



NRR 2-40



Installation Instructions 810369-03

Level Controller Type NRR 2-40



Flow Control Division

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Wiring Diagram

NRR 2-40 as three-position stepping controller

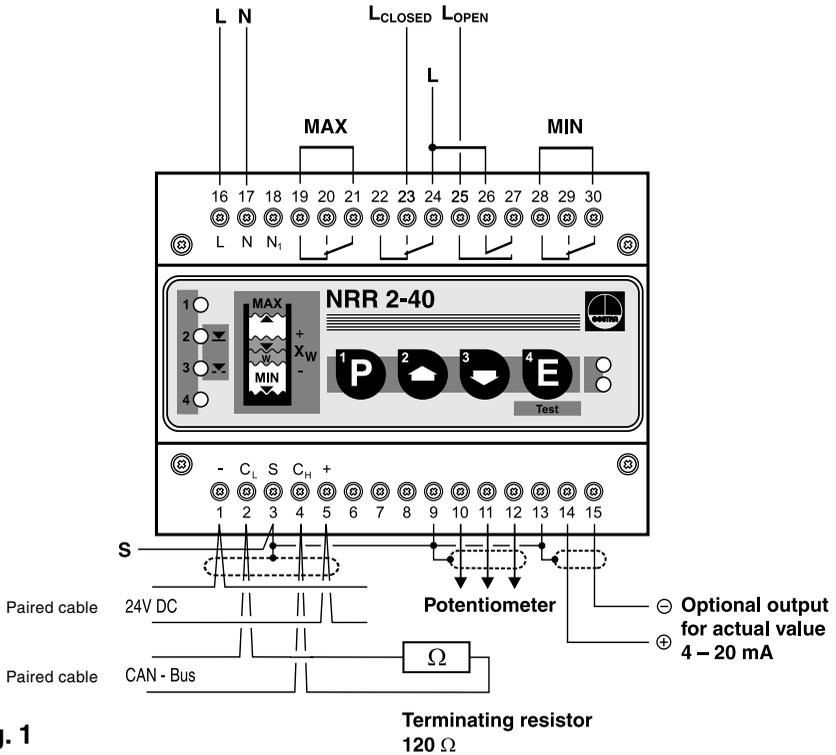


Fig. 1

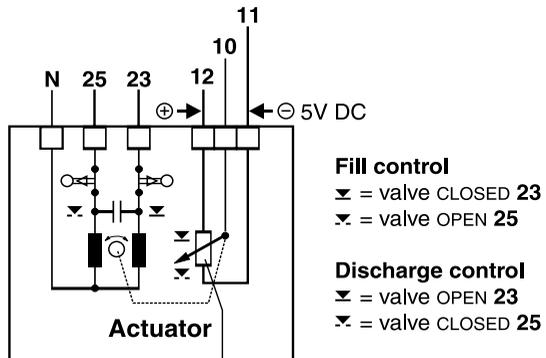
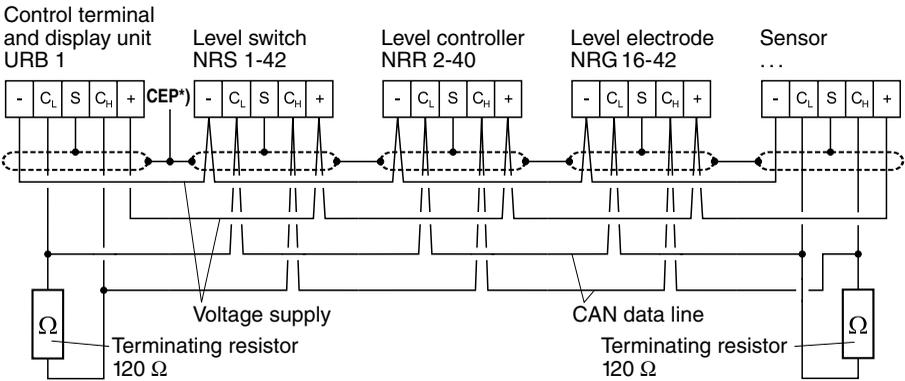
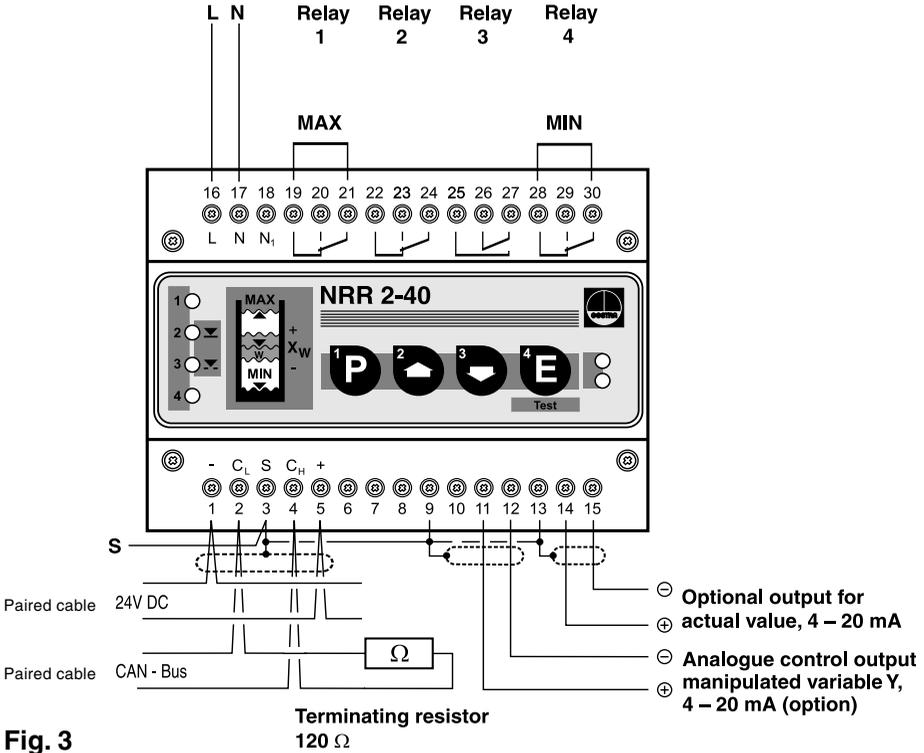


