Product information

Separating and protective instruments

VEGATRENN 141
VEGATRENN 142
VEGATRENN 151
VEGATRENN 152

Document ID: 31996

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Take note of safety instructions for Ex applications

Please note the Ex specific safety information which you can find on our homepage www.vega.com/downloads under " *Approvals*" and which comes with every instrument. In hazardous areas you should take note of the corresponding regulations, conformity and type approval certificates of the sensors and power supply units. The sensors must only be operated on intrinsically safe circuits. The permissible electrical values are stated in the certificate.

31996-EN-210129

1 Product description

Application

Separators are used in all applications in which Ex-regulations need to be observed. They separate intrinsically safe circuits from non-intrinsically safe circuits. In addition to the galvanic separation from the connected PLC or the process control system, they supply the sensors. A basic distinction is made here between the following instrument classes:

- Ex-separator VEGATRENN 141/142 (with own voltage supply)
- Separator VEGATRENN 151/152 (without own voltage supply, loop-powered)

The current generated by the sensor (4 … 20 mA) is transmitted to the output linearly and galvanically separated.

All instruments are suitable for the bidirectional transmission of HART signals. The HART signal can be tapped via the built-in HART communication sockets on the front or via the terminals. The sensors connected to the VEGATRENN can therefore be parametrised with a VEGACONNECT or HART adjustment unit. The full HART permeability enables unhindered access to the sensor settings.

2 Type overview

VEGATRENN 141

VEGATRENN 142

Mounting	Carrier rail mounting	Carrier rail mounting
Application	Galvanically separated voltage supply of an Ex approved 4 … 20 mA sensor	Galvanically separated voltage supply of two Ex approved 4 … 20 mA sensors
Measurement loops	1 Measurement loop	2 measurement loops
Functions	● Galvanic separation ● Intrinsically safe supply ● Bidirectional HART communication	● Galvanic separation ● Intrinsically safe supply ● Bidirectional HART communication
Sensor inputs	1 x 4 … 20 mA with sensor power supply (active)	2 x 4 … 20 mA with sensor power supply (active)
Current outputs	1 x 4 … 20 mA (active)	2 x 4 … 20 mA (active)
Voltage supply	Separate voltage supply required (24 … 230 V AC 50/60 Hz or 24 … 65 V DC)	Separate voltage supply required (24 … 31 V DC)
Display on the instrument	● LEDs for operation/fault signal	● LEDs for operation/fault signal
Ambient temperature	-20 … +60 °C (-4 … +140 °F)	-20 … +60 °C (-4 … +140 °F)
Approvals	● ATEX ● IEC ● cULus ● Ship approval ● SIL2	● ATEX ● IEC ● cULus ● Ship approval ● SIL2

VEGATRENN 151

VEGATRENN 152

Mounting	Carrier rail mounting	Carrier rail mounting
Application	Galvanic separation of an Ex-approved 4 … 20 mA sensor	Galvanic separation of two Ex-approved 4 … 20 mA sensors
Measurement loops	1 Measurement loop	2 measurement loops
Functions	● Galvanic separation ● Bidirectional HART communication	● Galvanic separation ● Bidirectional HART communication
Sensor inputs	1 x 4 … 20 mA with sensor power supply (active)	2 x 4 … 20 mA with sensor power supply (active)
Current outputs	1 x 4 … 20 mA (passive)	2 x 4 … 20 mA (passive)
Voltage supply	Loop-powered, no separate voltage supply required	Loop-powered, no separate voltage supply required
Display on the instrument	-	-
Ambient temperature	-20 … +60 °C (-4 … +140 °F)	-20 … +60 °C (-4 … +140 °F)
Approvals	● ATEX ● IEC ● cULus ● Ship approval ● SIL2	● ATEX ● IEC ● cULus ● Ship approval ● SIL2

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3 Instrument selection

VEGATRENN 141

The single-channel VEGATRENN 141 serves for galvanic separation, intrinsically safe power supply as well as signal transmission of Ex-approved 4 … 20 mA/HART sensors in explosive areas. The separate voltage supply ensures reliable measured value transmission. The VEGATRENN 141 is used in all industrial areas also with Ex-applications. In the version without Ex-approval, the instrument can be used as a galvanically separated power supply unit for a reliable sensor supply.

