



GESTRA® Industrial Electronics · Product Range Group B1

NRS 2-3

Level Switch Type NRS 2-3

Purpose and Application

The level switch type NRS 2-3 is an analogue electronic control instrument for the capacitance level electrode NRG2 26-1.

In combination with this compact electrode the switch can signal the following levels

- High level, low level, level control unit ON/OFF and can be used as level controller for steam boilers and pressurized hot-water plants.

Examples of installation

Use level switch NRS 2-3 only in combination with GESTRA compact electrode type NRG2 26-1.

Design

Design "b"

19" slide-in unit to DIN 41494 part 5, installed on a mounting panel for installation in control cabinets with screw-type terminals at the top and bottom.

Design "c"

19" slide-in unit with guide rails and 32 pole screw-type connector for the installation in 19" mounting panels acc. to DIN 41494 part 5.

Design "d"

19" spare slide-in unit

Function

The level transmitter NRG2 26-1 provides a current signal in proportion with the measured liquid level. This signal is converted into a voltage, which is then fed to three voltage comparators, V1, V2 and V3. The reference voltages of these comparators may be individually set by the adjusters of the face plate of the NRS 2-3. Depending on the relationship of the signal voltage to the adjusted reference voltage, the related relays behave as follows:

- The level signal voltage across V1 is higher than the reference voltage: Relay 1 is de-energised, and the red LED **D** is illuminated.
- The level signal voltage across V1 is lower than the reference voltage: Relay 1 is energised, and the red LED **D** is extinguished.
- The level signal voltage across V3 is lower than the reference voltage: Relay 3 is de-energised, and the red LED **A** is illuminated.
- The level signal voltage across V3 is higher than the reference voltage: Relay 3 is energised, and the red LED **A** is extinguished.

V2 is used to operate, for example, boiler feed pump ON/OFF control, and this is established by adjustment of the reference voltage of V2, and separate adjustment of hysteresis in the 1% to 50% of measuring range.

- The level signal voltage across V2 is lower than the reference voltage: Relay 2 switches on the pump and the yellow LED **B** is illuminated.

The level signal voltage across V2 is higher than the reference voltage plus hysteresis: relay 2 switches off the pump and the green LED **C** is illuminated.

Technical Data

Type approval no.

GL 99249-96HH

Mains voltage

230 V $\pm$ 10 %, 50/60 Hz
115 V $\pm$ 10 %, 50/60 Hz (option)
24 V $\pm$ 10 %, 50/60 Hz (option)

Power consumption

5 VA

Input

4–20 mA (coming from level transmitter)

Output

3 volt-free relay contacts

Max. contact rating with switching voltages of 24 V, 115 V and 230 V AC: 4 A resistive, 0.75 A inductive at $\cos \varphi = 0.5$.

Max. contact rating with a switching voltage of 24 V DC: 4 A

Service life of relay: 30×10^6 switching cycles.

Limit value HIGH LEVEL / LOW LEVEL

Continuously adjustable within measuring range of level transmitter

Switchpoints Pump ON/OFF

Continuously adjustable within 1–50% of the measuring range of level transmitter

Indicators and adjusters

1 red LED "HIGH LEVEL", 1 red LED "LOW LEVEL", 1 yellow LED "PUMP ON", 1 green LED "PUMP OFF". 4 adjusters for HIGH LEVEL / LOW LEVEL and PUMP ON / OFF.

Protection

IP 10 to DIN 40050

Max. admissible ambient temperature

0 °C to +70 °C

Case

19" slide-in unit with front panel to DIN 41494 part 5 and rear 32 way Euro card connector to DIN 41612 installed in a mounting panel or for installation in 19" mounting panel.

Front panel, mounting panel: aluminium

Wiring

Design "b": screw-type terminal strips at the back of the mounting panel, max. conductor size 1.5 mm²

Design "c": 32 pole screw-type connector at the back of the 19" mounting panel, max. conductor size 1.5 mm²

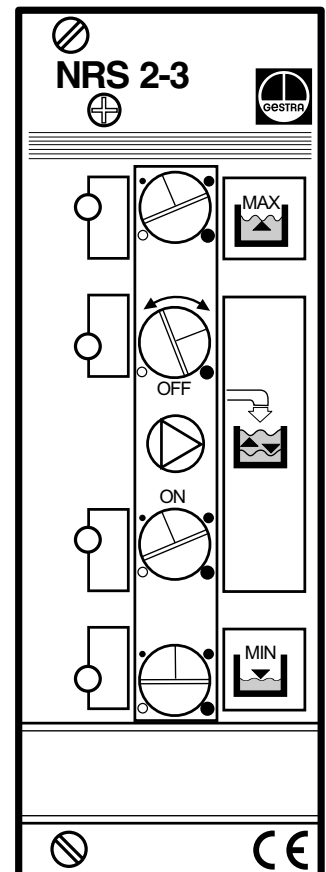
Supply line to compact electrode: screened two-core cable, conductor size 0.5 mm², max. cable length 150 m

