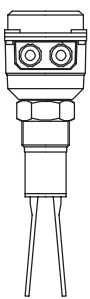
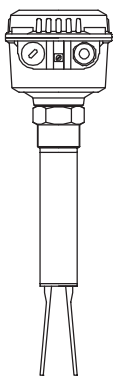
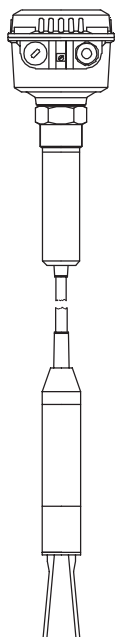
Vibranivo®

LEVEL. UP TO THE MAX.

Series VN 1000
VN 2000
VN 5000
VN 6000







Instruction manual

010523

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D-87488 Betzigau Fax: +49 (0)831 76879 E-Mail: info@uwtgroup.com

Scope of this instruction manual:	Types	VN 1020 1030 1050 VN 2020 2030 2050 VN 5020 5030 5050 VN 6020 6030 6050
	Approval	CE / TR-CU ATEX 1D 1/2D IEC-Ex t IIIC
	Electronic modules	Relay (SPDT, DPDT) PNP 2-wire without contact

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Safety /warning notes

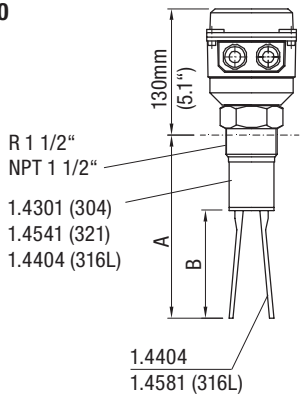
Installation, maintenance and commissioning may be accomplished only by qualified technical personnel.
For terminal connection of the device, the local regulations or VDE 0100 (Regulations of German electrotechnical Engineers) must be observed.
All field wirings must have insulation suitable for at least 250V AC. The temperature rating must be at least 90°C (194°F).

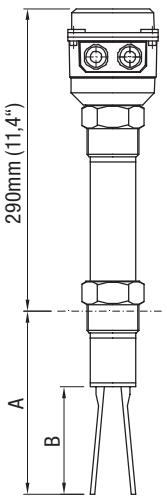
In the case of handling by untrained personnel or handling malpractice, the safety of the device cannot be guaranteed.

Fields of application

Level limit switch for level limit detection in powder and bulk materials.

VN 1020
VN 2020

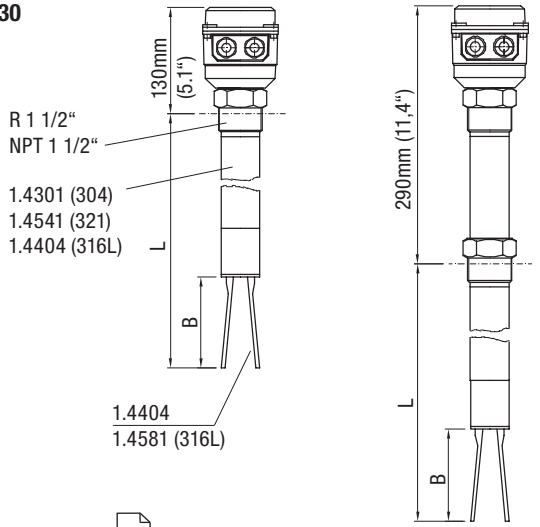




A, B → 11

°C	① → 12	② → 12
P	-1 .. +16bar (-14.5 .. +232psi)	-1 .. +16bar (-14.5 .. +232psi)
kg	~ 1,6kg (3.5 lbs)	~ 2,3kg (5 lbs)

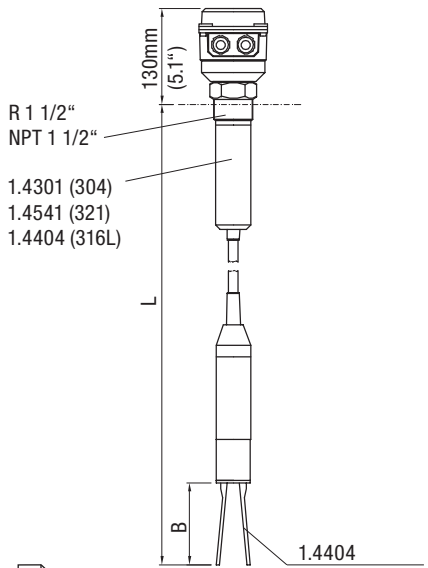
VN 1030
VN 2030



B, L → 11

°C	① / ② → 12	② → 12
P	-1 .. +16bar (-14.5 .. +232psi)	-1 .. +16bar (-14.5 .. +232psi)
kg	~ 1,6kg (3.5 lbs) +2,5kg/m (+5.5 lbs per 39.9“) (L)	~ 2,3kg (5 lbs) +2,5kg/m (+5.5 lbs per 39.9“) (L)