Fig. 2

Feedback potentiometer 1000 Ω

Wiring Diagram

NRR 2-40 as continuous controller



*) CEP = central earthing point

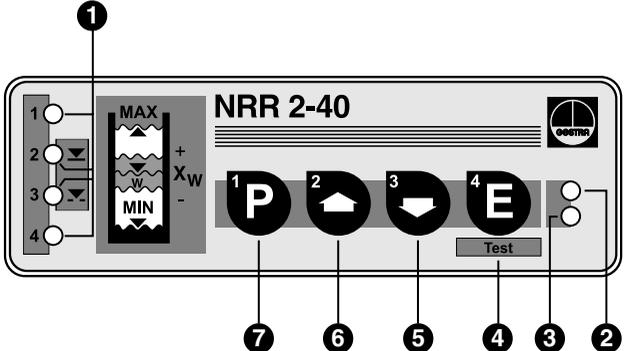


Fig. 5

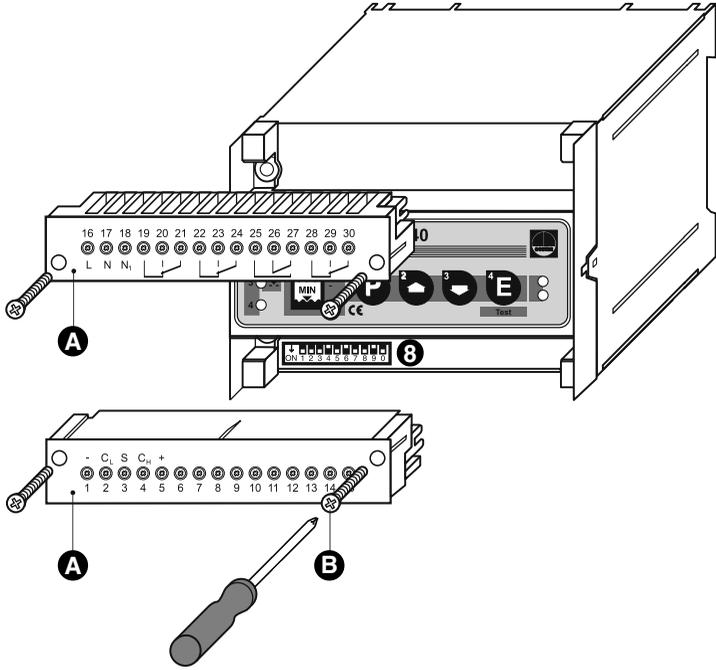


Fig. 6

Key

1 Indicator LED

LED 1 – Switchpoint 1

LED 2 – Control valve closing

LED 3 – Control valve opening

LED 4 – Switchpoint 4

Alarm

High-level

not allocated

not allocated

Low-level

Malfunction

Multifunction

Multifunction

Multifunction

Multifunction

2 LED “Bus status”

3 LED “Power”

4 Enter button / Test mode

5 Decrease button

6 Increase button

7 Program button

8 Code selector switch, 10 poles

A Terminal strip

B Screws for terminal strip

Important Notes

Usage for the intended purpose

Use level controller NRR 2-40 in combination with level electrode NRG 26-40 only for controlling the liquid level of conductive fluids.

Safety Note

The equipment must only be installed by qualified staff.

Qualified staff are those persons who – through adequate training in electrical engineering, the use and application of safety equipment in accordance with regulations concerning electrical safety systems, and first aid & accident prevention – have achieved a recognised level of competence appropriate to the installation and commissioning of this device.



Warning

The terminal strip of the NRR 2-40 is live during operation. This presents the danger of electric shock. Cut off power supply before fixing or removing the housing lid or terminal strips.

Explanatory Notes

Scope of supply

NRR 2-40

- 1 Level controller type NRR 2-40 (plug-in unit in plastic case with box terminals)
- 1 Terminating resistor 120 Ω
- 1 Installation manual

System Description

Use level controller type NRR 2-40 in combination with level electrode type NRG 26-40 for level control and monitoring. The level controller has the following functions:

- Two liquid level limits with one switchpoint each (HIGH-LEVEL alarm, LOW-LEVEL alarm)
- Three-position stepping or modulating control within a predefined proportional band
- Continuous level monitoring within the control band defined by two preset limits

The NRR 2-40 features an optional output for a standard signal 4–20 mA. The level data are transferred from the electrode NRG 26-40 to the level controller via a CAN data bus.

Function

At regular intervals the level electrode NRG 26-40 sends a data telegram to the level controller NRR 2-40. The data are transferred via a CAN bus to DIN ISO 11898, adopting the CANopen protocol. The transmitted data are then evaluated and allocated to the manually adjusted switchpoints. Optionally a standard signal 4–20 mA is established for external level indication. A relay de-energizing delay can be set manually with the control terminal and display unit URB 1.

To guarantee the correct functioning and safety of the system the data transmitting cycle of the level controller is constantly monitored. When the CAN bus line is interrupted the level controller sends a visual signal to indicate a malfunction and the relays 1 and 4 will be instantaneously de-energized (alarm position).

GESTRA's control terminal and display unit URB 1 enables advanced features such as adjustable energizing and de-energizing delays of the output relays (1–25 s).

Technical Data

Type approval no.

NRR 2-40: TÜV · 98-399

Input / Output

Interface for CAN bus to DIN ISO 11898 CANopen

Feedback potentiometer 1000 Ω

Output – voltage supply for electrodes

Power supply 24 V DC, short-circuit protected.

Analogue output 4–20 mA, load 500 Ω for display of actual value (option).

Analogue control output for manipulated variable 4–20 mA, max. load 500 Ω (option).

4 volt-free relay contacts.

Max. contact rating with switching voltages of 24 V AC, 115 V AC 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.

Contact material: silver, hard-gold plated

Interference suppression

Provide contactor with an external RC combination (100 Ω / 47 nF)

Relay de-energizing delay

Output “MIN”, “MAX” 3 s

Indicators and adjusters

1 red LED for switchpoint “MAX”

1 red LED for switchpoint “MIN”

2 green LEDs for “CONTROL VALVE OPENING” and “CONTROL VALVE CLOSING”

1 green LED “OPERATION”

1 red LED “BUS MALFUNCTION”

1 ten-pole code selector switch for setting node ID and baud rate

4 pushbuttons

Proportional band X_p

1 % to 100 %

Valve position feedback

0 Ω to 1000 Ω (only when used as three-position stepping controller)

Switching range (dead band) X_{sh}

0 % (factory setting) up to 15 %

Supply voltage

230 V \pm 10 %, 50/60 Hz

115 V \pm 10 %, 50/60 Hz (option)

Power consumption

10 VA

Protection

Case: IP 40 to DIN ISO 60529

Terminal strip: IP 20 to DIN ISO 60529

Admissible ambient temperature

0 $^{\circ}$ C to 55 $^{\circ}$ C

Case material

Front panel: polycarbonate, grey

Enclosure: polycarbonate, black

Weight

Approx. 0.8 kg

Installation

NRR 2-40

Installation on mounting rail

1. Clip level controller onto mounting rail 35 x 15 mm (DIN EN 50022).
2. Align level controller, **fig. 19, 20**.

Tool

- Screwdriver (5.5/100)

Wiring

Note that screened multi-core twisted-pair control cable is required, e. g. UNITRONIC® BUS CAN 2 x 2 x ...² or RE-2YCYV-fl 2 x 2 x ...².

