



GESTRA® Industrial Electronics · Product Range Group B1

LRR 1-5
LRR 1-6

Continuous Blowdown Controllers LRR 1-5b, LRR 1-6b

Purpose and Application

Automatically controlled continuous boiler blowdown to reduce blowdown wastage and increase the operating safety with the GESTRA conductivity electrode type ERL 16 or LRG 17, 19 used as sensing unit and the GESTRA continuous blowdown valve BAE as control valve. Automatic closing of blowdown line during boiler shut-down. Current output for remote indication or recording of conductivity.

Application in steam boilers, evaporators or similar plants, in particular plants operated automatically, e.g. in accordance with the regulations for operation without constant supervision (TRD 604).

Design

Plug-in unit in plastic case for installation in control cabinets. The terminals in the case are accessible after loosening two screws and unplugging the unit from its base. To avoid confusion with other plug-in units of the GESTRA range, inserts are fitted in the bases so that only the correct unit may be plugged into each base.

The plug-in units 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.

Technical Data

Function

Continuous blowdown controller with conductivity electrode type ERL 16 or LRG 17, 19 and continuous blowdown valve type BAE, can be used as max.-min. limit switch after establishing a wire link (see "Wiring Diagram").

Input

Four connections for one conductivity electrode type ERL 16 or LRG 17/19.

Output

Two relay contacts mounted in series for the functions "Valve CLOSED", "Valve OPEN" and "Valve OPERATING"; max. contact rating: 250 V, 500 W, 3 A resistive with a life of 4×10^5 switching cycles or 0.35 A inductive with a life of 2×10^6 cycles; contact material silver, hard-gold plated.

Current output 0 ... 20 mA for remote indication or recording, can be changed to 4 ... 20 mA by establishing a wire link, max. load 500 Ω .

Measuring range

Type LRR 1-5b:

0 ... 10 mS/cm, 0 ... 1 mS/m

Type LRR 1-6b:

0 ... 100 μ S/cm, 0 ... 10 μ S/cm

(selection between the two ranges by switch on front panel)

with a cell constant of electrode of 1.0/cm; adjustor for compensation of temperature influence up to max. 250 °C, basic adjustment applies to 25 °C.

Limit value

Continuously adjustable within a range of 0.4 ... 10/0.04 ... 1 mS/cm (LRR 1-5b) or 4 ... 100/0.4 ... 10 μ S/cm (LRR 1-6b)

Switching hysteresis

10% of limit value

Indicators

Two LEDs: green for $\delta <$ limit value, red for $\delta >$ limit value; 1 meter for indicating actual conductivity within the range $\pm 20\%$ of the adjusted conductivity limit value

Electrode supply voltage

1 V_p , 1000 Hz, short-circuit protected

Mains supply

220 V, 50 – 100 Hz

3.5 VA (other voltages, i.e. 24 – 240 V, 50 – 100 Hz, available)

Protection

IP 40

Permissible ambient temperature

0 ... 50 °C

Case materials

Base: ABS plastic, black
Cover: polystyrene (highly shock-resistant), stone grey

Approx. weight

1 kg

Important Notes

Cable required for wiring to the electrode: Screened cable, e.g. I-Y (St) Y 2 x 2 x 0.8, cable length see table under "Installation and Service Instructions".

Order and Enquiry Specifications

GESTRA controller for continuous blowdown:

Continuous blowdown controller type

LRR 1- ... ,

plug-in unit in plastic case for installation in control cabinets.

Main supply V.

Associated Equipment

Conductivity electrode type ERL 16- ...,

LRG 16-4, LRG 17-1 or LRG 19-1.