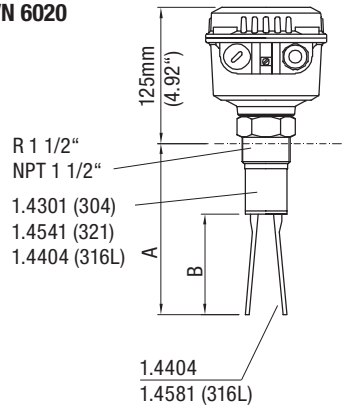
VN 1050
VN 2050

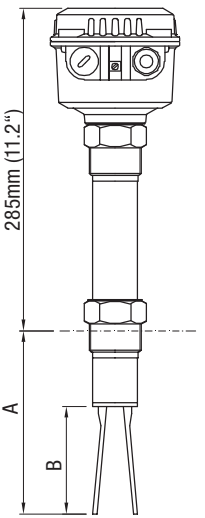


B, L → 11

°C	(3) → 12
P	-1 .. +6bar (-14.5 .. +87psi)
kg	~ 4,0 kg (8.8 lbs) + 0,5 kg/m (+1.1 lbs per 39.9“) (L)

VN 5020
VN 6020

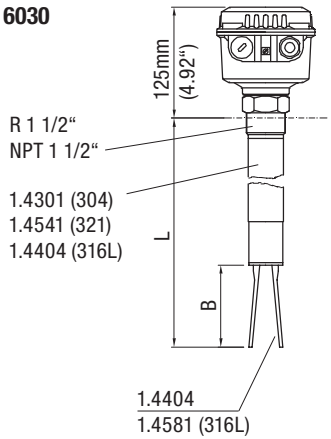


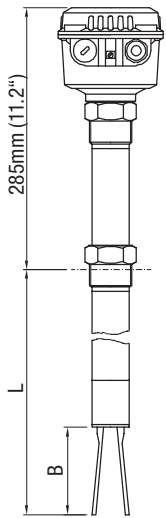


A, B → 11

°C	① → 12	② → 12
P	-1 .. +16bar (-14.5 .. +232psi)	-1 .. +16bar (-14.5 .. +232psi)
kg	~ 2,1kg (4.6 lbs)	~ 2,8kg (6.2 lbs)

VN 5030
VN 6030

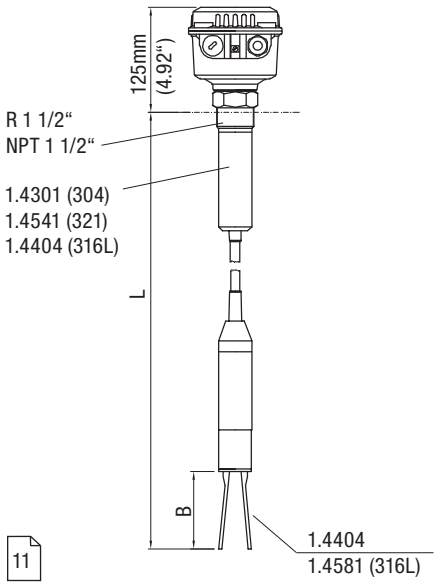




B, L → 11

°C	(1) / (2) → 12	(2) → 12
P	-1 .. +16bar (-14.5 .. +232psi)	-1 .. +16bar (-14.5 .. +232psi)
kg	~2,1kg (4.6lbs) +2,5kg/m (+5.5 lbs per 39.9") (L)	~2,8kg (6.2lbs) +2,5kg/m (+5.5 lbs per 39.9") (L)

VN 5050
VN 6050



°C	3 → 12
P	-1 .. +6bar (-14.5 .. +87psi)
kg	~ 4,5 kg (9.9 lbs) + 0,5 kg/m (+1.1 lbs per 39.9“) (L)

	A	B	L
VN 1020	165mm (6.5”)	100mm (3.94”)	
VN 1030		100mm (3.94”)	max. 4.000mm (157.5”)
VN 1050		100mm (3.94”)	max. 7.000mm (276”)

VN 2020	235mm (9.25”) (1) 260mm (10.2”)	170mm (6.69”) (1) 195mm (7.68”)	
VN 2030		170mm (6.69”) (1) 195mm (7.68”)	max. 4.000mm (157.5”)
VN 2050		170mm (6.69”) (1) 195mm (7.68”)	max. 20.000mm (787”)

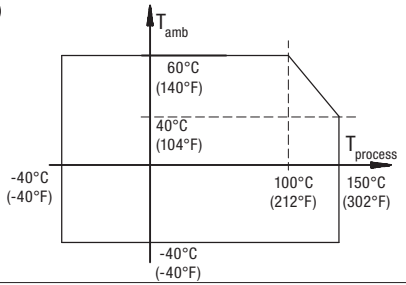
VN 5020	165mm (6.5”)	100mm (3.94”)	
VN 5030		100mm (3.94”)	max. 4.000mm (157.5”)
VN 5050		100mm (3.94”)	max. 7.000mm (276”)

