



Level electrode

NRG 26-40



CANopen

EN
English

Original Installation Instructions
810274-05

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Technical Data

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Important notes

Usage for the intended purpose

The level electrode NRG 26-40 is used for continuous level monitoring in steam boilers and (pressurized) hot-water installations or in condensate and feedwater tanks.

In conjunction with the level switch NRS 2-40 and the level controller NRR 2-40 the electrode can be used for instance as water level controller with MIN/MAX alarm.

The level electrode is designed for use in conjunction with the following level switches/controllers: NRS 2-40 and NRR 2-40.

The level electrode can be used in electrically conductive and non-conductive fluids.

Function

The **level electrode NRG 26-40** consists of a level measuring electrode and an electronic module in the terminal box.

The level electrode works according to the capacitance measurement principle and translates the level changes into a data telegram, with the length of the electrode rod determining the measuring range.

The level electrode is installed inside steam boilers, vessels or in an external level pot. If the electrode is installed inside the boiler or vessel, a protection tube provided on side ensures correct functioning (see section **Examples of installation** (pages 12, 13).

The level electrode can be installed together with one GESTRA level electrode for water level limiting or for high-level alarm in a single protection tube or external level pot.

At regular intervals the level electrode NRG 26-40 sends a data telegram to the control equipment NRS 2-40 and NRR 2-40 or other system components. Data is transferred by means of a CAN bus according to DIN ISO 11898 using the CANopen protocol.

Safety note

The equipment must only be installed, wired and commissioned by qualified and competent staff.

Retrofitting and maintenance work must only be performed by qualified staff who - through adequate training - have achieved a recognised level of competence.



Danger

When loosening the level electrode steam or hot water might escape!

This presents the risk of severe scalding all over the body!

It is therefore essential not to dismantle the level electrode unless the boiler pressure is verified to be 0 bar.

The level electrode becomes hot during operation.

Risk of severe burns to hands and arms.

Before carrying out installation and maintenance work make sure that the equipment is cold.

Important notes

- continued -

System components

NRS 2-40

Digital switching controller for level electrode NRG 26-40.

Functions: Four liquid levels with one switchpoint each, MAX alarm, MIN alarm, pump ON, pump OFF with one switchpoint each, liquid level continuously within the predefined control band of the electrode.

Data exchange: CAN bus to ISO 11898 via CANopen protocol.

NRR 2-40

Digital switching controller for level electrode NRG 26-40.

Functions: Two level limits with one switchpoint each (high-level alarm, low-level alarm).

Three-position or modulating control within a predefined proportional band.

Water level monitoring within the defined control band of the electrode.

Data exchange: CAN bus to ISO 11898 via CANopen protocol. Two level limits with one switchpoint each (high-level alarm, low-level alarm).

URB 1, URB 2

Operating & display unit.

Functions: Parameterization and visual indication via LCD display.

Data exchange: CAN bus to ISO 11898 via CANopen protocol.



Attention

The name plate specifies the technical features of the equipment. Do not commission or operate any item of equipment that does not bear its specific name plate.

Directives and Standards

VdTÜV Bulletin "Wasserüberwachung 100" (= Water Monitoring 100)

The level electrode NRG 26-40 in conjunction with the following control equipment is type approved according to VdTÜV Bulletin "Wasserstand 100": NRS 2-40 and NRR 2-40.

The VdTÜV Bulletin "Wasserstand (=Water Level) 100" specifies the requirements made on water level control and limiting equipment for boilers.

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

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

ATEX (Hazardous Area)

According to the European Directive 2014/34/EU the equipment must **not** be used in potentially explosive areas.

UL/cUL (CSA) Approval

The equipment complies with the requirements of the following standards: UL 508 and CSA C22.2 No. 14-13, Standards for Industrial Control Equipment. File E243189.

Note on the Declaration of Conformity / Manufacturer's Declaration **CE**

For details on the conformity of our equipment with European Directives, please refer to our Declaration of Conformity or our Manufacturer's Declaration.

The current Declaration of Conformity / Manufacturer's Declaration is available at www.gestra.com ➔ Documents, or can be requested from us.

