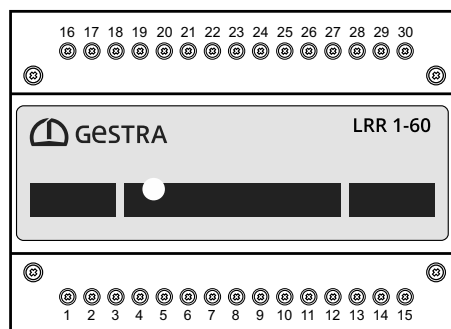




Conductivity Controller LRR 1-60

Description

The LRR 1-60 conductivity controller can be used together with the LRG 16-60, LRG 16-61 and LRG 17-60 conductivity electrodes as a conductivity controller in steam boilers and hot water installations and in condensate and feedwater tanks.

The equipment is configured and operated and information is viewed via the URB 60 visual display and operating unit.

Function

The LRR 1-60 conductivity controller is a 3-position stepping controller. It cyclically evaluates the data telegrams from a conductivity electrode (e.g. LRG 16-60, LRG 16-61 or LRG 17-60).

The data are transferred via an ISO 11898 CAN bus using the CANopen protocol.

Function tests and failure diagnosis are performed using the URB 60 visual display and operating unit.

Possible combinations of functions and equipment

Conductivity controller	LRR 1-60
Function	
Evaluation of CAN bus data telegrams from connected LRG 16-60, LRG 16-61 or LRG 17-60 conductivity electrodes.	●
3-point stepping controller with proportional plus integral control (PI controller) and actuation of an electrically operated continuous blowdown valve.	●
MAX alarm when the conductivity limit is exceeded.	●
MIN alarm when conductivity drops below the minimum limit. Alternatively MIN relay for automated intermittent blowdown.	●
The valve position can be displayed if a potentiometer is connected (in the control valve). The valve position is then shown on the URB 60 visual display and operating unit.	●
Actual value output 4-20 mA	●
Volt-free input 24V DC (standby) for inputting an external command Control OFF/Valve CLOSED/ Intermittent blowdown OFF.	●

Technical data

Supply voltage

- 24V DC +/-20%

Power consumption

- Max. 5 W

Current input

- Max. 0.3 A

Required external fuse

- M0.5A

Input/output

- Interface for CAN bus to ISO 11898, CANopen, insulated

Inputs LRR 1-60

- 1 x analogue input for potentiometer 0-1000 Ω , two-wire connection (indication of valve position)
- 1 x volt-free input 24V DC (standby) for inputting an external switching command, Control OFF/Valve CLOSED/Intermittent blowdown OFF

Outputs of

MIN/MAX contacts/Control valve (OPEN/CLOSED)

- 4 x volt-free relay contacts (changeover relays), contact material AgNi0.15, AgSn02

Configurable as:

- ◆ MIN/MAX alarm or MAX alarm and MIN relay as automatic intermittent blowdown
- ◆ Continuous blowdown valve (CLOSED/OPEN)
- Maximum switching current - 8 A at 250V AC / 30V DC - $\cos \phi = 1$
- Inductive loads must have interference suppression (RC combination) as per the manufacturer's specification.

Analogue output

- 1 x actual value output OUT 1: 4-20 mA, e.g. for an actual value display
- Max. load resistance 500 Ω

Indicators and controls

- 1 x multicolour LED (orange, green, red)
 - ◆ orange = power up
 - ◆ green = running
 - ◆ red = malfunction
- 1 x 4-pole code switch for setting the controller group and baud rate

Protection class

- II double insulated

IP rating to EN 60529

- Terminal box: IP 40
- Terminal strip: IP 20

Electrical safety

Conductivity Controller

LRR 1-60

- Pollution degree 2 for installation in control cabinet with protection rating IP 54, fully insulated

Admissible ambient conditions

- Service temperature: - 10 °C - 55 °C
(at power-on: 0 °C - 55 °C)
 - Storage temperature: - 20 °C - 70 °C *
 - Transport temperature: - 20 °C - 80 °C
(< 100 hours)*
 - Air humidity: Max. 95%
non-condensing
- * Only switch on after a 24-hour defrosting period

Terminal box

- Terminal box material: Lower section of black polycarbonate (glass-fibre reinforced), front of grey polycarbonate
- 2 x 15-pole terminal strips, removable separately
- Max. cross-section per screw terminal:
 - ◆ 1 x 4.0 mm² solid, or
 - ◆ 1 x 2.5 mm² stranded with sleeve, or
 - ◆ 2 x 1.5 mm² stranded with sleeve
- Terminal box attachment: Mounting clip on support rail TH 35 (to EN 60715)

Weight

- Approx. 0.5 kg

Important notes

Use a shielded, multi-core, twisted-pair control cable, e.g. UNITRONIC® BUS CAN 2 x 2 x .. mm² or RE-2YCYW-fl 2 x 2 x .. mm² as the bus line.