The baud rate (data transfer rate) dictates the cable length between the bus nodes and the total current consumption of the measuring sensors dictates the conductor size.

S 8	S 9	S 10	Baud rate	Cable length	Number of pairs and conductor size [mm ²]
OFF	ON	OFF	250 kBit/s	125 m	2 x 2 x 0.34
Factory setting					
ON	ON	OFF	125 kBit/s	250 m	2 x 2 x 0.5
OFF	OFF	ON	100 kBit/s	335 m	2 x 2 x 0.75
ON	OFF	ON	50 kBit/s	500 m	on request, dependent on bus configuration
OFF	ON	ON	20 kBit/s	1000 m	
ON	ON	ON	10 kBit/s	1000 m	

The baud rate is set via a code switch. Reduce baud rate if cable is longer than specified in the table. Make sure that all bus nodes have the same settings.

To protect the switching contacts fuse circuit with 2.5 A (anti-surge fuse) or according to TRD regulations (1.0 A for 72 hrs operation).

When a max. cable length of 1000 m is desired, make sure to modify the baud rate accordingly. Refer to pages 28 and 29 for more details.

Wiring diagram

See wiring diagrams on pages 3 and 4.



Attention

- Wire equipment in series. Star-type wiring is not permitted.
- Interlink screens of control cables such that electrical continuity is ensured and connect them **once** to the central earthing point (CEP).
- To protect the switching contacts fuse circuit with 2.5 A (slow blow) or according to TRD regulations.
- If more than one system components are connected to a CAN bus network provide the first and last equipment with a terminating resistor of 120 Ω. **Fig. 4**
- The CAN bus network must **not** be interrupted while operating.

Any interruption will result in HIGH/Low level alarm!

If the level controller must be replaced, remove terminal strip **A** **Fig. 6**.

Before removing the CAN-bus line from the terminal strip disconnect all relevant system components to avoid malfunction alarms.



Note

- Connect screen only to designated terminals.
- The loop resistance must be under 10 Ω.
- The rated voltage is stated on the name plate.
- When switching off inductive loads, voltage spikes are produced that may impair the operation of control and measuring systems. Inductive loads should therefore be provided with commercial arc suppressor RC combinations.
- In spite of correct wiring H.F. interference caused by the installation may lead to system breakdowns and malfunction messages. If necessary refer to the “**Fault finding list for troubleshooting**” on pages 26 and 27.

Tool

- Screwdriver for slotted screws, size 2.5, completely insulated according to VDE 0680.

Basic Adjustments

CAN bus

All level and conductivity controllers and associated electrodes are interconnected by means of a CAN bus using the CANopen protocol. Every item of equipment features an electronic address (node ID). The four-core bus cable serves as power supply and data highway for high-speed data exchange.

The CAN address (node ID) can be set between **1** and **123**.

The NRR 2-40 is configured at our works and ready for service with other GESTRA system components without having to set the node ID.

If several systems of the same kind are to communicate in one CAN bus network, be sure to assign one node ID for each individual system component. Refer to pages 28 and 29 for more details.

Node ID

Reserved	NRS 2-40	NRR 2-40	NRG 26-40	Reserved	
X - 2	X - 1	X	X + 1	X + 2	
	39	40	41		Factory setting

Reserved area

Basic Adjustments – continued –

Factory setting

The level controller features the following factory set default values:

- Baud rate: **250 kb/s**
- Relay with de-energizing delay switchpoint 1: **3s**
- Proportional band X_p : **20%**
- Relay with de-energizing delay switchpoint 4: **3s**
- Node ID: **040**
- Switchpoint 1: **80%**
- Switchpoint 4: **20%**

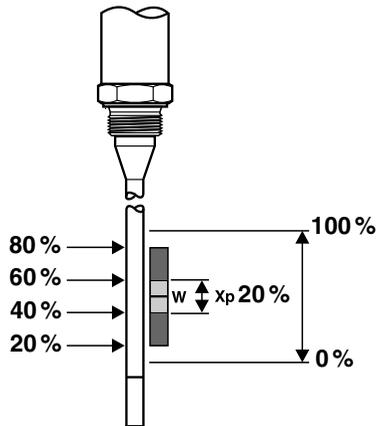


Fig. 7

Controller NRR 2-40

The controller type NRR 2-40 is specially designed for level control in steam boilers and feedwater deaerators. The NRR 2-40 is a proportional controller with steady-state deviation. The positive and negative deviation lies within the proportional band (X_p) preselected by the user.

It is possible to control electric and pneumatic actuators. The control of electric actuators is accomplished by an analogue signal which, in combination with an active position feedback coming from the valve, is converted in the controller into a three-position stepping signal. The control pulses for the electric actuator are transmitted by a relay incorporated in the controller.

The control of pneumatic actuators is effected by an analogue signal 4–20 mA. The analogue signal is transmitted directly from the proportional controller to the positioner of the pneumatic control valve, which means that an active position acknowledgement is not possible.

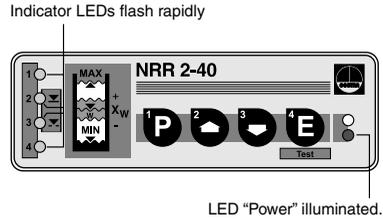
X_p values:

- $X_p >$ large permanent deviation, valve reacts sluggishly
- $X_p <$ no permanent deviation, valve may be hunting
- recommended X_p value 30% – 100%.

Commissioning

NRR 2-40

Apply power to the unit.
The four indicator LEDs flash rapidly.
The LED "Power" lights up.
The test cycle takes about two seconds.



Control Range

- 1 Desired control range [mm]
- 2 Max. control range

Determine the appropriate level control range **1** for your system.

