

SOLITRAC 31

Foundation Fieldbus

Radiometric sensor for continuous level and interface measurement



Application area

The SOLITRAC 31 is a radiometric sensor with PVT rod detector for continuous measurement of liquids and bulk solids. It is suitable for level and interface measurement under extreme process conditions, in aggressive products or products with critical properties. The SOLITRAC 31 is ideal for use in cylindrical vessels, reactors, autoclaves, separators and mixing vessels.

Your benefit

- High plant availability through non-contact measurement
- Best measurement performance through PVT detector with maximum sensitivity
- Simple mounting through supplied accessory

Function

In radiometric measurement, a Caesium-137 or Cobalt-60 isotope emits focussed gamma rays. A special sensor on the opposite side of the vessel receives this radiation. The scintillator of the sensor converts these gamma rays into signals, the number of which is detected and evaluated. Since gamma rays are attenuated when penetrating matter, the sensor is able to calculate the level, the limit level, the density and the mass flow rate from the intensity of the received radiation.

Technical data

Measuring range	0.5 ... 3 m (1.64 ... 9.84 ft)
Non-repeatability	±0.5 % at -40 °C ... +60 °C (-40 °F ... +140 °F)
Ambient, storage and transport temperature	-40 °C ... +60 °C (-40 °F ... +140 °F) Extended range available

Voltage supply

Operating voltage	20 ... 72 V DC; 20 ... 253 V AC, 50/60 Hz
Max. power consumption	4 W; 6 VA

Analogue input

Input type	4 ... 20 mA passive
Internal load	250 Ω

Switching input

Input type	
– Open Collector	10 mA
– Relay contact	100 mA

Relay output

Switching voltage	max. 253 V AC/DC
Switching current	max. 3 A AC (cos phi > 0.9), 1 A DC
Breaking capacity	min. 50 mW, max. 750 VA AC, 40 W DC (with U < 40 V DC)

Digital FF output

Output signal	digital output signal, Foundation Fieldbus protocol
Physical layer	according to IEC 61158-2

Switching output

Type of output	NPN transistor output (floating)
Switching voltage	< 55 V DC
Load current	< 400 mA

General data

SIL qualification	Optionally up to SIL2
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Materials/Scintillator

The detector tube consists of stainless steel. Polyvinyltoluene (PVT) is used as scintillation material.

Housing versions

The housing is available as double chamber version of Aluminium or stainless steel in protection class IP66/IP67.

Electronics versions

The instruments are available in different electronics versions. Apart from the four-wire electronics with 4 ... 20 mA/HART, two purely digital versions with Profibus PA and Foundation Fieldbus are possible.

Approvals

Worldwide approvals are available for VEGA instruments, e.g. for use in hazardous areas, on ships or in hygienic applications.

The technical data in the respective safety instructions are valid for approved instruments (e.g. with Ex approval). In some cases, these data can differ from the data listed herein.

You can find detailed information on the existing approvals with the appropriate product on our homepage.

Adjustment

The adjustment of the instrument is carried out via the optional display and adjustment module PLICSCOM or via a PC with the adjustment software PACTware and corresponding DTM.

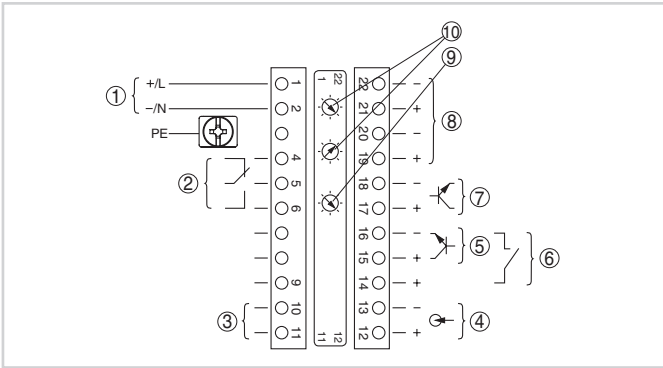
The Bluetooth version of display and adjustment module enables a wireless connection to standard adjustment units. This can be for example a PC with PACTware and Bluetooth USB adapter.

Here, the adjustment is carried out via the adjustment software PACTware and the respective DTM.



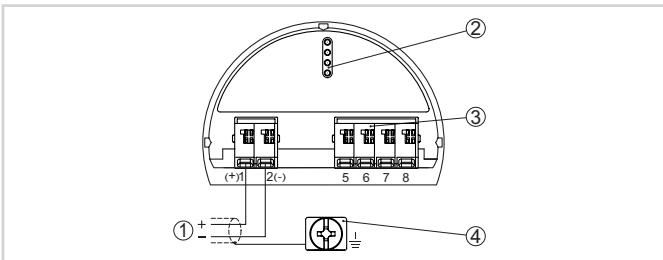
Electrical connection

Two connection chambers are available. Depending on the instrument version, the signal output is either in the primary or in the secondary chamber.



Primary terminal connections

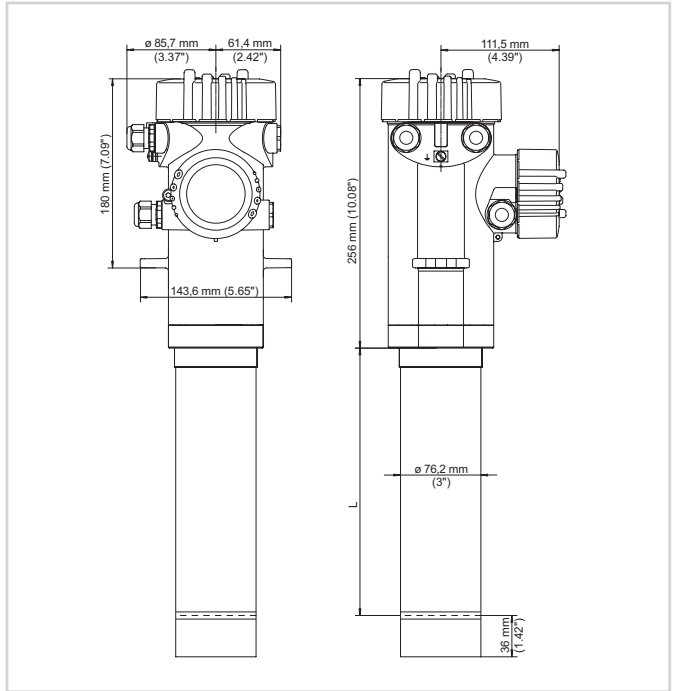
- 1 Voltage supply
- 2 Relay output
- 3 Signal output FF bus
- 4 Signal input 4 ... 20 mA (active sensor)
- 5 Switching input for NPN transistor
- 6 Switching input floating
- 7 Transistor output
- 8 Interface for sensor-sensor communication
- 9 Simulation switch (1 = simulation on)
- 10 Setting the bus address for sensor-sensor communication (MGC)



Secondary terminal connections (intrinsically safe devices)

- 1 Terminals for signal output FF bus
- 2 Contact pins for the display and adjustment module or interface adapter
- 3 Terminals for the external display and adjustment unit
- 4 Ground terminal

Dimensions



Dimensions SOLITRAC 31

Information

You can find further information on the VEGA product line on our homepage.

In the download section on our homepage you'll find operating instructions, product information, brochures, approval documents, instrument drawings and much, much more.

Software accessories such as the current device software and the appropriate operating software are also available there.

Instrument selection

On our homepage under "Products" you can select the suitable measuring principle and instrument for your application.

There you will also find detailed information on the available device versions.

Contact

You can find your personal contact person at VEGA on our homepage under "Contact".