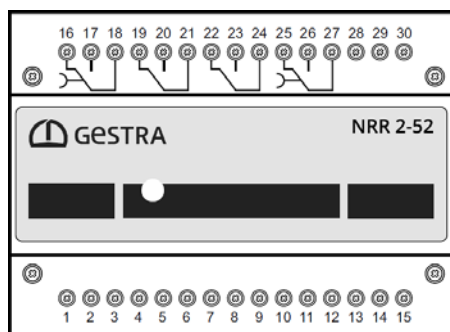
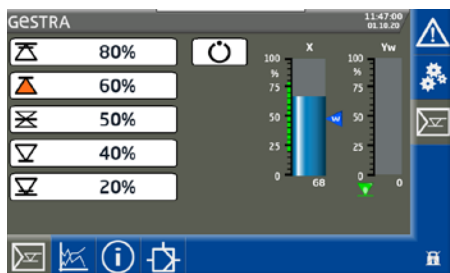




NRS 2-52 / NRR 2-53



Home screen with overview of NRR 2-5x and LRR 1-5x



Home screen for NRR 2-5x only

Level Controller

NRR 2-52 / NRR 2-53

Visual Display and Operating Unit URB 55

Description

The functional unit consisting of the URB 55 visual display and operating unit and the NRR 2-52, NRR 2-53 level controller is used in combination with NRG 2-... level electrodes and NRG 26-... level transmitters as a limit switch, e.g. in pressurised steam and hot-water plants or in condensate and feedwater tanks.

The URB 55 / NRR 2-5... functional unit can be combined with NRG 21-... and NRG 26-21 level electrodes and NRG 26-... level transmitters.

If the system contains a level controller and a conductivity controller, they can both be operated with one URB 55.

Function

The URB 55 visual display and operating unit and the NRR 2-52, NRR 2-53 level controller make up a unit with the following functions:

Level controller	NRR 2-52	NRR 2-53
Evaluation of voltage signals from the connected NRG 2x-xx level electrodes with standardised measuring range	●	●
Evaluation of the current signal of a connected NRG 26-x level transmitter	●	●
3-position stepping controller with proportional-plus-integral control action (PI controller) and control of an electrically actuated control valve	●	
Continuous controller as a PI controller for actuating an electro-pneumatically operated control valve		●
Continuous controller as a PI controller for actuating frequency-controlled pumps		●
MIN/MAX water level alarm	●	●
Current inputs for steam and feedwater flowrate (3-element control) (optional)	●	●
Indication of valve position via potentiometer (in the control valve)	●	
Actual value output 4-20 mA	●	●
2 x pump enable (ON/OFF) with actuation of a frequency-controlled pump *)		●
Visual display and operating unit	URB 55	
Indication of actual value (bar graph in %)	●	
Indication of actual value for 3-element control (compensated/uncompensated reading)	●	
Indication of valve position (bar graph in %)	●	
Standardised measuring range when an NRG 2-... level electrode is connected	●	
Indication/setting of control parameters	●	
Standardisation and evaluation of current inputs for steam and feedwater flowrate (3-element control) (optional)	●	
Trend log	●	
Indication and listing of errors, alarms and warnings	●	
Test of MIN/MAX output relays	●	
Manual/automatic mode	●	
Password protection	●	
Level and conductivity controllers can be operated simultaneously *)	●	

*) Controller software version 311178.13 or later

Directives and standards

VdTÜV Bulletin "Wasserstand 100" (Water Level 100)

The functional unit consisting of the URB 55 visual display and operating unit / NRR 2-52, NRR 2-53 level controller in conjunction with the NRG 2-... level electrode and NRG 26-... level transmitters is type-approved in accordance with VdTÜV Bulletin "Wasserstand 100" (Water Level 100).

Type approval no.: TÜV · WR · XX-427
(see name plate).

The VdTÜV Bulletin "Wasserstand 100" describes the requirements for water level control and limiting equipment for boilers.

LVD (Low Voltage Directive) and EMC (Electromagnetic Compatibility)

The equipment conforms to the requirements of the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU.