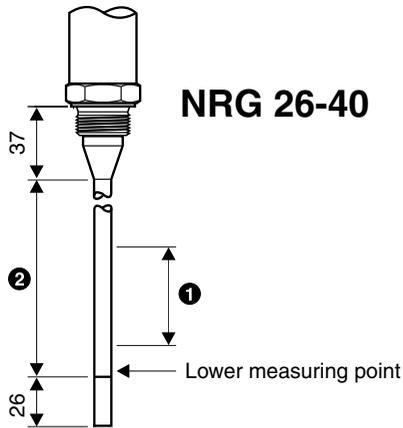
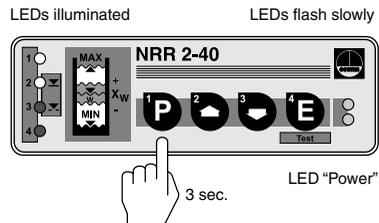


Fig. 8

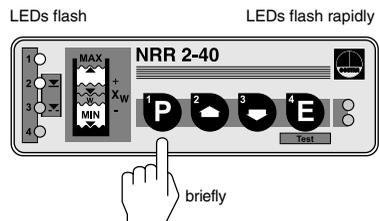
Adjusting the control range

Press button **P** for 3 sec.
Lower liquid level until the lower limit of the control range **1** is reached.
If necessary first use button **2** to adjust the upper limit of the control range.



Press button **P** briefly.

Note:
In the event of a system malfunction, the LED(s) "Bus status" and/or "Power" will be flashing **rapidly** when in program mode. Quit program mode and analyse the system malfunction (see pages 22 – 26).

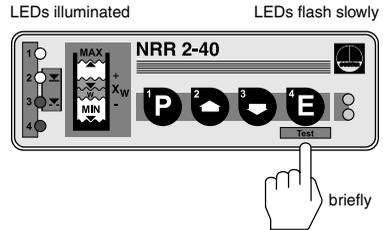


Commissioning – continued –

Adjusting the control range – continued –

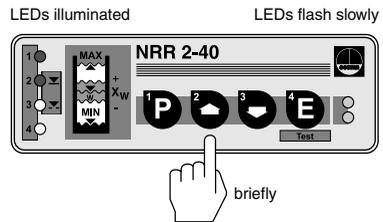
Press button **E** briefly.

The lower limit of the desired control range is now saved.

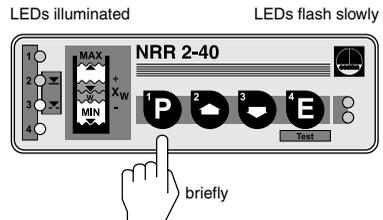


Press button **1** briefly.

Raise liquid level until the desired upper limit of the control range **1** is reached.



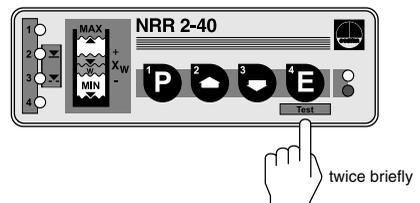
Press button **P** briefly.



Press button **E** twice briefly.

The upper limit of the desired control range is now saved.

The NRR 2-40 is now again in operating mode.



Switchpoints and proportional band

- ① Switchpoint 1
 - ② Switchpoint 2
 - ③ Switchpoint 3
 - ④ Switchpoint 4
 - ⑤ Selected control range
- X_P

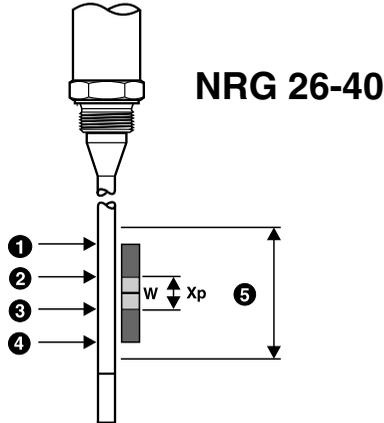


Fig. 9

You can establish two switchpoints and a proportional band X_p within the control range.

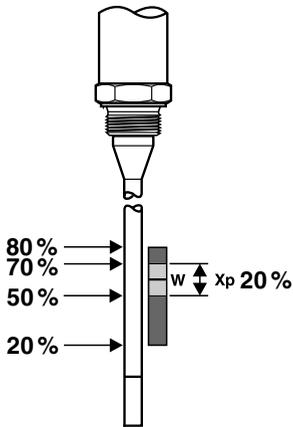


Fig. 10 (example)

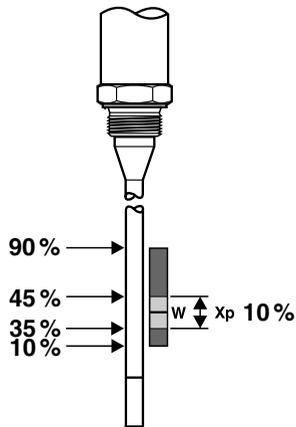


Fig. 11 (example)

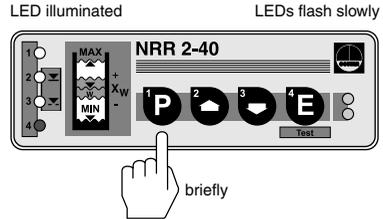
Commissioning – continued –

Establishing switchpoints and proportional band

Press button **P** briefly.

Raise or lower the liquid level in the vessel until the desired value is reached.

Use button **↕** if you first want to establish the proportional band or a different switchpoint.

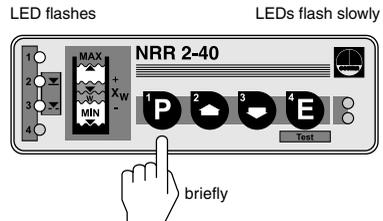


Press button **P** briefly.

Lower the liquid level until switchpoint 4 within the desired control range is reached.

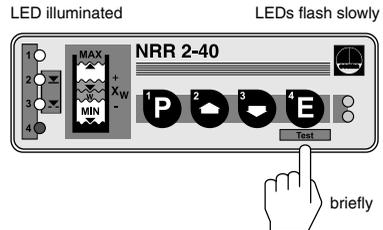
Note:

In the event of a system malfunction, the LED(s) “Bus status” and/or “Power” will be flashing **rapidly** when in program mode.



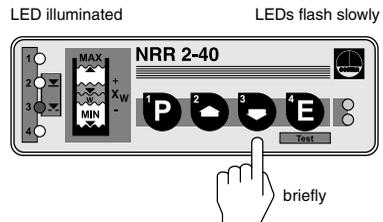
Press button **E** briefly.

