

GESTRA Steam Systems

Compact System for Level Monitoring NRGS 11-1, NRGS 16-1, NRGS 16-1S

Product Range B1

NRGS 11-1 NRGS 16-1 NRGS 16-1S

Description

The compact systems NRGS 11-1 and NRGS 16-1 work according to the conductivity measurement principle. With the NRGS 16-1 a maximum of 4 levels can be signalled in conductive liquids:

- High-level alarm, Low-level alarm, pump ON, pump OFF with one switchpoint each.

The NRGS 1...-1 has a switching controller integrated in the electrode terminal box. External switchgear is **not** required.

The NRGS 11-1/NRGS 16-1 are designed to detect and signal different levels in conductive liquids. They are appropriate for use in the power supply, water and chemical industries and particularly suitable for applications in steam boilers and feedwater tanks.

Function

The conductivity of the liquid is used to detect 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 monitored is required.

The conductivity measurement method can detect two conditions: electrode tip submerged or exposed, meaning switchpoint reached (or exceeded) or not yet reached. Before installation, the length of the electrode rod must be adapted to the switching levels, e.g. for max./min. alarm, controlling of a valve or pump.

Designs

- NRGS 11-1 screwed 1" BSP (DIN ISO 228)
- NRGS 16-1 screwed 1" BSP (DIN ISO 228)
- NRGS 16-1 S flanged DN 50, PN 40, DIN 2635, for marine applications.

Technical Data

Type Approval N°

NRGS 16-1: TÜV · WRB · 01-388
NRGS 16-1 S: GL 99250-96 HH
LR 98/20075
RiNA No ELE / 30298/1

Max. service pressure

NRGS 11-1: 6 barg at 159 °C
NRGS 16-1 / NRGS 16-1S: 32 barg at 238 °C

Connections

Screwed 1" BSP, DIN ISO 228
Flanged DN 50, PN 40, to DIN 2635

Materials

Case: Die cast aluminium 3.2161 (G AlSi8Cu3)
Stem: Stainless steel 1.4571 (CrNiMoTi17-12-2)
Flange: Forged steel 1.0460 (C 22.8)
Measuring electrodes: S. S. 1.4571
Electrode insulation: PTFE
Spacer disc: PTFE

Lengths supplied

500 mm
1000 mm
1500 mm

Technical Data - continued -

Mains supply

230 V +/- 10 %, 50/60 Hz
115 V +/- 10 %, 50/60 Hz
24 V +/- 10 %, 50/60 Hz (option)

Power consumption

5 VA

Fuse

Thermal fuse $T_{max} = 102\text{ °C}$

Sensitivity

Range 1: 10 $\mu\text{S/cm}$
Range 2: 0.5 $\mu\text{S/cm}$

Electrode voltage

10 V_{ss}

Output

4 volt-free relay 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 $\cos \varphi 0.5$.

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

Contact material: silver, hard-gold plated.

Energizing/deenergizing delay:

3 sec., factory set

Indicators and adjustors

4 red LEDs for signalling "electrode submerged", "output relay energized"

One 4-pole code switch for changing sensitivity

Cable entry

Cable glands with integral cable clamps
2 x PG 9 (M 16)
1 x PG 16 (M 20)

Protection

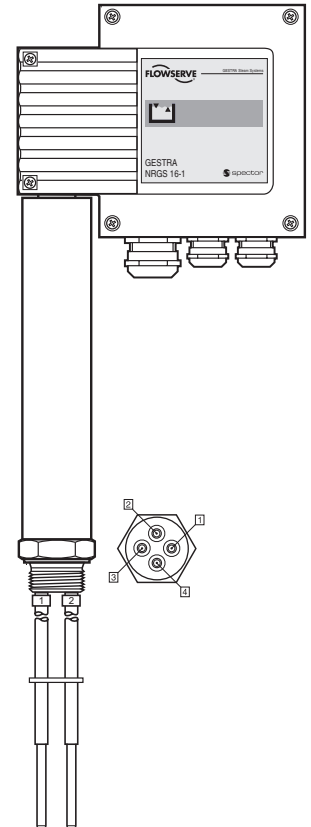
IP 65 acc. to DIN EN 60529

Max. permissible ambient temperature

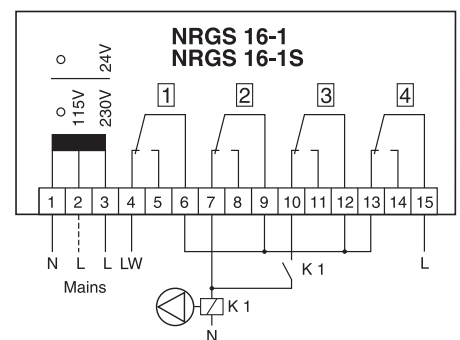
70 °C (158 °F)

Weight

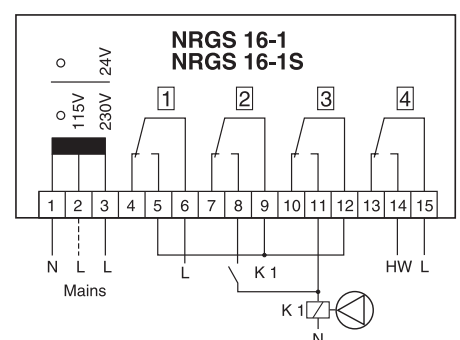
approx. 1.8 kg



Wiring Diagram Fill control



Wiring Diagram Discharge control



Compact System for Level Monitoring NRGS 11-1, NRGS 16-1, NRGS 16-1S

Important Notes

Cable required for wiring: multiple-core flexible control cable, min. conductor size 0.5 mm².

