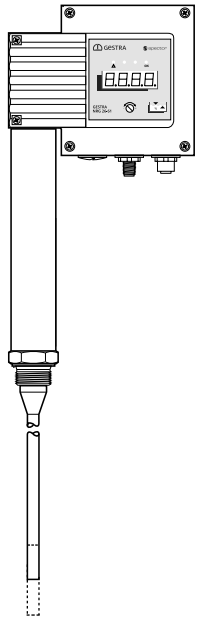

NRG 26-61

Level Electrode
NRG 26-61

Description

The NRG 26-61 level electrode is used in conjunction with the URS 60/URS 61 safety control unit as a safety high-level limiter and water-level limiter for steam boilers and hot-water plants.

- Safety high-level limiters prevent the defined maximum high water (HW) level from being exceeded, e.g. by switching off the feedwater supply.
- Low-level limiters react when the water drops below the set minimum level (LW), e.g. by switching off the heating.

They are elements of a safety circuit up to a rating of SIL 2 as per IEC 61508 in the SPECTORconnect system.

Additional use as a level control system

In addition, the NRG 26-61 level electrode can be used with an NRR 2-60 / NRR 2-61 level controller for continuously measuring the water level in steam boiler and hot-water plants or in condensate and feedwater tanks.

- In combination with the NRR 2-60/NRR 2-61 level controller, the electrode can be used as a level control system with MIN/MAX alarm, for example.
- The limiter functions can be disabled independently from one another and from the infinitely variable measurement signal.

Function

The NRG 26-61 level electrode works using the capacitance measurement principle and converts the information on the water level into a data telegram. The 0-100% measuring range can be scaled by modifying the effective length of the electrode rod.

Automatic self-test

An automatic self-test cyclically monitors the safety and function of the level electrode and measured value acquisition. Faults in the electrical connection or electronic measuring equipment trigger fault indications and safety shutdowns.

The data are transferred to the URS 60/URS 61 safety control unit in the form of a black channel data telegram in the CANopen protocol via an ISO 11898 CAN bus.

Limiter functions

When one of the two switchpoints, “High Water (HW)” or “Low Water (LW)” is reached, the URS 60 or URS 61 safety control unit executes a safety shutoff. Both switchpoints are adjusted solely using the rotary knob on the NRG 26-61 level electrode.

Behaviour in the event of alarms (the level has strayed beyond a limit value)

“LO.LE” (for LW) or “HI.LE” (for HW) are shown on the display, alternating with the actual level value.

The alarm state is transferred to the URS 60 or URS 61 safety control unit via CAN data telegram. There, once the time delay has elapsed, the alarm signal triggers the safety shutdown in the safety control unit.

Controller functions

In addition, the NRG 26-61 level electrode can be used in conjunction with an NRR 2-60 / NRR 2-61 level controller to form a level control system. Controller parametrization is done solely using the URB 60 visual display and operating unit.

Technical data

Model and mechanical connection

- Thread G¾ A, EN ISO 228-1

Nominal pressure rating, admissible service pressure and temperature

- PN 40 32 bar (abs) at 238°C

Materials

- Terminal box: 3.2581 G AlSi12, powder-coated
- Sheath: 1.4301 X5 CrNi 18-10
- Electrode rod insulation: PTFE
- Screw-in body: 1.4571, X6CrNiMoTi17-12-2

pH value

- Maximum admissible = 10

Max. installed length at 238 °C, all measurements in mm

- see “Wording in orders and tenders”, Fig. 1 table
- Do **not shorten** the electrode rod.

Measurement quality

The information below applies to a fluid conductivity range from 0.5 – 10000 µS/cm adjusted for temperature based on 25°C.

- Reading error: ± 1% of set measuring range at the operating point
- Limit error: + 1 % from MAX (AL.Hi)
  - 1 % from MIN (AL.Lo)
- MAX hysteresis: - 3 % from limit value
- MIN hysteresis: + 3 % from limit value
- Resolution of reading on display: 0.1 %
- Resolution for internal processing: 15 bit
- Sensitivity (minimum conductivity)
  - Water ≥ 0.5 µS/cm

Supply voltage

- 24 V DC ± 20%

Power consumption

- Max. 7 W

Current input

- Max. 0.3 A

Internal fuse

- T2A

Safety cutout at excessive temperature

- Cutout occurs when an excessive temperature = 75°C is measured in the electrode tip

Input/output

- Interface for CAN bus to ISO 11898, CANopen, insulated
- M12 CAN bus connector, 5-pole, A-coded
- M12 CAN bus socket, 5-pole, A-coded

Level Electrode
NRG 26-61

Indicators and controls

- 1 x 4-digit green 7-segment display for showing status information
- 1 x red LED for indicating an alarm
- 1 x green LED for indicating an OK state
- 1 x rotary knob IP65 with button for menu navigation and test function

Protection class

- III Safety Extra Low Voltage (SELV)

IP rating to EN 60529

- IP 65

Admissible ambient conditions

- Service temperature: 0 °C - 70°C
- Storage temperature: - 40 °C - 80°C
- Transport temperature: - 40 °C - 80°C
- Air humidity: 10 % - 95 % (non-condensing)

Weight

- Approx. 2.1 kg

Admissible installation positions

- Vertical
- Oblique to a maximum inclination of 45°. In this case, the length of the electrode rod is limited to 688 mm maximum.

