Description

Low-level limiter
NRG 16-11 / NRS 1-7 b

Application and Purpose

Use self-monitoring low-water limiter with periodic self-checking type NRG 16-11 in combination with level switch NRS 1-7 in steam boilers and hot-water plants. The equipment meets the German regulations for use in steam boiler plants operating without constant supervision (TRD 604 sheet 1 and 2).

For boiler operation acc. to TRD 604 two self-monitoring low-level limiters are required and for boiler operation to TRD 602 only one self-monitoring low-level limiter is necessary.

The level electrode NRG 16-11 can be combined with the following GESTRA systems:

- NRG 26/NRR 2-2 (modulating level control)
- NRG 26/NRR 2-1 (modulating level control)
- NRG 26/NRS 2-1 (on-off level control)
- ER 56/NRS 1-5 (on-off level control)
- NRG 16-4/NRS 1-2 (high-level alarm)
- NRG 16-12/NRS 1-8 (self-monitoring high-level alarm)

The level electrode NRG 17-11 can be combined with the following GESTRA systems:

- NRG 17-12/NRS 1-8 (high-level alarm)

The level electrode NRG 19-11 can be combined with the following GESTRA systems:

- NRG 19-12/NRS 1-8 (high-level alarm)

The installation of two low-level alarms in one standpipe is not permissible according to TRD.

Low-level limiter and controller
NRG 16-36 / NRS 1-9

Application and Purpose

Level controller and self-monitoring low-water level limiter with periodic self-checking feature to be used in conjunction with level electrode NRG 16-36 for on-off boiler feed-water control, high level detection (alarm) and low-water level limiting (min. level alarm). Application in steam and pressurized hot-water boiler installations in accordance with TRD 602 and TRD 604, sheet 1 and 2.

Switching Controller NRS 1-9 b

Plug-in unit in plastic case for installation in control cabinets. The terminals are accessible after unplugging the unit from its base. The plug-in unit may be snapped onto a 35 mm supporting rail or screwed into position on a mounting panel. Field enclosures for several plug-in units are available on request.

High-Level Alarms

Description

"Conventional Design"
NRG 16-4 / NRS 1-2

Application and Purpose

Use in combination with level switch NRS 1-2 for water-level limiting (low-level alarm), on-off liquid control and signalling of levels of conductive liquids. The stainless steel design is particularly suited for aggressive fluids. For vessels and steam boilers up to PN 40 with level switch in accordance with TRD 604 (boiler operation without constant supervision).
Sensing unit for high-level alarm and level control.

Design

The level electrode NRG 16-4 is available with screwed connection $^3/_8$" BSP

Material: X6CrNiMoTi17-12-2
(DIN no. 1.4571)

The electrodes are supplied in different lengths (see data sheet). For switching levels between these dimensions the electrode tip can be cut to length as required. Wiring to the electrode is effected by a four-pole connector.

"High-Integrity Design"
NRG 16-12 / NRS 1-8

Application and Purpose

Use in combination with level switch NRS 1-8 as self-monitoring high-level alarm with periodic self-checking according to TRD 604 sheet 1 and 2 for high-water level detection (high-level alarm) in steam and pressurized hot-water boilers.

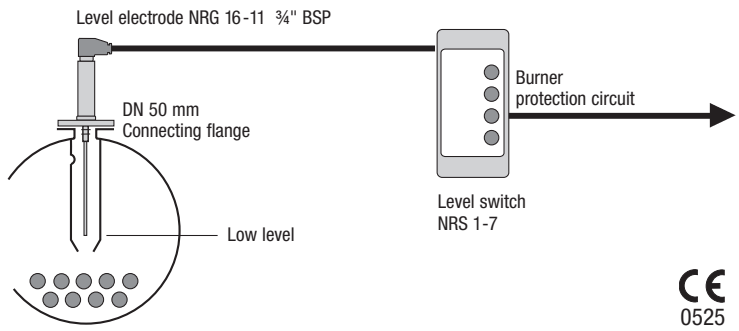
Design

The high-level limiting system comprises level electrode NRG 16-12, NRG 17-12 or NRG 19-12 and level switch NRS 1-8.

