

MINITRAC 31

Foundation Fieldbus

Radiation-based sensor for density measurement



Application area

The MINITRAC 31 is a radiation-based sensor for non-contact density measurement of liquids and bulk solids. The MINITRAC 31 detects the density contactlessly from outside through the pipeline or vessel wall. Through its compact design it is ideal for mounting in positions hardly to access and in narrow space applications.

Your benefit

- Simple retrofitting during production processes
- High plant availability through non-contact measurement
- Exact measuring results independent of process conditions

Function

In radiation-based 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

Repeatability	±0.1 % 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	min. 10 mV, max. 253 V AC, 253 V DC
Switching current	min. 10 µA, max. 3 A AC, 1 A DC
Breaking capacity	min. 50 mW, max. 750 VA AC, 40 W DC

Current output

Range	4 ... 20 mA/HART, active or passive
Max. load	500 Ω (300 Ω with intrinsically safe IS)

Switching output

Type of output	NPN transistor output (floating)
Switching voltage	< 55 V DC
Load current	< 400 mA
Weight	4.5 kg (10 lbs.)
SIL qualification	Optionally up to SIL2

Materials/Scintillator

Sodium iodide (NaI) is used as scintillation material.

Housing versions

The housing is available as double chamber version of Aluminium or stainless steel in protection class IP 66/IP 67.

Electronics versions

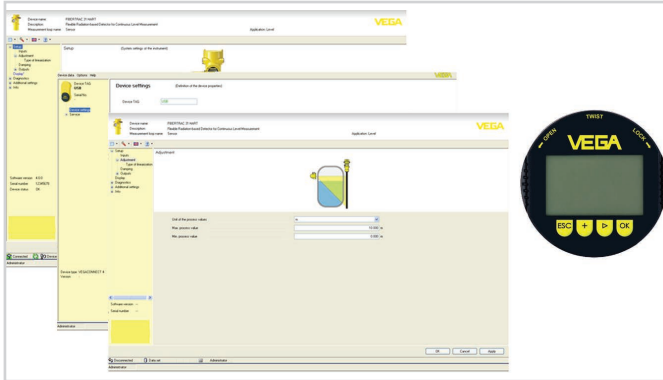
The instruments are available in different electronics versions. Apart from the four-wire electronics with 4 ... 20 mA/HART, two purely digital versions with Profibus PA and Foundation Fieldbus are possible.

Approvals

You can find detailed information on the existing approvals in the "configurator" on our homepage at www.vega.com/configurator.

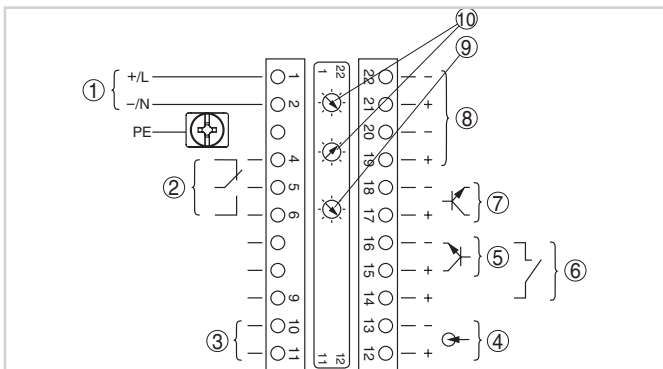
Operation

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. Further adjustment options are available via HART communicator as well as manufacturer-specific programs such as AMST™ or PDM.



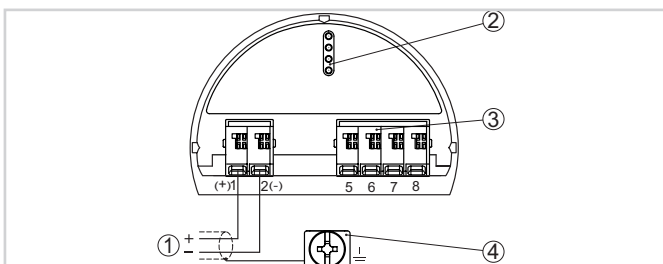
Electrical connection

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

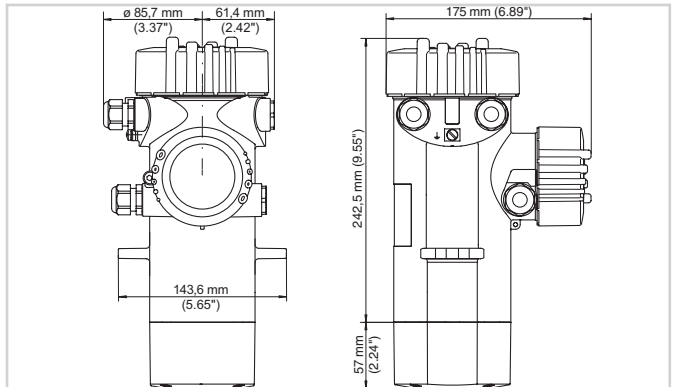
- 1 Voltage supply
- 2 Relay output
- 3 Signal output FF bus
- 4 Signal input 4 ... 20 mA (active sensor)
- 5 Switching input for NPN transistor
- 6 Switching input floating
- 7 Transistor output
- 8 Interface for sensor-sensor communication
- 9 Simulation switch (1 = simulation on)
- 10 Setting the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



Secondary terminal connections

- 1 8/16 mA output option (only intrinsically safe instruments)
- 2 PLICSCOM connection
- 3 Connections for external indication (VEGADIS 61)
- 4 Ground connection

Dimensions



Dimensions MINITRAC 31

Information

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

In the download section under www.vega.com/downloads you'll find free operating instructions, product information, brochures, approval documents, instrument drawings and much, much more.

Instrument selection

With the "Finder" at www.vega.com/finder and "VEGA Tools" you can select the most suitable measuring principle for your application. You can find detailed information on the instrument versions in the "Configurator" at www.vega.com/configurator and "VEGA Tools".

Contact

You can find the VEGA agency serving your area on our homepage www.vega.com.