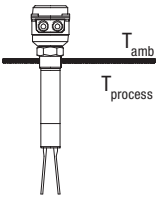
VN 6020	235mm (9.25”) (1) 260mm (10.2”)	170mm (6,69”) (1) 195mm (7.68”)	
VN 6030		170mm (6.69”) (1) 195mm (7.68”)	max. 4.000mm (157.5”)
VN 6050		170mm (6.69”) (1) 195mm (7.68”)	max. 20.000mm (787”)

(1) Option switching sensitivity > 5 g/ l (0.3 lb/ft³)

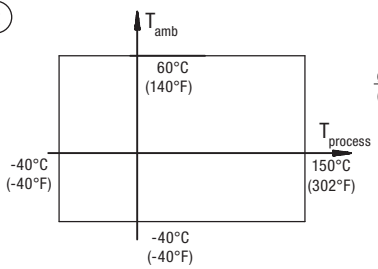

°C

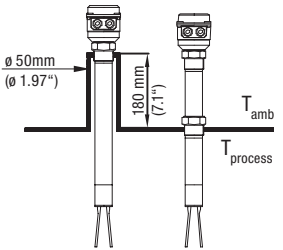
1


T amb
60°C
(140°F)
40°C
(104°F)
T process
-40°C
(-40°F)
100°C
(212°F)
150°C
(302°F)
-40°C
(-40°F)

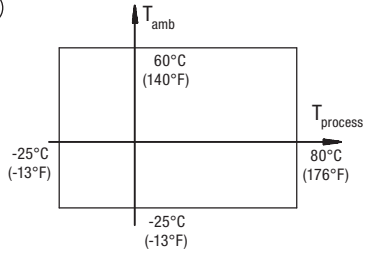

T amb
T process

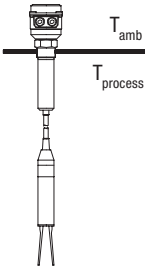
2


T amb
60°C
(140°F)
T process
-40°C
(-40°F)
150°C
(302°F)
-40°C
(-40°F)

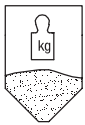

ø 50mm
(ø 1.97")
180 mm
(7.1")
T amb
T process

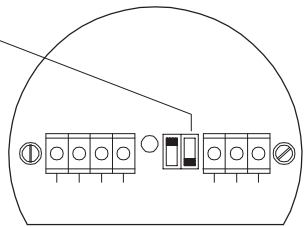
3


T amb
60°C
(140°F)
T process
-25°C
(-13°F)
80°C
(176°F)
-25°C
(-13°F)


T amb
T process

Sensitivity

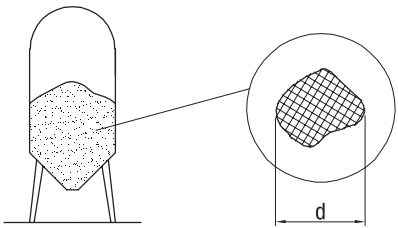




	B g/l	A g/l
VN 1000	50	150
VN 2000	20 / 5 (1)	75
VN 5000	50	150
VN 6000	20 / 5 (1)	75
	1g/l = 0.06 lb/ft³	

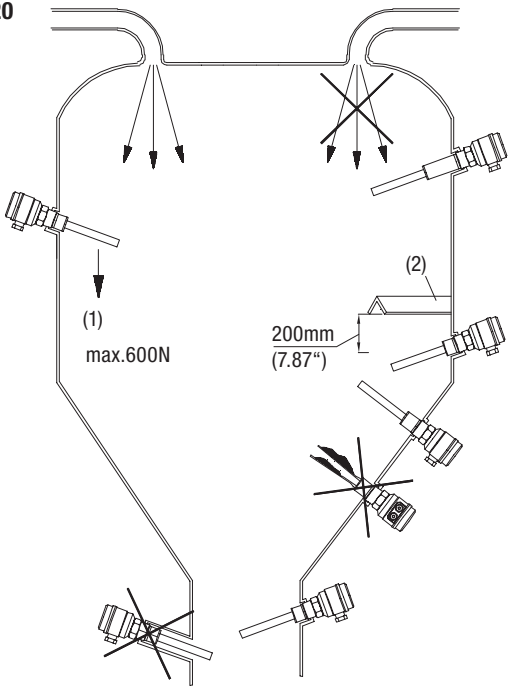
(1) Option switching sensitivity > 5 g/ l (0.3 lb/ft³)

