

NRGS 11-1, NRGS 16-1

Compact System for Level Monitoring

NRGS 11-1

NRGS 16-1

Description

The NRGS 11-1, NRGS 16-1 is a compact-type system consisting of a level electrode with four tips and an integrated level switching controller.

The compact system is used as water level controller, for instance in steam boilers, (pressurized) hot-water installations as well as condensate and feedwater collecting tanks.

Function

For the correct functioning of the equipment the water must have a minimum conductivity of $> 0.5 \mu\text{S}/\text{cm}$ at 25°C .

The lengths of the associated electrode rods determine the switchpoints for water level control and MIN / MAX water level.

The equipment detects whether the electrode tips are exposed or immersed and activates the associated relay output contact accordingly. The associated LEDs are illuminated.

Application in potentially explosive atmospheres

Do not use the equipment in potentially explosive atmospheres.

Technical Data

Service pressure

NRGS 11-1: 6 bar at 159°C

NRGS 16-1: 32 bar at 238°C

Mechanical connection

Screwed G 1 A, ISO 228-1

Materials

Terminal box 3.2161 G AISi8Cu3

Sheath 1.4301 X5 CrNi18-10

Screw-in body 1.4571 X6 CrNiMoTi17-12-2

Flange 1.0460 C 22.8 (nur NRGS 16-1S)

Electrode tips 1.4571 X6 CrNiMoTi17-12-2

Insulation PTFE

Spacer disc PTFE

Electrode tips

Lengths supplied: 500, 1000, 1500 mm

Supply voltage

230 V $\pm 10\%$, 50/60 Hz

115 V $\pm 10\%$, 50/60 Hz

Power consumption

5 VA

Fuse

external 63 mA, slow-blow, for 230 V and 115 V,
internal thermal fuse $T_{\text{max}} = 102^\circ\text{C}$

Sensitivity of response

(electrical conductivity of water at 25°C)

$> 0.5 \dots < 1000 \mu\text{S}/\text{cm}$ or $> 10 \dots < 10\,000 \mu\text{S}/\text{cm}$
(switch-selectable)

Electrode voltage

10 V_{ss}

Output

4 volt-free change-over contacts, 8 A 250 V AC / 30 V DC
 $\cos \varphi = 1$.

De-energizing delay: 3 sec.

Provide inductive loads with RC combinations according to manufacturer's specification to ensure interference suppression

Indicators and adjustors

4 red LEDs for signalling "Electrode submerged"

1 four-pole code switch for selecting the response sensitivity.

Cable entry

Cable gland with integral cable clamp M 16 (PG 9)
M 20 (PG 16)

Protection

IP 65 to EN 60529

Weight

Approx. 1.8 kg (NRGS 1...-1)

Ambient temperature

when system is switched on:

$0^\circ \dots 70^\circ\text{C}$,

during operation: $-10 \dots 70^\circ\text{C}$

Transport temperature

$-20 \dots +80^\circ\text{C}$ (< 100 hours), defrosting time of the de-energized equipment before it can be put into operation: 24 hours.

Storage temperature

$-20 \dots +70^\circ\text{C}$, defrosting time of the de-energized equipment before it can be put into operation: 24 hours.

Relative humidity

max. 95%, no moisture condensation

NRGS 16-1

Installation

- The compact system must only be installed in a vertical position.

Electrical connection

- For mains and control cables you can use multi-core flexible control cable (conductor size 0.75 - 1.5 mm²).
- Provide an external slow-blow fuse for the compact system: 63 mA for 230 V and 115 V.
- To prevent the welding together of contacts provide an external slow-blow fuse T 2.5 A for the output contacts.
- When switching off inductive loads, voltage spikes are produced that may impair the operation of control systems. Connected inductive loads must be provided with suppressors such as RC combinations as specified by the manufacturer.
- Install an easily accessible disconnecting switch as isolating device for the compact system in the close proximity of the equipment. Mark this disconnecting switch as isolating device for the compact system.

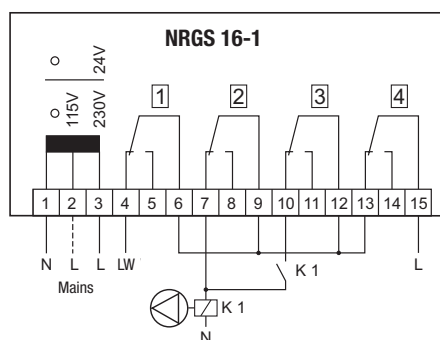
GESTRA Compact system **NRGS 1...-1**
 PN ..., G 1, acceptance inspection
 with 4 volt-free relay contacts
 for low level alarm, pump On/Off,
 high-level alarm,
 energizing/deenergizing delay 3 s,
 sensitivity switch-selectable between
 > 0.5 µS/cm and > 10 µS/cm,
 Supply voltage.....
 Length supplied.....mm

Technical drawing of the GESTRA MRC2 16-1 pressure transmitter. The drawing shows the front view with dimensions: width 173 mm, height 140 mm, and total height including the cable 337,5 mm. The cable has a diameter of Ø 42 mm. The transmitter is labeled 'GESTRA MRC2 16-1' and 'specicon'. A wrench is shown indicating the G 1 A, ISO 228-1 connection. A note indicates lengths supplied: 500 mm, 1000 mm, and 1500 mm.