The VEGATRENN 141 is suitable for the bidirectional transmission of HART signals. The HART signal can be tapped via the built-in HART communication sockets on the front or via the terminals. The sensors connected to the VEGATRENN can therefore be parametrised with a VEGACONNECT or HART adjustment unit. The full HART permeability enables unhindered access to the sensor settings.

VEGATRENN 142

The two-channel VEGATRENN 142 has the same functionality as the VEGATRENN 141. The VEGATRENN 142 contains two independent sensor inputs and evaluation current circuits.

VEGATRENN 151

The single-channel VEGATRENN 151 serves for galvanic separation of intrinsically safe applications as well as signal transmission of Ex-approved 4 … 20 mA sensors in explosive areas. The separator is ideal in connection with controllers which do not have their own Ex-approval. In the version without Ex-approval, the instrument can be used for galvanic separation of sensor and evaluation.

The VEGATRENN 151 is suitable for bidirectional transmission of HART signals. The HART signal can be tapped via the built-in HART communication sockets on he front or via the terminals. The sensors connected to the VEGATRENN can therefore be parametrised with a VEGACONNECT or HART adjustment unit. The full HART permeability enables unhindered access to the sensor settings.

VEGATRENN 152

The two-channel VEGATRENN 152 has the same functionality as the VEGATRENN 151. The VEGATRENN 152 contains two independent sensor inputs and evaluation circuits.

4 Selection criteria

VEGATRENN	141	142	151	152
Separators	x	x	-	-
Separator	-	-	x	x
Galvanic separation	x	x	x	x
Sensor circuit active/passive	x/-	x/-	x/-	x/-
Evaluation circuit active/passive	x/-	x/-	-/x	-/x
Pluggable connection terminals	x	x	x	x
HART port (VEGACONNECT/HART-Modem)	x	x	x	x
HART transparency	x	x	x	x
HART resistance	x	x	x	x
Status indication	x	x	-	-
Short-circuit and line break detection	x	x	-	-

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5 Mounting

The instruments are designed for carrier rail mounting (top hat rail 35 x 7.5 according to DIN EN 50022/60715). Due to their protection rating of IP 20, they are suitable for installation in switch cabinets. All instruments can be mounted horizontally or vertically.

The VEGATRENN is a corresponding, intrinsically safe equipment and must not be installed in hazardous areas of zone 0/1. A safe operation is only ensured if the operating instructions and EU type approval certificate are observed.

6 Electrical connection

6.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage
- If overvoltage surges are expected, overvoltage arresters should be installed

Note:
Install an easily accessible separator for the instrument for the VEGATRENN 141/142. The separator must be marked for the instrument (IEC/EN 61010).

Take note of safety instructions for Ex applications

In hazardous areas you must take note of the respective regulations, conformity and type approval certificates of the sensors and power supply units.

