GESTRA Steam Systems

Product Range B1

Three-Element Controller
NRZ 2-1

NRZ 2-1

System Description

Three-element control in conjunction with GESTRA level controller type NRR 2-... and GESTRA vortex flow meters for steam and feedwater. The system minimises the effect to steam-boiler level controls caused by a sudden high steam demand resulting in rapid expansion of the boiler water.

Application in steam boiler plants of group 2 and 4 (Steam Boiler Regulations).

Function

The three-element controller type NRZ 2-1 is used with a feedwater control system which consists of a level probe type NRG 26-... and a level controller type NRR 2-..., and steam and feedwater flow meters to form a three-element control. For this purpose the level in the boiler, and the steam and feedwater flowrates are measured and converted into standard electrical signals. The NRZ 2-1 compares the signals received from the steam and feedwater flow meters and calculates the difference. With the aid of an adjustable potentiometer on the front of the NRZ 2-1 the influence of the steam and feedwater flowrates can be incorporated into the operating conditions. The difference between these is subtracted from the signal received from the level probe, and an adjusted actual value is formed, which is then transmitted to the level controller type NRR 2-... The system therefore corrects the response of the controller which would otherwise have reacted to the artificial high level in the boiler due to rapid expansion of the water caused by sudden high steam demand.

Design

Plug-in unit in plastic case for installation in control cabinets. The terminals in the case are accessible after loosening two screws and unplugging the unit from its base.

The plug-in unit may be snapped onto a 35 mm supporting rail or screwed into position on a mountig panel.

Field enclosures for several plug-in units are available on request.

Technical Data

Inputs

1. Steam flow meter
Stabilized current input 0 to 20 or 4 to 20 mA,
max. load 56 ohm.

2. Feedwater flow meter
Stabilized current input 0 to 20 or 4 to 20 mA,
max. load 56 ohm.
Input signal filtering for 1 and 2 $\leq$ 230 V amplitude.

3. Boiler level control
From level probe type NRG 26-... with pre-amplifier type NRV 2-8 or NRV 2-29, voltage input 0.5 to 7 V d.c.

Output
To level controller type NRR 2-...,
voltage output 0.5 to 7 V d.c.

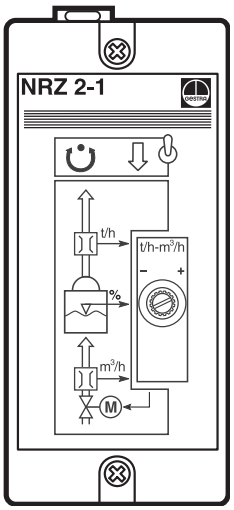
Indicators and adjustors
One potentiometer for establishing differential between steam and feedwater flowrates.
One service switch for commissioning.

Supply voltage
12 V d.c. from level controller type NRR 2-...

Protection
IP 40 to DIN EN 40050

Permissible ambient temperature
0 °C to 55 °C

Case materials
Base: ABS plastic, black
Cover: Polystyrene (highly shock resistant), stone grey



Three-Element Controller

NRZ 2-1

Important Notes

Cable required for wiring to the electrode: Four-core overall screened cable, e.g. I-Y(St)Y 2 x 2 x 0.8 or LIYCY 4 x 0.5. min. conductor size 0.5 mm².

Max. cable length 100 m.

When mounting the electrode into steam boilers the relevant regulations must be considered.

Order and Enquiry Specifications

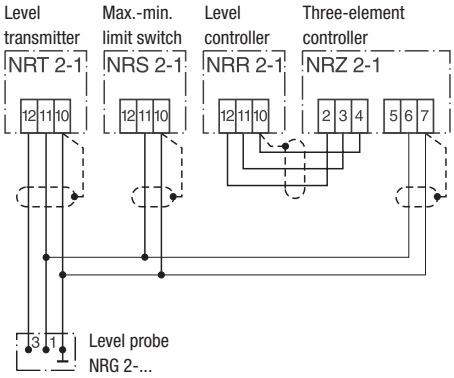
GESTRA three-element controller type NRZ 2-1 for control of boiler plants with heavy load fluctuations.

