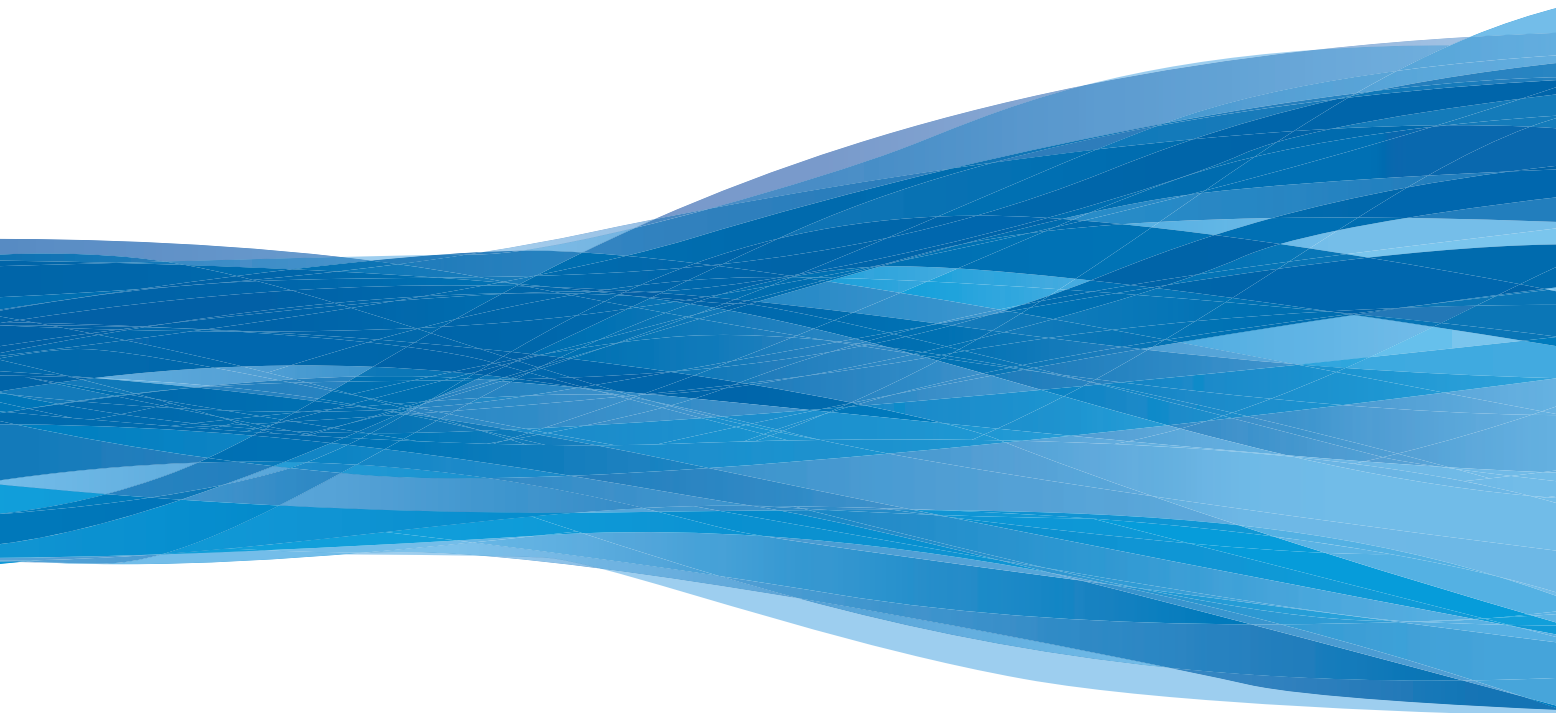


TRACERCO™ Smart Level Gauge

Type PRI 150-H



TRACERCO™ Smart Level Gauge

The **TRACERCO™** Smart Level 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.

