

# Solartron 7826 Insertion Density Transducer

Data Sheet  
IP7826

## Advantages of the 7826

- ▶ Easy to use 'fit and forget' digital density measurement for monitoring and control
- ▶ Rugged design
- ▶ Low/zero maintenance
- ▶ Simple to clean
- ▶ Hygienic options
- ▶ Suitable for high line pressures
- ▶ Integral PT100 temperature sensor

## Description

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

Designed to be used in conjunction with a Solartron 795x Signal Converter or Flow Computer, 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:

- ▶ Interface detection in multi-product pipelines
- ▶ Mass flow when used in conjunction with a volumetric flow meter
- ▶ Sugar refining (°Brix)
- ▶ Wort gravity
- ▶ Slurries
- ▶ 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:

- ▶ 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.

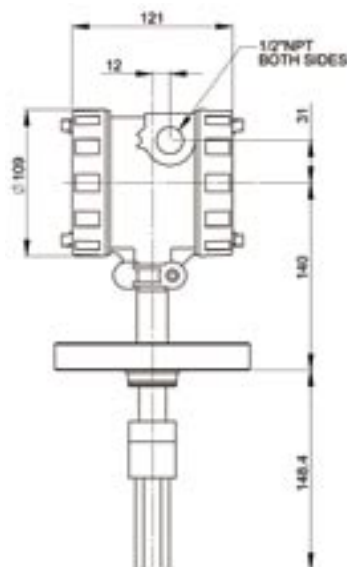


## Installation

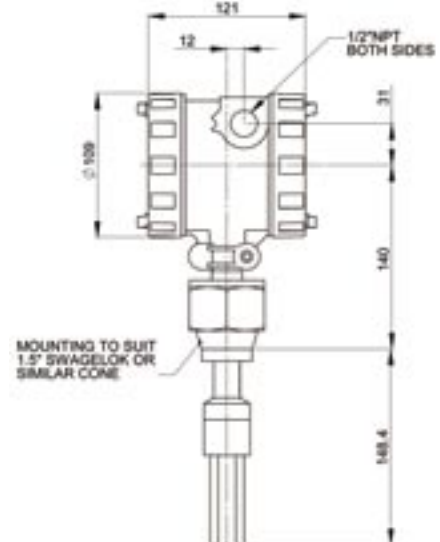
Solartron can provide a variety of installation accessories, such as weldolets, for direct pipeline insertion, or flow-through chambers, which provide the optimum environment for the 7826.

Ask for brochure IP7004 for more details.

### Flange connection details



### Cone seat connection details



Part Number Identification

Code	Product
7826	7826 Insertion Density Transducer
Code	Material
A	316 Stainless Steel, standard finish
C	316 Stainless Steel, electro-polished
F	316 Stainless Steel, PTFE laminated tines
V	304 Stainless Steel, standard finish
T	Titanium, standard finish
U	Hastelloy B2, standard finish
E	Hastelloy C22, standard finish
D	Hastelloy C22, electro-polished
G	Hastelloy C22, PTFE laminated tines
H	Monel 400, standard finish
J	Monel 400, electro-polished tines.
L	Monel 400, PTFE laminated tines
Z	Special: Use this letter code during quotation request.
Code	Amplifier System
A	Frequency output ATEX EEX d IIC T4 <200°C
Code	Amplifier Housing
A	Aluminium alloy [T4 (-40°C < Ta < +110°C)]
Code	Process Connections
A	2" ANSI 150 RF
B	2" ANSI 300 RF
C	2" ANSI 600 RF
D	2" ANSI 900 RF
F	2" ANSI 1500 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
J	2" Ladish Triclamp (Hygienic)
K	3" Ladish Triclamp (Hygienic)
L	2" IDF (Hygienic)
M	3" IDF (Hygienic)
N	1.5" Cone Seat Compression Fitting
Z	Special: Use this letter code during quotation request.
Code	Stem Length
A	0 mm : no stem extension and with standard spigot
Z	Special: Use this letter code during quotation request.
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
B	2" schedule 40 boundary
C	3" schedule 40 boundary
D	2" schedule 80 boundary
E	3" schedule 80 boundary
F	2" Hygienic
G	3" Hygienic
Z	Special: Use this letter code during quotation request.
Code	Factory Set Option
B	Factory set option
Code	Traceability
A	None
X	Certificates of material
7826	A A A A A A T L A B A (Typical Code)

## Specification

Density operating range:	0 - 3g/cc (0 - 3000kg/m <sup>3</sup> ) (0-187.4 lb/ft <sup>3</sup> )
Calibrated range:	0.6 - 1.25g/cc (600-1250kg/m <sup>3</sup> ) (38.5-80.25 lb/ft <sup>3</sup> )
Accuracy:	±0.001g/cc (±1.0kg/m <sup>3</sup> ) (±0.06 lb/ft <sup>3</sup> )
Repeatability:	±0.0001g/cc (±0.1kg/m <sup>3</sup> ) (±0.006 lb/ft <sup>3</sup> )
Temperature range:	
Process	-50°C to +200°C (-60°F to +392°F)
Ambient	-40°C to +85°C (-40°F to +185°F)
Electronics surface	-40°C to +110°C (-40°F to +230°F) (ATEX)
Pressure range (max working)	207bar (3000psi)
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, Hastelloy, Monel, Titanium
Tine finish:	Standard, PTFE coated or Electro-polished
Connections:	ANSI 150 to 600RF; DIN 50 PN40 and PN100 1.5" compression; IDF and RJT hygienic
Approvals:	
	ATEX            II 2G EEx d IIC T4
	CSA            Class 1, Division 1, Group C & D T4
	EMC            EN50081-2, EN50082-2 (Industrial)

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