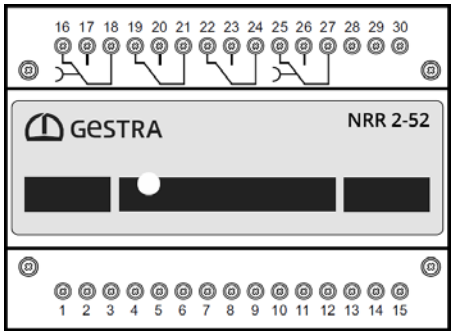
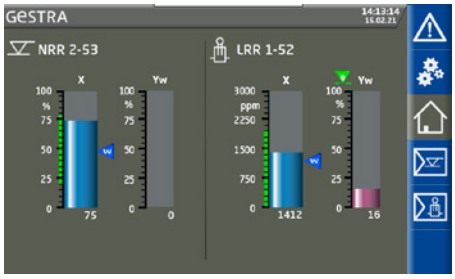
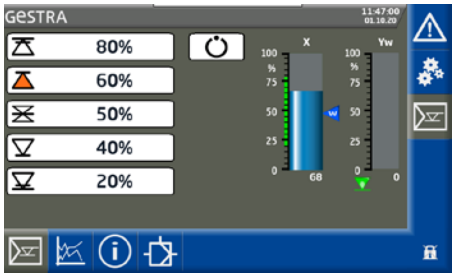


NRR 2-52, NRR 2-53



Home screen for overview of NRR 2-5x with 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 the NRGT 26-2 level transmitter as a limit switch and water level controller, e.g., in steam boilers and hot water installations or in condensate and feedwater tanks.

The URB 55 / NRR 2-5.. functional unit can be combined with the NRGT 26-2 level transmitter.

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 the voltage signal from the connected NRG 2x-xx level electrodes with measuring range standardization	●	●
Evaluation of the current signal of a connected NRGT 26-2 level transmitter	●	●
3-position stepping controller with proportional-plus-integral control action (PI controller) and actuation of an electrically operated control valve	●	
Continuous PI controller for actuating an electro-pneumatically operated control valve		●
Continuous 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 by connecting a 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 %)		●
Measuring range standardization when an NRG 2.-.. level electrode is connected		●
Indication/setting of control parameters		●
Standardization 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

Applicable directives:

NRR 2-52 / NRR 2-53:

- UL 60730-1 and CAN/CSA E60730-1 General Requirements for Automatic Electrical Controls
- UL 60730-2-15 and CAN/CSA E60730-2-15 Requirements for Automatic Electrical Water Level Sensing Controls

URB 55:

- UL 61010-1 and CAN/CSA C22.2 No. 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use - Part 1: General Requirements
- UL 61010-2-201 and CAN/CSA C22.2 No. 61010-2-201 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 2-201: Particular Requirements for Control Equipment

Improper use

There is a danger of death due to explosion if the equipment is used in potentially explosive atmospheres.
Do not use the equipment in potentially explosive atmospheres.

Level Controller

NRR 2-52, NRR 2-53

Technical data

Supply voltage
24 VDC, +/–20 %; PELV / CLASS2

Fuse
External M0.5A (medium time-lag)

Power consumption
5 W

Connecting a level transmitter
(selected by switch)
3-pole with shield or
1 analog input 4-20 mA, e.g., for the NRGT 26-2 level transmitter, 2-pole with shield.

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

Inputs
1 analog input, potentiometer 0 - 1000 Ω,
2-wire connection (indication of valve position, NRR 2-52 only)
1 analog input 4-20 mA (steam flowrate) (optional)
1 analog input 4-20 mA (feedwater flowrate) (optional)

Outputs
NRR 2-52:
2 volt-free relay contacts,
8 A 250 V AC / 30 V DC cos φ = 1 (control valve).
2 volt-free relay 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 relay contacts,
8 A 250 V AC / 30 V DC cos φ = 1,
off delay: 3 seconds (MIN/MAX alarm)
1 analog output 4-20 mA, max. output load 500 ohms (manipulated variable Y)

Inductive loads must have interference suppression (RC combination) in accordance with the manufacturer's specification.

NRR 2-52, NRR 2-53:
1 analog output 4-20 mA,
max. output load 500 ohms (actual value)

Indicators and controls
1 multicolor LED (start-up = amber,
power ON = green, communication failure = red)
1 4-pole code switch for configuration.