Pre-wired control cables (with connector and coupling) are available as accessories in various lengths.

The baud rate (transfer rate) is determined by the cable length between the bus terminal devices, and the conductor size is determined by the overall power input of the measuring sensors.

Connecting the MIN/MAX/CLOSED/OPEN output contacts

Use a T2.5A fuse to protect the switching contacts.

Connecting the actual value output (4-20 mA) or po-

tentiometer (0-1000 ohms)

Use a shielded, multi-core, twisted-pair control cable with a minimum conductor size of 0.5 mm², e.g. LIYCY 2 x 0.5 mm².

Maximum cable length = 100 m.

Connecting the standby input (24V DC)

Maximum cable length = 30 m.

Important notes on connecting the CAN bus system

If two or more system components are connected in a CAN bus network, a 120 Ω terminating resistor must be connected to the first and last devices between terminals CL/CH.

The LRR 1-60 conductivity controller is equipped with an internal terminating resistor. To activate the internal terminating resistor in the LRR 1-60 conductivity controller, insert a jumper between the terminals ("Option 120Ω" and "CH").

Use a central earth to prevent differences in potential in plant parts. Connect the bus line shields to one another all the way along, and connect to the central earthing point (CEP).

How to order:

Conductivity controller

Type:

- LRR 1-60, 3-position PI stepping controller, actual value, standby, potentiometer

Stock code:

3816041

Additional modules:

- Conductivity electrodes
LRG 16-60, LRG 16-61 or LRG 17-60
- URB 60 as a convenient visual display and operating system

Dimensions

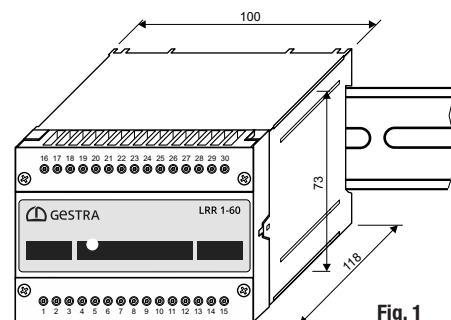
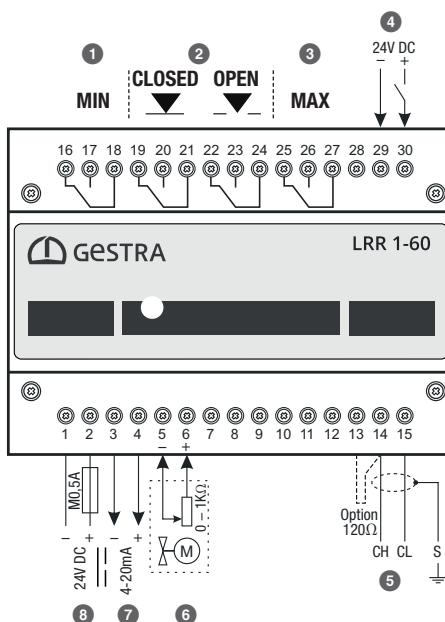


Fig. 1

Wiring diagram



Key

- 1 MIN alarm relay output
- 2 Relay outputs of continuous blowdown valve (CLOSED/OPEN)
- 3 MAX alarm relay output
- 4 Standby input 24V DC for an external switching command: Control OFF/Valve CLOSED/Intermittent blowdown OFF
- 5 CAN bus CH = CAN High / CL = CAN Low S = shield
- 6 Indication of valve position - potentiometer (0-1000 Ω)
- 7 Actual value output 4-20 mA
- 8 Supply voltage 24V DC (M0.5A)

Fig. 2

Wiring diagram of CAN bus system

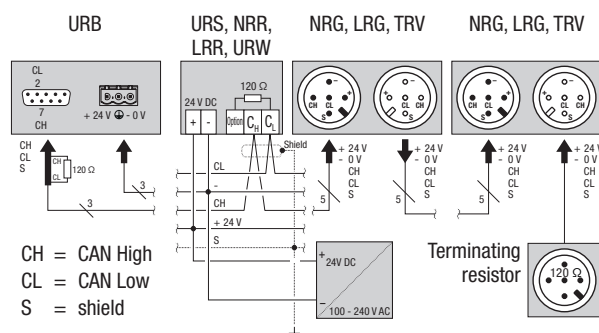


Fig. 3

Directives and standards

You can find details on the conformity of the equipment and the applicable standards and directives in the Declaration of Conformity and associated certificates and approvals.

Please note our terms of sale and delivery.

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