Technical Data

NRG 26-40

Service pressure

PN 40, 32 bar at 238°C

Mechanical connection

NRGT 26-1: Screwed G ¾ A, ISO 228

Materials of construction

Screw-in body: 1.4571, X6CrNiMoTi17-12-2

Electrode rod insulation: PTFE

Terminal box: 3.2161 G AISi8Cu3

Length of installation at 238°C	373	477	583	688	794	899	1004	1110
Measuring range	300	400	500	600	700	800	900	1000

Length of installation at 238°C	1214	1319	1423	1528	1636	2156
Measuring range	1100	1200	1300	1400	1500	2000

Weight

approx. 2.5 kg

Electronic module

supply voltage

18–36 V DC)

Power consumption

65 mA

Fuse

Thermal fuse $T_{max} = 80^{\circ}\text{C}$

Hysteresis

-2 K

Data exchange

CAN bus to ISO 11898, CANopen protocol

Attenuation of signal output

19 seconds

Indicators and adjustors

1 10-pole code switch for node ID and baud rate setting

1 green LED "Communication CAN bus"

1 red LED "Malfunction in bus"

Electrical connection

M 12 sensor connector, 5 poles, A coded,

M 12 sensor jack, 5 poles, A coded

Protection

IP 65 to DIN EN 60529

Max. admissible ambient temperature

Max. 70 °C

Technical Data

- continued -

NRG 26-40 - continued -

Storage and transport temperature

- 40 to + 80 °C

Approvals:

TÜV certificate

VdTÜV Bulletin "Water Level 100"

Requirements made on water level limiting & control equipment.

Type approval: TÜV · WR · XX-399 (see name plate)

Name plate/markings







	 Betriebsanleitung beachten See installation instructions Voir instructions de montage		Safety note
	 Hier öffnen Open here Ouvrir ici		
	NRG 26 - 40		Equipment designation,
	Niveauelektrode Level electrode Électrode de niveau		
	PN40	G3/4 1.4571 IP65	Pressure rating, connection, material number, protection
		32 bar (464psi) 238°C (460°F)	Pressure/temperature range
		Tamb = 70°C (158°F)	
	H=	mm	Measuring range
		18-36 V DC	CAN bus data
	IN/OUT: CAN-Bus		
	Node ID: _____		
Type approval no.	TÜV · WR · XX - 399		CE marking
Manufacturer	GESTRA AG Münchener Str. 77 D-28215 Bremen		

Fig. 1

Scope of supply

NRG 26-40

1 Level electrode type NRG 26-40

1 Joint ring 27 x 32, form D, DIN 7603, 1.4301, bright annealed

1 Installation manual

Installation



Note

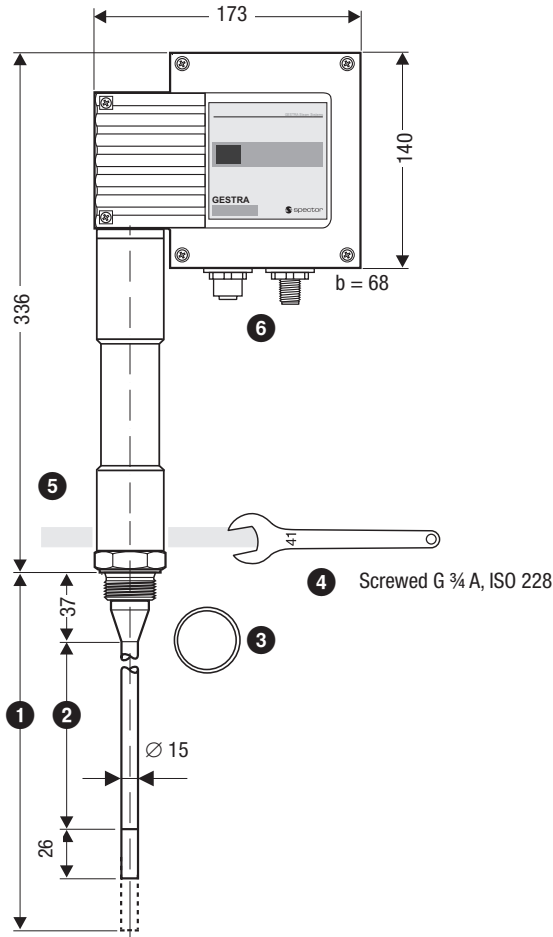
- The level electrode NRG 26-40 can be installed together with one GESTRA level electrode for water level limiting or for high-level alarm in a single protection tube or external level pot (inside diameter 100 mm). **Fig. 5 - 8**. If the level limiting electrode is installed inside the vessel, it must be at least 40 mm away from the upper vent hole.
- For the approval of the boiler standpipe the relevant regulations must be considered.
- Refer to pages 12 – 13 for typical installation examples.
- The angle of inclination of the electrode must not exceed 45°, with the length of the electrode rod being limited to 688 mm. **Fig. 8**



Attention

- The seating surfaces of the standpipe or the flange provided on the vessel must be accurately machined, **Fig. 3!**
- Do not bend electrode rod when mounting.!
- Do not subject electrode rod to physical shocks.
- Use only the supplied joint ring!
27 x 32, form D, DIN 7603, 1.4301, bright annealed
- Do not lag electrode body above the hexagonal section!
- Do not insulate electrode thread with hemp or PTFE tape!
- Do not apply conductive paste or grease to the electrode thread!
- Observe the minimum distances for the installation of the electrode!
- Observe the specified tightening torque.
- Do not cut the electrode rod.