Terminal box
Terminal box material: base of black polycarbonate,
front of gray polycarbonate.
Terminal strips can be removed separately.
Terminal box attachment: Mounting clip on support rail TH 35, EN 60715.

Electrical safety
Pollution degree 2, overvoltage category II
according to UL 60730-1

Protection
Terminal box: IP40 according to EN 60529
Terminal strip: IP20 according to EN 60529
As a UL open type, the equipment must be installed in a control cabinet.

Weight
Approx. 1.1 lb (0.5 kg)

Ambient conditions:

Ambient temperature
At power-on 32 ° ... 131 °F (0 ° … 55 °C)
In operation 14 ° ... 131 °F (-10 °… 55 °C)

Transport temperature
-4 °F … 176 °F (-20 ° … +80 °C) (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature
-4 ° … 158 °F (-20 ° … +70 °C), only switch on after a defrosting period of 24 hours.

Relative humidity
Max. 95%, non-condensing

Dimensions

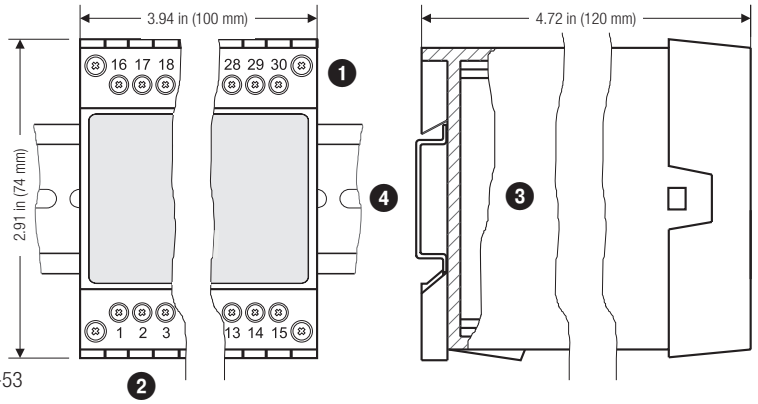


Fig. 1 NRR 2-52, NRR 2-53

Electrical connection, NRR 2-52

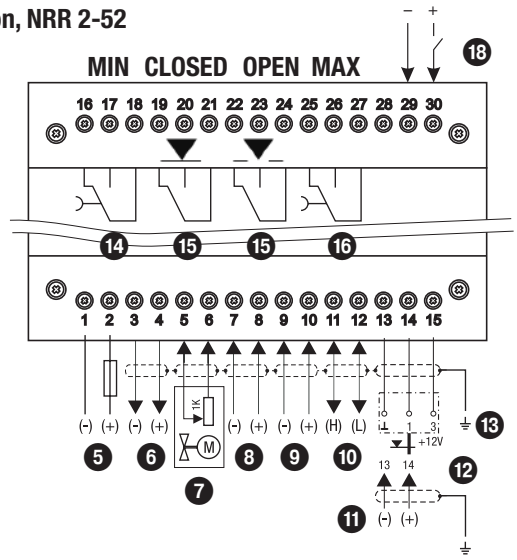


Fig. 2

Electrical connection, NRR 2-53

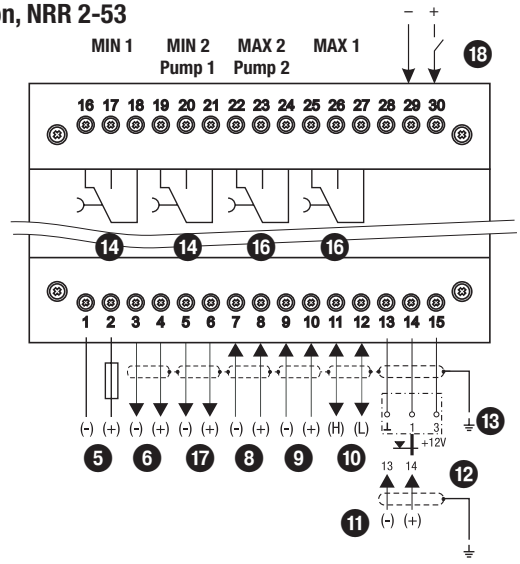


Fig. 3

Key

1. Upper terminal strip
2. Lower terminal strip
3. Terminal box
4. Support rail TH 35, EN 60715
5. Connection of supply voltage 24 V DC with 0.5A medium time-lag 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. NRGT 26-2 level transmitter, 4-20 mA, with shield connection in terminal box
13. Central grounding point (CGP) 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 center *)

