

## GESTRA Steam Systems

## Product Range B

### Compact System for Level Monitoring NRGS 15-1

### NRGS 15-1

#### Description

The compact system NRGS 15-1 works according to the conductivity measurement principle. With the NRGS 15-1 a maximum of four levels can be signalled in conductive liquids:

- Low level/MIN alarm, switchpoint 2, switchpoint 3, high level/MAX alarm

The NRGS 15-1 features a level switch integrated in the terminal box for the control of all functions. External switchgear is therefore **not** required.

The NRGS 15-1 is designed for all applications where several levels of electrically conductive liquids are to be measured. The equipment is suitable for applications in water, energy and chemical industries and particularly well suited for steam boilers, feedwater tanks, condensate tanks and process vessels.

#### Function

The conductivity of the liquid is used to signal the liquid level. Some liquids are conductive, which means that they allow an electric current to flow through them. For the safe functioning of this device a minimum conductivity of the liquid to be measured is required.

The conductivity measurement method can detect two conditions: electrode rod submerged or exposed, meaning switchpoint reached (or exceeded) or not yet reached. Before installation, the length of the electrode rod must be cut to the required switching level, e.g. for limit alarm, valve/pumps on/off.

The NRGS 15-1 has different basic functions for various applications and requirements.

#### Steam boiler (fill control)

- 1 Low level alarm 1, low level alarm 2, pump ON (time-controlled), high-level alarm
- 2 Low level alarm 1, low level alarm 2 *internal lock-out*, pump ON (time-controlled), high level alarm
- 3 Low level alarm, pump ON, pump OFF with one switchpoint each, high level alarm
- 4 Low level alarm with *internal lock-out*, pump ON, pump OFF with one switchpoint each, high level alarm

#### Storage vessel for process control system (discharge control)

- 5 MIN alarm 1, MIN alarm 2, fill control pump ON (time-controlled), MAX alarm
- 6 MIN alarm 1, MIN alarm 2, discharge control pump ON (time-controlled), MAX alarm
- 7 MIN alarm 1, MIN alarm 2, fill control pump ON, pump OFF with one switchpoint each, high level alarm
- 8 MIN alarm 1, MIN alarm 2, discharge control pump ON, pump OFF with one switchpoint each, high level alarm

#### Technical Data

##### Service pressure

NRGS 15-1: 25 bar g at 224 °C

##### Connection

Screwed 1" BSP to EN ISO 228-1

##### Materials

Case: Polycarbonate

Stem: Stainless steel 1.4571 (CrNiMoTi17-12-2)

Measuring electrodes:

Stainless steel 1.4571 (CrNiMoTi17-12-2)

Electrode insulation: PTFE

Spacer disc: PTFE

##### Lengths supplied

1000 mm

##### Mains supply

115 V +/- 10 %, 50/60 Hz

230 V +/- 10 %, 50/60 Hz

##### Power consumption

5 VA

##### Fuse

Thermal fuse  $T_{max} = 100\text{ °C}$

##### Sensitivity

Range 1: 10 µS/cm (25 °C)

Range 2: 0.5 µS/cm (25 °C)

##### Electrode voltage

20 V<sub>SS</sub>

##### Output

4 volt-free change-over contacts

Max. contact rating with a switching voltage of 24 V, 115 V and 230 V a. c.: resistive 4 A, inductive 0.75 A at cos φ 0.5.

Max. contact rating with a switching voltage of 24 V d. c.: 4 A.

Contact material: silver, hard-gold plated.

##### Delay of response

Low level/MIN: 1 sec., factory set

Switchpoint 2: 0 – 30 sec., adjustable

Switchpoint 3: 1 sec., factory set

High level/MAX: 3 sec., factory set

##### Indicators and adjustors

3 red LEDs for signalling "Low level 1/MIN 1", "Low level 2/MIN 2" and "High level/MAX".

1 yellow LED for signalling "Pump ON"

1 green LED for signalling "Power ON"

1 adjustment potentiometer 0 – 30 sec. for "Pump ON"

1 (optional) pushbutton "TEST" for testing the safety function

1 (optional) pushbutton "RESET" for resetting the internal lock-out function

1 ten-pole code switch for selecting the response sensitivity and function.

##### Cable entry

Cable gland with integral cable clamp M 16 (PG 9) (3)

##### Protection

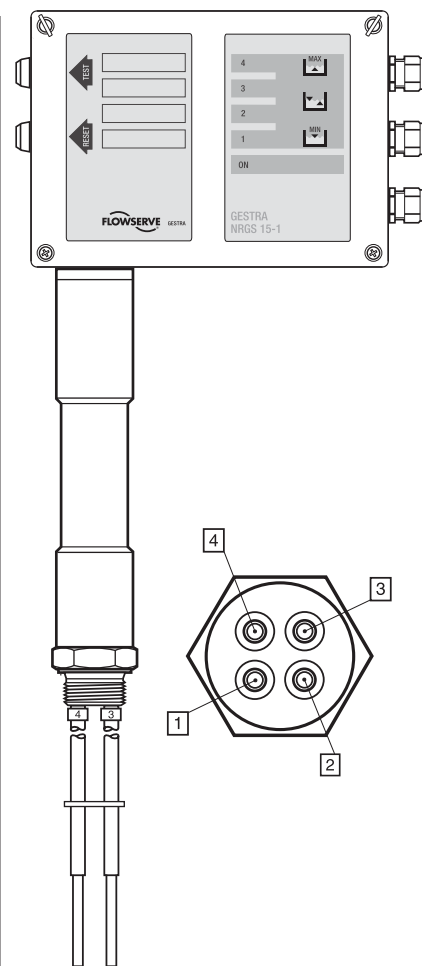
IP 65 to EN 60529

##### Max. permissible ambient temperature

70 °C

##### Weight

approx. 1.4 kg



**Attention:**  
This equipment must only be operated **outside** the European Union!

## Compact System for Level Monitoring NRGS 15-1

### Important Notes

Cable required for wiring: multi-core flexible cable, min. conductor size 0.5 mm<sup>2</sup>

### ATEX Directive 94/9/EC

The equipment must not be used in potentially explosive areas!