Dimensions NRG 26-40



NRG 26-40	
1	2
373	300
477	400
583	500
688	600
794	700
899	800
1004	900
1110	1000
1214	1100
1319	1200
1423	1300
1528	1400
1636	1500
2156	2000

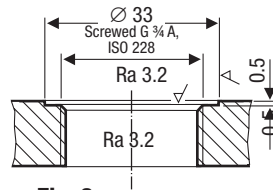


Fig. 2
NRGT 26-1

Fig. 3

Installation - continued -

NRG 26-40

1. Check seating surfaces. **Fig. 3**
2. Place supplied joint ring **3** onto seating surface of the threaded standpipe or flange. **Fig. 3**
3. Apply a light smear of heat resistant silicone grease (e. g. WINIX® 2150) to electrode thread **4**.
4. Screw level electrode into threaded standpipe or flange and tighten with an open-end spanner A. F. 41 mm. The torque required **when cold is 160 Nm**.

Key

- 1** Max. length of installation at 238 °C
- 2** Measuring range
- 3** Joint ring 27 x 32, form D, DIN 7603, 1.4301, bright annealed
- 4** Thread G $\frac{3}{4}$ A, ISO 228
- 5** Thermal insulation, provided on site, d = 20 mm (outside of thermal insulation of steam boiler)
- 6** M 12 sensor connector, 5 poles, A coded, M 12 sensor jack, 5 poles, A coded

Tools

- Open-end spanner A.F. 41, DIN 3110, ISO 3318

Examples of installation

NRG 26-40

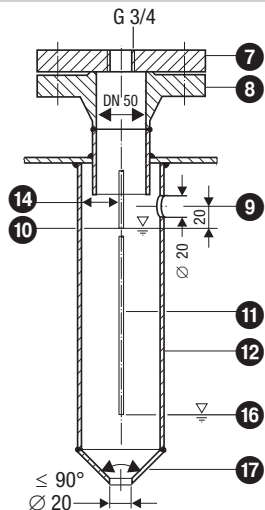


Fig. 4 Protection tube (provided on site) for installation inside the boiler

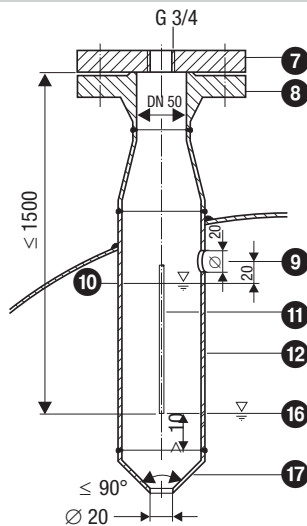


Fig. 5 Protection tube (provided on site) for installation inside the boiler

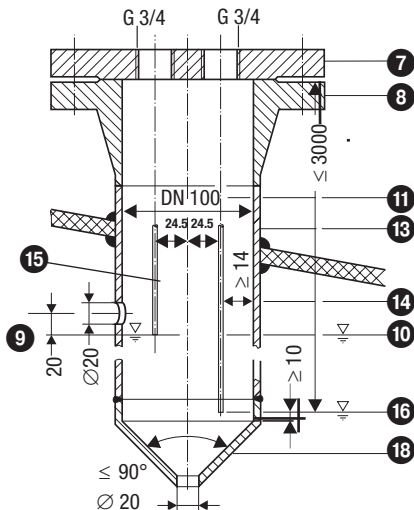


Fig. 6 Protection tube (provided on site) for installation inside the boiler and in combination with other GESTRA equipment

