

Assembly and operation manual

**Shut Down Valve/Reverse Flow Protection with LiBus Triggering
LCZ 9673**

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Table of contents

1	Intended use	4
2	Structure	6
	2.1 Installation with the consuming unit above the thermostat.....	6
	2.2 Installation with consuming unit below the thermostat.....	7
3	Operation and function of the software	10
	3.1 Operation.....	10
	3.2 Software.....	10

1 Intended use

As intended

The LCZ 9673 shut down valve/reverse flow protection enables safe operation of the thermostat with an externally closed consuming unit (for example, a double-jacket vessel). If the consuming unit is not airtight, the heat transfer liquid may leak from the consuming unit or thermostat respectively when the pump is at a standstill.

The shut down valve/reverse flow protection is designed for a heat transfer liquid operating temperature range of -40 °C to 130 °C.

The shut down valve/reverse flow protection is approved for operation with the LAUDA PRO and LAUDA Proline circulation thermostats. The thermostats are equipped with the LAUDA internal bus (LiBus).

Unintended

The following types of use are considered unintended:

- Use with a medical device
- Use in a potentially explosive area
- Use for controlling the temperature of foodstuffs

Foreseeable misuse

The following types of use are considered foreseeable misuse:

- Operation without heat transfer liquid
- Connecting hoses incorrectly

Software versions

These operating instructions are valid for the shut down valve/reverse flow protection with the following software versions or higher.

Software for	Proline valid from version	PRO valid from version
Control system	2.13	1.36
Command remote control unit	3.45	---
Base remote control unit	---	1.33
Command Touch remote control unit	---	1.14
Solenoid valve module	3.06	3.06

If error messages occur due to the software of the shut down valve/reverse flow protection, proceed as follows:

- Open the view displaying the software versions of the thermostat (see thermostat operating instructions). Compare the software versions with the table above.
- If the software versions of the thermostat are too old, please request an update of the software for your thermostat from LAUDA.

Safety instructions

After switching off the thermostat, the temperature in the consuming unit (glass reactor) may still undergo considerable changes (due to adjustment to the ambient temperature). The volume of a liquid increases as the temperature rises. Since the liquid cannot expand in the locked consuming unit, the pressure in the system will rise. If you use the shut down valve/reverse flow protection on the glass reactor and close the valves when switching off the thermostat, the increase in volume may lead to a build-up in pressure that can cause the consuming unit to burst. For this reason, please install a pressure relief device on the glass reactor.



CAUTION!
Bursting of external consuming unit due to excess pressure

Scalding, frostbite, cuts

- If using a pressure-sensitive consuming unit (such as a glass reactor), use a pressure relief device.

2 Structure



Installation instructions

Pay attention to the flow direction of the valves during installation!

The valves are marked with arrows indicating the flow direction.

2.1 Installation with the consuming unit above the thermostat



The consuming unit is located **above** the thermostat.

If the consuming unit is not airtight, then when the pump is stopped, the heat transfer liquid may leak from the consuming unit into thermostat, which will cause it to overflow.

The consuming unit is prevented from running idle as the non return valve blocks the inlet and the solenoid valve blocks the outlet.