Important notes

Installation

A capacitance NRG 26-61 level electrode and a conductive NRG 1x-60 or NRG 1x-61 level electrode can be installed in the same protective tube or level pot.

- Since the electrode works on the principle of continuous capacitive measurement, the low-level limiter function of the NRG 26-61 may only be used in combination with a conductive NRG 16-60 level electrode.
- Always use the NRG 16-60 level electrode as the first low-level electrode.

If a level electrode is installed in a lockable level pot outside the boiler, the connecting pipes must be flushed regularly. An SRL 6-60 monitoring unit is additionally required to monitor the flushing times and flushing process.

Directives and standards

You can find details on the conformity of the equipment and the applicable standards and directives in our Declaration of Conformity and the relevant certificates or approvals.

Please note our general terms of business.

Electrical connection

Use a shielded, multi-core, twisted-pair control cable, e.g. UNITRONIC® BUS CAN 2 x 2 x .. mm² or RE-2YCYV-fl 2 x 2 x .. mm² as the bus line.

Pre-wired control cables (with connector and coupling) are available as accessories in various lengths.

The baud rate is determined by the line length (transfer rate) between the bus terminal devices, and the conductor size is determined by the overall current input of the measuring sensors.

0.2 A at 24 V is required per sensor. With five sensors, there is therefore a voltage drop of approx. 8 V per 100 m when using cables of 0.5 mm². In this case, the system is operating at its limits.

With five or more sensors and a cable length of ≥100 m, the wire cross-section needs to be doubled to 1.0 mm².

At larger distances of > 100 m, the 24 V DC supply can also be connected on site.

How to order and specify:

Level electrode

Type: **Stock code:**

- NRG 26-61 34961.. xx

Ⓐ = electrode length (mm) Ⓑ = measuring range (mm)		xx
Ⓐ	Ⓑ	
373	300	40
477	400	41
583	500	42
688	600	43
794	700	44
899	800	45
1004	900	46
1110	1000	47
1214	1100	48
1319	1200	49
1423	1300	50
1528	1400	51
1636	1500	52
2156	2000	53

Fig. 1

Additional modules:

- Safety control unit URS 60
- Safety control unit URS 61
- Level controller NRR 2-60, NRR 2-61
- Visual display and operating unit URB 60 or SPECTOR*control*
- Monitoring unit SRL 6-60

Dimensions

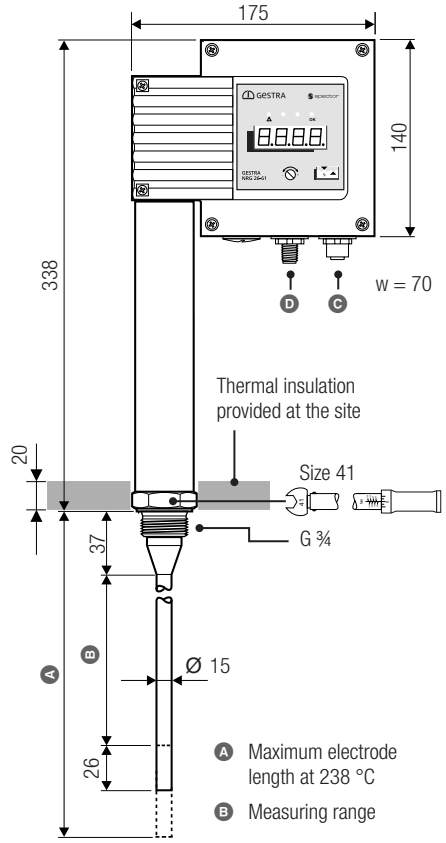

Fig. 2

Connections

- Ⓒ M12 CAN bus socket, 5-pin, A-coded
- Ⓓ M12 CAN bus connector, 5-pin, A-coded

Wiring diagram of CAN bus system

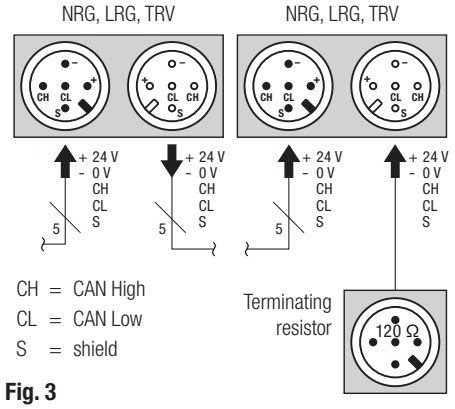

Fig. 3

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