

Compact System for Level Monitoring NRGS 15-1

Description

The NRGS 15-1 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 / limiter, for instance in steam boilers, (pressurized) hot-water installations as well as condensate and feedwater collecting tanks.

Function

The level switch NRGS 15-1 is a compact-type system consisting of a level electrode with four tips and an integrated level switching controller. The equipment works only with water having a min. electrical conductivity of $> 0.5 \mu\text{S}/\text{cm}$ at 25°C . In the integrated level switch a time-delayed switching channel, an output relay and a signal LED are assigned to each one of the four electrode tips. The functions of the switching channels 1 and 4 are fixed, the switching channels 2 and 3 can be adjusted via code switch to suit individual requirements. The tips of the electrode are cut to length on site in order to establish the desired switchpoints of the associated switching channels. The following functions are possible:

- Electrode rod 1 exposed / switching channel 1 energizes relay 1 = low level 1 with optional performance test and lock-out function
- Electrode rod 2 exposed / switching channel 2 energizes relay 2 = low level 2
- Electrode rod 3 exposed or submerged / switching channel 3 energizes relay 3 = timed pump control (fill/discharge control)
- Electrode rods 2 and 3 exposed or submerged / switching channel 3 energizes relay 3 = on/off pump control (fill/discharge control)
- Electrode rod 4 submerged / switching channel 4 energizes relay 4 = high level

Technical Data

Service pressure

PN 25, 25 bar at 224°C

Mechanical connection

Screwed G 1A, ISO 228
Screwed NPT G1 (optional)

Materials

Screw-in body: 1.4571, CrNiMoTi17-12-2 or 1.4404, A 470 316L for NPT thread
Electrode rods: 1.4571, CrNiMoTi17-12-2
Insulation of electrode rod: PTFE
Spacer disc: PTFE
Terminal box: Polycarbonate

Electrode rods

Length supplied: 1000 mm
Diameter: 5 mm

Supply voltage

220 – 240 V $+10/-15\%$, 50/60 Hz
110 – 120 V $+10/-15\%$, 50/60 Hz (optional)
24 V $+10/-15\%$, 50/60 Hz (optional)

Power consumption

3 VA

Fuse

external 63 mA, slow blow, at 230 V,
external 125 mA, slow blow, at 115 V,
external 1 A, slow blow, at 24 V.

Response sensitivity

(Electrical conductivity of water at 25°C)
 $> 0.5 \dots < 1000 \mu\text{S}/\text{cm}$ or $> 10 \dots < 10000 \mu\text{S}/\text{cm}$
(switch-selectable)

Technical Data - continued -

Electrode voltage

20 V_{SS}

Output

4 volt-free change-over contacts,
8 A 250 V AC / 30 V DC $\cos \varphi = 1$ (IEC 61810)
Ensure interference suppression by providing contactor with an arc suppressor RC combination

Energizing /de-energizing delay

Relay 1 and 2: 1s, factory set
Relay 3: 0-30s, adjustable via potentiometer
Relay 4: 3s, factory set

Indicators and adjustors

3 red LEDs to indicate "Low level alarm 1 + 2 / High level"
1 yellow LED to indicate "Pump ON"
1 green LED to indicate "Mains supply ON".
1 ten-pole code switch to select the sensitivity range and to establish the functions
1 test button in the terminal box to check the function of switching channel 1 (connected to terminals)
1 reset button in the terminal box to reset the lock-out function (connected to terminals)

Cable entry / Electrical connection

3 cable glands with integral cable clamps (M 16)
1 two-pole terminal strip for power supply
1 twelve-pole terminals trip for connecting the control cables
1 four-pole terminal strip for test and reset button
Screw-type terminal strips, conductor size $\leq 1.5 \text{ mm}^2$

Protection

IP 65 to DIN EN 60529

Protection class

2 (completely insulated)

Ambient temperature

when system is switched on: $0^\circ \dots 70^\circ\text{C}$
during operation $-10^\circ \dots 70^\circ\text{C}$

Transport temperature

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

Storage temperature

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

Relative humidity

max. 95%, no moisture condensation

Weight

approx. 1.4 kg

Important Notes

For the electrical connection you can use flexible multi-core control cable, conductor size $0.75 - 1.5 \text{ mm}^2$.

