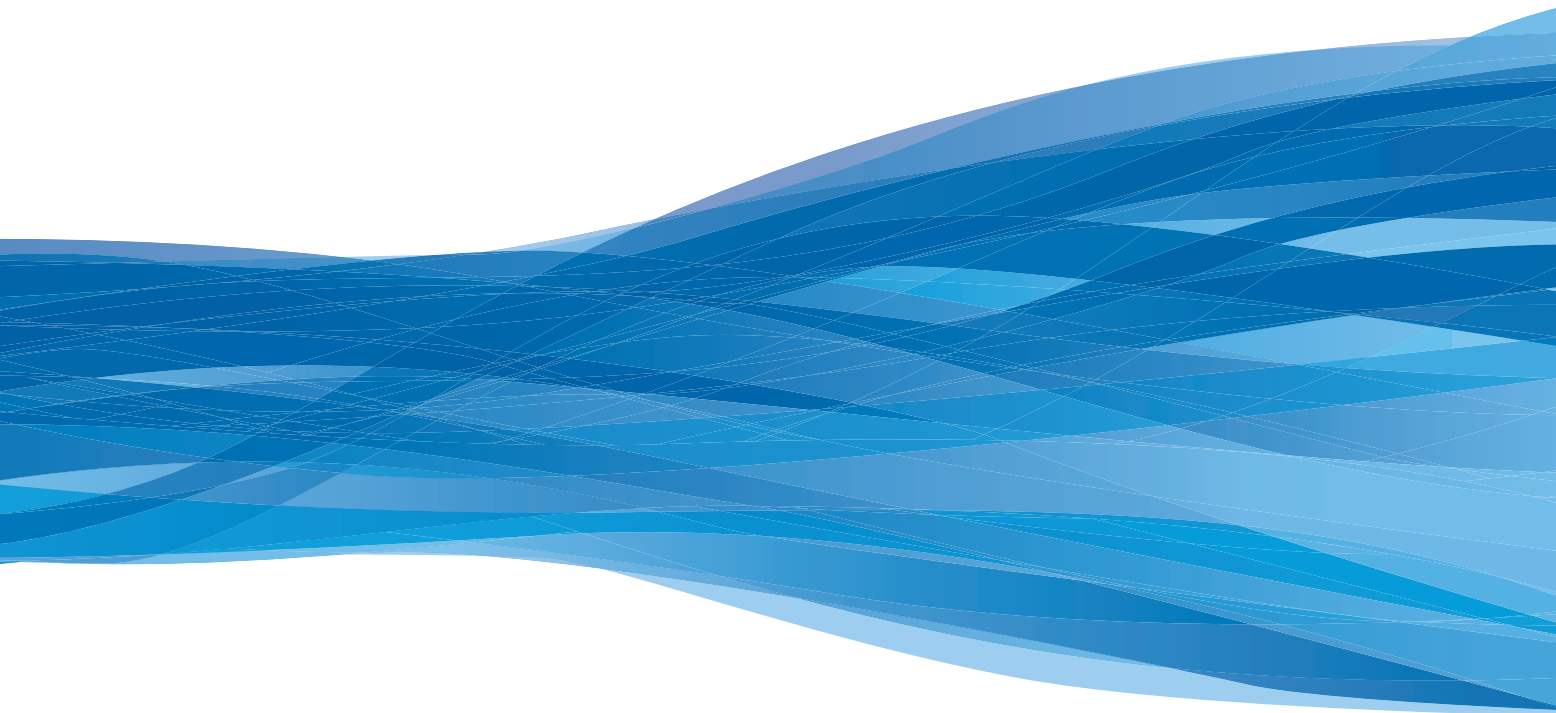


TRACERCO™ Smart Interface Gauge

Type PRI 150-H



TRACERCO™ Smart Interface Gauge

The **TRACERCO™** Smart Interface Gauge is a non-intrusive, non-wetted field instrument which utilizes advanced nucleonic measurement technology. The instrument, which is a fully bespoke design, can easily be fitted to new production vessels or retrofitted onto existing units.

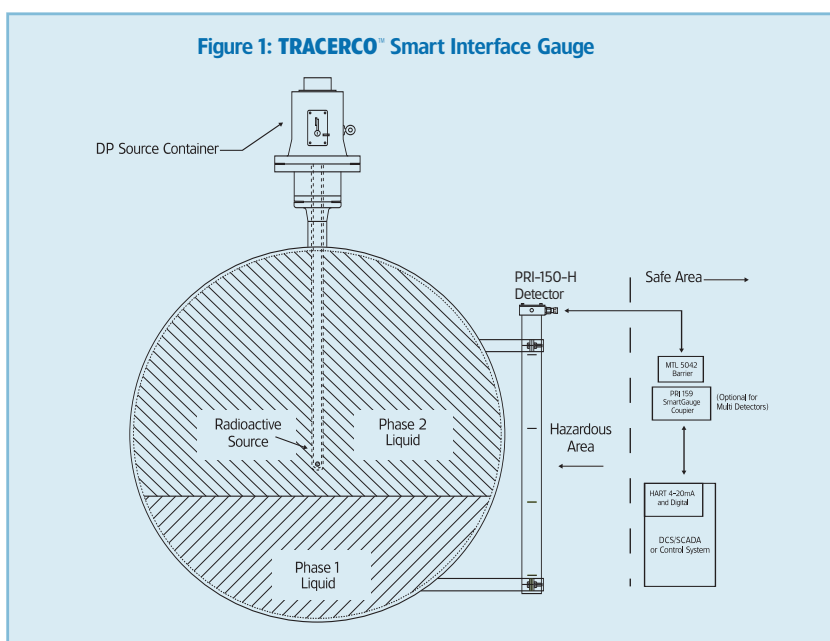
Principle of Operation

One or more gamma ray sources, which are typically either Caesium-137 or Cobalt-60, are housed internally within the vessel in a dip-pipe which is sealed to the process environment. A shielded container which has a lockable shutter mechanism is housed on the dip-pipe, allowing the source(s) to be isolated when not in use.