Internal fuse

Glass cartridge fine-wire fuse M 0.05 M, 5 x 20, replaceable

Weight

approx. 0.8 kg



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Technical Data – continued –

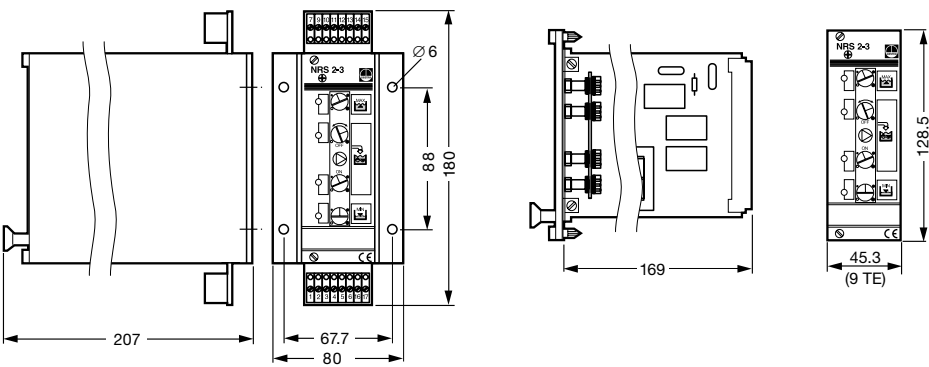
Scope of supply

- NRS 2-3, design “b”**
 1 Level switch NRS 2-3
 1 Mounting panel for installation in control cabinets
 1 Installation instructions

- NRS 2-3, design “c”**
 1 Level switch NRS 2-3
 2 Guide rails
 1 32 pole screw-type connector
 1 Installation instructions

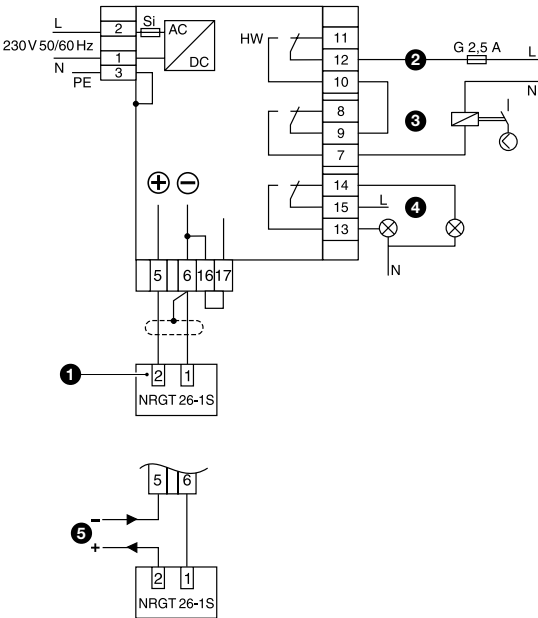
- NRS 2-3, design “d”**
 1 Level switch NRS 2-3
 1 Installation instructions

Dimensions

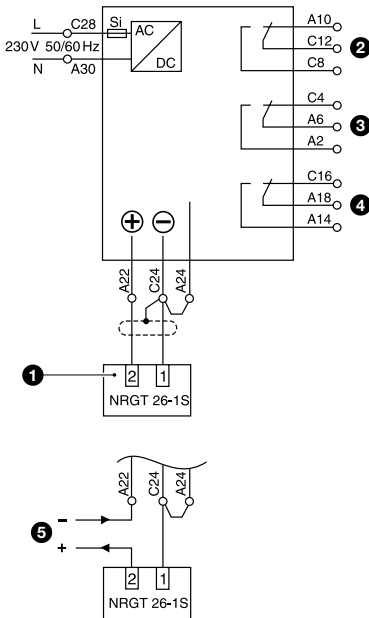


Wiring diagrams

Desing “b”



Design “c” / “d”



Important Note

Note that screened four-core cable is required for wiring, e.g. I-Y(St)Y 2x2x0.8 or LIYCY 4x0.5². Max. cable length 100 m.

To protect the switching contacts fuse circuit with 2.5 A (slow-blow) or according to TRD regulations (1.0 A for 72 h operation).

Order & Enquiry Specification

GESTRA Level switch NRS 2-3
 Design
 Mains voltageV

Associated Equipment

- Conductivity electrode NRGT 26-1S for level monitoring.

Supply in accordance with our general terms of business.

- 1 Compact electrode
- 2 High level
- 3 Water level controller (fill control)
- 4 Low level, 2nd water level indicator: LED red/green
- 5 Connection for another device, e.g. NRR 2-3



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