Bulk material



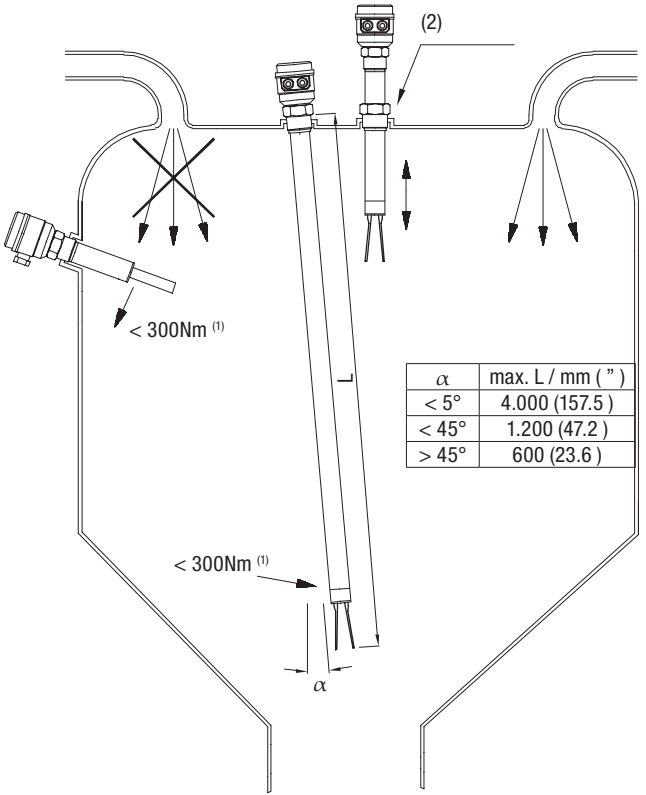
d < 10mm (0.39“)

VN 1020
VN 2020
VN 5020
VN 6020



(1) Mech. load of the sensor
(2) Protective angle (canopy) in case of high mechanical load

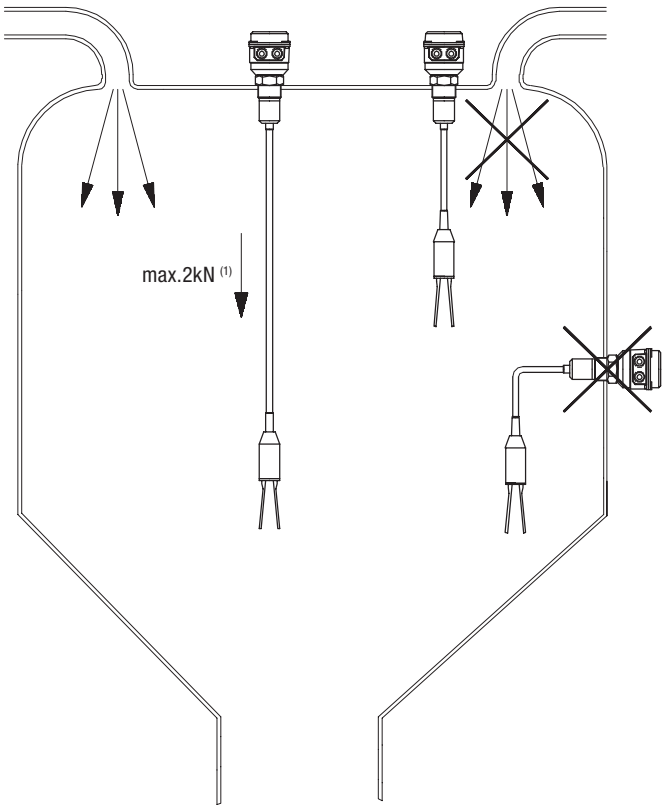
VN 1030
VN 2030
VN 5030
VN 6030



α	max. L / mm (”)
< 5°	4.000 (157.5)
< 45°	1.200 (47.2)
> 45°	600 (23.6)

(1) Mech. load of the sensor
(2) Sliding sleeve: Tighten straining screws with 20Nm