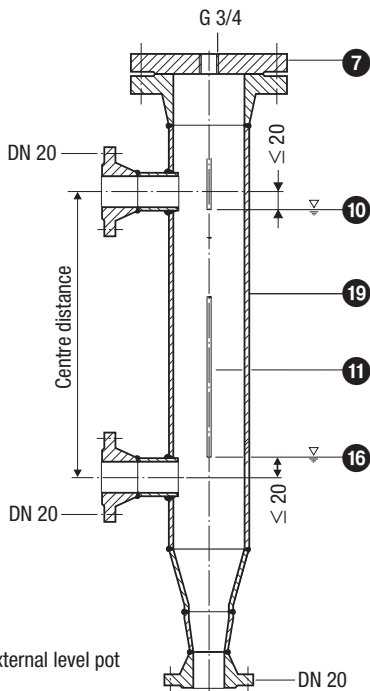


Fig. 7 External level pot

Examples of installation

NRG 26-40 - continued -

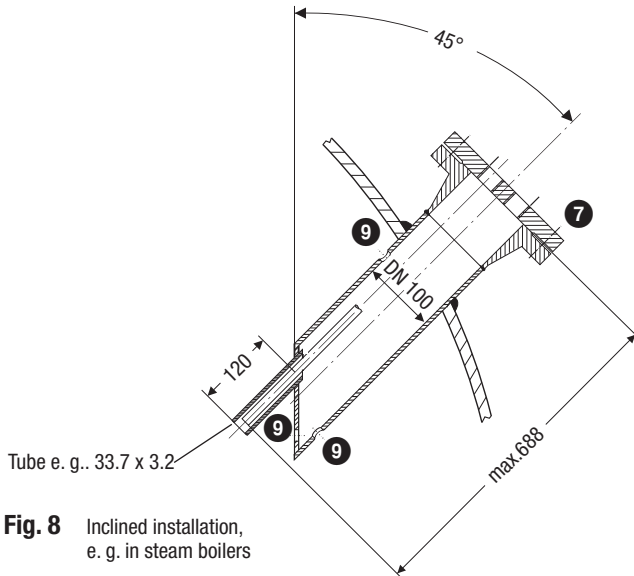


Fig. 8 Inclined installation,
e. g. in steam boilers

Key

- 7** Flange PN 40, DN 50, DIN EN 1092-01 (single electrode)
Flange PN 40, DN 100, DIN EN 1092-01 (combination of electrodes)
- 8** For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.
- 9** Vent hole \varnothing 20 mm
- 10** High water HW
- 11** Electrode tip
- 12** Protection tube DN 80 (in France according to AFAQ \geq DN 100)
- 13** Protection tube DN 100
- 14** Distance between electrode rod and protection tube \geq 14 mm
- 15** Distance between electrode tip (NRG 1...-40 or NRG 1...-41) \geq 14 mm (creepage distances and clearances)
- 16** Low water (LW)
- 17** Reducer DIN 2616-2, K-88.9x3.2-42.4 x 2.6 W
- 18** Reducer DIN 2616-2, K-114.3x3.6-48.3 x 2.9 W
- 19** Level pot \geq DN 80