### Order and Enquiry Specification

GESTRA Level electrode

**NRGS 15-1**, PN 40

Mains supply .....  
Length supplied: 1000 mm

GESTRA Level electrode

**NRGS 15-1**, PN 40, with pushbuttons "TEST" and "RESET" (system test, internal lock-out)

Mains supply .....  
Length supplied: 1000 mm

### Dimensions

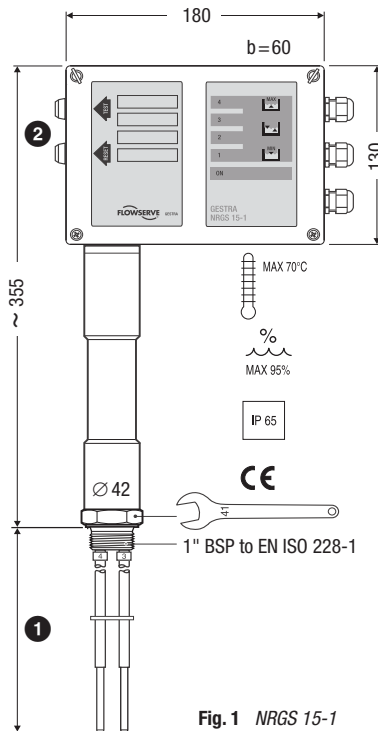


Fig. 1 NRGs 15-1

### Wiring

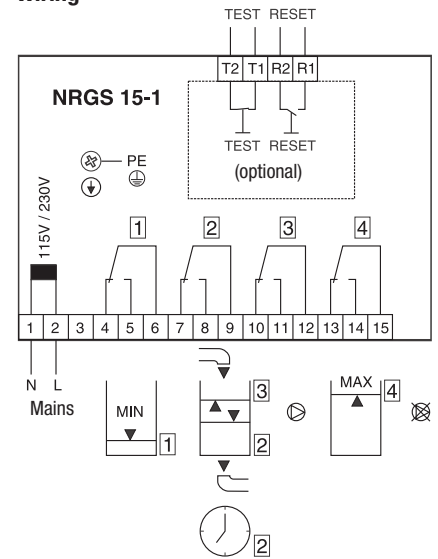


Fig. 2 Wiring diagram

### Key

- 1 Length supplied: 1000 mm
- 2 Pushbutton "TEST" for system test and pushbutton "RESET" for reset after low-level alarm (optional)
- A Flange PN 40, DN 50, EN 1092-1
- B Vent hole
- C High level HW
- D Electrode rod  $d = 5$  mm
- E Protection tube  $\geq$  DN 100
- F Electrode distance
- G Low level LW
- H Reducer DIN 2616-2  
K-88.9 x 3.2 - 42.4 x 2.6 W

Supply in accordance with our general terms of business.

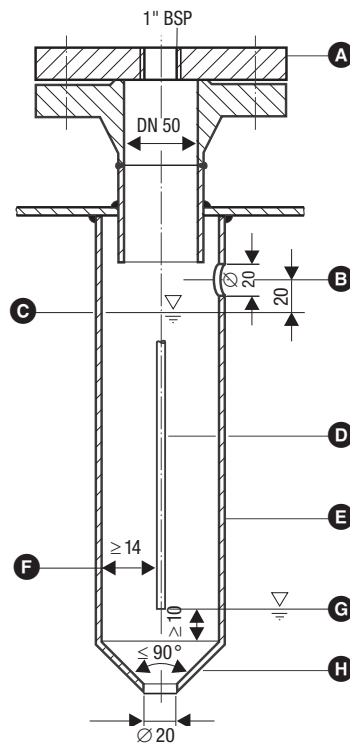


Fig. 3 Protection tube for installation of electrode inside the boiler

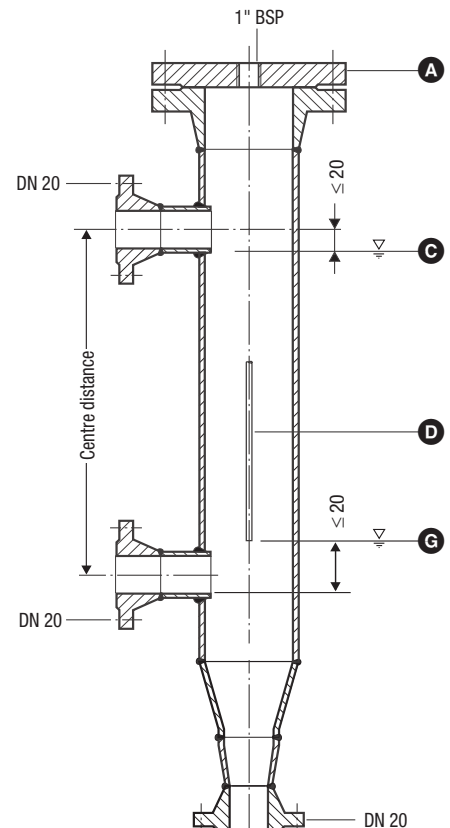


Fig. 4 External measuring pot

## Flowserve GESTRA U.S.

2341 Ampere Drive  
Louisville, KY 40299  
Tel.: 001502 / 2672205, 001502 / 2672206  
Fax: 001502 / 2665397  
Email: dgoodwin@flowserve.com

