

**Level Controller
Type NRR 2-3**

Issue Date: 4/99

Purpose and Application

The level controller NRR 2-3 is an analogue three-position proportional stepping controller for the capacitance level probe NRGT 26-1.

It can be used in combination with the compact level probe and a motorized control valve as continuous feedwater controller in steam boilers and pressurized hot water plants. The valve can be motored to any position by using the manual over-ride toggle switch.

Example of installation

Use level controller NRR 2-3 only in combination with GESTRA compact probe NRGT 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 current signal coming from the probe is evaluated by the controller as actual value and compared with an adjustable set point. The difference is proportionally amplified by the externally adjustable factor X_p and provided at the output as deviation.

It is then compared with the voltage of the feedback potentiometer (in the actuator) which is standardized in the amplifier. Dependent on the polarity of the difference the associated relays are energized. The valve is then positioned by the actuator until the difference has become zero. The final positions of the valve are indicated by the LEDs **D** or **F**.

Technical Data
Type approval no.

GI 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 to 20 mA (coming from level transmitter)
0 to 100 Ω (coming from feedback potentiometer in actuator)

Output

2 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 x 10⁶ switching cycles.

Setpoint W

Continuously adjustable from 0 to 100 % (corresponds to 4–20 mA)

Proportional band X_p (%)

10–100 %

Dead band

\pm 0.5 %

Indicators and adjusters

- 1 potentiometer, scale 0–100 for set point W
- 1 trimmer potentiometer for proportional band 10–100 %
- 1 trimmer potentiometer for (∇) adjustment of feedback potentiometer
- 1 trimmer potentiometer for (∇) adjustment of feedback potentiometer
- 1 manual/automatic toggle switch
- 1 button with neutral mid-position for manual adjustment of the valve
- 2 LEDs (green) for indication of valve control OPEN/CLOSED
- 3 LEDs (red, green, red) for indication of final valve positions or intermediate position

Protection

IP 10 to DIN 40050

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 single mounting panel or for installation in 19" mounting panels.
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 cable to level transmitter: screened two-core cable, conductor size 0.5 mm², max. cable length 150 m

Supply cable for feedback potentiometer (in actuator): 2 x 2 x 0.8 mm² or 2 x 2 x 0.5 mm²

Internal fuse

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

Weight

approx. 0.5 kg

Scope of supply
NRR 2-3, design "b"

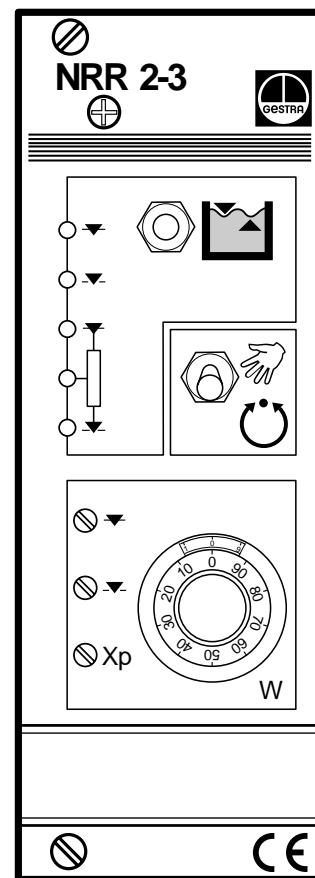
- 1 Level controller NRR 2-3
- 1 Mounting panel for installation in control cabinets
- 1 Installation instructions

NRR 2-3, design "c"

- 1 Level controller NRR 2-3
- 2 Guide rails
- 1 32 pole screw-type connector
- 1 Installation instructions

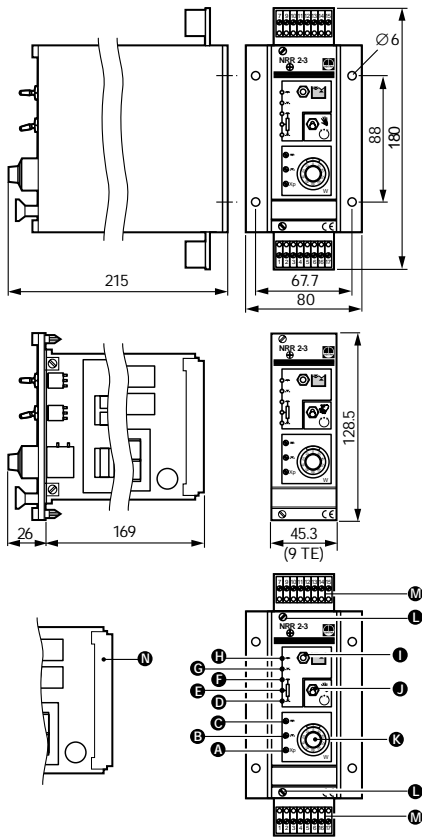
NRR 2-3, design "d"