Order and Enquiry Specification

GESTRA Level electrode type
NRGS 11-1, NRGS 16-1, PN 40

Mains supply

Connection

Acceptance inspection

Length suppliedmm

GESTRA Level electrode type
NRGS 16-1 S, PN 40 (for marine applications)

Mains supply.....

Acceptance inspection

Length suppliedmm

The following test certificate can be issued on request, at extra cost: In accordance with EN 10204-2.1, -2.2 and -3.1B.

All inspection requirements have to be stated with the order. After supply of the equipment certification cannot be established. For tests and inspection charges please consult us.

Key

① Lengths supplied: 500 mm
1000 mm
1500 mm

② Lengths supplied: 438 mm
938 mm
1438 mm

A Flange PN 40, DN 50, DIN 2527
Flange PN 40, DN 100, DIN 2527

B For the approval of the boiler standpipe the relevant regulations must be considered.

C Vent hole

D High water (HW)

E Electrode rod $d = 5$ mm

F Protection tube \geq DN 100 mm

G Electrode distance

H Low water (LW)

I Reducer K-88.9 x 3.2 - 42.4 x 2.6 W to
DIN 2616, part 2

ATEX (Atmosphère Explosible)

According to the European Directive 94/9/EC the equipment must not be used in potentially explosive areas.

Supply in accordance with our general terms of business.

GESTRA AG

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Dimensions

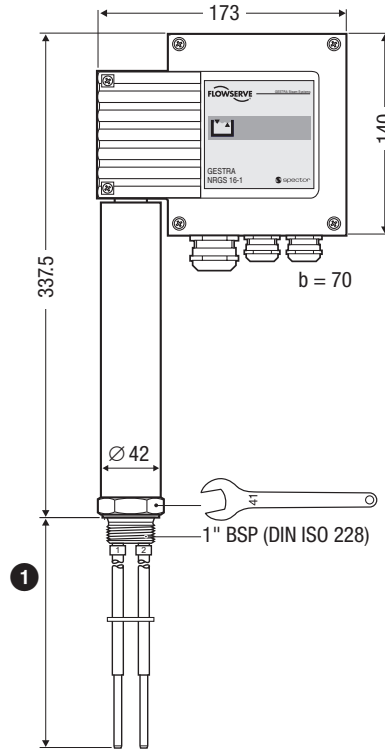


Fig. 1 NRGS 16-1
(NRGS 11-1)

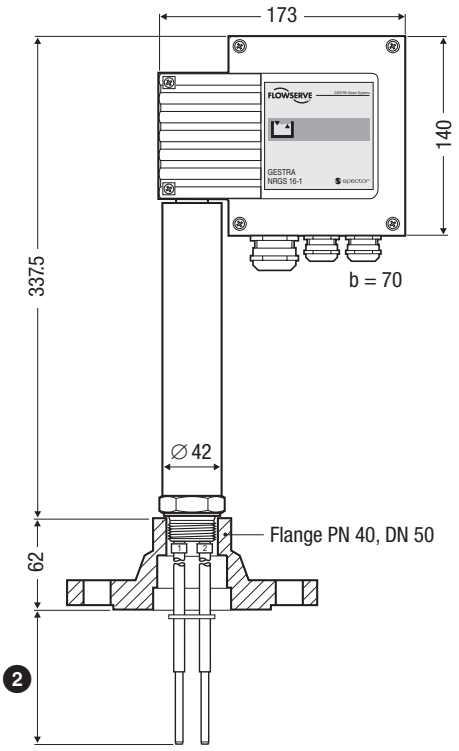


Fig. 2 NRGS 16-1 S

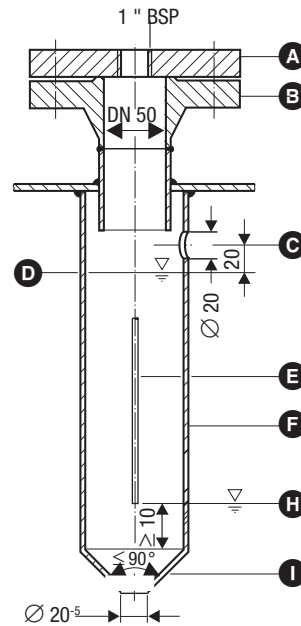


Fig. 3 Protection tube for installation of electrode inside the boiler

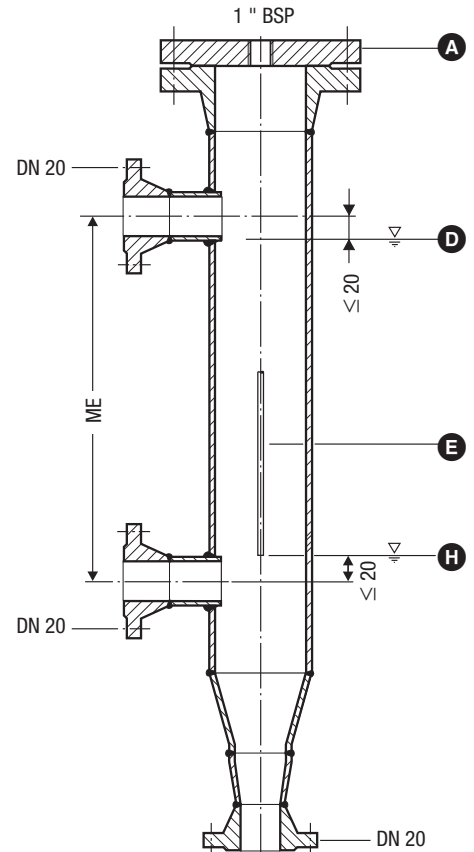


Fig. 4 External measuring pot