

## GESTRA Steam Systems

Product Range B1

### Level Switch Type NRS 2-3

**NRS 2-3**

#### Description

The level switch type NRS 2-3 is an analogue electronic control instrument for the capacitance level electrode NRG T 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 NRG T 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 standardized input current signal is transformed by the resistor into a level-proportional voltage and then preamplified. This voltage is fed to three voltage comparators V1, V2, V3 and compared with adjustable reference voltages. Depending on the comparison result the relays will be (de)energized as follows:

- If the level voltage across V1 is higher than the reference voltage, relay 1 is de-energized and the red LED illuminated.
- If the level voltage across V3 is lower than the reference voltage, relay 3 is de-energized and the red LED illuminated.
- If the level voltage across V3 is higher than the reference voltage, relay 3 is energized and the red LED extinguishes.

V2 works as switching controller, e. g. for the boiler feed pump.

- If the level voltage across V2 is lower than the reference voltage, relay 2 will switch on the pump. The yellow LED is illuminated.

The pump switches off in accordance with the adjusted hysteresis, which is adjustable over 1 % to 50 % of the level transmitter measuring range. Once the adjusted value is reached the relay 2 switches off the pump and the green LED is illuminated.

#### Technical Data

##### Type approval no.

GL 99249-96HH  
LR 98/20074  
BV 10617/Bo  
RINA No ELE/30298/2  
KR HMB06190-MS002  
DNV A-8394

##### 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:  $30 \times 10^6$  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 adjustors

1 red LED "HIGH LEVEL",  
1 red LED "LOW LEVEL",  
1 yellow LED "PUMP ON",  
1 green LED "PUMP OFF".  
4 adjustors 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 mm<sup>2</sup>.

**Design "c"**: 32 pole screw-type connector at the back of the 19" mounting panel, max. conductor size 1.5 mm<sup>2</sup>.

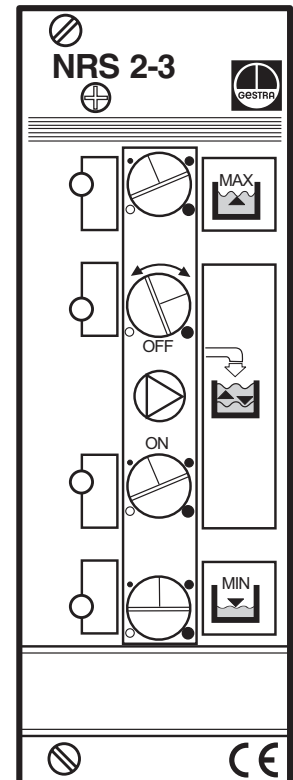
Supply line to compact electrode: screened two-core cable, conductor size 0.5 mm<sup>2</sup>, max. cable length 150 m.