ATEX (Atmosphere Explosible)

The equipment must not be used in potentially explosive atmospheres, in accordance with European Directive 2014/34/EU.

UL/cUL (CSA) approval

The equipment conforms to standards: UL 508 and CSA C22.2 No. 14-13, Standards for Industrial Control Equipment. File E243189, E199715.

Level Controller
NRR 2-52 / NRR 2-53

Technical data

Supply voltage

24 VDC, + / -20 %

Fuse

external semi-delay M0.5A

Power consumption

5 W

Connecting the level electrode/level transmitter

(selected by switch)

1 input for NRG 21-.. and NRG 26-21 level electrode, 3-pole with shield, or

1 analogue input 4-20 mA, e.g. for NRG 26-. level transmitters, 2-pole with shield.

Supply voltage to level electrode

12 V DC

Input/output

Interface for data exchange with the URB 55 visual display and operating unit

Inputs

1 analogue input, potentiometer 0 - 1000 Ω,

2-wire connection

(indication of valve position, NRR 2-52 only)

1 analogue input 4-20 mA (steam flowrate) (optional)

1 analogue input 4-20 mA (feedwater flowrate) (optional)

Outputs

NRR 2-52:

2 volt-free changeover contacts,

8 A 250 V AC / 30 V DC cos φ = 1 (control valve).

2 volt-free changeover contacts,

8 A 250 V AC / 30 V DC cos φ = 1,

OFF delay: 3 seconds (MIN/MAX alarm)

NRR 2-53:

4 volt-free changeover contacts,

8 A 250 V AC / 30 V DC cos φ = 1,

OFF delay: 3 seconds (MIN/MAX alarm)

1 analogue output 4-20 mA, max. load 500 ohms

(manipulated variable Y)

Inductive loads must have interference suppression

(RC combination) as per the manufacturer's specification.

NRR 2-52, NRR 2-53:

1 analogue output 4-20 mA,

max. load 500 ohms (actual value)

Indicators and controls

1 multicolour LED (start-up = amber, power ON = green, communication failure = red)

1 4-pole code switch for configuration.

Housing

Housing material, base: black polycarbonate;

front: grey polycarbonate, grey.

Terminal strips can be removed separately.

Housing attachment: Mounting clip on support rail TH 35, EN 60715.

Electrical safety

Pollution degree 2.

IP rating

Housing: IP 40 to EN 60529

Terminal strip: IP 20 to EN 60529

Weight

Approx. 0.5 kg

Ambient conditions:

Ambient temperature

when system is switched on 0 ° ... 55 °C

in operation -10 ... 55 °C

Transport temperature

-20 ... +80 °C (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature

-20 ... +70 °C, only switch on after a defrosting period of 24 hours.