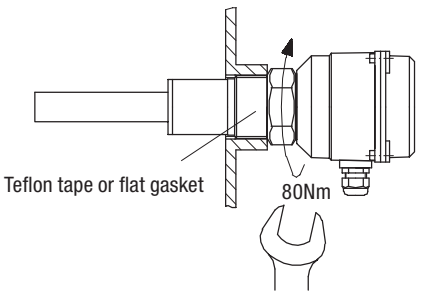
VN 1050
VN 2050
VN 5050
VN 6050



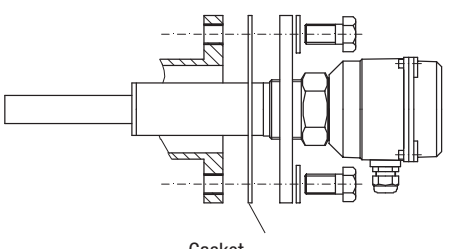
(1) Mech. load of the sensor

Assembly

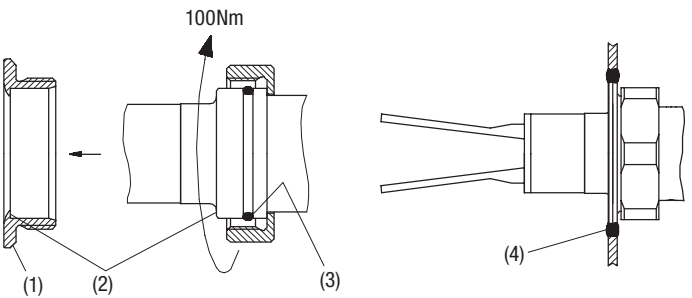
Fixing Threads



Fixing Flanges

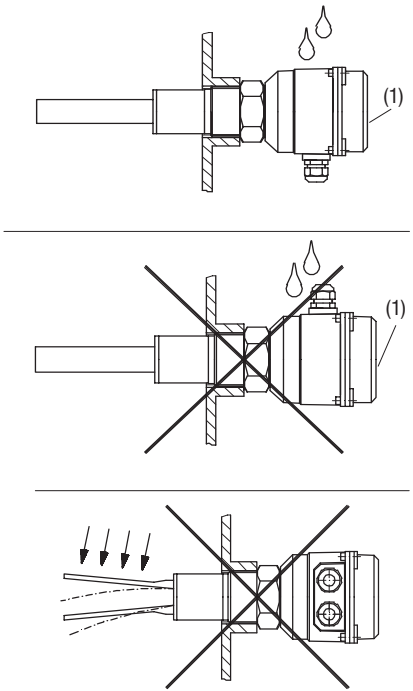


Fixing EHEDG



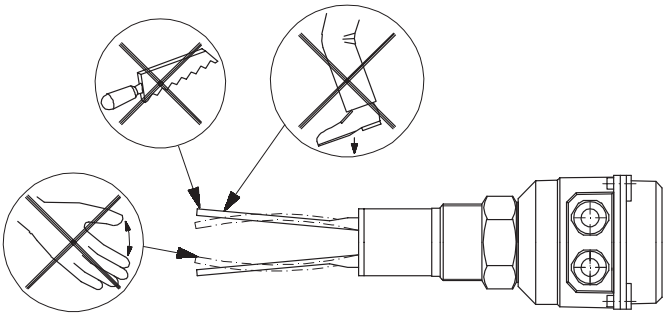
(1) Certified flush welding socket must be used
(2) Metal-metal support without any gap
(3) Sealing ring
(4) Welding (observe hygiene requirements)

Alignment

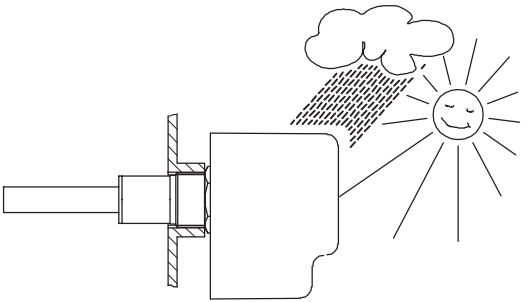


(1) Ingress protection
IP 66 / IP67

Treatment

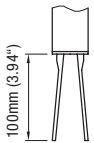
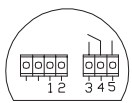
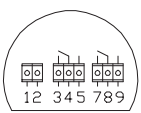
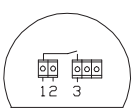
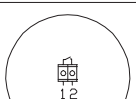


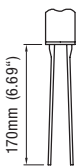
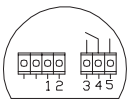
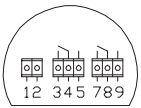
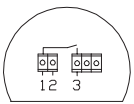
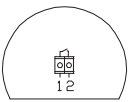
Option: Weather protection cover

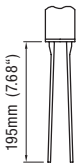
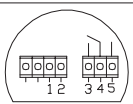
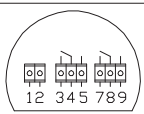
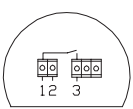
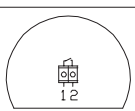


for Ex only approved for Zone 22

Spare parts

	**CE / ATEX / IEC-Ex:** VN 1020 VN 1030 **CE:** VN 1050	**ATEX / IEC-Ex:** VN 1050	**CE / ATEX / IEC-Ex:** VN 5020 VN 5030 **CE:** VN 5050	**ATEX / IEC-Ex:** VN 5050
 19...230V 50/60 Hz 19...55V DC	pl100932	pl100120	pl100932	pl100120
 19...230V 50/60 Hz 19...55V DC	pl100247	pl100052	pl100247	pl100052
 18...50V DC PNP	pl100246	pl100123	pl100246	pl100123
 19...230V AC/DC	pl100242	pl100122	pl100122	pl100172

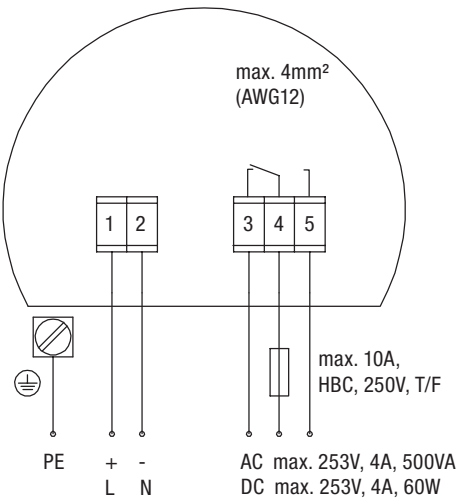
	**CE / ATEX / IEC-Ex:** VN 2020 VN 2030 **CE:** VN 2050	**ATEX / IEC-Ex:** VN 2050	**CE / ATEX / IEC-Ex:** VN 6020 VN 6030 **CE:** VN 6050	**ATEX / IEC-Ex:** VN 6050
 19...230V 50/60 Hz 19...55V DC	pl100930	pl100124	pl100930	pl100124
 19...230V 50/60 Hz 19...55V DC	pl100193	pl100050	pl100193	pl100050
 18...50V DC PNP	pl100176	pl100127	pl100176	pl100127
 19...230V AC/DC	pl100182	pl100126	pl100126	pl100126