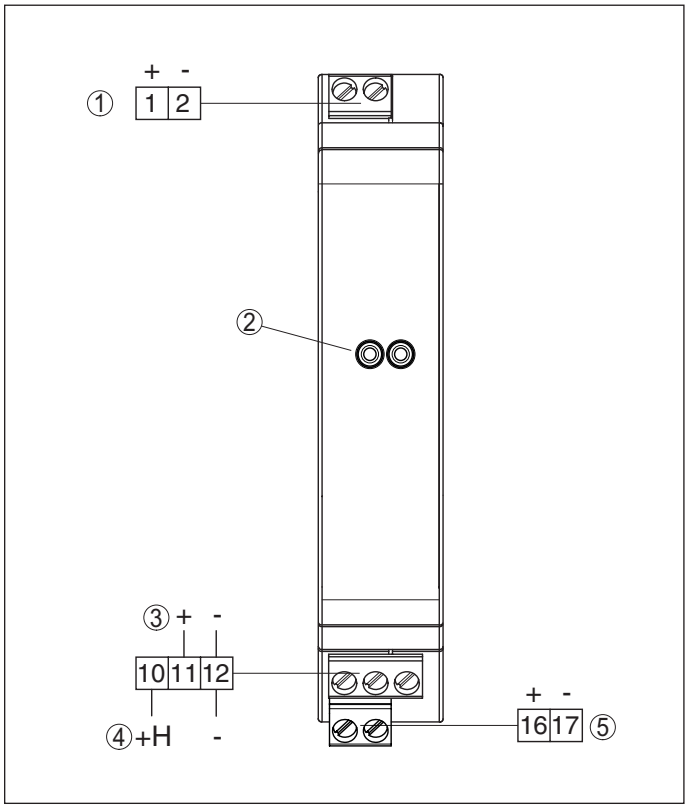
Voltage supply VEGATRENN 141/142

The rated range of the voltage supply in the VEGATRENN 141 may be 24 … 230 V AC 50/60 Hz or 24 … 65 V DC. The VEGATRENN 142 may only be supplied with 24 … 31 V DC. Details about the voltage supply can be found in the " *Technical data*" of the operating instructions.

Voltage supply VEGATRENN 151/152

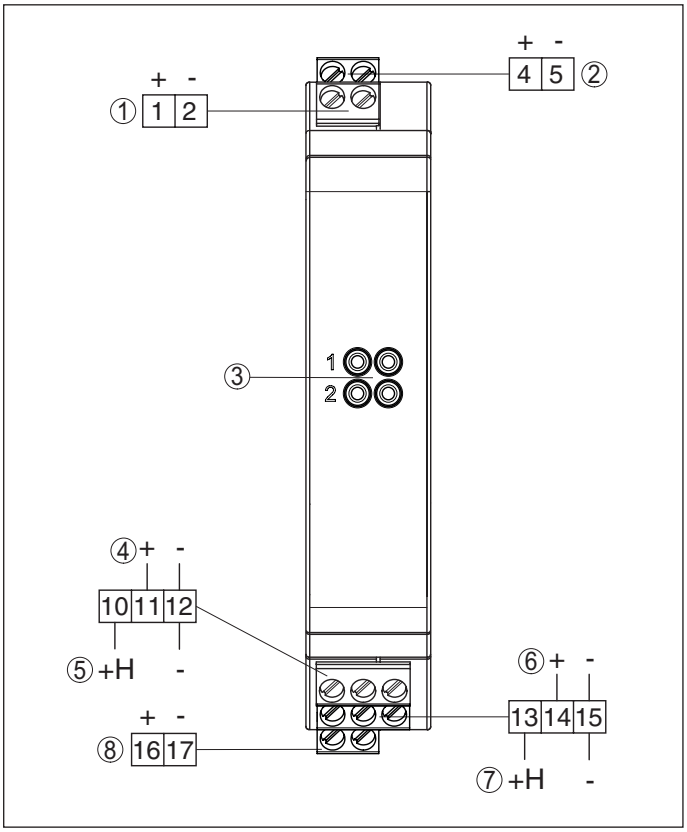
Voltage supply via the 4 … 20 mA signal cable (loop-powered). A separate auxiliary voltage is hence not necessary. The current input of the processing, e.g. a PLC or a display instrument must be active, i.e. providing the voltage supply of the sensors and the VEGATRENN. Details about the voltage supply can be found in the " *Technical data*" of the operating instructions.