Fig. 1 NRGs 16-1
(NRGs 11-1)

Electrical connection

Wiring diagram Fill control



Wiring diagram Discharge control

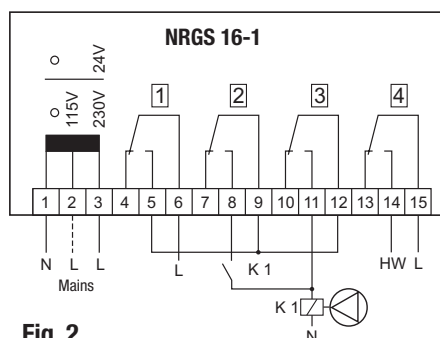


Fig. 2

Key

- 12** Flange PN 40, DN 50, DIN EN 1092-01
(for one electrode)
- Flange PN 40, DN 100, DIN EN 1092-01
(for electrode combination)
- 13** For the approval of the boiler standpipe with connecting flange the relevant regulations must be considered.
- 14** Vent hole $\varnothing$ 20 mm
- 15** High water HW
- 16** Electrode rod
- 17** Protection tube DN 80
(in France according to AFAQ $\geq$ DN 100)
- 18** Protection tube DN 100
- 19** Distance between electrode rod and protection tube $\geq$ 14 mm
- 20** Distance between electrode tip (NRG 1...-50 or NRG 1...-51) $\geq$ 14 mm (creepage distances and clearances)
- 21** Low water LW
- 22** Reducer DIN 2616-2, K-88.9 x 3.2-42.4 x 2.6 W
- 23** Reducer DIN 2616-2, K-114.3 x 3.6-48.3 x 2.9 W
- 24** Level pot $\geq$ DN 80

Examples of installation

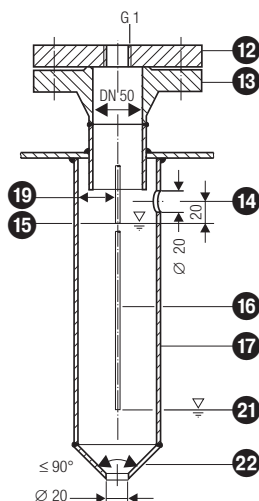


Fig. 3 Protection tube (provided on site) for installation inside the boiler

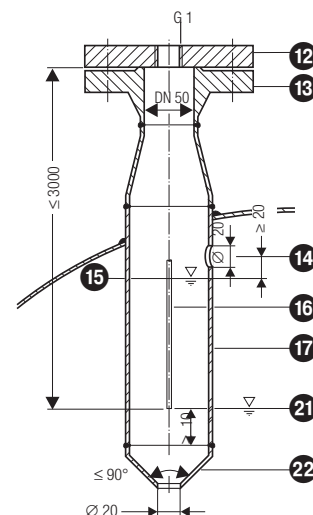


Fig. 4 Protection tube (provided on site) for installation inside the boiler

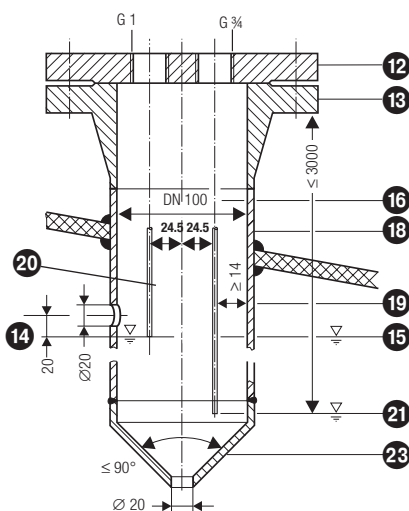


Fig. 5 Protection tube (provided on site) for installation inside the boiler and in combination with other GESTRA equipment

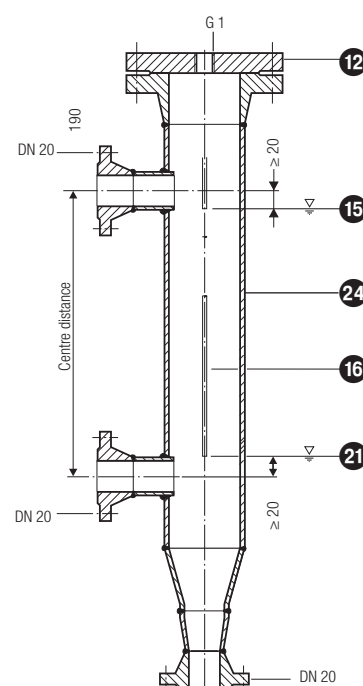


Fig. 6 External level pot

Directives and Standards

For more information on the conformity of the equipment as well as applied Directives and Standards please refer to our Declaration of Conformity and associated certificates and/or approvals.

Supply in accordance with our general terms of business.

GESTRA GmbH

Münchener Straße 77, 28215 Bremen, Germany
Telefon +49 421 3503-0, Telefax +49 421 3503-393
E-mail info@de.gestra.com, Web www.gestra.com