	**CE / ATEX / IEC-Ex:** VN 2020 VN 2030 **CE:** VN 2050	**ATEX / IEC-Ex:** VN 2050	**CE / ATEX / IEC-Ex:** VN 6020 VN 6030 **CE:** VN 6050	**ATEX / IEC-Ex:** VN 6050
 19...230V 50/60 Hz 19...55V DC	pl100931	pl100128	pl100931	pl100128
 19...230V 50/60 Hz 19...55V DC	pl100194	pl100051	pl100194	pl100051
 18...50V DC PNP	pl100173	pl100131	pl100173	pl100131
 19...230V AC/DC	pl100187	pl100130	pl100130	pl100130

Electrical connection

All electronic modules: Over voltage category II

Relay SPDT



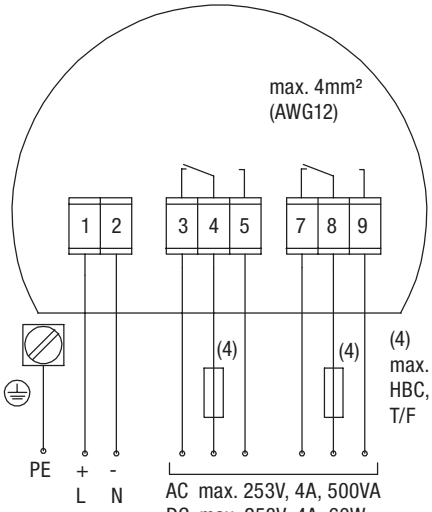
(1)

19...230V +10% (3) 50/60Hz 8VA
19... 50V +10% DC 1,5W

(2) 2225Vrms

(1) Power supply
(2) Isolating voltage
(3) including 10% from EN 61010

Relay DPDT

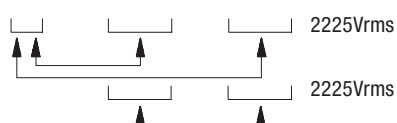


(1)

19...230V +10% (3) 50/60Hz 18VA

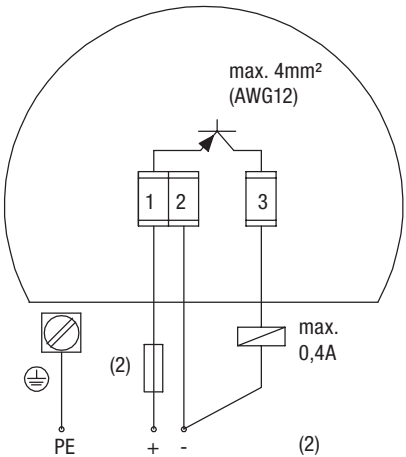
19... 50V +10% (3) DC 2W

(2)