6.2 Connection VEGATRENN 141



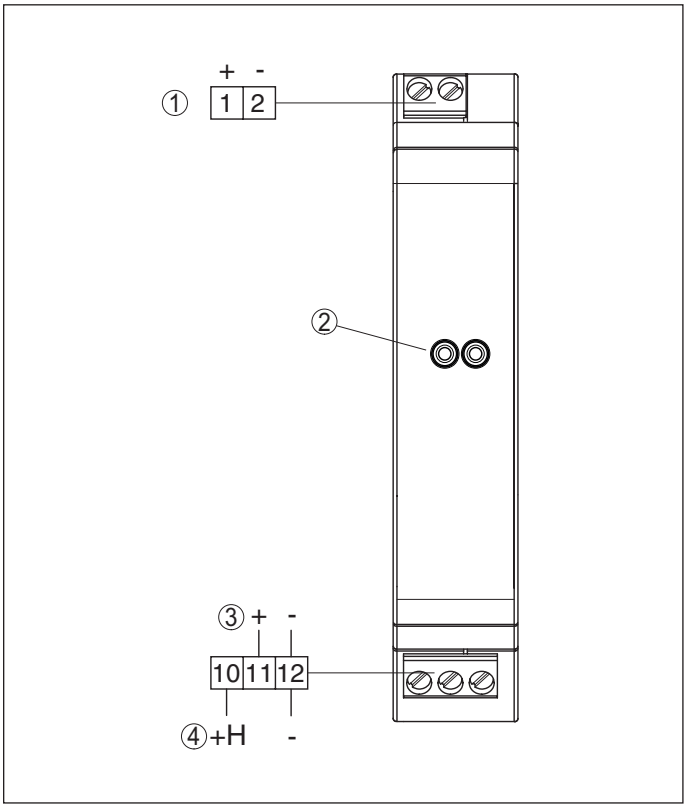
1 *Sensor circuit (4 … 20 mA/HART, Ex area)*
2 *HART communication sockets for connection of a HART handheld, e.g. a VEGACONNECT*
3 *Processing circuit (4 … 20 mA/HART, active output)*
4 *Processing circuit (4 … 20 mA/HART, active output with looped HART resistor)*
5 *Voltage supply*

6.3 Connection VEGATRENN 142



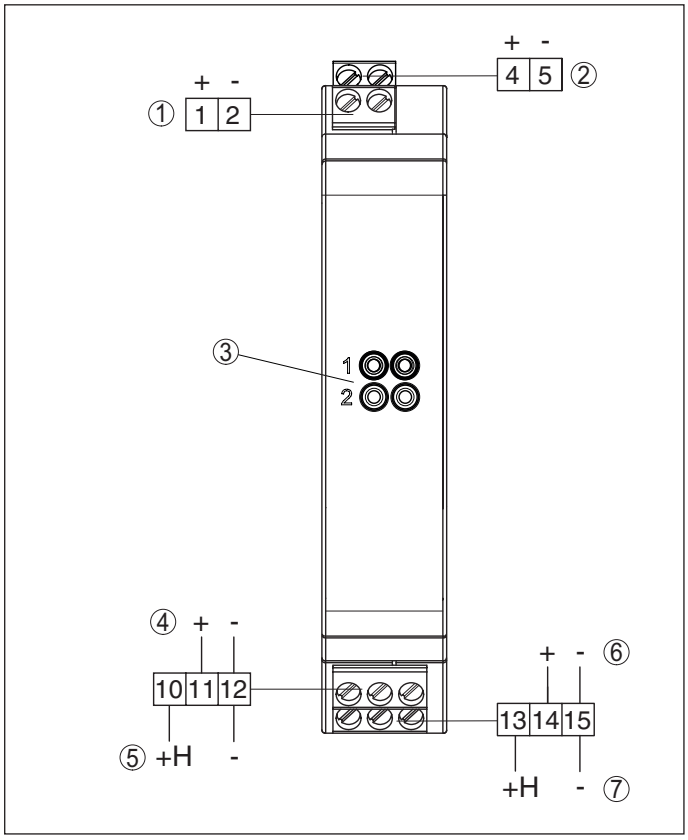
1 *Sensor circuit channel 1 (4 … 20 mA/HART, Ex area)*
2 *Sensor circuit channel 2 (4 … 20 mA/HART, Ex area)*
3 *HART communication sockets for connection of a HART handheld, e.g. a VEGACONNECT*
4 *Processing circuit channel 1 (4 … 20 mA/HART, active output)*
5 *Processing circuit channel 1 (4 … 20 mA/HART, active output with looped HART resistor)*
6 *Processing circuit channel 2 (4 … 20 mA/HART, active output)*
7 *Processing circuit channel 2 (4 … 20 mA/HART, active output with looped HART resistor)*
8 *Voltage supply*

6.4 Connection VEGATRENN 151



1 *Sensor circuit (4 … 20 mA/HART, Ex area)*
2 *HART communication sockets for connection of a HART handheld, e.g. a VEGACONNECT*
3 *Processing circuit (4 … 20 mA/HART, passive output)*
4 *Processing circuit (4 … 20 mA/HART, passive output with looped HART resistor)*

