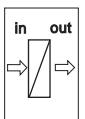
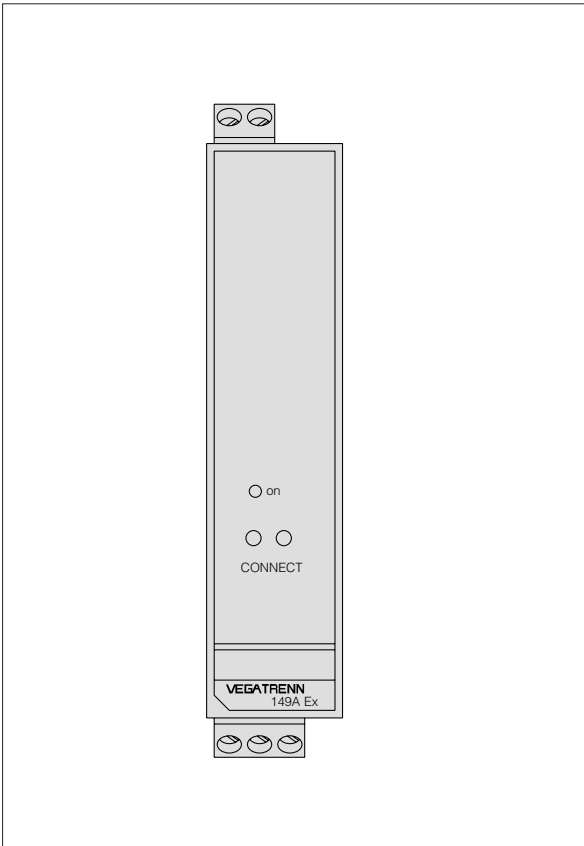


Operating Instructions

VEGATRENN 149A Ex



Safety information

Please read this manual carefully, and also take note of country-specific installation standards (e.g. the VDE regulations in Germany) as well as all prevailing safety regulations and accident prevention rules.

For safety and warranty reasons, any internal work on the instruments, apart from that involved in normal installation and electrical connection, must be carried out only by qualified VEGA personnel.



Note Ex area

Please note the attached safety instructions containing important information on installation and operation in Ex areas.

These safety instructions are part of the operating instruction and come with the Ex approved instruments.

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1 Product description

1.1 Function and configuration

VEGATRENN 149A Ex is a separator with separate power supply for intrinsically safe supply of (4 ... 20 mA) two-wire sensors EEx ia. The instrument ensures a galvanic separation between sensor circuit and processing circuit and thus between Ex and non-Ex area.

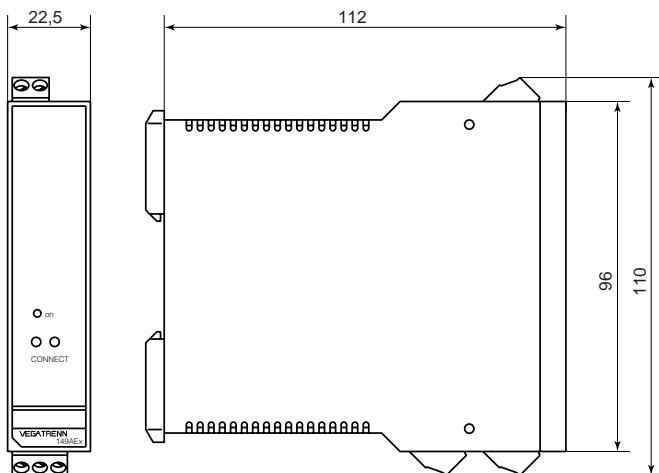
An integrated transmitter supply powers the connected sensor. The current from the sensor (4 ... 20 mA) is transmitted linearly to the output. The HART® communication sockets (R = 250 Ohm) mounted in the front enable a bidirectional transmission of HART® signals.

The blue connection terminals "I+" and "I-" are used for connection of a sensor. Signal conditioning instruments, e.g. an indicating instrument or a PLC system are connected to terminals "O+", "O-" and "O+H".

A HART® handheld or an interface connector VEGACONNECT are connected to the HART® communication sockets.

1.2 Dimensions

Housing, snap-in rail mounting (EN 50 022-35).