Switchpoint 4 is now saved.



Press button **↕** briefly.

The lower limit of the proportional band X_p ③ is now selected (switchpoint 3).

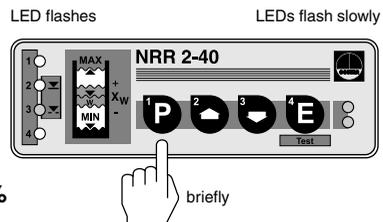


Press button **P** slowly.

Raise the liquid level until switchpoint 3 within the desired control range is reached.

Example:

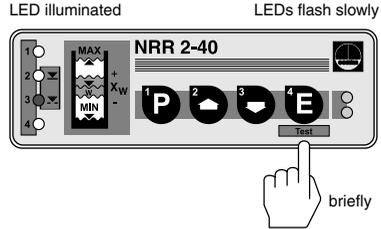
Liquid level switchpoint 3 = 40% and liquid level switchpoint 2 = 60% make a **proportional band X_p (60% – 40%) = 20%**
The setpoint is at approx. 50%.



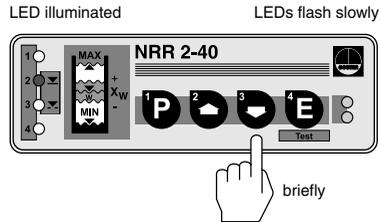
Commissioning – continued –

Establishing switchpoints and proportional band – continued –

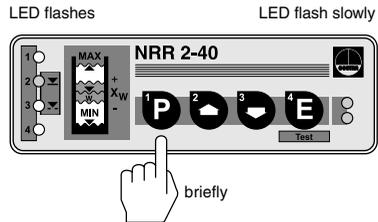
Press button **E** briefly.
Switchpoint 3 is now saved.



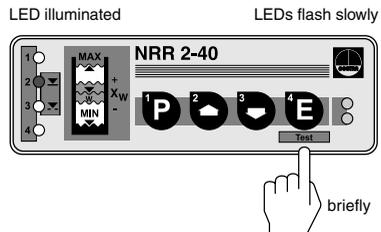
Press button **P** briefly.
The upper limit of the proportional band X_p 2 is now selected (switchpoint 2).



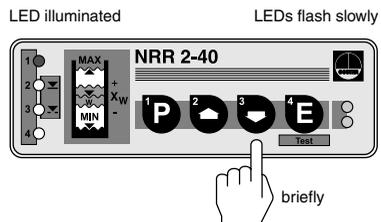
Press button **P** briefly.
Raise liquid level until switchpoint 2 within the desired control range is reached.
Example:
Liquid level switchpoint 3 = 40% and liquid level switchpoint 2 = 60% make a **proportional band X_p of 20%**.



Press button **E** briefly.
Switchpoint 2 is now saved.



Press button **P** briefly.
Switchpoint 1 is now selected.



Commissioning – continued –

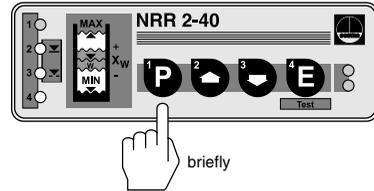
Establishing switchpoints and proportional band – continued –

Press button **P** briefly.

Raise liquid level until switchpoint 1 within the desired control range is reached.

LED flashes

LEDs flash slowly

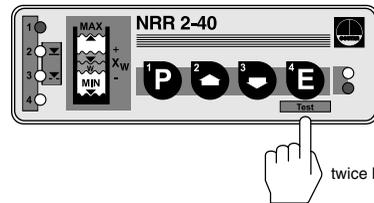


Press button **E** twice briefly.

Switchpoint 1 is now saved.

The NRR 2-40 is now again in operating mode.

LED illuminated



Calibrating the feedback potentiometer of an external control valve

The feedback potentiometer of an external control valve with electric actuator has to be **manually** calibrated before commissioning.

1. Ascertain the total resistance of the feedback potentiometer.
2. Set the control valve manually into mid-position.
3. Adjust manually the position of the feedback potentiometer until the partial resistance values of the measured total resistance are equal.

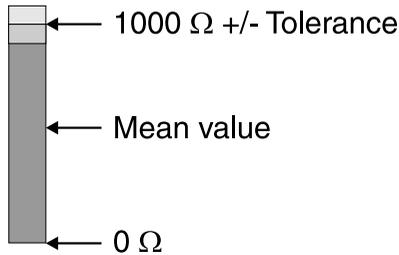


Fig. 12



Attention

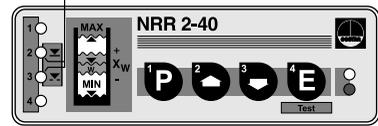
- The GESTRA level controller type NRR 2-40 requires a **1000 Ω** feedback potentiometer.
- The NRR 2-40 works as **two-position controller** when the terminals for the feedback potentiometer are not wired or the feedback potentiometer is defective.
- Use the control and display unit URB 1 for semi-automatic calibration of the feedback potentiometer of an external control valve **without** measurement of the resistance value. For more details see the installation instructions of the URB 1.

Operation

Normal operation

Normal operation, controller is working.
The green LEDs 2 and 3 flash when the external control valve is opened or closed.
All LEDs go out when the setpoint is reached.
The LED "Power" is illuminated.

LEDs flash when the control valve is motored

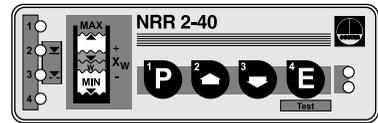


LED "Power" illuminated

Alarm

There are two types of alarm:

- High-level alarm
- Low-level alarm



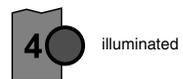
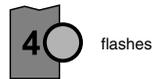
High-level alarm

LED 1 changes after the de-energizing delay from rapid flashing to lighting.



Low-level alarm

LED 4 changes after the de-energizing delay from rapid flashing to lighting.

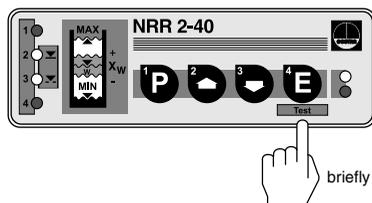


Relay test high/low-level alarm

Press button **E** briefly.

The test mode is active for 5 seconds.

