

Level Electrode NRG 211-1

Description

The level electrode NRG 211-1 is designed for measuring the water level in condensate lines. In conjunction with level switch NRS 2-4 the electrode can be used as max. limit switch with high level alarm.

Function

The level electrode together with the electronic module NRV 2-30 works according to the capacitance measurement principle, translating the level changes into level-dependent current signals.

The electrode is self-monitoring, i. e. a fault in the insulating seal will cause a malfunction alarm. In addition, a defined switching signal is given when the fluid reaches 395 °C because for physical reasons the level cannot be determined exactly in this temperature range.

The level electrode works with the level switch NRS 2-4 to detect the max. limit and raise a high level alarm. This equipment combination can be used as part of a controlled draining system in power plants.

The electrode with welding standpipe is installed in vertical pipes.

Directives and standards

PED (Pressure Equipment Directive)

The equipment fulfils the requirements of the Pressure Equipment Directive 2014/68/EU and can be used for fluids of group 2:

The equipment has the CE marking on the name plate.

LV (Low Voltage) Directive and EMC (Electromagnetic Compatibility)

The equipment meets the requirements of the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU.

ATEX (Atmosphère Explosible)

According to the European Directive 2014/34/EU the equipment must not be used in potentially explosive areas.

Technical data

Limiting conditions for level electrode

Material of flange/welding standpipe: 1.5415			
Admissible service pressure	[barg]	320	200
	[psig]	4642	2901
Admissible service temperature	[°C]	120	450
	[°F]	248	842

Material of flange/welding standpipe: 1.7380			
Admissible service pressure	[barg]	320	200
	[psig]	4642	2901
Admissible service temperature	[°C]	120	500
	[°F]	248	932

Material of flange/welding standpipe: 1.4922			
Admissible service pressure	[barg]	320	230
	[psig]	4642	3336
Admissible service temperature	[°C]	120	550
	[°F]	248	1022

Mechanical connection

Special flange PN 320 with welding standpipe for pipes DN ≤ 100 with tee-piece or for pipes DN ≥ 100 with lateral bore

Material of wetted parts

Protection tube up to 500 °C	1.0345
Protection tube up to 550 °C	1.7380
Strainer	1.4571
Insulating seal of electrode	Special ceramic
Flange seal	1.4541/silver

ph value

Max. admissible: 10

Temperature sensor

Pt 1000

Weight

Level electrode approx. 5.6 kg

Welding standpipe approx. 4.5 kg

Electronic module NRV 2-30

Supply voltage

12 V DC

Output

≥ 0 – ≤ 10 V DC

Enclosure

Terminal box: made of aluminium, enamel finish

Electrical connection

Six-pole connector, cable glands Pg 11.

Protection

IP 54 to EN 60529

Max. admissible ambient temperature

70 °C

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Important Notes

Installation

To allow for drainage and prevent condensate from remaining inside the welding standpipe install the welding standpipe with an upward inclination of at least 5° (referred to the longitudinal axis)

To connect the equipment to pipes (tee pieces) DN ≤ 100 we recommend an approved weld procedure to ensure the weld joint geometry 22 to DIN 2559 .

In larger pipes the welding standpipe can be introduced through a lateral penetration and then be welded in place.

In case of plants that are subject to surveillance observe the relevant rules and regulations. For connections provided on site see section "Technical Data" and refer to the installation manual.

Electrical connection

To connect the equipment use screened multi-core control cable with a min. conductor size 0.5 mm², e. g. LiYCY 4 x 0.5 mm², max. length: 500 m.

Connect only one screen to the NRS 2-4. Wire terminal strip in accordance with the wiring diagram.

The screen must not make any other electrical contact.

Make sure that the connecting cable is segregated and runs separately from power cables.

Order & Enquiry Specification

GESTRA Level electrode NRG 211-1

Electrode flange with welding standpipe for pipes DN

Material

Max. service pressure

Max. service temperature

Fluid

Associated switch / associated PSU

Level switch NRS 2-4 (two if redundancy is required)

Power supply unit URN 2, 24V DC

Supply in accordance with our general terms of business.

Dimensions

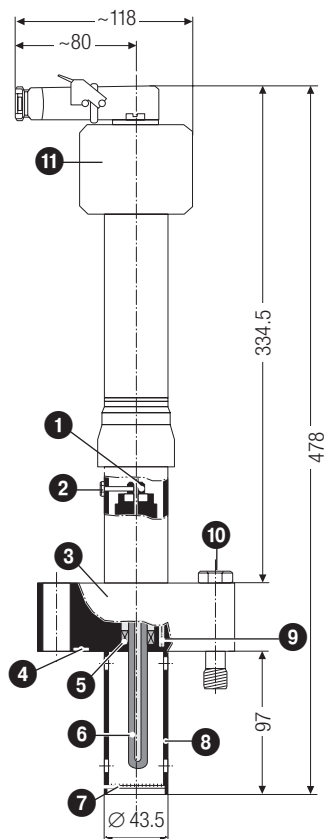


Fig. 1

NRG 211-1

Key

- 1 Transit protection
- 2 Fixing screw
- 3 Flange
- 4 Groove for gasket
- 5 Stuffing box
- 6 Measuring electrode
- 7 Strainer
- 8 Protection tube
- 10 Expansion bolt
- 11 Terminal box in electronic module
- 12 On-site pipeline
- 13 Welding standpipe (GESTRA)
- 14 Marking TOP
- 15 Supply voltage 12 V DC
- 16 Measuring voltage 1 - 10 V DC
- 17 Fixing screws for electronic module
- 18 Terminal lugs
- 19 Connection of temperature sensor
- 20 Temperature sensor for resistance measurement

Examples of installation

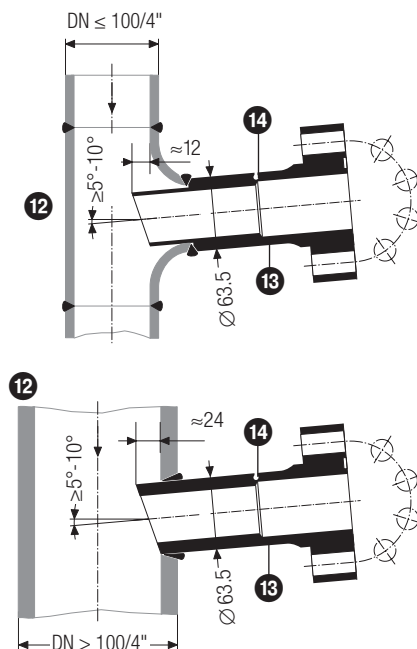
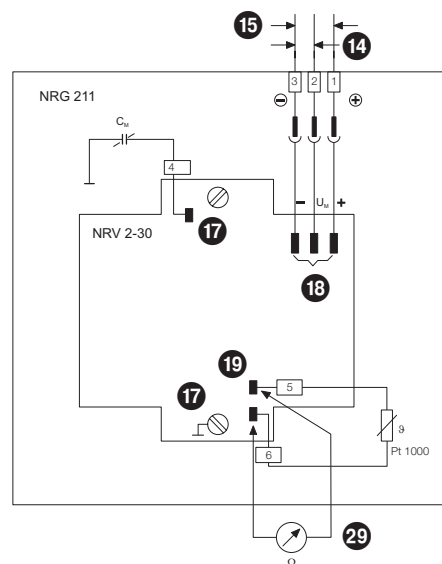


Fig. 2

Electrical connection



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