2 Technical data

Sensor circuit

Number	1
Supply voltage	16,7 V \pm 0.2 V (at 20 mA)
No-load voltage	26 V \pm 5 %
Short-circuit current	\leq 32 mA
Internal resistance	328 Ohm

Sensor circuit, intrinsically safe (max. values in case of failure)

No-load voltage	$U_0 \leq 27.3$ V
Short-circuit current	$I_0 \leq 84.1$ mA
Power	$P_0 \leq 576$ mW
Capacitances	
- [EEx ia] IIC	$C_0 \leq 86$ nF
- [EEx ia] IIB	$C_0 \leq 683$ nF
- [EEx ia] IIA	$C_0 \leq 683$ nF
Inductances	
- [EEx ia] IIC	$L_0 \leq 5.5$ mH
- [EEx ia] IIB	$L_0 \leq 20$ mH
- [EEx ia] IIA	$L_0 \leq 20$ mH

Processing circuit

Number	1
No-load voltage	24 V \pm 10 %
Galvanic separation	to all other circuits
Max. load (load resistance)	
- without communication resistance	0 ... 700 Ohm
- with communication resistance	0 ... 450 Ohm

Power supply

Supply voltage	20 ... 253 V AC/DC, 50/60 Hz
Power consumption	max. 2.4 W
Current consumption	max/ $I_n < 15$ mA
Electrical safety	acc. to EN 61 010-1
- protection class	I
- overvoltage category	II
- prescribed overload current protection system (in the range of 90 ... 253 V AC)	≤ 10 A

Accuracy

Reference conditions	calibration temperature 25 °C
Linearity	≤ 0.15 %
Load influence	≤ 0.1 %
Influence of the ambient temperature	
- in the range of 0 °C ... +50 °C	≤ 0.1 %/10 K
- in the range of -20 °C ... 0 °C	≤ 0.2 %/10 K

Connections

Terminals	coded, pluggable screw terminals, cross-section max. 2.5 mm ²
HART® communication sockets	on the instrument front (2 mm)

Function display

LED yellow lights in series to the current output,
if the output circuit is closed
operating current of the LED < 2 mA

Material/Weight

Housing material	polycarbonate/ABS, flammability class UL94V-0
Weight	approx. 150 g

Installation conditions

Installation position	no limitation
Installation instructions	vibration-free installation location protection against heat

Ambient conditions

Ambient temperature	-20 °C ... +50 °C
Storage and transport temperature	-20 °C ... +70 °C
Climatic class	acc. to EN 60 654-1, class B2
Protection	IP 20
EMC	interference resistance acc. to EN 61 326, class A (industrial environment)

Classification 

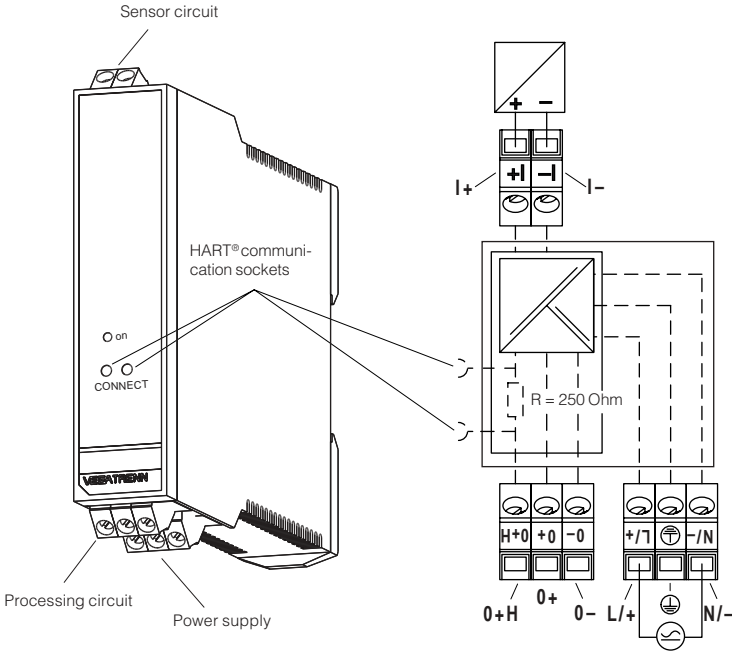
ATEX	II (1) GD [EEx ia] IIC
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CE conformity 

VEGATRENN 149A Ex meets the protective regulations of EMC (89/336/EWG) and NSR (72/23/EWG).