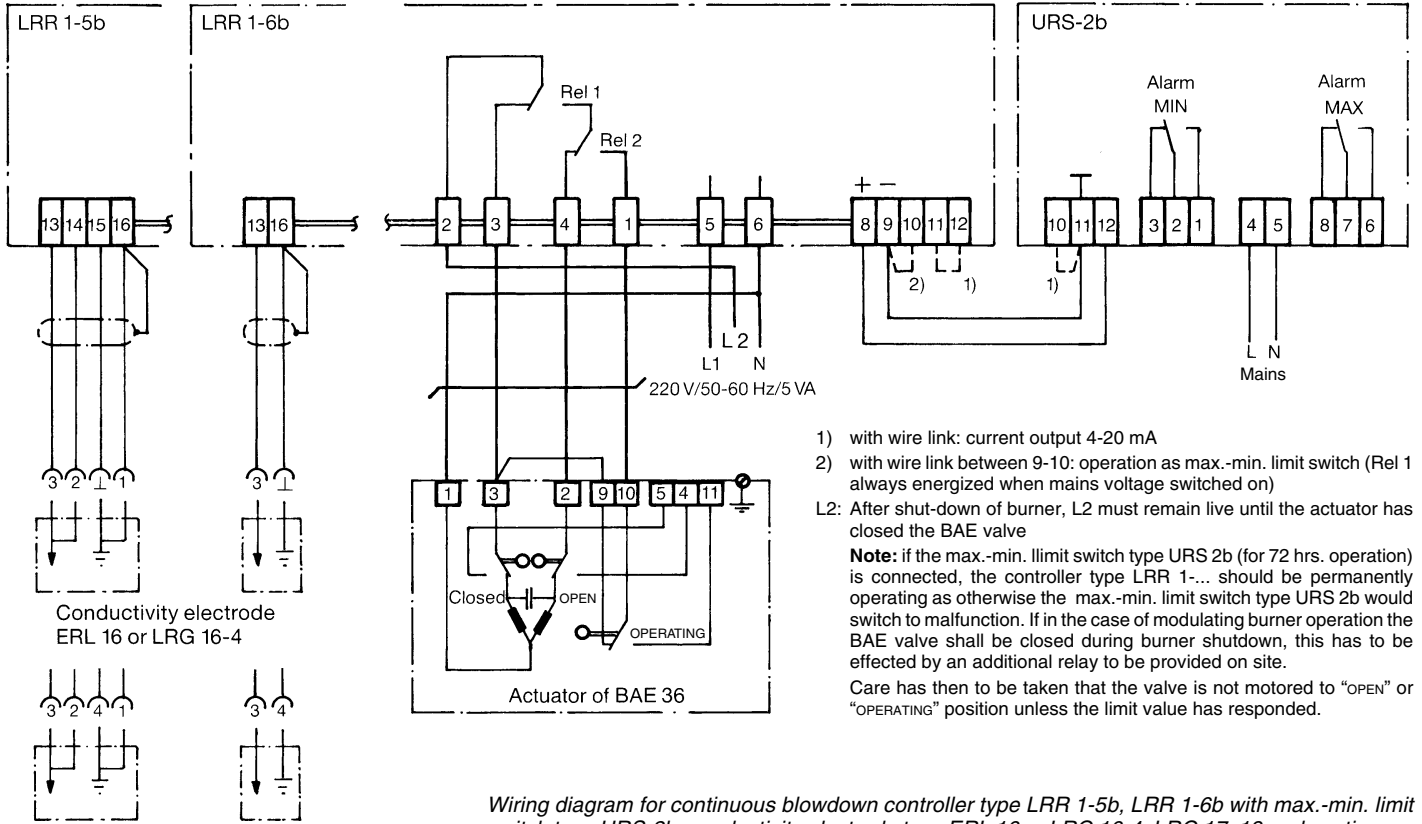
Continuous blowdown valve type BAE.



Continuous Blowdown Controllers

LRR 1-5b, LRR 1-6b

Wiring Diagram



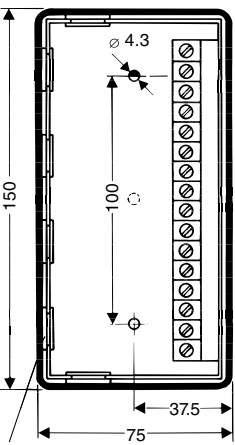
- 1) with wire link: current output 4-20 mA
 - 2) with wire link between 9-10: operation as max.-min. limit switch (Rel 1 always energized when mains voltage switched on)
- L2: After shut-down of burner, L2 must remain live until the actuator has closed the BAE valve
- Note:** if the max.-min. limit switch type URS 2b (for 72 hrs. operation) is connected, the controller type LRR 1-... should be permanently operating as otherwise the max.-min. limit switch type URS 2b would switch to malfunction. If in the case of modulating burner operation the BAE valve shall be closed during burner shutdown, this has to be effected by an additional relay to be provided on site.
- Care has then to be taken that the valve is not motored to "OPEN" or "OPERATING" position unless the limit value has responded.

Conductivity electrode LRG 17 or LRG 19

Wiring diagram for continuous blowdown controller type LRR 1-5b, LRR 1-6b with max.-min. limit switch type URS-2b, conductivity electrode type ERL 16 or LRG 16-4, LRG 17, 19 and continuous blowdown valve type BAE

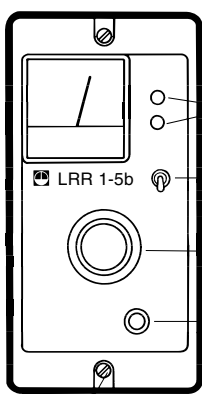
Dimensions

Base with terminals

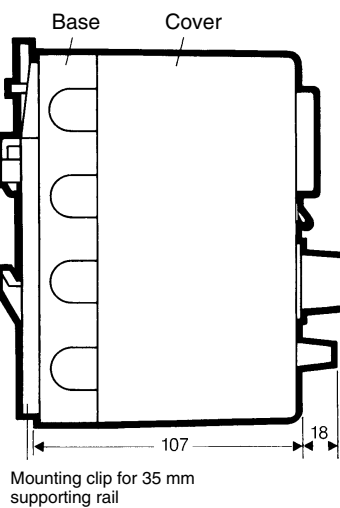


- ⌀ holes to be drilled to 4.3 mm dia for installation of unit in boiler panel
- ⌀ hole drilled for mounting clip

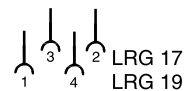
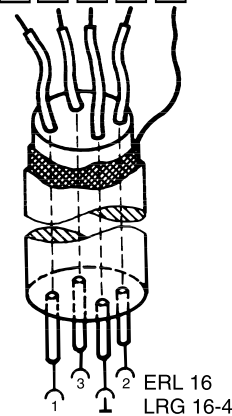
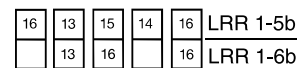
Front view



Side view



Use screened cable and connect to terminals as follows:



Supply in accordance with our general terms of business.



GESTRA GmbH

P. O. Box 10 54 60, D-28054 Bremen
Münchener Str. 77, D-28215 Bremen

Telephone +49 (0) 421 35 03-0, Fax +49 (0) 421 35 03-393

E-Mail gestra.gmbh@flowserve.com, Internet www.gestra.de



Flow Control Division