VEGA

WEIGHTRAC 31
4 … 20 mA/HART - four-wire

Radiation-based sensor for mass flow detection

Application area

The WEIGHTRAC 31 is a radiation-based sensor for precise flow measurement of bulk solids. It is designed for mass flow determination on conveyor belts and in conveyor spirals in all industries. Due to its frame construction, the WEIGHTRAC 31 can be simply retrofitted on the conveyor belt.

Your benefit

- Wear-free, because non-contact measurement
- Exact determination of the delivery volume through simple setup

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 so-called scintillator 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 … 1.6 m (1.64 … 5.25 ft)
Reproducibility	±1 % from the measuring range final value
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

Turn-on 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)
Turn-on voltage	< 55 V DC
Load current	< 400 mA

Materials/Scintillator

The detector tube consists of stainless steel, the frame of galvanized steel or 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 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 under www.vega.com/configurator.

Adjustment

The adjustment of the instrument is carried out via the optional indicating 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 AMS™ or PDM.
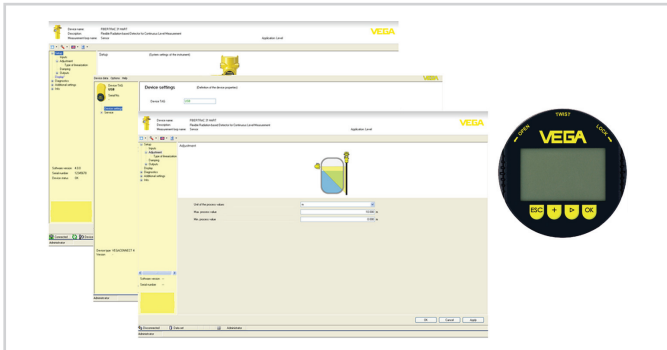
Electrical connection

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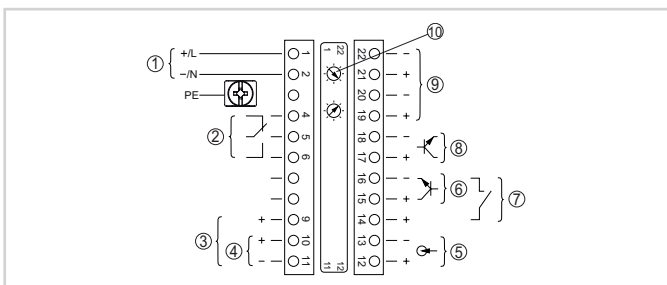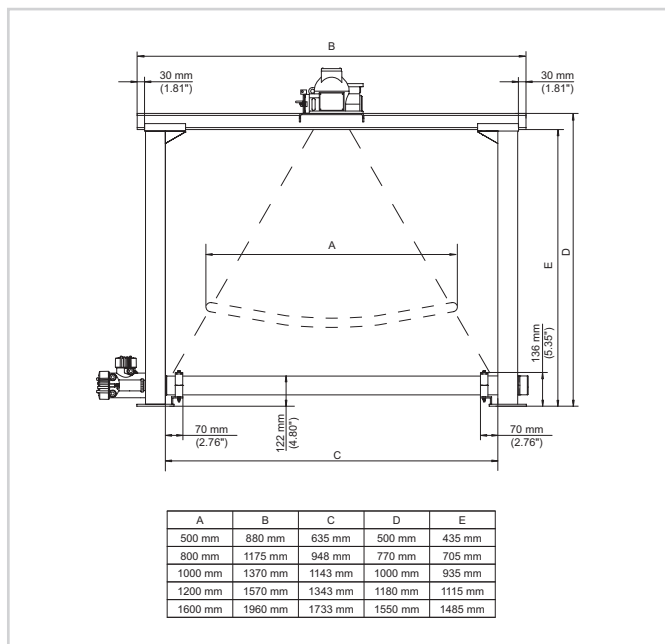
Primary terminal connections

1   *Voltage supply*
2   *Relay output*
3   *Signal output 4 … 20 mA/HART active*
4   *Signal output 4 … 20 mA/HART passive*
5   *Signal input 4 … 20 mA*
6   *Switching input for NPN transistor*
7   *Switching input floating*
8   *Transistor output*
9   *Interface for sensor-sensor communication*
10 *Setting the bus address for sensor-sensor communication (MGC)*
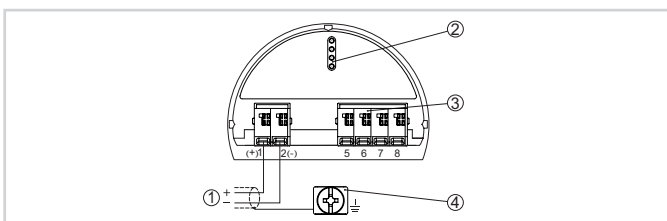
Secondary terminal connections

1   *4 … 20 mA output option (only intrinsically safe instruments)*
2   *PLICSCOM connection*
3   *Connections for external indication (VEGADIS 61)*
4   *Ground connection*

Dimensions

Dimensions WEIGHTRAC 31

Source container not in the scope of delivery

A	B	C	D	E
500 mm	880 mm	635 mm	500 mm	435 mm
800 mm	1175 mm	948 mm	770 mm	705 mm
1000 mm	1370 mm	1143 mm	1000 mm	935 mm
1200 mm	1570 mm	1343 mm	1180 mm	1115 mm
1600 mm	1960 mm	1733 mm	1550 mm	1485 mm

Information

You can find further information about 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*" on 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*" on www.vega.com/configurator and "*VEGA Tools*".

Contact

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