Electrical connection

NRG 26-40

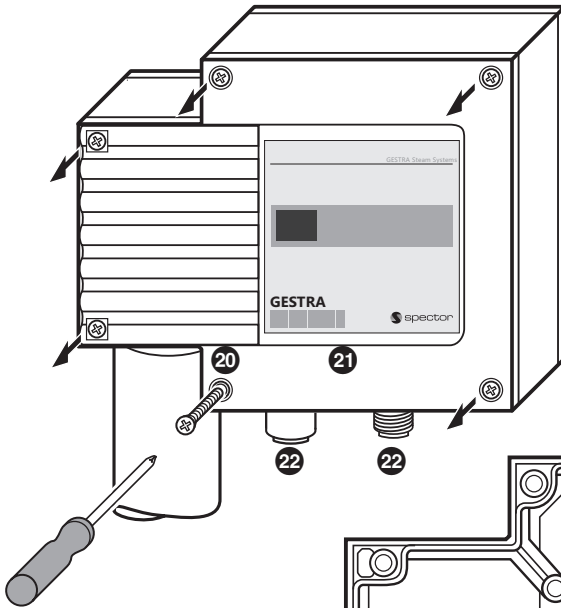


Fig. 9

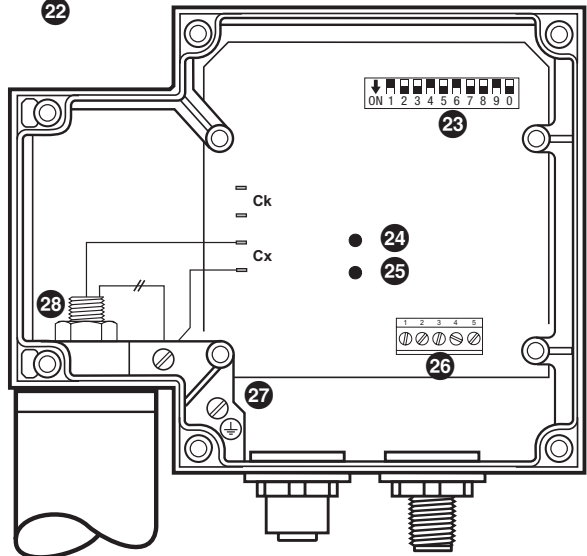


Fig. 10

Key

- | | | | |
|----|-----------------------------------------------------------------------------|----|-------------------------------------|
| 20 | Cover screws (cross recess head screws M4) | 24 | Green LED for CAN bus communication |
| 21 | Body cover | 25 | Red LED for bus malfunction |
| 22 | M 12 sensor connector, 5 poles, A coded, M 12 sensor jack, 5 poles, A coded | 26 | Terminal strip |
| 23 | Code switch with 10 poles | 27 | PE connection |
| | | 28 | Fixing nut for terminal box |

Connection of level electrode

A self-locking fixing nut **29** connects the terminal box to the electrode part. Before establishing the electrical connection you can turn the terminal box through max. +/- 180° into the desired direction (cable gland).

Connection of level electrode

The **level electrode NRG 26-40** is equipped with a M 12 sensor connector and a M 12 sensor jack, both A-coded and with 5 poles. For connecting the electrode and wiring the CAN bus devices control cable assemblies (with plug and socket) of various lengths are available as add-on equipment.

Note that the recommended control cables are not UV-resistant and, if installed outdoors, must be protected by a UV-resistant plastic tube or cable duct.

If you do not want to use the control cable assemblies you **must** use screened multi-core twisted-pair control cable for the bus line, e. g. UNITRONIC® BUS CAN 2 x 2 x ... mm² or RE-2YCYV-fi 2 x 2 x ... mm². In addition, connect at the electrode end a screened male or female connector to the control cable.

Fig. 11, 12

The baud rate (data transfer rate) dictates the cable length and size between the bus nodes. The total power consumption must also be taken into consideration when selecting the conductor size. The total power consumption is obtained from the number of bus nodes. If the cable length between the steam boiler and the control cabinet exceeds 15 m, we recommend that you fit a branching box that is resistant to electromagnetic interference (stock code 1501214) and use a control cable with a larger conductor size for the distance to the control cabinet.

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, depending on bus configuration
OFF	ON	ON	20 kBit/s	1000 m	
ON	ON	ON	10 kBit/s	1000 m	

Set baud rate via code switch **29**. Make sure that all bus nodes feature the same settings.

Tools

- Screwdriver, size 1
- Screwdriver, size 2.5, completely insulated according to DIN VDE 0680-1

Wiring diagram and pin assignments of connector / jack

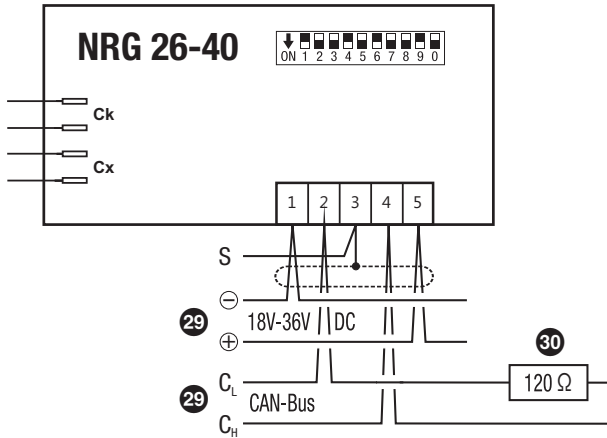


Fig. 11

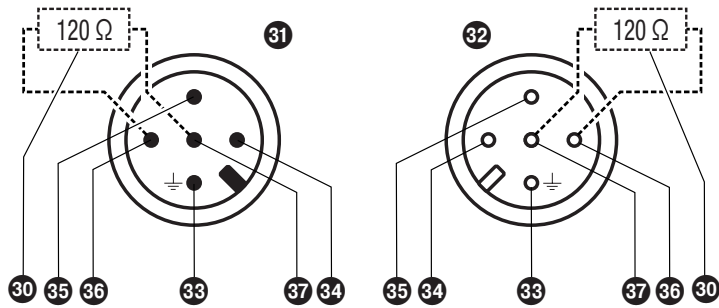


Fig. 12

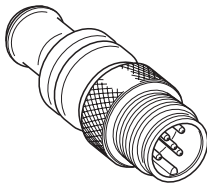


Fig. 13 RES 1

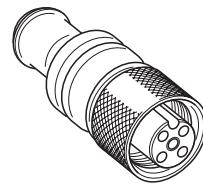


Fig. 14 RES 2

Key

- 29 CAN bus line, twisted pair control cable
- 30 Terminating resistor 120 Ω , RES 1 or RES 2
- 31 M 12 sensor connector, 5 poles, A coded
- 31 M 12 sensor jack, 5 poles, A coded
- 33 Pin 1: Screen
- 34 Pin 2: Supply voltage 24 V DC+ (red)
- 35 Pin 3: Supply voltage 24 V DC- (black)
- 36 PIN 4: CAN-data line C_H (white)
- 37 Pin 5: CAN-data line C_L (blue)