The level electrodes NRG 16-12, NRG 17-12 and NRG 19-12 consist of a measuring electrode fitted in a body. The electrode is insulated by special insulating seals.

The pressure-tight connection of the electrode is effected coaxially with a contact ring and a stud. A system of compression springs in the electrode body ensures sufficient sealing forces at the insulating seals, even if temperatures vary. The stud is insulated by a PTFE foil. Contact ring and body are connected to the four-pole connector base by PTFE insulated wires. The level electrode is available in various lengths up to 1500 mm. Observe mounting instructions (see examples of installation). The system (electrode + level switch) complies with the regulations concerning protection circuits for firing equipment of furnaces in accordance with DIN 57116 / VDE 0116.

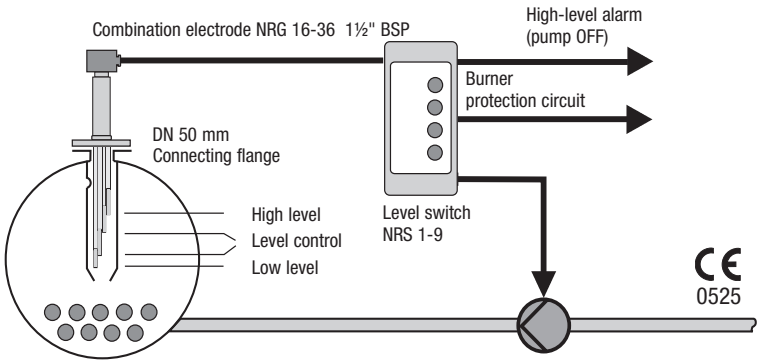
Self-monitoring low-level limiter



Type		PN	Stock code
NRG 16-11,	L = 1000 mm	40	3511042
NRS 1-7	230 V		3232541
NRG 17-11,	L = 1000 mm	63	3541042
NRS 1-7	230 V		3232541
NRG 19-11,	L = 1000 mm	160	3571042
NRS 1-7	230 V		3232541
NRG 111-11,	L = 1000 mm	320	3571142
NRS 1-7	230 V		3232541

Type approval
TÜV WB 05-354
EG 01 202 931-B-01-0077

Low-level limiter, on-off control and high-level alarm



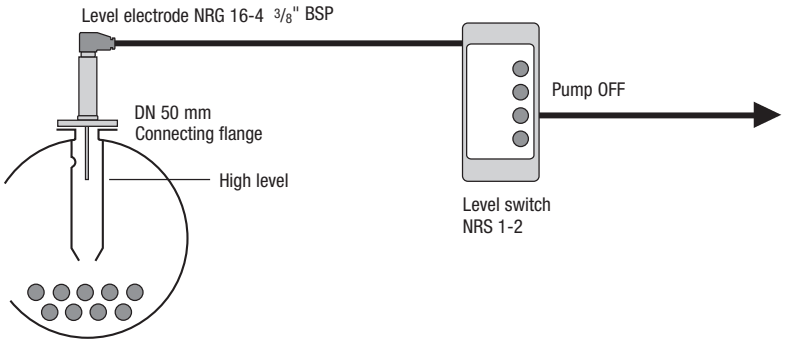
Type		PN	Stock code
NRG 16-36,	L = 1000 mm	40	3581047
NRS 1-9	230 V		3232841

Type approval
TÜV WB/WR 04-370
EG 01 202 931-B-01-0075

Optional voltages: NRS 1-7, NRS 1-9
Special voltage: 115 V, 24 V, 50..60 HZ

High-Level Alarms – Conventional Design

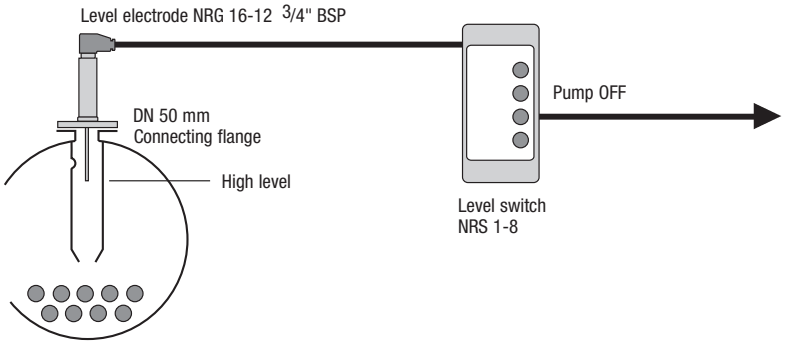
High-level alarm (conventional design)