- 1 Level controller NRR 2-3
- 1 Installation instructions



Level controller NRR 2-3

Dimensions



- A** Trimmer potentiometer for proportional band Xp
- B, C** Trimmer potentiometer for adjustment of feedback potentiometer
- D, F** LED for final valve position
- E** LED for valve mid-position
- G, H** LED for valve control
- I** Toggle switch with neutral mid-position for manual adjustment of the valve
- J** Toggle switch for manual/automatic operation
- K** Potentiometer for setpoint W
- L** Fixing screws
- M** Screw-type terminal strip
- N** 32 way Euro card connector

Installation

Design "b"

- Drill four holes $\varnothing 6$ mm into the mounting panel of the control cabinet.
- Put level controller onto the mounting panel and align.
- Insert screws and fasten.

Design "c"/"d"

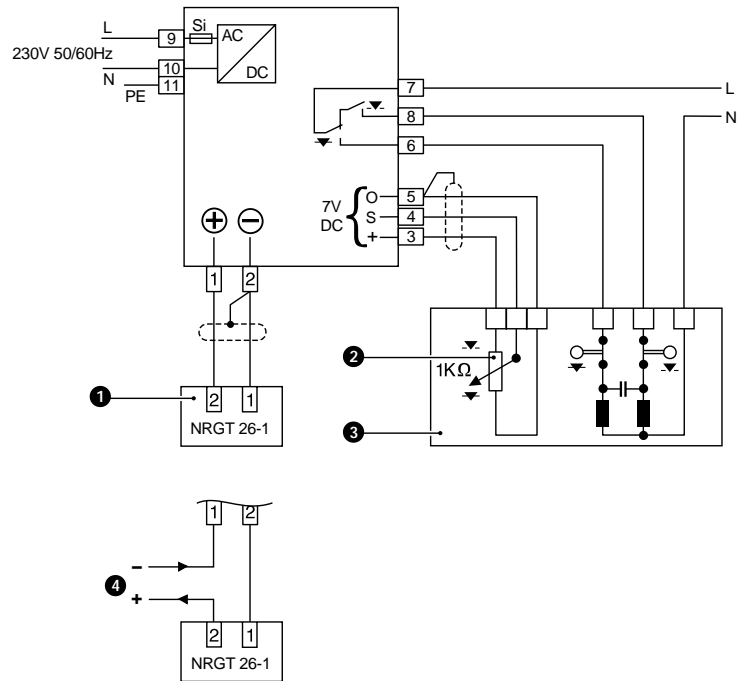
- Install guide rails and screw-type connector into 19" mounting panel.
- Insert 19" slide-in unit into the guide rails until it hits the stop.
- Fasten the fixing screws **J**.

Supply in accordance with our general terms of business.

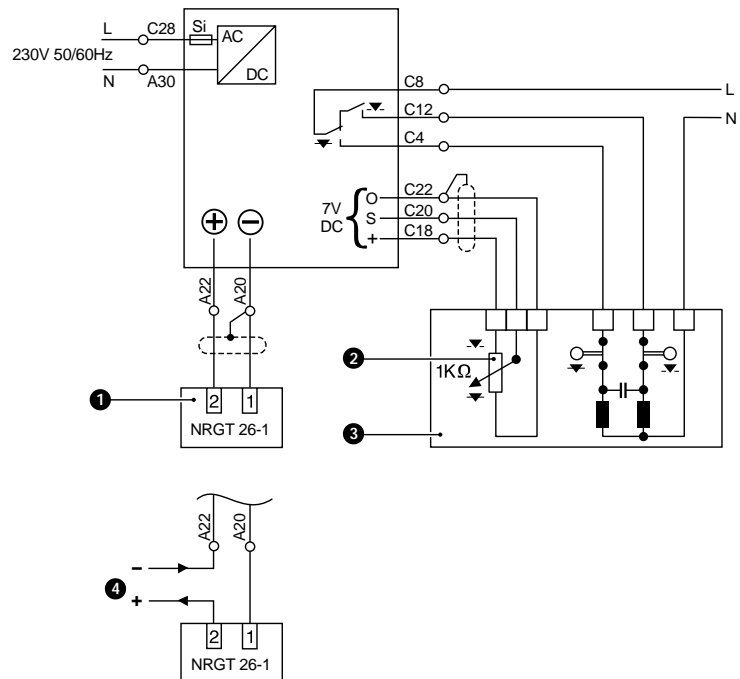
Technical modifications reserved.

Wiring diagrams

Design "b"



Design "c"/"d"



- 1** Compact level probe, output 4–20 mA
- 2** Feedback potentiometer
- 3** Actuator
- 4** Connection of additional equipment, e.g. level switch NRS 2-3