

# Non-Intrusive Clamp-On Ultrasonic Pipeline Interface Detector

Temperature and Pressure Compensated



## Description

System 1010B Clamp-On Interface detector is a system that is fully temperature and pressure compensated. It is designed primarily for precision detection of interfaces on Crude Oils and Multi-Product Transportation and Inter-Refinery Pipelines.

The System provides the user with exceptional repeatability over a wide range of products independent of change in temperature, pressure or viscosity.

Data outputs include API Number, Density, Specific Gravity, and Product Identification Number (Liquident™).

System 1010B measures the sonic propagation velocity and temperature of the liquid. These factors facilitate identification of the liquid by its “sonic signature” which defines its density. This allows the system to perform non-intrusive, Clamp-On Interface Detection.

## Applications

System 1010B detects interfaces on Multi-Product Pipelines. Clamp-On operation makes this device suitable for new construction, existing pipeline installation and replacement of in-line Densitometers.

Valuable applications include:

- & Detection of Gasoline Interfaces
- & Multi-Product Interface Detection from Liquified Gases to Crude Oils
- & Product Identification
- & Auto Batching Control
- & Product Quality detects entrained water and gas in all products

## Features

System 1010B features include:

- μ Fast, low cost installation (no cutting of pipes)
- μ Bi-directional flow operation
- μ Menu driven Field Programmable site setup
- μ Universal Applicability
- μ Non-Intrusive Clamp-On Mounting
- μ Displays in API, SGU & Density units
- μ Programmable Alarm Relays
- μ Remote communication & local control outputs

## Industries

Typical industries serviced include:

- Oil Production and Transportation
- Chemical and Petrochemical Processing

## Functions

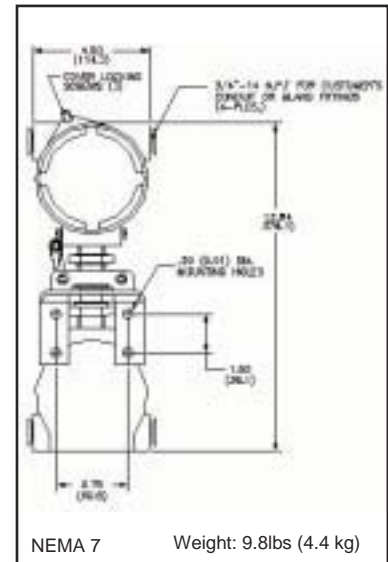
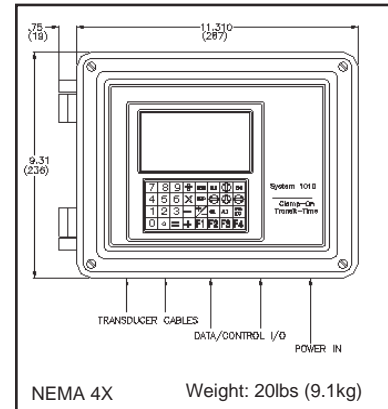
System 1010B offers the following functions available on most models:

- § Displays API, Liquident™, Density or Specific Gravity
- § Diagnostic Display of Application & Equipment Conditions
- § Comprehensive Status/Alarm Indicators
- § Programmable Datalogger/Strip Chart option
- § RS-232 compatible serial I/O port
- § Digital & Analog Temperature & Pressure Compensated Outputs

## Specifications

- Repeatability..... 0.01%
- Pipe Diameter Range...1 to 54 inches
- Data Outputs.....RS-232 serial data port  
4-20 mA, 0-10 volts, assignable  
Relays (High, Low, Alarm)
- Data Inputs.....RS-232 Port  
RTD Temperature Sensors  
4-20mA (Pressure, Temperature)
- Datalogger Memory.....160 kbytes to 2 megabytes
- Displays.....Graphic x128 pixels (NEMA 4)  
Alpha Numeric-16 x2 lines(NEMA 7)
- RS-232 Baud Rate.....6 selectable (300 to 19,200 bps)
- Temp. Resolution.....0.05°F (0.03°C)
- Temp. Accuracy.....0.1°F (0.05°C)
- Sonic Velocity Range 350 to 2000 meters per second
- Temp. Range.....With display: 0°F (-18°C) to 122°F (50°C)  
Without display: 0°F (-18°C) to 140°F (60°C)
- Transducers..... Wide Beam, High Precision -40°F (-40°C)  
to 250°F (121°C)
- Safety Approvals..... FM, (Class I, Div. I) (Class I, Div. II)  
(Cenelec and CSA Pending)

## Equipment Dimensions



## Power Requirements

- 115 (±10%) volts ac
- 230 (±10%) volts ac
- 9 to 36 volts dc
- Frequency: 50-60hz

## Sound Velocity versus Density