Type		PN	Stock code
NRG 16-4,	L = 1000 mm	40	3441241
NRS 1-2	230 V		3231441

Type approval
TÜV WR 03-302

Self-monitoring high-level alarm



Type		PN	Stock code
NRG 16-12,	L = 500 mm	40	3521041
NRS 1-8	230 V		3232741
NRG 17-12,	L = 500 mm	63	3551041
NRS 1-8	230 V		3232741
NRG 19-12,	L = 500 mm	160	3591041
NRS 1-8	230 V		3232741

Test approval no.
01-91-0112

Optional voltages: NRS 1-2, NRS 1-8
Special voltage: 115 V, 24 V, 50..60 HZ

For flanges see Price List

Description

Level control
NRG 26-21 / NRR 2-2e

This modulating level control system comprises the level electrode NRG 26-... and the level controller NRR 2-2.

The level-dependent actual value sensed by the electrode is continuously compared by the controller with the adjusted setpoint. Any deviation is immediately detected and a signal is transferred to the motorized feedwater control valve in order to regulate the flowrate accordingly.

The level controller is of the proportional type and provided with a manual control facility. In addition it features a signal for high-level alarm, first low-level alarm and a current output for the display unit URA used for remote level indication.

The switchpoints are adjustable within the whole measuring range of the level electrode.

Level control
NRG 26-21 / NR. 2-1

This water-level controller is to be used in conjunction with one level electrode NRG 26-... and one limit switch NRS 2-1.

A second max.-min. limit switch enables establishing additional switchpoints such as high level alarm and first low-level alarm.

Using level transmitter NRT 2-1 and display unit URA makes remote level indication possible.

The advantage of this switching controller lies in customized switchpoints which can be adjusted during operation and the simultaneous use of several control units.

Level control
LD 144 / KS 92-1

Used in conjunction with µP controller type KS 92-1 for modulating water level control (pressure range > PN 40).

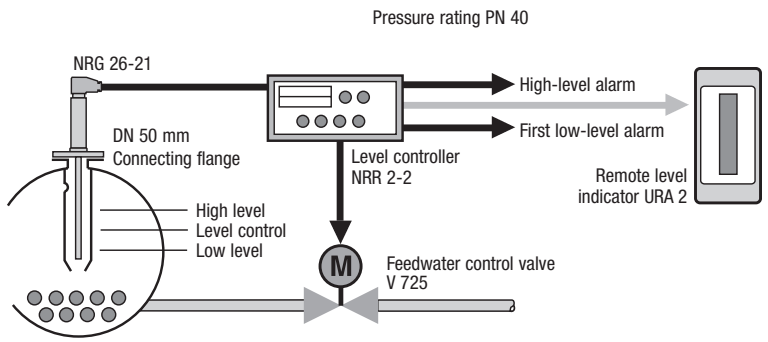
The intelligent buoyancy transmitter works on the Archimedean buoyancy principle. The buoyancy is proportional to the liquid level and transformed by the measuring transducer into the standard output signal 4...20 mA.

Level control
705 / KS 92-1

Used in conjunction with µP controller type KS 92-1 for modulating water level control (pressure range > PN 40).

Can also be used as combination electrode together with limiters. The 705 is a radar-based level transducer. The reflexion time is a function of the level and will be transformed into a 4...20 mA standard output signal by the measuring transducer.