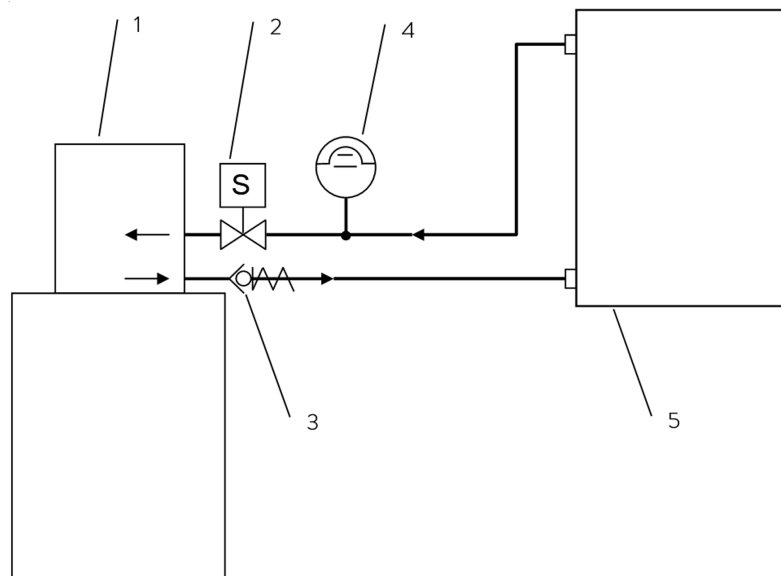


Fig. 1: Consuming unit above

- 1 Thermostat
- 2 Solenoid valve
- 3 Non return valve
- 4 Pressure relief device
- 5 Consuming unit

1. Switch OFF the thermostatic circulator at the mains switch.



Fig. 2: Shut down valve Figure 1

2. Screw the non return valve onto the inlet connector of the pump.
 - Twist the stopper off the pump connector for the inlet (pressure side). While doing so, brace the pump connector with a wrench (size 14).
 - Screw the non return valve onto the inlet connector with the screw cap (M16 x 1).
Tighten the screw cap with a wrench (size 19), while bracing the pump connector with a wrench (size 14).
 - Screw the hose onto the M16 x 1 threaded connection of the non return valve. Brace the non return valve with a wrench (size 24).
3. Screw the solenoid valve onto the outlet connector of the pump.
 - Twist the stopper off the outlet connector (suction side). While doing so, brace the pump connector with a wrench (size 14).
 - Screw the solenoid valve onto the outlet connector with the screw cap (M16 x 1).
Tighten the screw cap with a wrench (size 19), while bracing the pump connector with a wrench (size 14).
 - Screw the hose onto the M16 x 1 threaded connection of the solenoid valve. Brace the solenoid valve with a wrench (size 22).
4. Connect the cable for the LAUDA bus (LiBus).
 - Plug the connection cable of the solenoid valve into an empty 70S socket on the thermostat and secure the connection with the screw plug. If the socket is already in use, then use the LiBus T-extender accessory with two LiBus sockets (EKS 073).

2.2 Installation with consuming unit below the thermostat



*The consuming unit and the thermostat are positioned at the **same** height, or the consuming unit is **below** the thermostat.*



Operation with consuming unit below the thermostat:

Please note that the glass reactor is subject to both pump pressure and hydrostatic pressure, and is therefore under an increased pressure load.

If the consuming unit is not airtight, the heat transfer liquid may leak from the thermostat into the consuming unit when the pump is at a standstill.

The thermostat is prevented from running idle as the solenoid valve blocks the inlet and the non return valve blocks the outlet. You may require an extension for the LiBus cable to the thermostat.

