process measurement solutions

solartron mobrey

Solartron 7826 Long Stem Density Transducer

Data Sheet
IP7826L

Advantages of the 7826 long stem

- Easy to use 'fit and forget' digital density measurement for monitoring and control
- Suitable for use on open and closed tanks
- Rugged design
- Low/zero maintenance
- Simple to clean
- Integral PT100 temperature sensor
- Continuous measurement

Description

The 7826 long stem density transducer is a sensor for continuous real time measurement of fluid density in open or closed tanks.

Designed to be used in conjunction with a Solartron 795x Signal Converter, it offers the end user a powerful tool in critical density applications.

The 7826/795x system can be used in process control where density is the primary control parameter for the end product, or as an indicator of some other quality control parameter such as % solids or % concentration.

Typical industries include:

- Oil and petrochemical
- Brewing
- Food
- Pharmaceutical
- Minerals processing (clays, carbonates, silicates, etc.)

Applications include:

- Wort gravity
- Slurries
- % alcohol
- Coatings
- Evaporator control
- Product mixing
- End point detection in batch reactions
- Solvent separation

Principle of operation

All Solartron Mobrey liquid density transducers operate on the same general principle and can be likened to that of a mass spring system. When a mass on a spring is displaced and released it will oscillate at a natural frequency until it comes to a rest due to viscous damping. When a driving force is applied to the mass to overcome the effect of damping, the vibration is maintained in resonance.

As the measured product density changes, it in turn changes the vibrating mass of the density transducer, which is then detected by a change in the resonant frequency.

Features

The 7826 is **factory calibrated** and *no further calibration is necessary*. The calibration is traceable to **UK National Standards** through Solartron Mobrey's own UKAS approved laboratory.

It measures line density and temperature, and when used in conjunction with our 795x Signal Converter (see data sheet B1251), it calculates density-related parameters such as:

- Base/referred density (using API tables or a matrix referral)
- Specific Gravity
- °API
- °Brix
- % solids
- % mass
- % volume
- % concentration

The design of the 7826 ensures accurate and reliable results. Maintenance is minimal, leading to lower overall operating costs.

795x Signal Converter Features

Inputs from 7826 long stem:
- Line density (frequency)
- Temperature (PT100)

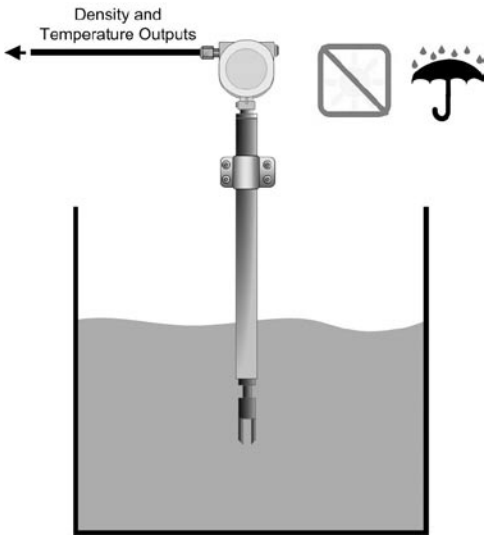
Typical 795x Calculations:
- Line density
- Referred density
- Specific gravity
- % concentration
- Specific Gravity

795x Outputs:
- Status
- RS 232C/485
- Analog

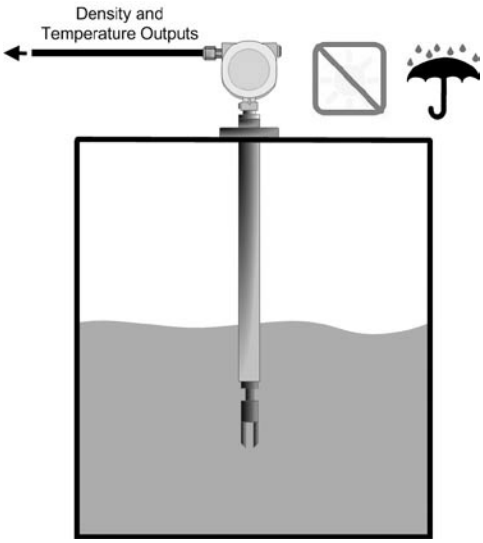
Ask for brochure B1251 for more details

Installation

Open-tank installation
For open-tank installations, the 7826 longstem is clamped to structure. The position of the clamp determines the insertion depth.



Closed-tank installation
For closed-tank installations, the 7826 longstem is clamped to structure. The position of the clamp determines the insertion depth.



Part Number Identification

Code	Product
7826	7826 Long Stem Density Transducer

Code	Material
A	316 Stainless Steel with standard finish
C	316 Stainless Steel, Electro-polished
F	316 stainless Steel, PTFE laminated tines
Z	Special

Code	Amplifier System
G	Frequency output - Safe Area only (<200°C)
H	Frequency output ATEX EEX d IIC T4 (<150°C) [T4 (-40°C < Ta < +110°C)]

Code	Amplifier Housing
A	Aluminium alloy
C	Stainless steel

Code	Process Connections
A	2" ANSI 150 RF
B	2" ANSI 300 RF
C	2" ANSI 600 RF
G	50 mm DIN 2527 DN 50/PN 40
H	50 mm DIN 2527 RF DN 50/PN 100
R	50 mm DIN 2527 DN 50/PN 16
T	No connectors (for open tanks)
Z	Special

Code	Stem Length (nominal length)
C	500 mm (with removable transit cover)
D	750 mm (with removable transit cover)
E	1000 mm (with removable transit cover)
F	1500 mm (with removable transit cover)
G	2000 mm (with removable transit cover)
H	3000 mm (with removable transit cover)
J	4000 mm (with removable transit cover)
Z	Special

Code	Default Configuration (Amplifier Outputs)
T	No software configuration - frequency output only

Code	Calibration Type
L	Density at 20°C.
Z	Special.

Code	Calibration Boundary
A	Free Stream
Z	Special

Code	Factory Set Option
B	Factory set option

Code	Traceability
A	None
X	Certificates of material

7826	A	G	A	A	C	T	L	A	B	A	(Typical Code)

Specification

Density operating range:	0 - 3g/cc (0 - 3000kg/m^3) (0-187.4 lb/ft^3)
Calibrated range:	0.6 - 1.25g/cc (600-1250kg/m^3) (38.5-80.25 lb/ ft^3)
Accuracy:	±0.001g/cc (±1.0kg/m^3) (±0.06 lb/ ft^3)
Repeatability:	±0.0001g/cc (±0.1kg/m^3) (±0.006 lb/ ft^3)
Temperature range Process** Ambient	 -50°C to +200°C (-60°F to +392°F) -40°C to +85°C (-40°F to +185°F)
Pressure range (max working)	100bar (1450psi)
Viscosity range:	0-500cP
Temperature sensor (integral):	PT100 BS1904 Class B, DIN 43760 Class B
Output signals	Density - frequency, 2 wires (6V peak nominal) Temperature - 100 ohm PRT (4 wire)
Electrical connection	Screw terminal, cable entry to suit 1/2" NPT gland (20mm adaptor available)
Environment:	IP66
Power Supply:	23 to 25Vdc, 42mA
Wetted materials:	Stainless Steel
Tine finish:	Standard, PTFE coated or Electro-polished
Connections:	ANSI 150 to 600RF; DIN 50 PN40 and PN100
Approvals:	 ATEX II 2G EEx d IIC T4 EMC EN50081-2, EN50082-2 (Industrial)

** NOTE: Where ATEX is required the process temperature is further limited to -40°C to +150°C / -4°F to +302°F.

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