Modulating control with adjustable switchpoints

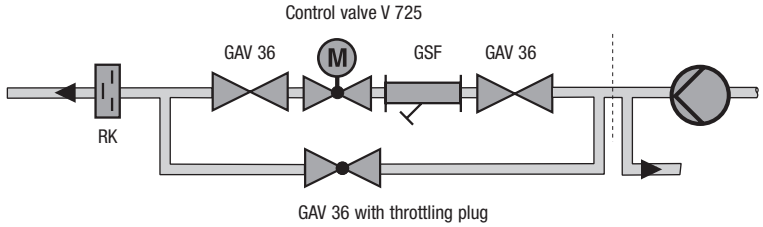


Equipment		Stock code
NRG 26-21	L = 1000 mm	3452147
NRR 2-2e	230 V	3241343
URA 2	230 V	3311344

Type approval
TÜV WR 06-320

Control valve with isolating bypass valve, strainer, non-return valve and feedback potentiometer

Pressure rating PN 40



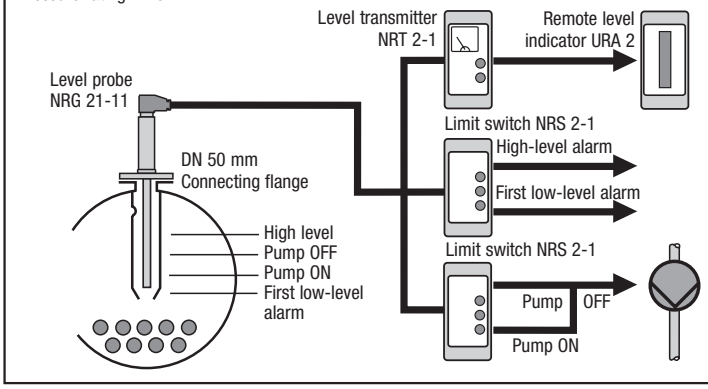
Equipment	Boiler capacity t/h	DN
3 x GAV 36,	**< 2.5**	20
Control valve V 725,	**< 8.0**	40
GSF, RK	**< 16.0**	50
230 V, 50 Hz	**< 28.0**	65

For other nominal sizes refer to pages

GAV	**71**
GSF	**69**
RK	**30 – 41**
V 725	**63**

On-off control with adjustable switchpoints

Pressure rating PN 6



Equipment		Bestell-Nr.
NRG 21-11	H = 1000 mm	3421247
NRS 2-1	230 V	3231741
NRT 2-1	230 V	3301441
URA 2	230 V	3311344

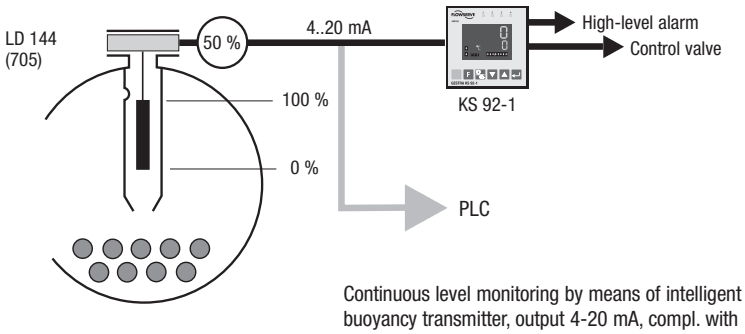
Optional voltages: NR. 2-., URA.
Special voltages: 115 V, 24 V, 50..60 HZ

Type approval
TÜV WR/WS 04-317

For flanges see Price List

High-Pressure Level Control / Pump Control

Continuous level monitoring for high-pressure applications



Continuous level monitoring by means of intelligent buoyancy transmitter, output 4-20 mA, compl. with cover flange kit.

Type	PN	Design	Measuring range
LD 144	100	DN 80 [2]	350
24 V, DC		DIN 3526	500
		Form E	1000
	160	DN 80 [2]	350
		DIN 2696	500
		Form L	1000
Type approval TÜV WRS 06-324			
705	100	DN 50	600
24 V, DC		DIN 2696	800
		Form E	1000
	160	DN 50	600
		DIN	800
		Form E	1000
Approval GL/Stoomwezen			