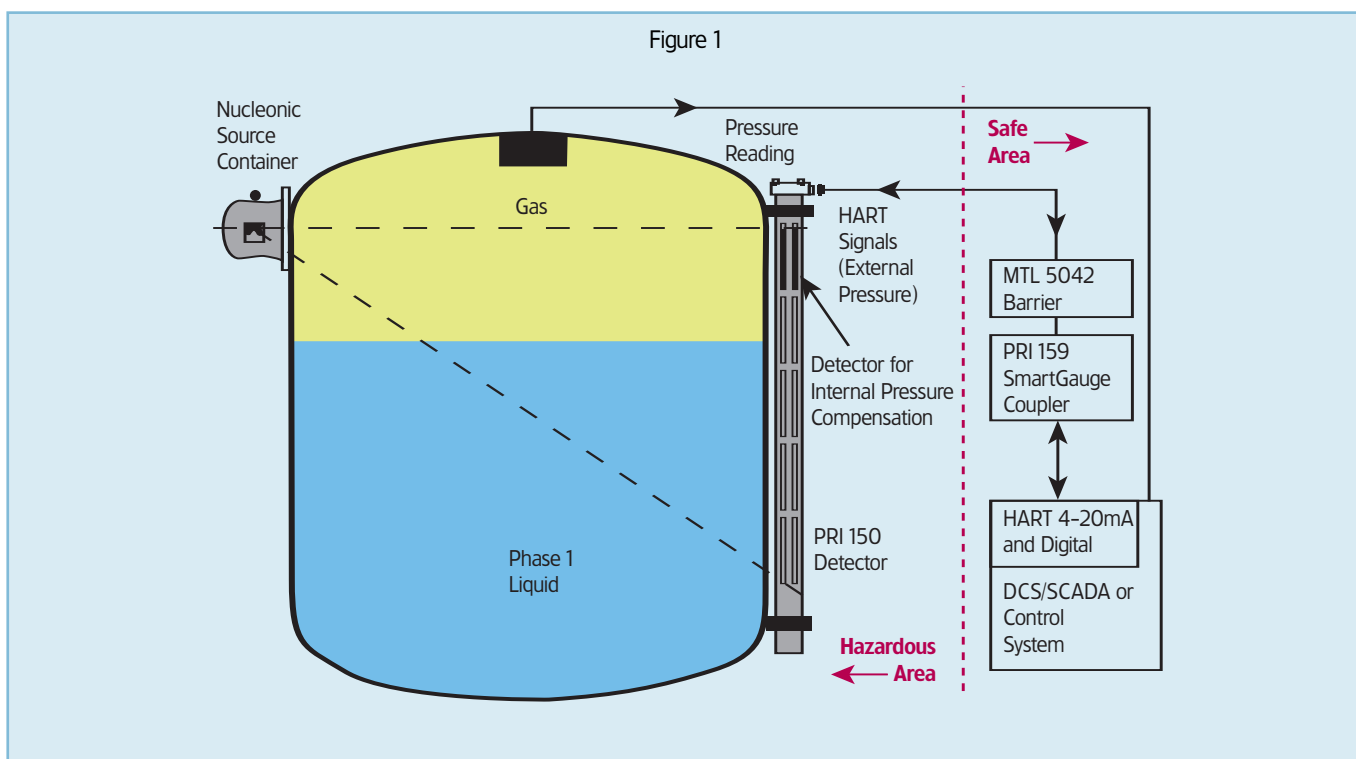
Principle of Operation

One or more gamma ray sources, which are typically either caesium or cobalt, housed within shielded containers are mounted externally to the vessel. (Sometimes internally if the vessel wall is extremely thick). The shielded container, which has a lockable shutter mechanism allowing the gamma rays to be isolated, produces a narrow beam of gamma rays which are emitted across the vessel, as shown in Figure 1.

These weak gamma rays are detected on the other side of the vessel, using sensitive radiation detectors which are also mounted externally to the vessel.

As the level rises in the vessel, the gamma rays from the shielded sources are attenuated by the process fluid and the response on the detector tubes is reduced. This in turn, increases proportionally the signal from the PRI 150 as a 4–20 mA and a **HART™** signal.

This signal is then linked to the customer's DCS system where it can be connected to the system's control algorithms.



Utilizing HART Technology

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

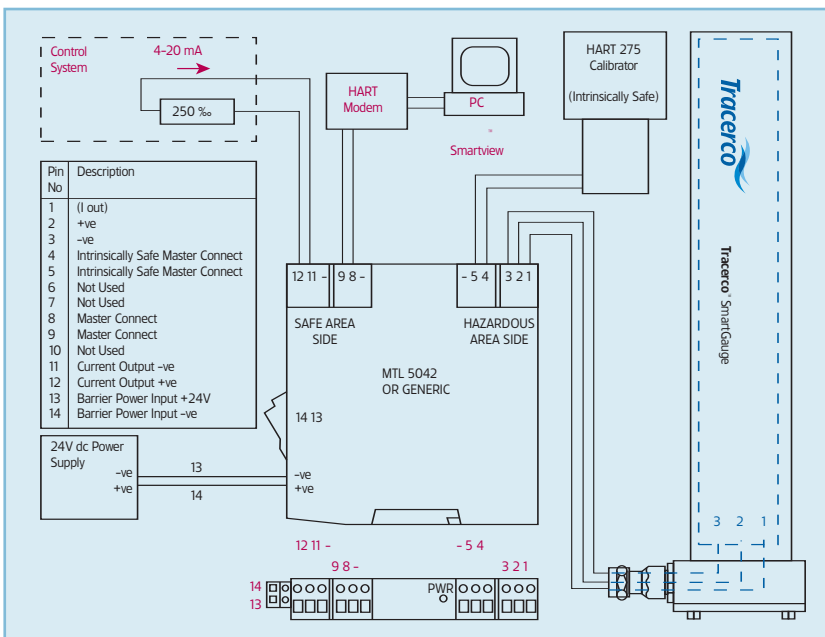
- A **HART**™ Digital Interface allowing direct communications via the customer's DCS system.
- Full **HART**™ protocol allowing asset management

Features of the Instrument

The **TRACERCO**™ Smart Level 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 is 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 Level Gauge

Performance

Interface measurement	Detection range is 240mm to 3360mm... Accuracy 2% of measurement range. Intrinsic pressure correction is optional with the top detection stage used for sensing changes in gas density
Output Communicator	4-20mA with HART™ communications protocol 375 HART™ Communicator or TRACERCO™ Smart Gauge 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 Repeater or Generic 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 63.5 (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)	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 Interface Gauge	TRACERCO™ Smart Density Gauge
TRACERCO™ Radiation Monitor	TRACERCO™ Mud Monitor

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