3 Electrical connection

3.1 Terminal assignment



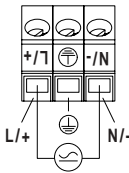
Designation	Terminal assignment	Input and output
L/+	L (AC); + (DC)	Power supply
N/-	N (AC); - (DC)	
⊕	Protective ground wire PE	
0+ 0- 0+H	Meas. signal + Meas. signal - Meas. signal + with integrated HART® communication resistance (250 Ohm)	Signal conditioning instrument, PLC Meas. signal (processing circuit) "Non-Ex area"
I+ I-	Meas. signal + Meas. signal -	Transmitter (sensor) Meas. signal (sensor circuit) "Ex area"
CONNECT	HART® communication sockets	HART® handheld or VEGACONNECT

3.2 Power supply

Before setup, make sure that the supply voltage corresponds to that stated on the type plate.

In the voltage range of 90 ... 253 V AC, an easily accessible switch (marked as separating facility) as well as an overvoltage protection system (nominal current ≤ 10 A) must be located near the instrument in the supply line.

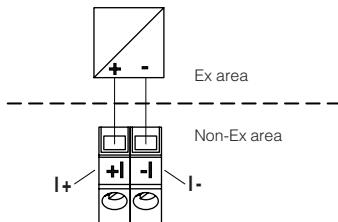
3.3 Sensor circuit



A sensor must be connected to the blue terminals "I+" and "I-". The sensor circuit of the VEGATRENN 149A Ex separator is separated from the processing circuit.

Note:

If, in case of long signal cables, voltage peaks (transients) are expected, an overvoltage arrester is recommended.

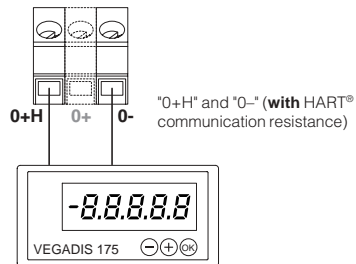


3.4 Processing circuit

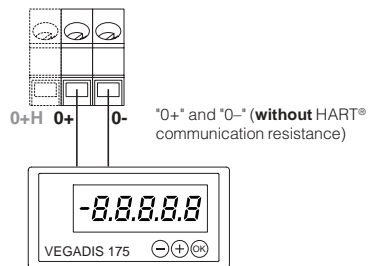
Processing systems, e.g. an indicating instrument or a PLC system are connected to the "0+", "0-" and "0+H" terminals.

If a HART® handheld or a VEGACONNECT interface converter is connected to the communication sockets in the front, the processing system can be connected to the "0+H" and "0-" terminals. The communication resistance necessary for HART® communication is already integrated in VEGATRENN 149A Ex.

Connection example, indicating instrument:



Two-wire connection to "0+H" and "0-" terminals when using HART® communication instruments.



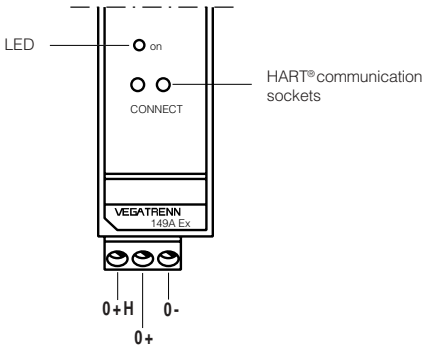
Two-wire connection to "0+H" and "0-" terminals.

3.5 Function display

The yellow LED in the front plate of VEGATRENN 149A Ex lights as soon as a processing system is connected.

Note:

If, in case of long signal cables, voltage peaks (transients) are expected, we recommend an overvoltage arrester.



3.6 HART® communication

A HART® communication can be achieved if a processing system is connected to the "0+H" and "0-" terminals. Without interrupting the measuring circuit, a HART® handheld or a VEGACONNECT interface adapter can be inserted into the HART® communication sockets in the front. The resistance (250 Ohm) required for these instruments is already integrated in VEGATRENN 149A Ex.



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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 latest information at the time of printing.

Technical data to subject to alterations