CAN bus wiring diagram

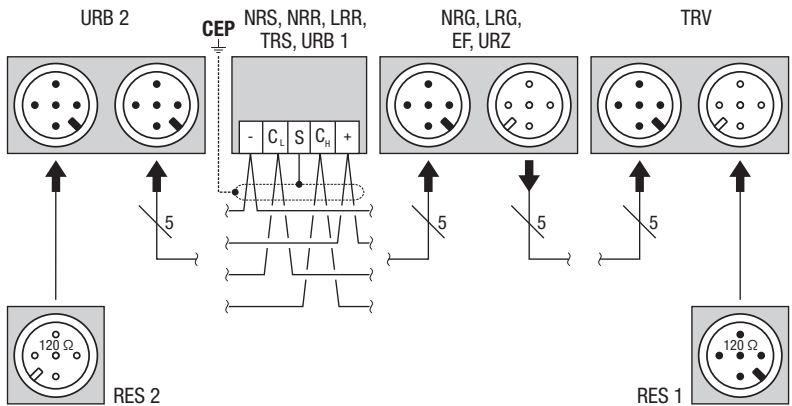


Fig. 15



Note

- The max. baud rates and cable lengths indicated above are based on empirical values obtained by GESTRA. In certain cases it may be necessary to reduce the baud rate in order to ensure operational safety.
- The type of wiring has a strong influence on the electromagnetic compatibility (EMC) of the equipment. Take special care when connecting the equipment.
- If you do not use the control cable assemblies connect the connectors and jacks as indicated in the assignment diagram for connector / jack.



Attention

- Wire equipment in series. Star-type wiring is not permitted!
- Link screens such that electrical continuity is ensured and connect them **once** to the central earthing point (CEP). If equipotential bonding currents are to be expected, for instance in outdoor installations, make sure that the screen is separated from the central earthing point (CEP).
- If two or more system components are connected in a CAN bus system, the first and the last device must be provided with a terminating resistor of 120Ω! **Fig. 13, Fig. 14**
- Note that in a CAN bus network only **one** water-level limiting system may be used.
- Do **not** interrupt the CAN bus network during operation with one or more system components!

If the CAN bus network is interrupted the safety circuit will be opened.

Before taking the CAN bus line from the terminal strip, make sure that all connected system components are out of service.

Electrical connection - continued -

CAN bus voltage supply

To ensure the troublefree operation of the CAN bus system make sure that the voltage supply for all bus devices is sufficient.

Please use the following table to check the voltage supply of your bus system.

Control units with voltage supply	Qty.	X	Power output per item	=	Sum
		X	6 W	=	W
Please enter data.			Sum 1	=	W
Sensor, transmitter, control units, operating & display unit URB 1	Qty.	X	Power consumption per item	=	Sum
		X	3 W	=	W
Operating & Display Unit URB 2		X	5 W	=	W
Please enter data.			Sum 2	=	W

If sum 2 exceeds sum 1 supply the CAN bus with 24 V DC coming from a separate and stabilized safety power supply unit (e. g. SITOP Smart 24 V 2.5 A) .

The power supply unit must be electrically isolated from dangerous contact voltages and must meet at least the requirements on double or reinforced isolation acc. to DIN EN 50178 or DIN 61010-1 or DIN EN 60730-1 or DIN EN 60950 (safe isolation).

The power supply unit must be provided with an overcurrent protective device in accordance with EN 61010-1.



Attention

If a safety power supply unit (e. g. SITOP smart, 24 V, 2.5 A) is used for the voltage supply of the CAN bus do not tap the supply voltage from the terminals 1 and 5 of the GESTRA control devices.

Basic settings

Bus line

All devices (level, conductivity) are interconnected via CAN bus. The CANopen protocol is used for the data exchange between the equipment groups. All devices have an electronic address - the node ID. The control cable serves as power supply and data highway for high-speed data exchange.

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

If several identical systems are to communicate in a CAN bus network, set a different node ID for each system (e. g. limiter, controller, etc).

If the length of the CAN bus cable exceeds 125 m change the settings of the code switch 23.