(1) Power supply
(2) Isolating voltage
(3) including 10% from EN 61010

PNP



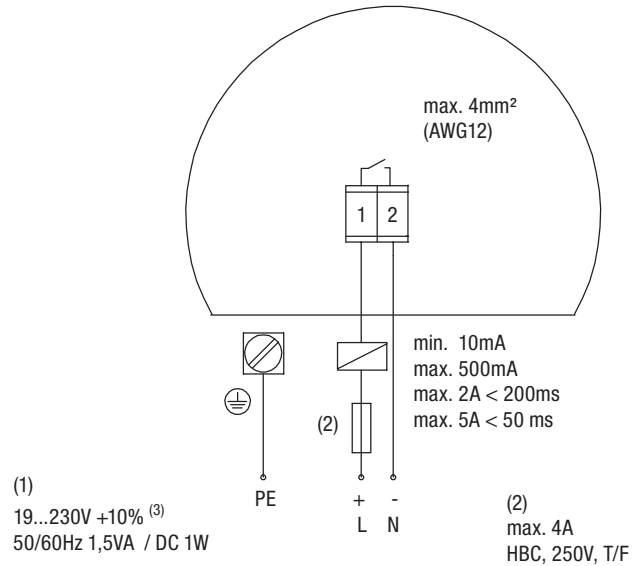
(1)
18... 50V +10% (3) DC 1,5W

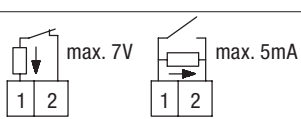
(2)
max. 4A
HBC, 250V, T/F

---

(1) Power supply
(3) including 10% from EN 61010

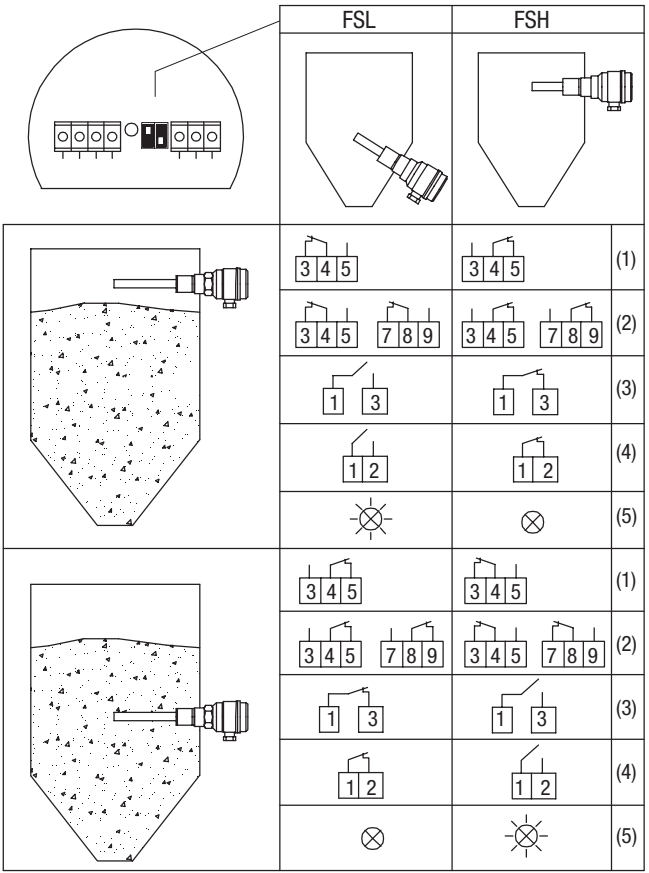
2-wire without contact





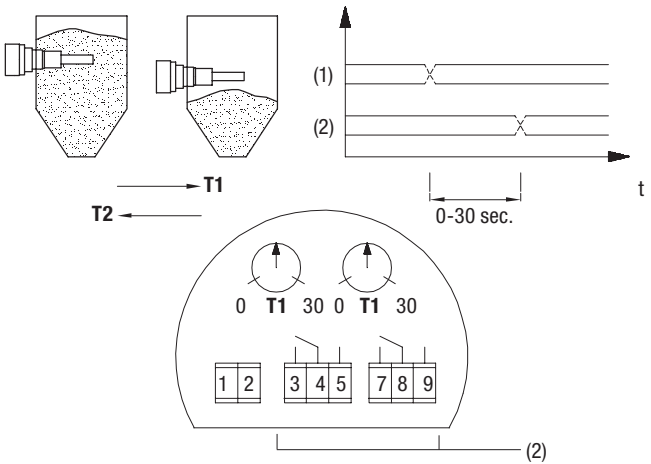
(1) Power supply
(3) including 10% from EN 61010

Switching logic



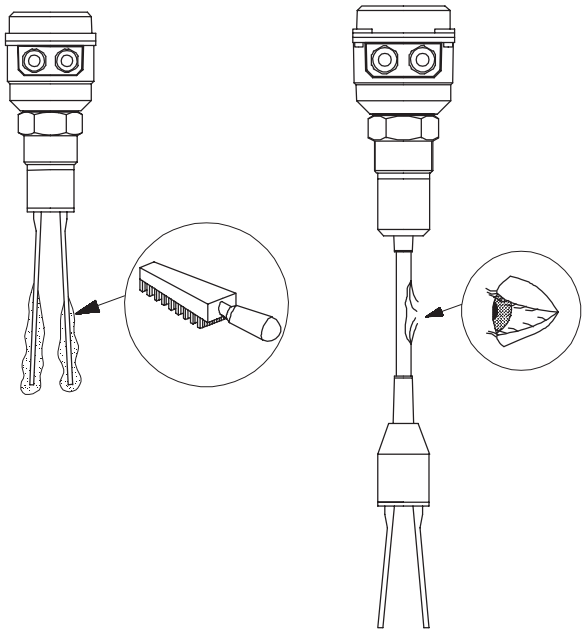
(1) = Relais SPDT
(2) = Relay DPDT
(3) = PNP
(4) = 2- wire without contact
(5) = LED Signal

Signal delay (Relay DPDT)



(1) = level
(2) = relay output

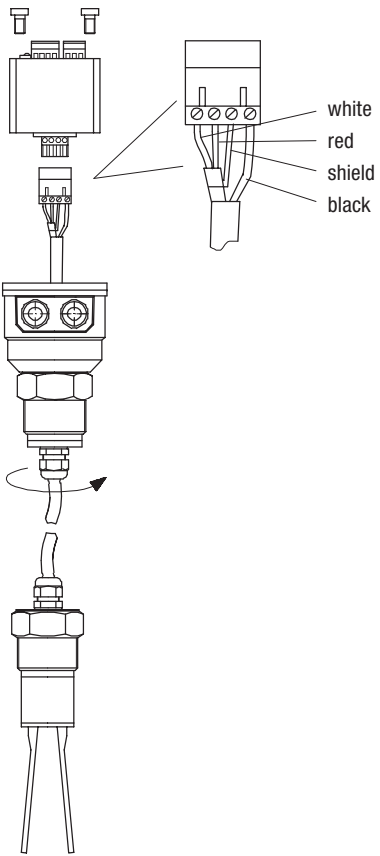
Cleaning



Separate housing (selection: pricelist pos.26)