Install an easily accessible disconnecter near the equipment as disconnecting device.

Directives and Standards

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 (Atmosphère Explosible)

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

UL/cUL (CSA) Approval

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

Compact System for Level Monitoring NRGS 15-1

Legende

Key

- ① Length supplied: 1000 mm
- ② Pushbutton TEST for system test and pushbutton RESET for resetting after LW alarm (optional).
- ③ Thermal insulation, provided on site, $d = 40$ mm (outside of thermal insulation of steam boiler)
- A Flange PN 40, DN 50, DIN EN 1092-1
- B Vent hole
- C High water HW
- D Electrode rod $d = 5$ mm
- E Protection tube \geq DN 100
- F Electrode distance
- G Low water (LW)
- H Reducer DIN 2616-2
K-88.9 x 3.2 - 42.4 x 2.6 W

Order & Enquiry Specification

GESTRA Compact System type NRGs 15-1
Pressure rating PN 25, end connection: screwed G $\frac{3}{4}$
With 4 volt-free relay contacts.

and 10 pole code switch for setting various functions
Energizing/de-energizing delay:

- MIN: 1 sec., fixed setting
- Switchpoint 2: 0 - 30 sec., adjustable
- Switchpoint 3: 1 sec., fixed setting
- MAX: 3 sec., fixed setting

Response sensitivity switch selectable $> 0.5 \mu\text{S/cm}$ or $> 10 \mu\text{S/cm}$

Supply voltage.....
Length supplied 1000 mm

GESTRA Compact System type NRGs 15-1
Pressure rating PN 25, end connection: screwed G $\frac{3}{4}$
With "TEST" and "RESET" button
(for system test, internal lock-out)

and 10 pole code switch for setting various functions
Energizing/de-energizing delay:

- MIN: 1 sec., fixed setting
- Switchpoint 2: 0 - 30 sec., adjustable
- Switchpoint 3: 1 sec., fixed setting
- MAX: 3 sec., fixed setting

Response sensitivity switch selectable $> 0.5 \mu\text{S/cm}$ or $> 10 \mu\text{S/cm}$

Supply voltage.....
Length supplied 1000 mm

Supply in accordance with our general terms of business.