LEDs illuminated

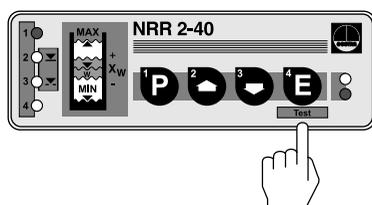


Hold down button **E**.

LED 4 goes out.

A low-level alarm is simulated for switchpoint 4.

Indicator LED 4 goes out

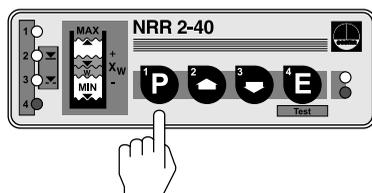


Hold down button **P**.

LED 1 goes out.

A high-level alarm is simulated for switchpoint 1.

Indicator LED 1 goes out



System Malfunctions

There are four types of system malfunctions that might occur in the level electrode and the level controller:

- Max. admissible temperature in electrode terminal box exceeded
- No or faulty communication between controller and electrode
- Malfunction in CAN bus
- Failure of 24 V power supply unit built in level controller NRR 2-40



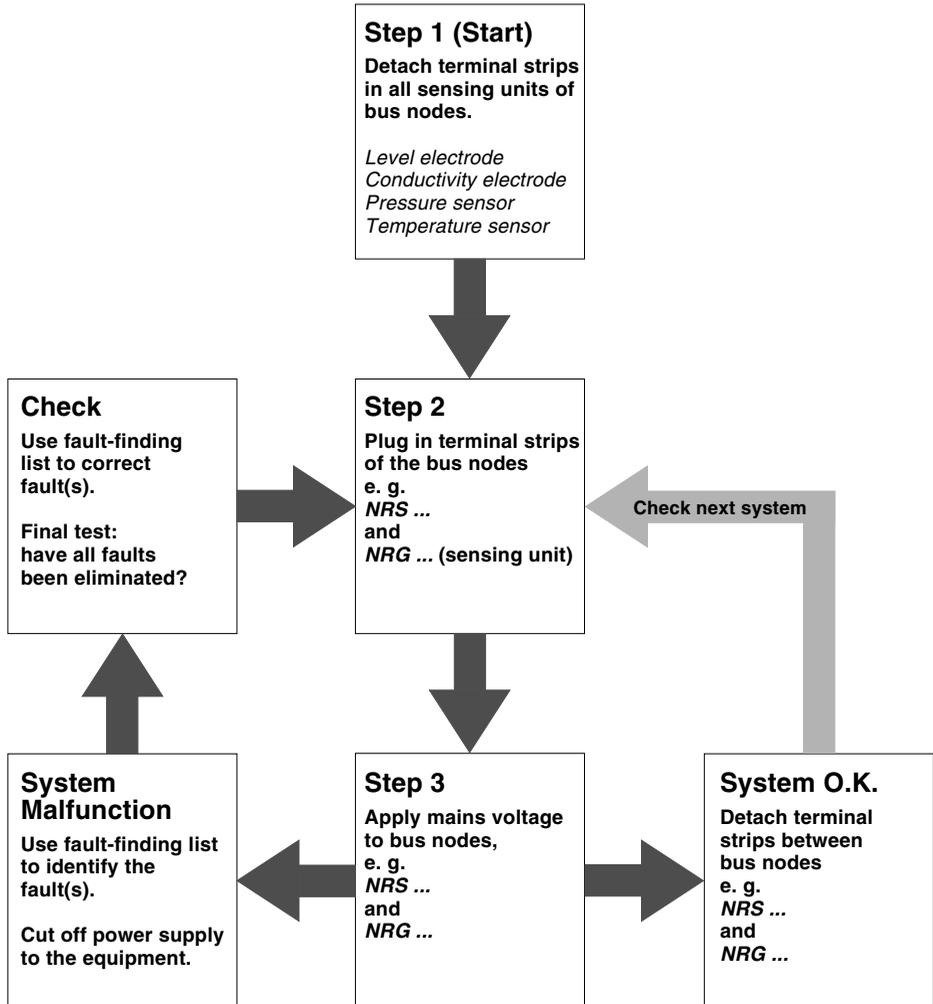
Attention

The terminal strip of the NRR 2-40 is live during operation. This presents the danger of electric shock. Cut off power supply before mounting or removing the equipment.

Systematic Malfunction Analysis

The sources of malfunctions occurring in CAN bus systems operating with several bus-based stations must be analysed systematically since faulty components or incorrect settings can give rise to negative interactions with intact bus devices in the CAN bus system. These unwanted interactions can cause error messages in fully functional bus devices, which will make fault detection even more difficult.

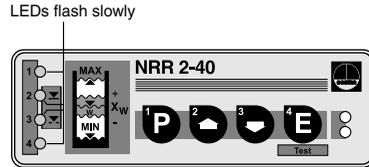
We recommend the following systematic fault finding procedure:



System Malfunctions – continued –

System malfunction 1

The four indicator LEDs flash slowly.
High/low-level alarm

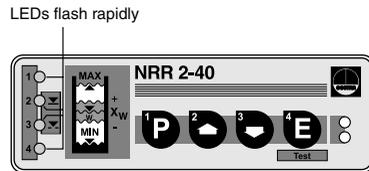


Fault: The max. admissible temperature in the electrode terminal box is exceeded.
Remedy: Insulate electrode flange to protect the equipment against heat radiation.

As soon as the temperature drops below the max. admissible limit the equipment automatically returns to normal operation.

System malfunction 2

The four indicator LEDs flash rapidly.
High/low-level alarm



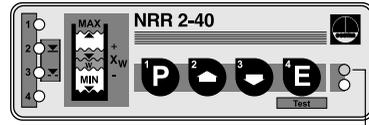
Fault: The CAN bus line between the bus-based devices is interrupted.
Remedy: Check wiring and terminals. Restart system.

Fault: Incorrect node ID(s).
Remedy: Set correct nodes ID(s), referring to section “Annex - assigning and changing the node IDs”. Disconnect the system from its power supply. After 5 sec. apply power and restart system.

System Malfunctions – continued –

System malfunction 3

LED “Bus status” flashes slowly.

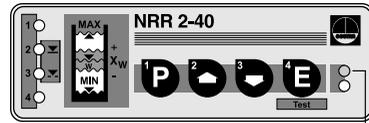


LED flashes slowly

Fault: Malfunction in CAN bus.

Remedy: Restart system.

LED “Bus status” flashes slowly.
High/low-level alarm



LED flashes slowly

Fault: Data transfer in CAN bus interrupted.