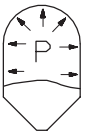
VN 1020
VN 2020
VN 5020
VN 6020

VN 1030
VN 2030
VN 5030
VN 6030



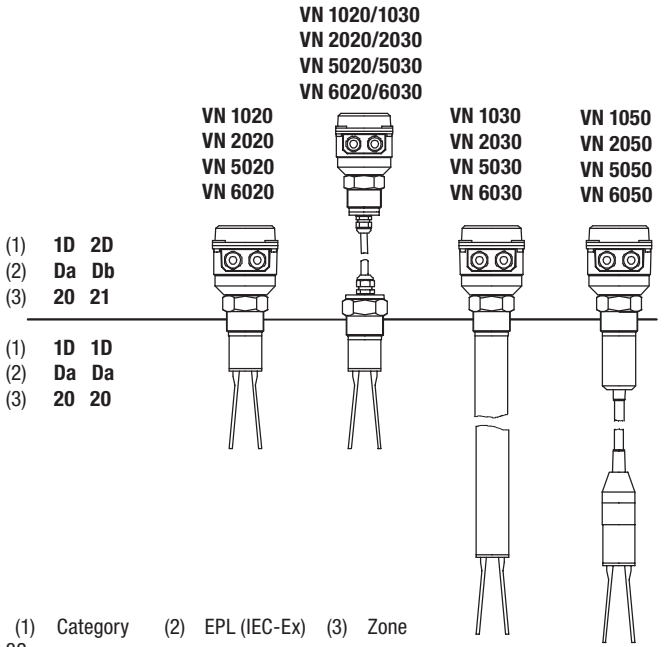
Notes

Permitted relative pressure



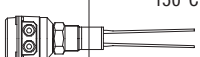
-0,2...+0,1bar
(-2.9…+1.45psi)

Zone borders

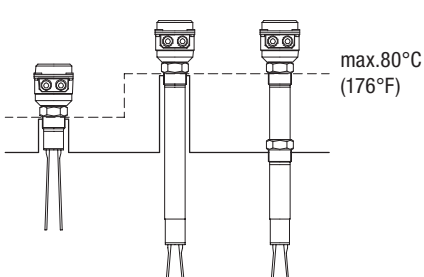


(1) Category (2) EPL (IEC-Ex) (3) Zone

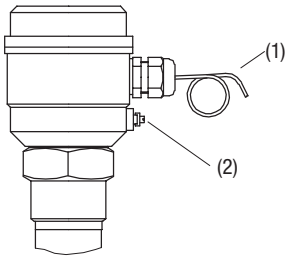
Ambient temperature	max. Surface temperature	
60°C (140°F)	80°C (176°F)	120°C (248°F)
	90°C (194°F)	120°C (248°F)
	100°C (212°F)	120°C (248°F)
	110°C (230°F)	120°C (248°F)
	120°C (248°F)	120°C (248°F)
	130°C (266°F)	130°C (266°F)
	140°C (284°F)	140°C (284°F)
	150°C (302°F)	150°C (302°F)



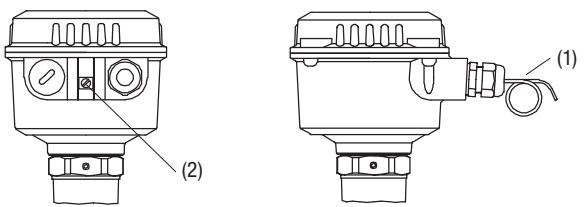
The data of the table are valid, if it is guaranteed due to the installation that the thread part has a maximum temperature of 80°C (176°F) at normal use.



VN 1000
VN 2000



VN 5000
VN 6000



(1) A pull relief must be provided
(2) Connect with equipotential bonding of the plant

ATEX / IEC-Ex: Further Remarks

For installation and field wiring the respectively valid installation regulations of the respective country must be observed.

Commissioning only with closed lid.

Do not remove the lid (cover) while circuits are alive.

Before opening the lid take care, that no dust deposits or whirlings are present.

The installation has to be carried out in a way, that mechanical friction or impact does not cause sparks between the aluminium enclosure and steel.

If installing the whole unit in zone 20, the power supply shall be rated for a prospective short circuit current of not more than 10kA (details of EN 60079-14 must be obeyed)

Cable glands:

Installation according to the regulations of the country, where the product is installed.
Not used entries have to be closed with blanking elements certified for this purpose.
Where applicable the factory provided parts must be used.
A strain relief must be provided for the field wiring cables, when the device is installed with the factory
provided cable glands.
The diameter of the field wiring cable must match to the clamping range of the cable clamp.
If other than the factory provided parts are used, following must be ensured:
The parts must have an approval adequate to the approval of the level sensor (certificate and type of protection).
The approved temperature range must be from the min. ambient temperature of the level sensor to the max. ambient temperature of the level sensor increased by 10 Kelvin.
The parts must be mounted according to the instructions of the supplier.