Dimensions

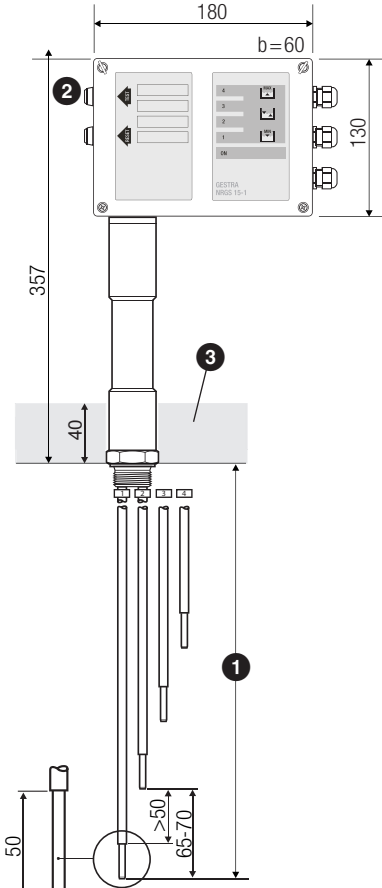


Fig. 1 NRGs 15-1

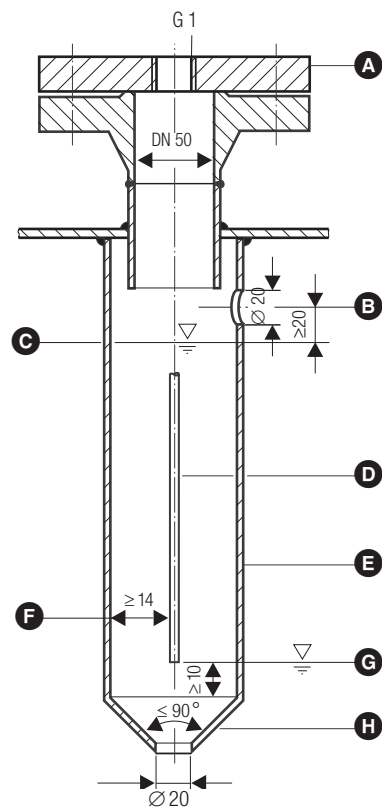


Fig. 3 Protection tube (provided on site) for installation of electrode inside the boiler

Electrical connection

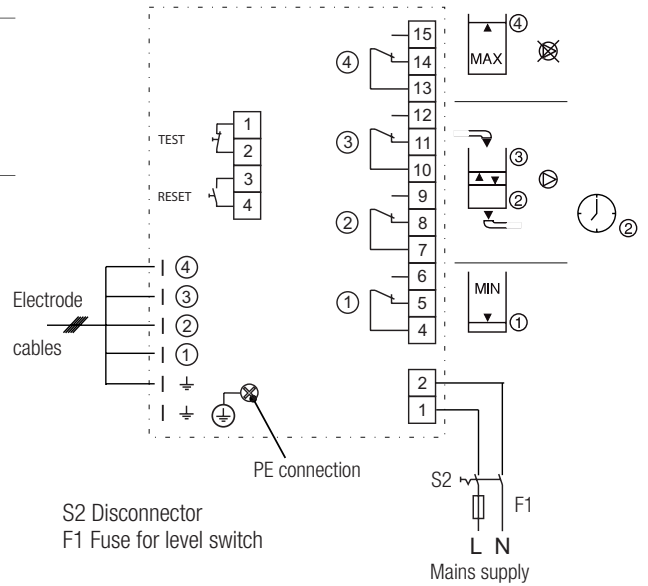


Fig. 2 Wiring diagram

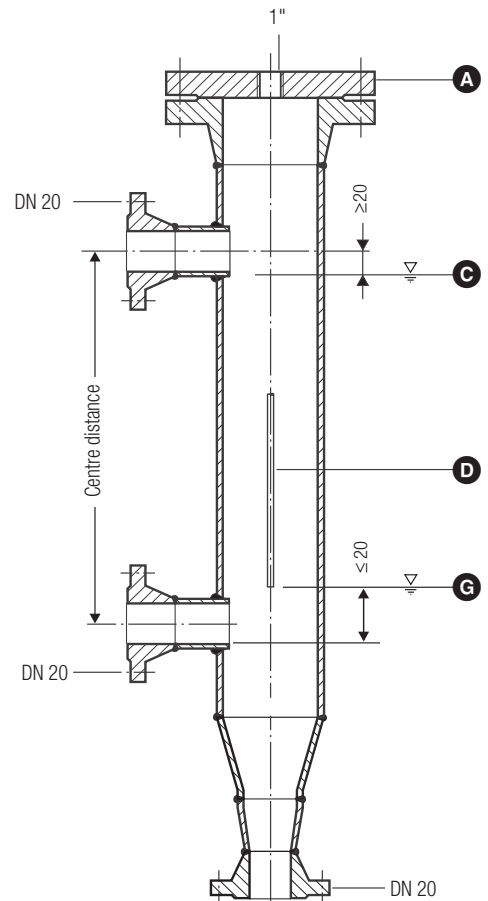


Fig. 4 External measuring pot

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