Remedy: The bus cables have to be correctly connected according to the wiring diagram (observe polarity!). Make sure that all **end-of-line devices** are provided with 120 Ω terminating resistors, see wiring diagram.

Disconnect the system from its power supply. After 5 sec. apply power and restart system.

Fault: The baud rate of one or more bus-based devices is not set correctly.

Remedy: Check baud rate settings of all bus devices. The baud rates **must be identical**. Refer to section “Annex” for more details.

Disconnect the system from its power supply. After 5 sec. apply power and restart system.

Fault The overall length of the bus cable does not correspond to the selected baud rate.

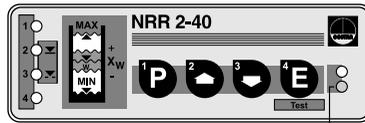
Remedy: Change baud rate settings of all bus-based devices according to the indications specified in “Annex”.

Disconnect the system from its power supply. After 5 sec. apply power and restart system.

System Malfunctions – continued –

System malfunction 4

LED “Power” flashes slowly.



LED flashes slowly

Fault: The power supply unit (PSU) is overloaded and may be misused for other components.

Remedy: Check load of power supply unit. Be sure to use the PSU only for the voltage supply of bus-based network components.

Disconnect the system from its power supply. After 5 sec. apply power and restart system.

Fault: Power supply unit defective.

Remedy: Replace PSU.

Operation Malfunctions



Attention

The terminal strip of the NRR 2-40 is live during operation. This presents the danger of electric shock. Cut off power supply before mounting or removing the equipment.

Fault-finding list for troubleshooting

Device does not work – no function

Fault: LED “Power” does not light up.

Remedy: Apply power. Connect the equipment properly, referring to wiring diagrams.

Operation Malfunctions – continued –

Fault-finding list for troubleshooting – continued –

Device does not work – interference signal

Fault: In spite of correct wiring and commissioning of the equipment an interference signal is indicated.

Remedy: The interference signal is caused by high-frequency interferences coming from the installation. For interference suppression we supply ferrite rings, stock code # 147253. The 230 V supply lines should be looped five to ten times through the ferrite ring. If several controllers are used in one system, they can be fed from the interference suppressed supply lines. For the interference suppression of the bus line we supply hinged-shell ferrite rings, stock code # 147254. The hinged-shell ferrite rings are clamped onto the bus line close to the terminal strip of the controller.

Device fails to function properly

Fault: Incorrect function at analogue output. The following actual value indicator shows incorrect values.

Remedy: Correct the switchpoint settings and the control range settings of the electrode.

Fault: Switchpoints and actual value indication drift continuously towards 100 %.

Remedy: Deposits have accumulated on the electrode rod. Remove the level electrode and clean the electrode rod.

Fault: A high-level alarm is raised although the liquid level is below high level.

Remedy: Deposits have accumulated on the electrode rod. Clean the electrode rod. Defective electrode insulation. Replace level electrode.

Fault: Liquid level below switchpoint “low level”, device fails to switch.

Remedy: Check installation of level electrode and vent hole in the protection tube. If an external measuring pot is used make sure to open the isolating valves.

Fault: “High-level” switchpoint exceeded – no indication.

Remedy: Level switch defective. Replace the equipment.

The device works as two-position controller

Fault: Feedback potentiometer defective or not connected.

Remedy: Connect equipment according to wiring diagram. Check feedback potentiometer.

If faults occur that are not listed above or cannot be corrected, please contact our service center or authorized agency in your country.

Annex



Warning

The terminal strip of the NRR 2-40 is live during operation. This presents the danger of electric shock.

Cut off power supply before fixing or removing the housing lid or the terminal strips.

Factory set default node IDs

Controller

NRS 1-40 ID:001
NRS 1-41 ID:006
NRS 1-42 ID:020
NRS 2-40 ID:039
NRR 2-40 ID:040
LRR 1-40 ID:050

Level electrode

NRG 16-40 ID:002
NRG 16-40 ID:003
NRG 16-41 ID:007
NRG 16-42 ID:021
NRG 26-40 ID:041
LRG 16-40 ID:051

The node IDs of the individual units have to be adjusted manually.
For more information refer to the corresponding installations manuals.

Assigning / changing node ID

If several systems of the same kind are to communicate in one CAN bus network, be sure to assign one node ID for each individual system component (e. g. controller).

Detach terminal strip **A** in order to set code switch **8**.



Attention

- Do **not** assign the same node ID twice within the CAN bus network.

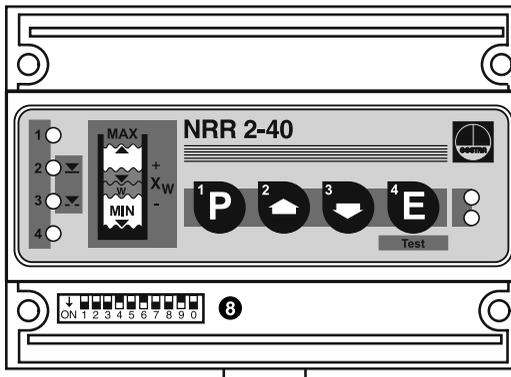


Fig. 13

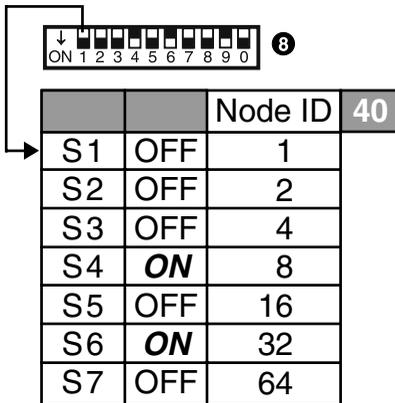


Fig. 14 (Factory setting)

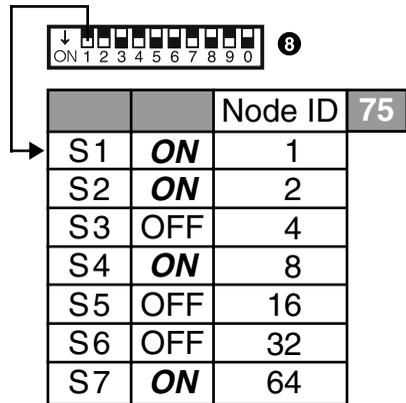


Fig. 15 (Example)

S8	S9	S0	Baud rate	Cable length
OFF	ON	OFF	250 kBit/s	125 m
ON	ON	OFF	125 kBit/s	250 m
OFF	OFF	ON	100 kBit/s	335 m
ON	OFF	ON	50 kBit/s	500 m
OFF	ON	ON	20 kBit/s	1000 m
ON	ON	ON	10 kBit/s	1000 m

Fig. 16 (Factory setting 250 kBit/s)



Warning

The terminal strip of the NRR 2-40 is live during operation. This presents the danger of electric shock.