6.5 Connection VEGATRENN 152



1 *Sensor circuit 1 (4 … 20 mA/HART, Ex area)*
2 *Sensor circuit 2 (4 … 20 mA/HART, Ex area)*
3 *HART communication sockets for connection of a HART handheld, e.g. a VEGACONNECT*
4 *Processing circuit 1 (4 … 20 mA/HART, passive output)*
5 *Processing circuit 1 (4 … 20 mA/HART, passive output with looped HART resistor)*
6 *Processing circuit 2 (4 … 20 mA/HART, passive output)*
7 *Processing circuit 2 (4 … 20 mA/HART, passive output with looped HART resistor)*

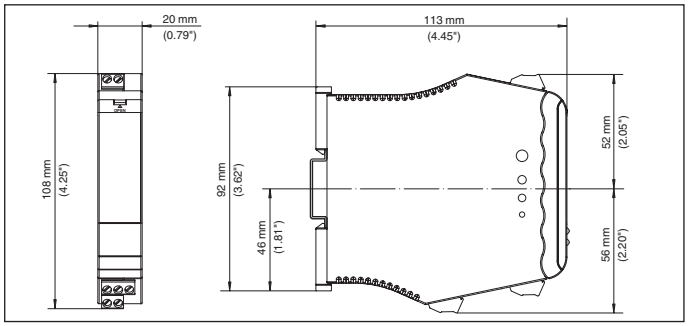
7 Adjustment

7.1 Adjustment on the evaluation instrument

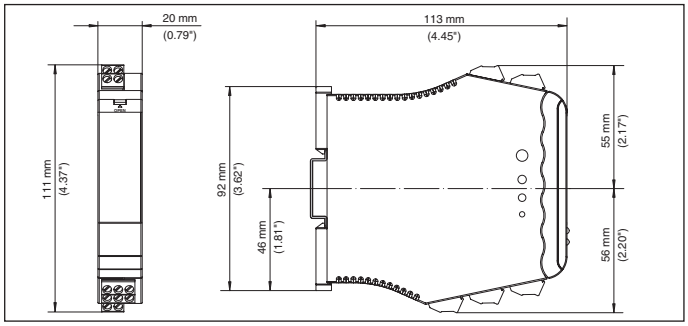
No adjustment or configuration is necessary on the instrument itself. Via the HART communication sockets, parameter adjustment of the connected HART sensors can be carried out without interrupting the measuring circuit. The resistor (230 Ω) required for this purpose is already integrated in the VEGATRENN (only in case of connection of terminals 10/12). The adjustment of the connected sensor is carried out via a Windows PC with a parameter adjustment software such as e.g. PACTware and corresponding DTM.

8 Dimensions

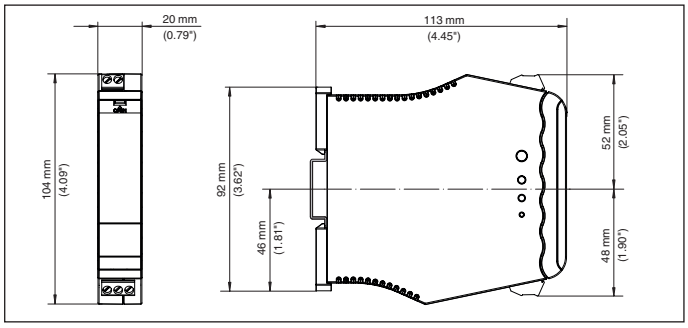
VEGATRENN 141



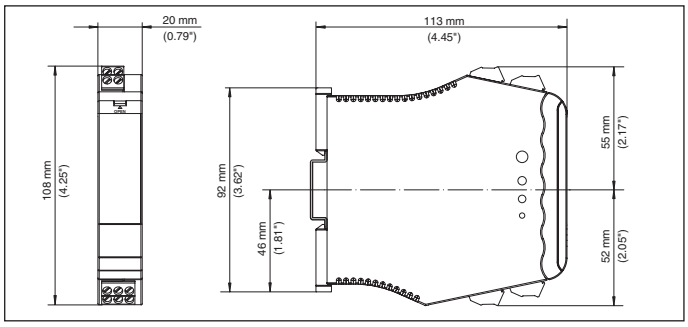
VEGATRENN 142



VEGATRENN 151



VEGATRENN 152



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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.
Subject to change without prior notice

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