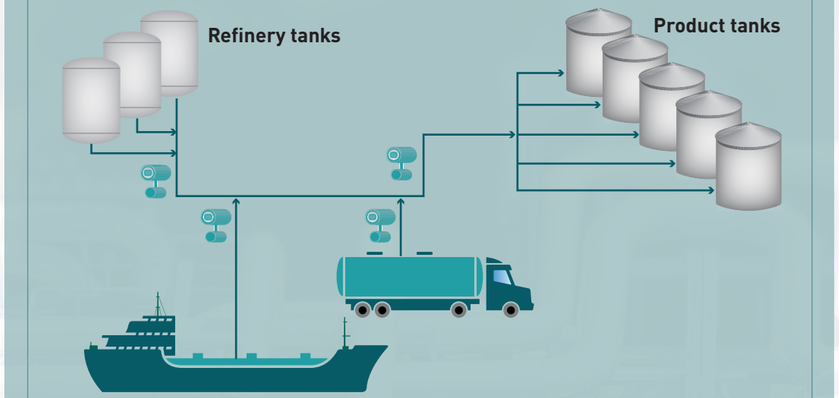
Industry-Specific and Analytically Focused

Single product & multi-product standard volume compensation and interface detection algorithms

As crude oil and refined hydrocarbon properties change with variations in pressures and temperatures, volumetric flow rate correction is needed to accurately measure dynamic flows. The **FLUXUS® H831** leverages ultrasonic transit time sound of speed measurement, industry-specific algorithms, and state-of-the-art processing techniques to accurately and reliably report compensated volumetric flows. It also offers a great deal of additional analytical functions to determine, e.g., **API gravity, operational (actual flowing) density, density at base conditions, and kinematic viscosity**.

The FLUXUS® H831 is equipped with databases for a wide range of applications from light hydrocarbons (LPG, NGL, TP25 liquids) to crude oils / refined products (ASTM1250 liquids) to heavy hydrocarbons (asphalts D4311). Application-specific configuration is handled via an editable table in the transmitter with liquid names and specific properties (density, API).

1. Flow measurement of refined products from refinery to storage tanks



2. Flow and density measurement of multiproduct pipelines to storage

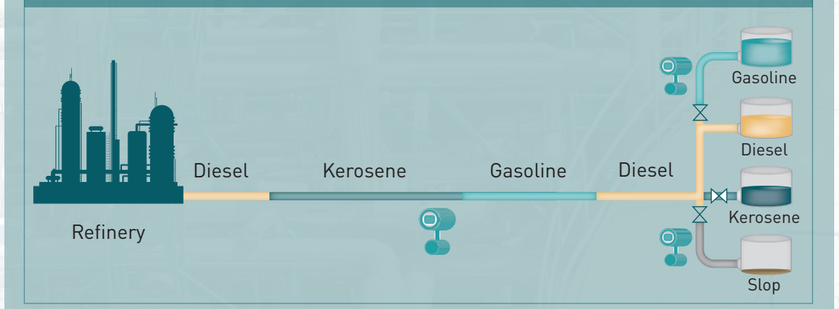


Table of typical hydrocarbon products

Name	API gravity	Density at 60° F (kg/m³)	Sound speed at 60° F (m/s)
LPG	100 ... 150	502 ... 611	768 ... 998
Butane	111	581	951
Pentane	93	630	1051
Naphta	70 ... 85	653 ... 702	1152 ... 1213
Gasoline	47 ... 68	709 ... 792	1221 ... 1326
Kerosene	37 ... 50	779 ... 839	1309 ... 1385
Crude Oil	29 ... 45	801 ... 881	1337 ... 1439
Heating Oil	22 ... 37	839 ... 921	1385 ... 1491
Fuel Oil	17 ... 22	921 ... 952	1491 ... 1532
Marine Fuel	11 ... 17	952 ... 992	1532 ... 1607
Bitumen/Asphalts	5 ... 10	999 ... 1036	1617 ... 1666

Pipeline Integrity & Leak Detection

Calculation of standard volumetric flow rates allows the mass flow rate balancing of different measuring points when monitoring the integrity of pipeline systems. Measuring different points (segments) of the pipeline provides insightful information to end-users regarding product losses or process upsets. Leak detection monitoring relies on compensated volume balance methodology where flow meters continually monitor differences in flow rates between each pipeline segment and warn when a change in density or flow rate occurs. With the FLUXUS® H831, flow compensation is done directly within the meter allowing for rapid and accurate flow calculation within the system.

Process Monitoring, Product Quality Determination, and Interface Detection at Tank Farms

As fuel oils are transported from oil refineries to end-users in complex distribution systems, the need for product identification and quality is key for efficient operations and product balancing. Ensuring that the product is directed to the right storage tanks can make a big difference to the bottom line. Accurate and reliable interface detection and flow measurement is required to minimise product contamination.

With the FLUXUS® H831, different liquids can be identified and displayed on the meter when their measured properties match the characteristics in the meter-resident fluid table. These advanced analytical calculations are based on sound speed and temperature. A rate-of-change parameter is output that enables the operator to reliably detect and track batch interfaces along the pipeline.

Check Metering & Meter Calibration

The FLUXUS® H831 can be used to verify the performance of other flow meters, including custody transfer meters. The particularly advantageous non-invasive installation allows a check of various third-party flow meters without having to stop operations or divert flows. This enables field personnel to evaluate meter performance and calibrate devices when necessary.

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Technical Data

FLUXUS® H831	Area-rated non-intrusive ultrasonic metering for the hydrocarbon processing industry
Physical quantities	
Flow	1. Operating (actual) volumetric flow rate 2. Standard volumetric flow rate as per ASTM 1250/TP25/4311 3. Flow velocity 4. Mass flow rate
Analytics	1. API gravity, density, normalized density 2. Interface detection: slope of the HPI physical quantities 3. Fluid identification: according to specific application fluid table
Measurement uncertainty	
Volumetric flow rate	±1% of reading ±0.02 ft/s
HPI functionality	
Standard volumetric flow rate uncertainty	±1 (crude oil, refined products, liquefied gases, heavy oils)
Repeatability of density (operating density / normalized density)	±1 (with field calibration of the speed of sound)
Transmitter	
Hazardous area rating	ATEX/IECEx Zone 1, FM Class I, Div. 1 & 2
Power supply	100 ... 230 V AC / 50 ... 60 Hz, 12 / 24 V DC
Inputs	Pt100 / Pt1000, 4 - 20 mA active /passive, binary
Outputs	4 - 20 mA active / passive, 4- 20 mA HART active / passive, pulse / frequency / binary
Digital communication	Modbus RTU/TCP, HART, Profibus PA, Foundation Fieldbus, BACnet
Available transducers	
Hazardous area rating	ATEX/IECEx Zone 1, FM Class I, Div. 1
Pipe size range (Inner diameter)	0.25 ... 250 in
Temperature range (Pipe wall)	-40 ... +450 °F

For more detailed information please download the Technical Specifications here: www.flexim.com.

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FLEXIM has offices located throughout North America.

Please have a look for your local representative at:

www.flexim.com
or call us at:
1-888-852-PIPE

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ACCREDITED
CERTIFICATE #3791.01