Relative humidity

max. 95%, non-condensing

Dimensions

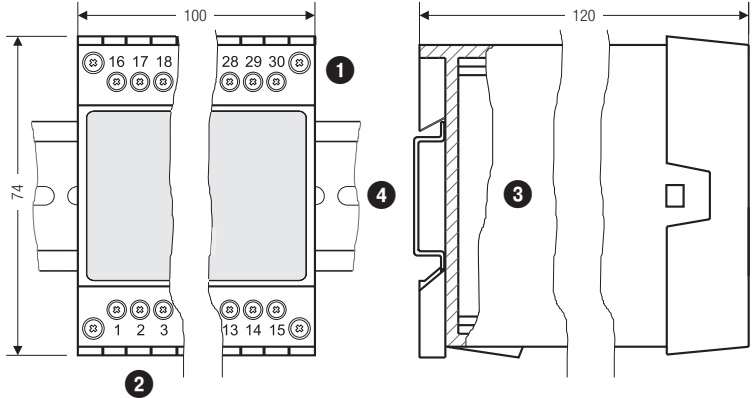


Fig. 1 NRR 2-52, NRR 2-53

Electrical connection, NRR 2-52

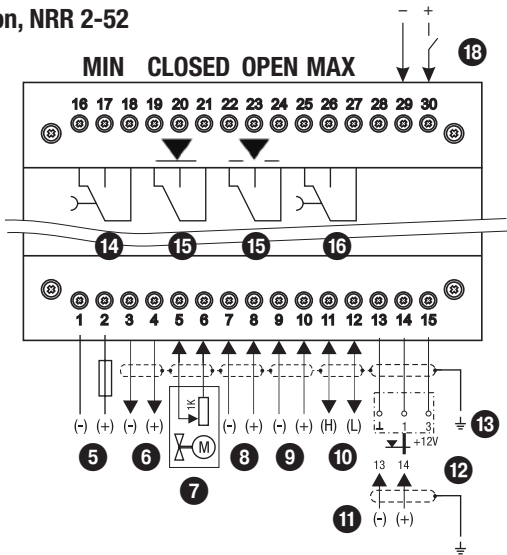


Fig. 2

Electrical connection, NRR 2-53

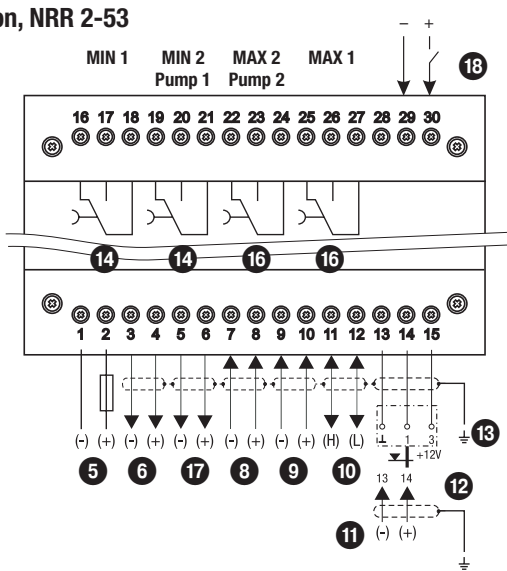


Fig. 3

Key

1 Upper terminal strip

2 Lower terminal strip

3 Housing

4 Support rail TH 35, EN 60715

5 Connection of supply voltage 24 V DC with M0.5A semi-delay fuse provided by customer

6 Actual value output 4-20 mA

7 Indication of valve position, potentiometer 0 - 1000 Ω

8 IN 2 / 4-20 mA feedwater flowrate (optional)

9 IN 3 / 4-20 mA steam flowrate (optional)

10 Data line for URB 55 visual display and operating unit

11 NRG 26-. level transmitter, 4-20 mA, with shield connection in terminal box.

12 NRG 21-..; NRG 26-21 level electrode (for an ER 96 level electrode, connect a 6.8 k resistor between terminals 13 and 14)

13 Central earthing point (CEP) in control cabinet

14 MIN output contact(s), OFF delay 3 s

15 Output contact for control valve actuation

16 MAX output contact(s), OFF delay 3 s

17 Output 4-20 mA, manipulated variable Y

18 Digital input alarm signal for control centre *)

*) Controller software version 311178.13 or later

Visual Display and Operating Unit
URB 55

Technical data

Supply voltage
24 VDC +/- 20%

Fuse
Internal, automatic

Power consumption
Max. 14.4 W

Input/output
Interface for data exchange with the NRR 2-52, NRR 2-53 level controller.

User interface
Capacitive display 800x480px with LED illumination

Dimensions
Front panel 147 x 107 mm
Switch panel cut-out 136 x 96 mm
Depth 52 + 8 mm

Electrical connection
1 3-pole connector,
1 9-pole D-sub connector.

IP rating
Front: IP 66 to EN 60529
Back: IP 20 to EN 60529

Weight
Approx. 1.0 kg

Service temperature
0° ... 60 °C

Transport temperature
-20 ... +80 °C (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature
-20 ... +70 °C, only switch on after a defrosting period of 24 hours.

