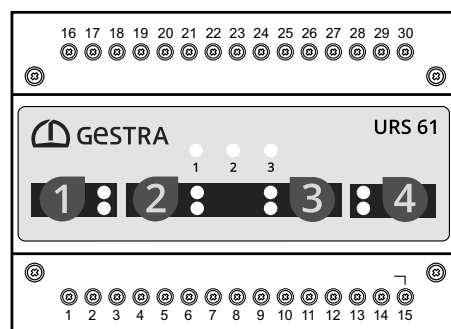
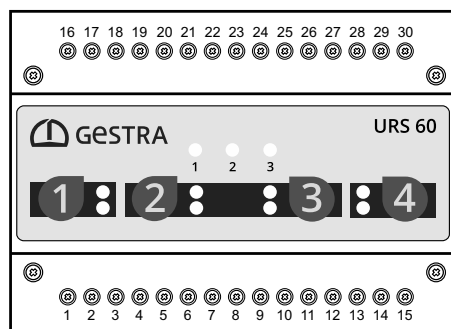




Safety Control Units

URS 60

URS 61

Description

URS 60 and URS 61 safety control units can be used in combination with various safety sensors as safety limiters for steam boiler and water boiler systems.

The equipment can be used as:

- Low-level limiters, in combination with the NRG 1x-60/ NRG 26-61 level electrode.
Low-level limiters switch off the heating when the water drops below the set minimum level.
- Safety high-level limiters, in combination with the NRG 1x-61/NRG 26-61 level electrode.
Safety high-level limiters switch off the feedwater supply when the feedwater rises above the set maximum level.
- Conductivity limiters, in combination with the LRG 1x-6x conductivity electrode.
Conductivity limiters switch off the heating if the set maximum conductivity is exceeded.
- Safety temperature monitors/limiters, in combination with the TRV 5-60 temperature transmitter.
Safety temperature limiters or monitors switch off the heating when the maximum admissible temperature is reached.

The above functions may be combined.

Viewing and operation take place using the URB 60 or SPECTORcontrol operating terminals.

Function

The URS 60/URS 61 safety control unit cyclically evaluates data telegrams from up to four safety sensors, see "Admissible accessories.." table.

The data are transferred via ISO 11898 CAN bus using the CANopen protocol, and saved.

The safety functions are monitored by cyclical self-tests. The two integrated relays are switched off in the event of alarms or errors. Function tests and failure diagnosis can be performed using the control unit or an operating terminal.

Behaviour in the event of alarms

When level, temperature or conductivity alarms occur, both output contacts open after a power-off delay and this interrupts the safety circuit (fail-safe position). The safety control unit does not lock independently; this function must be implemented in the downstream circuit. The URS 60 or URS 61 can only activate one safety circuit (heating or pump) at any one time.

The safety circuit is interrupted without a delay if the following fault indications occur:

- Fault in sensors (negative self-test, excessively high temperature in terminal box)
- Fault in control unit (negative self-test)
- Communication failure

Technical data

Supply voltage

- 24V DC +/-20%

Power consumption

- Max. 7 W

Current input

- Max. 0.3 A

Internal fuse

- T2A

Input/output

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

Safety circuit output

- 2 volt-free relay contacts, connected externally in series. Contact material AgNi
- Maximum switching current at switching voltages of 24V AC/DC, 115V AC and 230V AC: ohmic/inductive 6 A
- Connected contactors must have interference suppression (RC combination) as per the manufacturer's specifications

Required external fuse for the safety circuit

- T2A or T1A for (EN 12952), 72 hrs. of operation

Signal output

- 4 PhotoMOS outputs for external signalling, either with or without a delay
- 24V DC, max. current load 100 mA, NO characteristic

Test input

- 4 opto-coupler inputs for external test triggering, high active, 24V DC +/- 20%

Output relay switch-off delay

- Factory default setting 3 seconds.
- Option of 10 seconds or 15 seconds

Indicators and controls

- 4 x buttons for operation/initiating test function in sensor
- 4 x green LEDs for indicating active channels
- 4 x red LEDs for indicating a malfunction/alarm
- 3 x yellow LEDs for indicating internal errors and external sensor errors
- 1 x 10-pole code switch for setting the number of limiters, the delay and baud rate

Protection class

- II double insulated

IP rating to EN 60529

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

Admissible ambient conditions

- Service temperature: 0 °C - 55 °C installed in control cabinet
- Storage temperature: - 40 °C - 80 °C
- Transport temperature: - 40 °C - 80 °C
- Air humidity: 10% - 95% (relative humidity, non-condensing)
- Altitude: up to 2000 m

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)
- Installation in control cabinet (IP54) required

Weight

- Approx. 0.4 kg

Behaviour in the event of fault indications

Cyclical self-tests monitor the safety functions of the equipment in the safety control unit and sensors. Fault indications are updated with each self-test. If there are no faults, the message is automatically deleted and the output contacts close once more. Alarms and fault indications are displayed by LEDs or an operating unit.