For more information on switch positions see **Basic Settings / Switch positions**.

Basic settings

- continued -

Node ID

Water level limiter

NRS 1-40	NRG 16-40 (1)	NRG 16-40 (2)	Reserved	Reserved	
X	X + 1	X + 2	X + 3	X + 4	
1	2	3			Factory setting

Safety system for steam boilers with superheater

NRS 1-40.1	NRG 16-40 (1)	NRG 16-40 (2)	TRV 5-40	Limiter 4	
X	X + 1	X + 2	X + 3	X + 4	
1	2	3	4		Factory setting

Safety system (e. g. hot-water generating units)

NRS 1-40.1	NRG 16-40 (1)	NRG 16-40 (2)	Limiter 3	Limiter 4	
X	X + 1	X + 2	X + 3	X + 4	
1	2				Factory setting

Safety system (e. g. hot-water generating units)

NRS 1-40.2	TRV 5-40 (1)	TRV 5-40 (2)	Limiter 3	Limiter 4	
X	X + 1	X + 2	X + 3	X + 4	
6	7	8	9	10	Factory setting
	TRS 5-40 (1)	TRS 5-40 (2)			
	X + 1 + 90	X + 2 + 90			
	97	98			

High level alarm

NRS 1-41	NRG 16-41	Reserved	Reserved	Reserved	
X	X + 1	X + 2	X + 3	X + 4	
6	7	8	9	10	Factory setting

Further components

SRL 40					
X = (sensor: level limiter // hi alarm) + 2					Factory setting
ORT 6					
98					Factory setting

On-off level control

Reserved	NRS 1-42	NRG 16-42			
X - 1	X	X + 1			
19	20	21			Factory setting

Modulating level control

URZ 40	NRS 2-40	NRR 2-40	NRG 26-40	Reserved	
X - 2	X - 1	X	X + 1	X + 2	
38	39	40	41	42	Factory setting

Automatic continous blowdown control

EF 1-40	Reserved	LRR 1-40	LRG 1-4...	Reserved	
X - 2	X - 1	X	X + 1	X + 2	
48	49	50	51	52	Factory setting

Control unit

URB 1, URB 2					
60					Factory setting

Factory setting

The level electrode features the following factory set default values:

- Baud rate: **250 kB/s**
- Attenuation of the measuring signal: 19 sec.
- Node ID: **041**

Establishing / changing node ID

If several identical systems are to communicate in a CAN bus network, set a different node ID for each system (e. g. limiter, controller, etc).

1. Undo screws **20** and remove housing cover **21**.
2. Change switch positions of code switch **23** as required.
Please observe the wiring diagram on page 19.
3. Put housing cover **21** in place and fix it with screws **20**.



Attention

- We recommend that you commission the CAN bus devices with the default factory setting.
- Do not use a node ID for more than one piece of equipment in the CAN bus system.

Code switch settings



		Node ID	41
S1	ON	1	
S2	OFF	2	
S3	OFF	4	
S4	ON	8	
S5	OFF	16	
S6	ON	32	
S7	OFF	64	

Fig. 16 (Factory setting)



		Node ID	71
S1	ON	1	
S2	ON	2	
S3	ON	4	
S4	OFF	8	
S5	OFF	16	
S6	OFF	32	
S7	ON	64	

Fig. 17 (Example 1)

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

Fig. 18 (Factory setting 250 kBit/s)

Commissioning procedure

Applying supply voltage

Check that the level electrode NRG 26-40 is connected to the associated control unit NRS 2-40 or the level controller NRR 2-40 according to the wiring diagram. **Fig. 11, 12 + 15**
Apply supply voltage to the control unit NRS 2-40 or the level controller NRR 2-40.

Setting measuring range

The measuring range of the level electrode NRG 26-40 can only be adjusted on the control unit NRS 2-40 and NRR 2-40 and the control & display unit URB. Please observe the installation manuals for these devices.



Note

- When adjusting the measuring range when the system is **cold**, the adjusted measuring points will shift with rising temperature as a result of the longitudinal expansion of the electrode rod. Correct the settings accordingly.

Operation

Setting the attenuation of the level signal

If the liquid level varies considerably for a short time during operation change the attenuation of the level signal. The default factory setting for the attenuation is 19 seconds.

1. Undo screws 20 and remove housing cover 21.
2. Write down the node ID and baud rate settings. Unplug the CAN bus connector.
3. Set code switch 23 S 1 to ON and S 2 to S 7 to OFF.