Associated Equipment

- Level controller type NRR 2-1
- Level controller type NRR 2-2
- Level probe type NRG 21-...
- Level probe type NRG 26-...
- Vortex flow meters

Wiring Diagrams

Example of parallel connection of several units

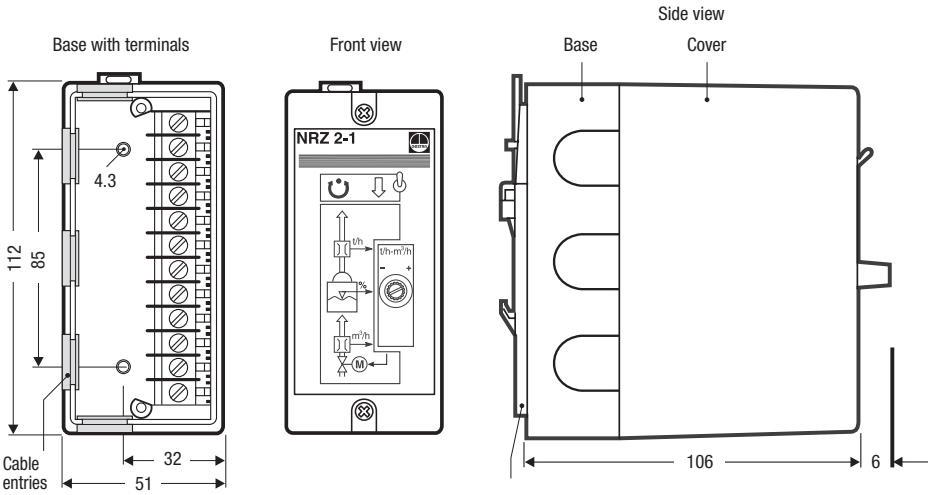


Please note

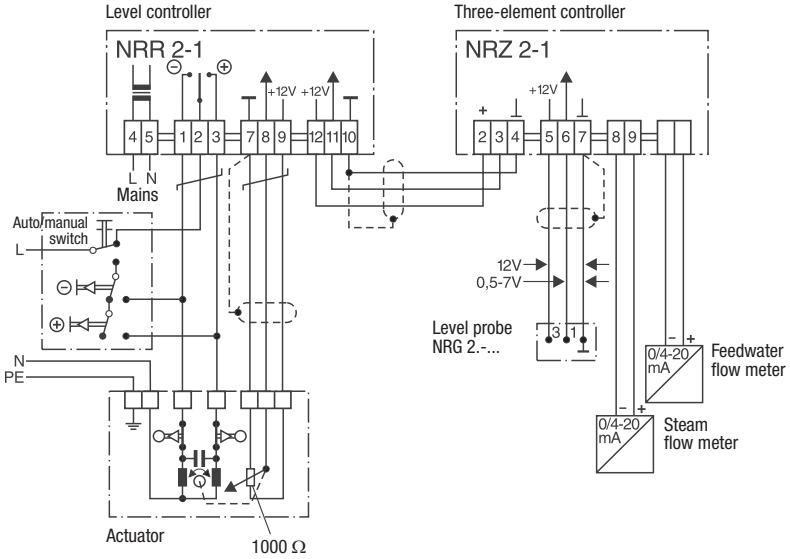
The NRZ 2-1 also evaluates the limit values and current outputs of the NRR 2-2.

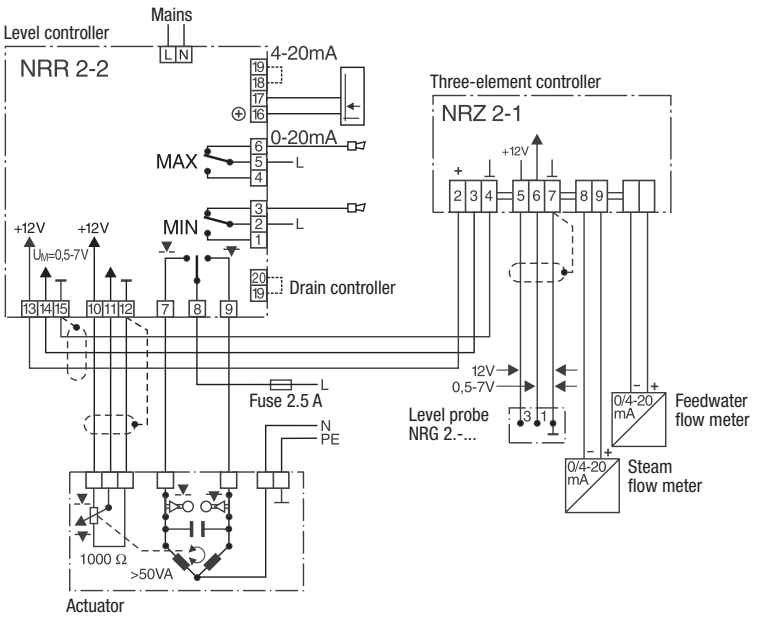
Supply in accordance with our general terms of business.

Dimensions



Wiring Diagrams





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