Cut off power supply before fixing or removing the housing lid or terminal strips.

Neutral band

To guarantee a smooth controlled system you can establish a neutral band for the setpoint W. The setpoint is defined by the proportional band which is determined by switch point 2 and 3.

Detach terminal strip **A** in order to set code switch **8**.

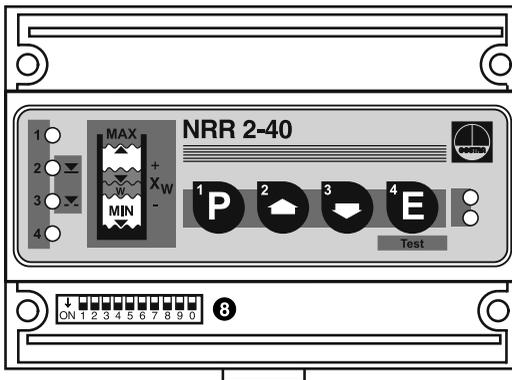


Fig. 17 (Factory setting of neutral band)

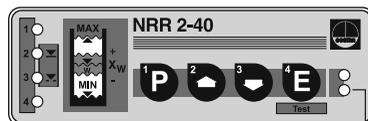
Establishing / changing neutral band

Note down current node ID and baud rate.

- Node ID in this example “40”
- Baud rate in this example “250 kBit/s”



Switch off mains voltage.
The four status LEDs go out.
The LED “Power” goes out.



LED “Power” extinguished

Adjust neutral band according to **fig. 18**.

■ **Neutral band in this example “2 %”**

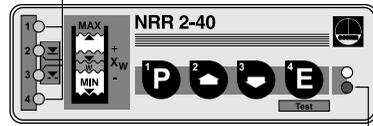


Apply mains voltage.

The four status LEDs flash rapidly. If the LED “Power” is alight, the adjustment was successful.

If the LED (“Bus status”) above the LED “Power” is alight, repeat the adjustment procedure.

Status LEDs flash rapidly

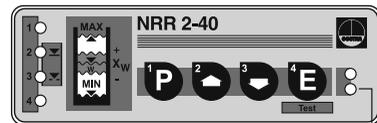


LED “Power” illuminated

Switch off mains voltage.

The four status LEDs go out.

The LED “Power” goes out.



LED “Power” extinguished

Adjust current node ID and baud rate.

■ **Node ID in this example “40”**

■ **Baud rate in this example “250 kBit/s”**



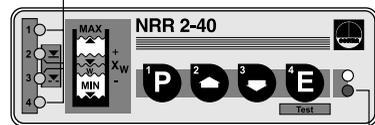
Apply mains voltage.

The four status LEDs flash rapidly.

The LED “Power” is illuminated.

The system is ready for operation.

Status LEDs flash rapidly



LED “Power” illuminated



S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	N-Zone
OFF	OFF	OFF	0 %							
OFF	ON	OFF	OFF	1 %						
OFF	ON	OFF	2 %							
OFF	ON	ON	OFF	3 %						
OFF	OFF	ON	5 %							
OFF	ON	OFF	ON	7 %						
OFF	ON	ON	10 %							
OFF	ON	ON	ON	15 %						

Fig. 18

For your notes

Declaration of conformity 

We hereby declare that the equipment **NRR 2-40** conforms to the following European guidelines:

- LV guideline 73/23/eec version 93/68/eec
- EMC guideline 89/336/eec version 93/68/eec

which are based on the following harmonised standards:

- LV standard DIN EN 50178
- EMC standard DIN EN 50 081-2, DIN EN 61 000-6-2

This declaration is no longer valid if modifications are made to the equipment without consultation with us.

Bremen, 23rd July 2002
GESTRA GmbH



Head of the Design Dept.
Uwe Bledschun
(Academically qualified engineer)



Quality Assurance Manager
Lars Bohl
(Academically qualified engineer)

Key

- A** Terminal strips
- C** Supporting rail 35 x 15 to DIN EN 50022

Example of Installation

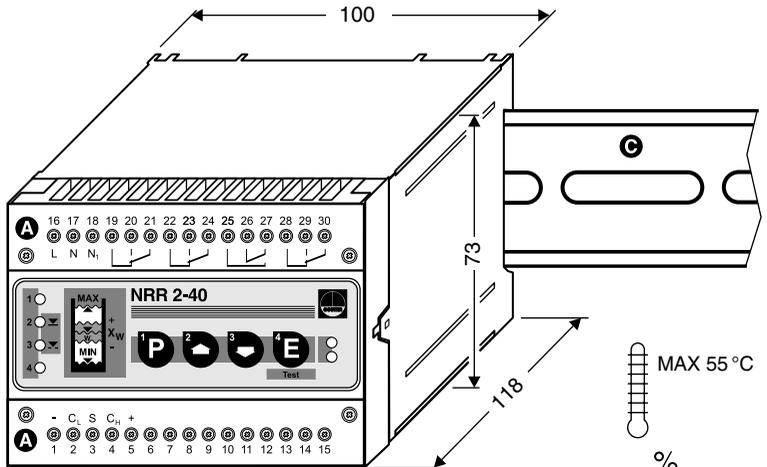


Fig. 19

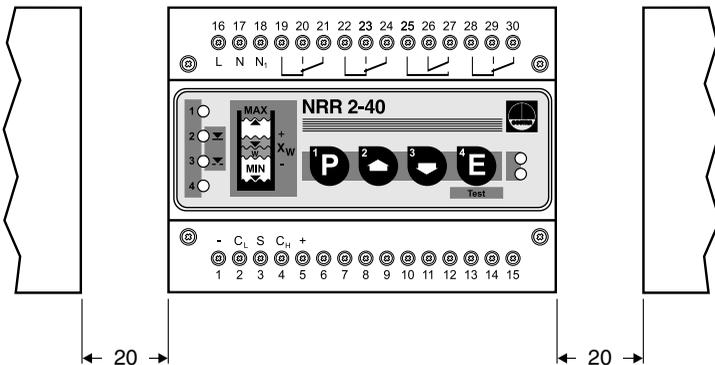


Fig. 20

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