S 1	S 2	S 3	S 4	S 5	S 6	S 7
ON	OFF	OFF	OFF	OFF	OFF	OFF

4. Set the desired attenuation via code switches S8 to S10.

S 8	S 9	S 10	Attenuation [s]
OFF	OFF	OFF	3
ON	OFF	OFF	5
OFF	ON	OFF	7
ON	ON	OFF	9
OFF	OFF	ON	15
ON	OFF	ON	19 *)
OFF	ON	ON	25
ON	ON	ON	29

*) Factory setting

5. Plug in the CAN bus connector.
Green LED 1 illuminated: The new attenuation setting has been accepted.
Red LED 2 illuminated: New attenuation setting has not been accepted. Repeat the setting or replace the electronic circuit board.
6. Unplug the CAN bus connector. Set the original node ID and baud rate.
Plug in the CAN bus connector. The level electrode NRG 26-40 works now with the new attenuation setting.
7. Put housing cover 21 in place and fix it with screws 20.

Troubleshooting

Indication, diagnosis and remedy



Attention

Before carrying out the fault diagnosis please check:

Supply voltage:

Is the level electrode supplied with the voltage specified on the name plate?

Wiring:

Is the wiring in accordance with the wiring diagram?

Indication of malfunctions	
Equipment does not work accurately	
Error	Remedy
The level electrode was installed without a protection tube. The protection tube is required because it serves as reference electrode.	Install a protection tube.
The vent hole in the protection tube does not exist, is obstructed or flooded.	Check protection tube and, if necessary, provide vent hole.
The isolating valves of the external level pot (optional) are closed.	Open isolating valve.
The desired lower measuring point is outside the measuring range of the level transmitter. The level electrode is too short.	Install a sufficiently long level electrode.
The adjustment of the measuring range is wrong.	Check measuring range setting on control unit NRS 2-40, NRR 2-40.
The electrode rod is covered with dirt deposits.	Remove level electrode and clean the electrode tip with a wet cloth.
Control units NRS 2-40, NRR 2-40 signal high or low level alarm although the liquid level is within the measuring range. Level electrode defective.	Replace level electrode.
The level electrode responds too sluggishly to changes in the liquid level.	Correct attenuation.

Indication, diagnosis and remedy^{continued} -

Equipment fails to work	
Error	Remedy
Power failure.	Switch on supply voltage. Check all electrical connections.
The thermal fuse has been triggered. LEDs 1 - 4 of the control units NRS 2-40 and NRR 2-40 are flashing slowly.	Check ambient temperature, make sure that it does not exceed 70° C.
The earth connection to the vessel is interrupted.	Clean seating surfaces and screw in the level electrode together with the joint ring 27 x 32, form D, DIN 7603 (made from 1.4301), bright annealed. Do not insulate the electrode with hemp or PTFE tape!
Electronic module defective	Replace electronic module.



Attention

- For further troubleshooting also observe the installation & operating manuals for control units NRS 2-40 and NRR 2-40 and the operating & display unit URB.

Further Notes

Action against high frequency interference

High frequency interference can occur for example as a result of out-of-phase switching operations. Should such interference occur and lead to sporadic failures, we recommend the following actions in order to suppress any interference.

- Provide inductive loads with RC combinations according to manufacturer's specification to ensure interference suppression.
- Control cable(s) must run separately from high-voltage cables.
- Increase the distance to sources of interference.
- Check the connection of the screen to the central earthing point (CEP) in the control cabinet.
- HF interference suppression by means of hinged-shell ferrite rings.

Maintenance

Safety note

The equipment must only be installed, wired and commissioned by qualified and competent staff. Retrofitting and maintenance work must only be performed by qualified staff who - through adequate training - have achieved a recognised level of competence.



Danger

When loosening the level electrode steam or hot water might escape! This presents the risk of severe scalding all over the body! It is therefore essential not to dismantle the electrode unless the boiler pressure is verified to be 0 bar.

The level electrode becomes hot during operation. Risk of severe burns to hands and arms. Before carrying out installation and maintenance work make sure that the equipment is cold.

Cleaning the electrode rod


The equipment may only be installed and removed by qualified personnel. Observe note in chapter "Installation" on page 11.

Before cleaning the electrode rod decommission and remove the level electrode.

Clean the electrode rod with a wet cloth.

Removing and disposing of the level electrode

Removing and disposing of level electrode NRG 26-40

1. Switch off supply voltage.
 2. Detach sensor connector and sensor jack  and plug them together.
- Do **not** interrupt the CAN bus network during operation with one or more system components!
- If the CAN bus network is interrupted the safety circuit will be opened.**
4. Remove level electrode.

For the disposal of the level electrode observe the pertinent legal regulations concerning waste disposal.

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



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