##### Internal fuse

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

##### Weight

approx. 0.8 kg



Level switch NRS 2-3

# Level Switch Type NRS 2-3

## 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 manual

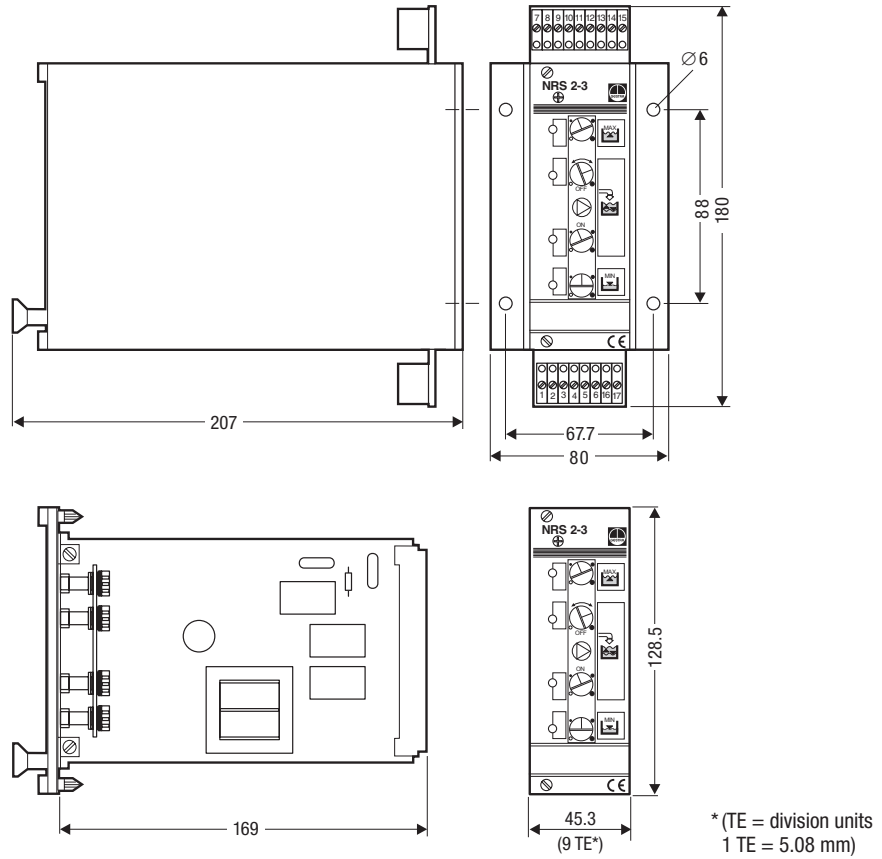
#### NRS 2-3, design "c"

- 1 Level switch NRS 2-3
- 2 Guide rails
- 1 32-pole screw-type connector
- 1 Installation manual

#### NRS 2-3, design "d"

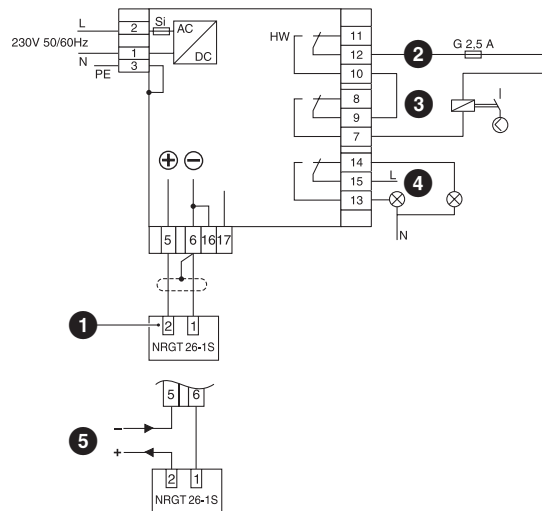
- 1 Level switch NRS 2-3
- 1 Installation manual

## Dimensions

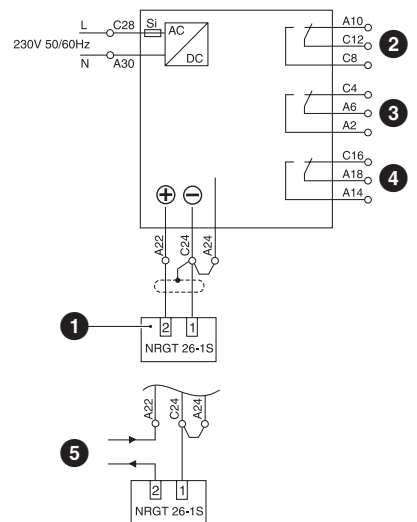


## Wiring diagrams

### Design "b"



### Design "c"/"d"



## Important Note

Note that screened four-core cable is required for wiring, e. g. I-Y(St)Y 2 x 2 x 0.8 or LIYCY 4 x 0.5<sup>2</sup>. 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 voltage .....V

## Associated Equipment

- Conductivity electrode NRG26-1S 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, 2<sup>nd</sup> water level indicator: LED red/green
- 5 Connection for another device, e. g. NRR 2-3

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