In addition, you can choose to have alarms displayed on an external signalling device via the signalling outputs, either with or without a delay. Faults are always indicated without a delay, however.

Alarm simulation

You can simulate alarms by pressing the button or via external 24V DC signals.

Functional safety, safety integrity level (SIL)

The URS 60/URS 61 safety control unit is suitable for safety functions up to SIL 3. It is an element of a safety circuit up to SIL 3 as per EN 61508 in the SPECTOR*connect* system, and can process alarm indications from up to four safety sensors.

Admissible accessories, dependent on the required safety integrity level

URS 60 and URS 61 safety control units can be operated with the following system components:

	Low-level limiter	Safety high-level limiter	Conductivity limiter	Temperature limiter	Operating unit	Monitoring unit
SIL 3 to EN 61508	NRG 16-60 NRG 17-60 NRG 19-60 NRG 111-60	NRG 16-61 NRG 17-61 NRG 19-61 NRG 111-61	—	TRV 5-60	URB 60 SPECTOR <i>control</i>	SRL 6-60
SIL 2 to EN 61508	NRG 26-61 NRG 16-60 NRG 17-60 NRG 19-60 NRG 111-60	NRG 26-61 NRG 16-61 NRG 17-61 NRG 19-61 NRG 111-61	LRG 16-60 LRG 16-61 LRG 17-60	TRV 5-60	URB 60 SPECTOR <i>control</i>	SRL 6-60

Dimensions

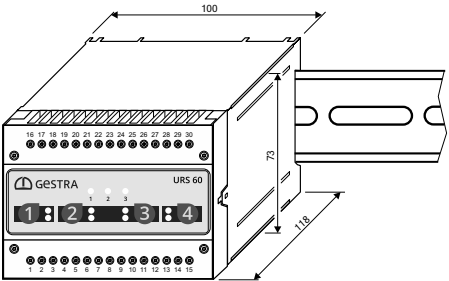


Fig. 1

Wiring diagram (applicable to both units)

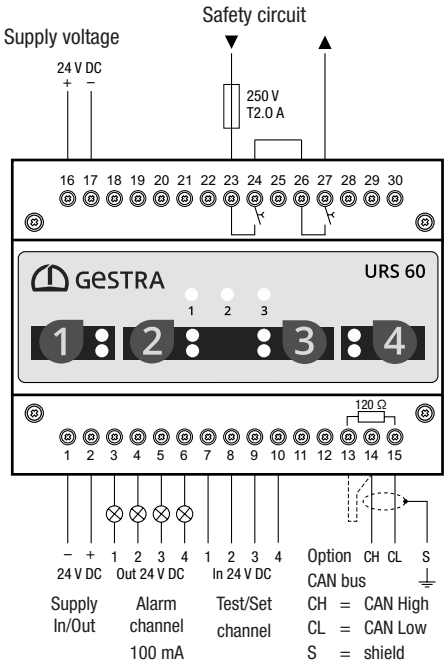


Fig. 2

Important notes

A shielded, multi-core, twisted-pair control cable, e.g. UNITRONIC® BUS CAN 2 x 2 x .. mm² or RE-2YCVV-fl 2 x 2 x .. mm² must be used as the bus line.

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

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

A dedicated 24V DC SELV power supply unit that is isolated from connected loads must be used to supply the SPECTORconnect system.

The I/O interface can be supplied with power either from the supply voltage of the safety control unit or via a separate 24V DC voltage.

Use a T2A or T1A fuse (EN 12952), 72 hrs. of operation, to protect the switching contacts of the safety circuit.

How to order:

Safety control unit

Type:

■ URS 60

■ URS 61

Stock code:

3356041

3356141

Additional modules:

■ Visual display and operating unit URB 60 or SPECTORcontrol

■ Monitoring unit SRL 6-60

■ Electrodes NRG, LRG or TRV

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.

Wiring diagram of CAN bus system

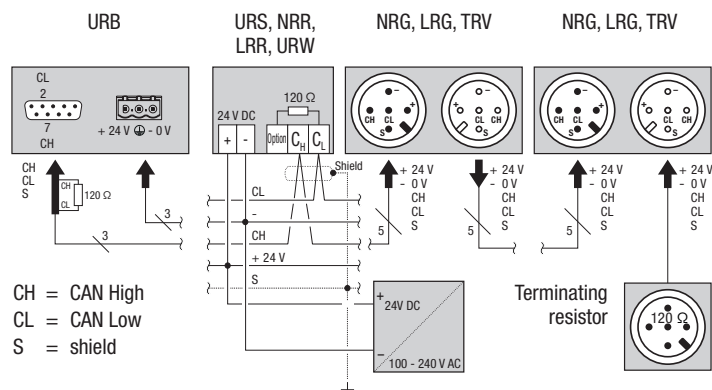


Fig. 3