In position, the source emits gamma radiation which penetrates the process fluids and vessel wall as shown in Figure 1. A radiation detector is mounted externally to the vessel and adjacent to the source.

The response on the radiation detector is a function of the density of the material between the gamma-ray source and the detector. The greater the density of the fluid phase, the greater the attenuation of the gamma rays and therefore the response from the detector tubes is reduced.

As the interface between the two phases changes, and possibly the bulk level, the attenuation of the gamma rays on the detector tubes changes. This in turn alters the signal from the PRI 150 as a 4–20mA and a **HART™** signal. This signal is then linked to the customers DCS system where it can be connected to the systems control algorithms.



Utilizing HART Technology

The **TRACERCO**™ Smart Density Gauge utilizes advanced **HART**™ technology, which means there is:

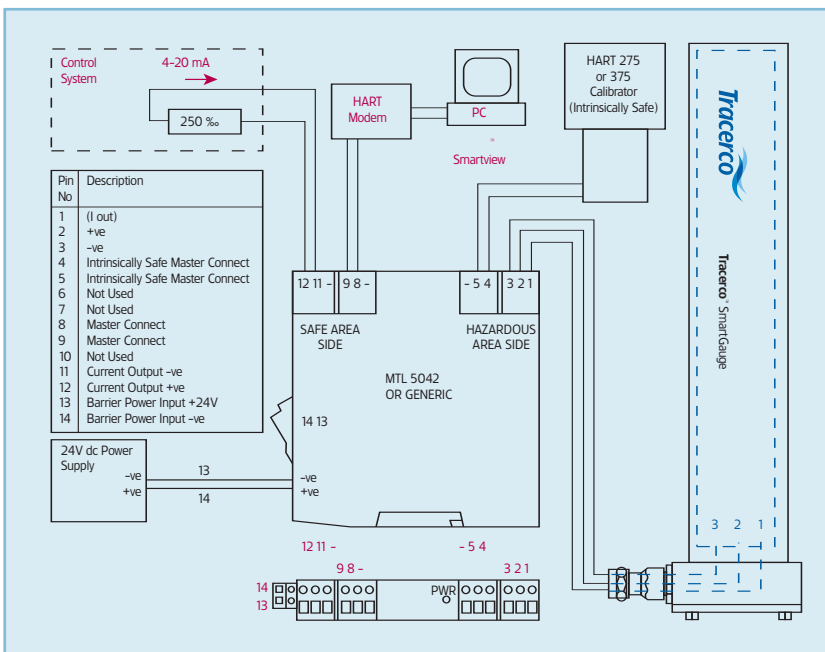
- A **HART**™ Digital Interface allowing direct communications via the customer's DCS system.
- Full **HART**™ protocol allowing asset management

Features of the Instrument

The **TRACERCO**™ Smart Interface Gauge has a number of key features that differentiate it from the other industrial level gauges:

- It provides real-time, in vessel measurements
- It has no moving or wetted parts, leading to reduced maintenance and high reliability

- The instrument detectors are externally mounted, allowing it to cope with the harshest process conditions, fluids or solids
- It is intrinsically safe, allowing it to be used in Zones 0, 1 and 2 hazardous areas
- Automatic compensation for source decay
- External automatic compensation for changes in vessel operating pressure
- Linear, table and logarithmic linearization options for level correction
- Extensive self-checking and diagnostic facilities



TRACERCO™ Smart Interface Gauge

Performance

Interface measurement	Detection Range is 240mm to 3360mm in 240mm stages. Accuracy 2% of measurement range
Output	4-20mA with HART™ communications protocol
Communicator	375 HART™ Communicator or TRACERCO™ SmartGauge Viewer for PC

Environmental

Operating temperature	-20 to +70°C
Sealing	Rated IP 66 (or IP68) to IEC 529:1989 and EN 60529:1991 No dust ingress. Protected against powerful water jets (IP68 option available)
EMC	Complies with the Directive 89/336/EEC

Electrical

Power supply	Powered by the MTL5042 or Generic Repeater Power Supply from a 20-35Vdc, 24Vdc (nom.) supply @75mA
Connection	Cable is 3 core screened or 2 twisted pairs with inner screen and optional braided armour. Max. cable run with 16/0.2mm cores (0.5mm ²) is 3280 ft 0.8" cable gland entry in top flange

Mechanical

Casing	Length - Detection range + 222mm Dia - body 63.5mm (top flange ~82.5mm dia.) Material - 316L stainless steel
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Approvals

Europe	Complies with the ATEX Directive 94/9/EC Cert. No. BAS01ATEX1344 Group & category II 1 G Code EEx ia IIC T4 (-40°C ≤ Ta ≤ 70°C) Suitable for Zone 0 operation
Canada (US approved)	Cert. No. 1448069 Code Ex ia IIC T4 (-40°C ≤ Ta ≤ 70°C) Suitable for Zone 1 hazardous location
USA (FM approved)	Project ID 3017927 Code AEx ia IIC T4 (-40°C ≤ Ta ≤ 70°C) Class 1, Div 1, Groups A, B, C, D Class 1, Zone 0 hazardous location

HART™ is used under licence from HART Communications Foundation.

Other TRACERCO™ Instruments:

The TRACERCO Profiler™	TRACERCO™ PhaseGauge
TRACERCO™ Smart Level Gauge	TRACERCO™ Smart Density Gauge
TRACERCO™ Radiation Monitor	TRACERCO™ Mud Monitor



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