*) Controller software version 311178.13 or later

Visual Display and Operating Unit
URB 55

Technical data

Supply voltage
24 VDC +/– 20%; PLEV / CLASS2

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 5.79 in (147 mm) x 4.21 in (107 mm)
Switch panel cutout 5.35 in (136 mm) x 3.78 in (96 mm)
Depth 2.05 in (52 mm) + 0.32 in (8 mm)

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

Protection
Front: IP66 according to EN 60529
Back: IP20 according to EN 60529

Weight
Approx. 2.21 lb (1 kg)

Service temperature
32 ° ... 140 °F (0 ° ... 60 °C)

Transport temperature
-4 ° … 176 °F (-20 ° … +80 °C) (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature
-4 ° … 158 °F (-20 ° … +70 °C), only switch on after a defrosting period of 24 hours.

Relative humidity
5-85 %, non-condensing

Key

- ⑲ Cutout for control cabinet door 5.35 in (136 mm) x 3.78 in (96 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
- **CGP** Central grounding point in control cabinet

Please note our general terms of business.

Dimensions

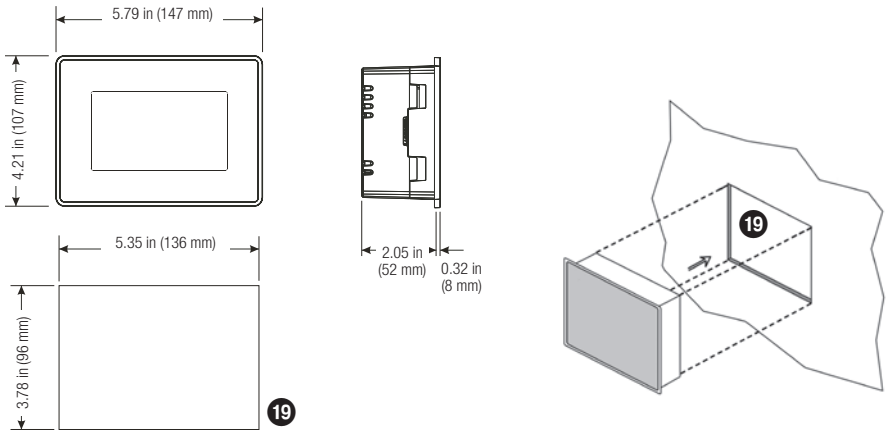
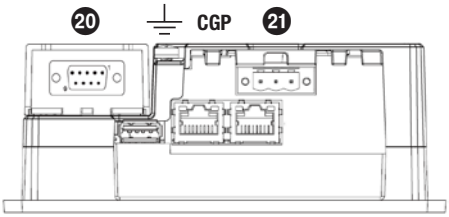


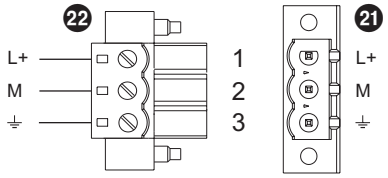
Fig. 4

Electrical connection, URB 55

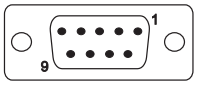
Back of unit, location of connectors



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*modul* - Touch
3-position stepping PI controller with MIN and MAX alarm
Output: 2 volt-free relay contacts for MIN/MAX alarm
2 volt-free changeover contacts 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 SPECTORmodul - Touch
Constant PI level controller with MIN and MAX alarm
Output: 1 current output 4-20mA for valve actuation
4 volt-free changeover contacts 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 in a cutout in the control cabinet door.

The level controller and operating unit are both supplied with 24 V DC and have an internal (URB) or external fuse (NRR 2-5.., medium time-lag 0.5A). Please use a safety power supply unit with PELV/CLASS 2 protective electrical isolation.

Protect the output contacts with an external slow blow 2.5A fuse to prevent them from welding together.

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.

Use a shielded, multi-core TC-ER control cable with minimum wire size AWG 18, e.g., OELFLEX CONTROL TM CY 5G1 to connect the level transmitter. Max. length 328 ft (100 m).

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

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