Relative humidity
5-85 %, non-condensing

Key

- 19** Cut-out in control cabinet door 136x96 mm
- 20** 9-pole D-sub connector for data line
- 21** 3-pole connector for supply voltage
24 V DC
- 22** Connection for supply voltage **24 V DC**, pin assignment
- CEP** Central earthing point in control cabinet

Dimensions

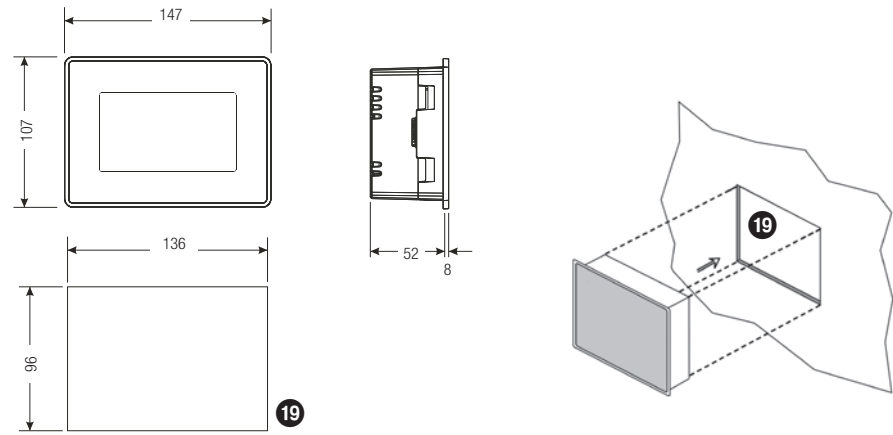
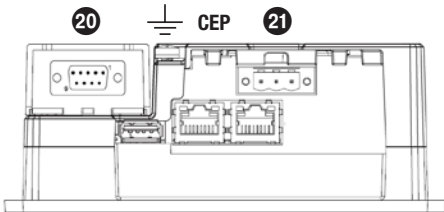


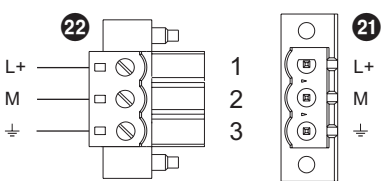
Fig. 4

Electrical connection, URB 55

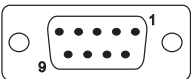
Back of unit, location of connectors



Supply voltage connection



Pin assignment of data line for NRR 2-52, NRR 2-53 - URB 55



PIN 2	Data_L
PIN 7	Data_H

Fig. 5

How to order and specify

Level controller NRR 2-52

GESTRA SPECTOR^{module} - Touch
3-position stepping PI controller with MIN and MAX alarm
Output: 2 volt-free changeover contacts for MIN/MAX alarm
1 volt-free relay contact for valve Open/Stop/Closed
1 actual value output 4-20 mA
1 separate URB 55 operating unit with touch panel
Supply voltage: 24 V DC
Optional extra (please state when ordering):
3-element control

Level controller NRR 2-53

GESTRA SPECTOR^{module} - Touch
Constant PI level controller with MIN and MAX alarm
Output: 1 current output 4-20mA for valve actuation
4 volt-free relay contact for MIN/MAX alarm
1 actual value output 4-20 mA
1 separate URB 55 operating unit with touch panel
Supply voltage: 24 V DC
Optional extras (please state when ordering):
3-element control

Important notes

The NRR 2-52, NRR 2-53 level controller is clipped onto a support rail in the control cabinet. The URB 55 visual display and operating unit is inserted into a cut-out in the control cabinet door.

The level controller and operating unit are both supplied with 24 V DC and the fuses are internal (URB) and external semi-delay (NRR 2-5..., M0.5A). Please use a safety power supply unit with reliable electrical isolation.

To prevent the contacts from welding together, protect the output contacts with an external slow-blow T2.5A fuse.

Switching off inductive loads produces surges that can severely impair the function of control systems. Connected inductive loads must therefore have interference suppression (RC combination) as per the manufacturer's specifications.

To connect the level electrode or level transmitter, please use a shielded, multi-core control cable with a minimum conductor size of 0.5 mm², e.g. LiYCY 4 x 0.5 mm², maximum length 100 m.

Route connecting cables between items of equipment separately from power lines.

Please note our general terms of business.

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