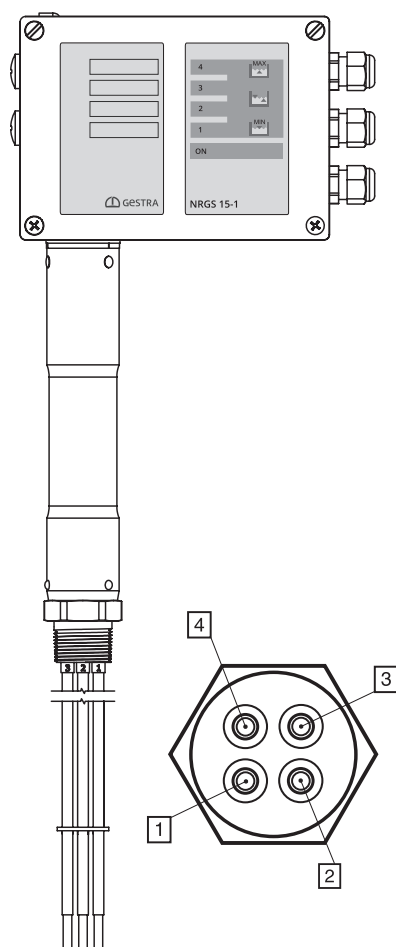




NRGS 15-1

Compact System for Level Monitoring and Control

NRGS 15-1

Description

The NRGS 15-1 level switch indicates when four different water levels have been reached, and acts as a water level controller with MIN and MAX alarm, e.g. in steam boilers and hot water installations and also in condensate and feedwater tanks.

Function

The NRGS 15-1 level switch is a compact system consisting of a level electrode with four rods and an integrated level switch. The equipment only functions if used in water with a minimum electrical conductivity of $> 0.25 \text{ ppm}$ ($0.5 \text{ }\mu\text{S/cm}$) at $77 \text{ }^\circ\text{F}$ ($25 \text{ }^\circ\text{C}$). In the level switch, a time-delayed switching channel, an output relay and a signal LED are assigned to each of the four electrode tips. The function of switching channels 1 and 4 is fixed, while switching channels 2 and 3 are defined via the code switch. The switchpoints of each switching channel depend on the level and are determined by shortening the relevant electrode tips. The following functions are possible:

- Electrode rod 1 exposed / switching channel 1 energizes relay 1 = low water 1
- Electrode rod 2 exposed / switching channel 2 energizes relay 2 = low water 2
- Electrode rod 3 exposed or immersed / switching channel 3 energizes relay 3 (time-dependent) = timed pump control (supply/discharge)
- Electrode rods 2 and 3 exposed or immersed / switching channel 3 energizes relay 3 = on/off pump control (supply/discharge)
- Electrode rod 4 immersed / switching channel 4 energizes relay 4 = high water

Technical data

Service pressure

363 psi at $435 \text{ }^\circ\text{F}$ (25 bar at $224 \text{ }^\circ\text{C}$)

Mechanical connection

Thread $1 \text{ }''$ - 11.5 NPT

Materials

Screw-in body: 1.4404 / F316L
Electrode rods: 1.4571, CrNiMoTi17-12-2
Electrode rod insulation: PTFE
Spacer: PTFE
Terminal box: Polycarbonate

Electrode rods

Length supplied: 39.37 in (1000 mm)
Diameter: 0.2 in (5 mm)

Supply voltage

NRGS 15-1 / 240 VAC: 240 V $+10/-15 \%$, 50/60 Hz
NRGS 15-1 / 120 VAC: 120 V $+10/-15 \%$, 50/60 Hz

Power consumption

3 VA

Fuse

External 63 mA, slow blow, at 240 V
External 125 mA, slow blow, at 120 V.

Response sensitivity

(electrical conductivity of water at $77 \text{ }^\circ\text{F}$ [$25 \text{ }^\circ\text{C}$])
 $> 5 \dots < 5000 \text{ ppm}$ ($> 10 \dots < 10000 \text{ }\mu\text{S/cm}$)
(switch-selectable)

Technical data continued

Electrode voltage

20 V_{SS}

Output

4 volt-free relay contacts,
8 A 250 V AC / 30 V DC $\cos \varphi = 1$ (IEC 61810)
Ensure interference suppression (RC combination) for contactor

Energizing/de-energizing delay

Relays 1 and 2: 1s, fixed
Relay 3: 0-30s, adjustable via potentiometer
Relay 4: 3s, fixed

Indicators and controls

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 10-pole code switch to select the sensitivity and define the functions

Cable entry/electrical connection

3 cable glands with integrated cable clamp (M 16)
1 2-pole terminal strip for power supply
1 12-pole terminal strip for connecting the control cables
Terminal strips are detachable screw-type models with conductor size $\geq \text{AWG } 16$ ($\leq 1.5 \text{ mm}$)

Protection

NEMA type 4 according to NEMA 250
IP 65 according to EN 60529

Protection class

Class II with functional ground via boiler wall

Admissible ambient temperature

at power-on $32 \text{ }^\circ \dots 158 \text{ }^\circ\text{F}$ ($0 \text{ }^\circ \dots 70 \text{ }^\circ\text{C}$)
during operation $14 \text{ }^\circ \dots 158 \text{ }^\circ\text{F}$ ($-10 \text{ }^\circ \dots 70 \text{ }^\circ\text{C}$)

Transport temperature

$-4 \text{ }^\circ \dots +176 \text{ }^\circ\text{F}$ ($-20 \text{ }^\circ \dots +80 \text{ }^\circ\text{C}$) (< 100 hours), only switch on after a defrosting period of 24 hours.

Storage temperature

$-4 \text{ }^\circ \dots 158 \text{ }^\circ\text{F}$ ($-20 \text{ }^\circ \dots +70 \text{ }^\circ\text{C}$), only switch on after a defrosting period of 24 hours.

Relative humidity

Max. 95%, no moisture condensation

Weight

Approx. 3.08 lb (1.4 kg)