Cable length 5 m - EKS 068

Cable length 25 m - EKS 069

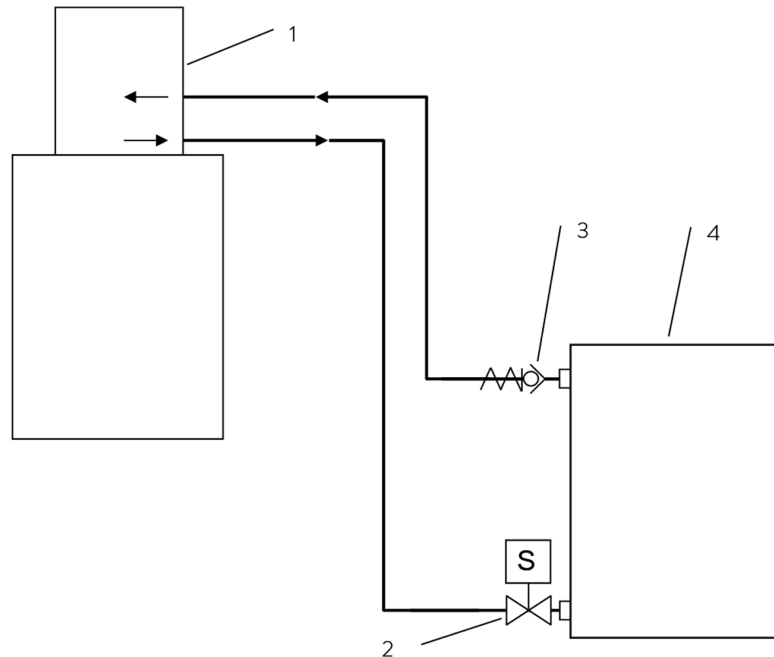


Fig. 3: Consuming unit below

- 1 Thermostat
- 2 Solenoid valve
- 3 Non return valve
- 4 Consuming unit

1. Switch OFF the thermostatic circulator at the mains switch.
2. Screw the non return valve onto the outlet connector of the reactor.
 - Screw the non return valve onto the connector of the reactor with the screw cap (M16 x 1). Tighten the screw cap with a wrench (size 19), while bracing the connector of the reactor with a wrench.
 - Screw the hose onto the M16 x 1 threaded connection of the non return valve. Brace the non return valve with a wrench (size 24).



If the reactor is made of glass, work carefully to prevent damage!

3. Screw the solenoid valve onto the inlet connector of the reactor.
 - Screw the solenoid valve onto the connector of the reactor with the screw cap (M16 x 1). Tighten the screw cap with a wrench (size 19), while bracing the connector of the reactor with a wrench.
 - Screw the hose onto the M16 x 1 threaded connection of the solenoid valve. Brace the solenoid valve with a wrench (size 22).



If the reactor is made of glass, work carefully to prevent damage!

4. Connect the cable for the LAUDA bus (LiBus).
 - Plug the connection cable of the solenoid valve into an empty 70S socket on the thermostat and secure the connection with the screw plug. If the socket is already in use, then use the LiBus T-extender accessory with two LiBus sockets (EKS 073).

3 Operation and function of the software

3.1 Operation

- The lowest operating temperature range (of your application, the heat transfer liquid, the thermostat or the shut down valve/reverse flow protection) is entered in the thermostat as the temperature limit value T_{il} and T_{ih} (see operating instructions for the thermostatic circulator).
- Fill the device and consuming unit with heat transfer liquid (see operating instructions for the thermostatic circulator).
- Switch on the thermostat at the mains switch.
- The solenoid valve will close automatically in the event of a power cut, when in standby mode, when the thermostat is switched off, and in the event of a fault.

3.2 Software

If error messages occur due to the software of the shut down valve/reverse flow protection, proceed as follows:

- Open the view displaying the software versions of the thermostat (see thermostat operating instructions).
- If the software versions of the thermostat are too old, please request an update of the software for your thermostat from LAUDA.

Displaying the software version



It is not possible to configure the solenoid valve using the software!

Master (Proline) control element:

Depending on the setting of the solenoid valve (rotary knob in position 3 or position 4), the solenoid valve will be displayed as *Valve 3* or *Valve 4* in the software.

1. Press the [enter key].
 - ▶ `Set` appears on the screen.
2. Scroll down with the [arrow key] to `Mo.d.u. → UAL..3. → Show`.
3. Press the [enter key].
 - ▶ You are now on the display level.
4. Scroll down through the menu with the [arrow key]:
 - `UEr` Software version of the solenoid valve
 - `P x` Show switch status of solenoid valve.
 - 0 = CLOSED (Thermostat is on standby)
 - 1 = OPEN (Thermostat is in operation)
 - `U24 24 Volt` Show distribution voltage
 - `Snr_H` Serial number, High-Word
 - `Snr_L` Serial number, Low-Word
 - `End` Exit the display level

Command (Proline) control element:

Depending on the setting of the solenoid valve (rotary knob in position 3 or position 4), the solenoid valve will be displayed as *Block 1* or *Block 2* in the software.

Display the software version of the solenoid valve: *Menu*
→ *Settings* → *Device status* → *Software version* → *Block 2*

Display the serial number of the solenoid valve: *Menu* → *Settings*
→ *Device status* → *Serial numbers* → *Block 2*

Command Touch control element:

Depending on the setting of the solenoid valve (rotary knob in position 3 or position 4), the solenoid valve will be displayed as *Valve 3* or *Valve 4* in the software.

Display the software version of the solenoid valve: *Settings tile*
→ *Device status* → *Software version* → *Valve 3*

Display the serial number of the solenoid valve: *Settings tile*
→ *Device status* → *Module serial number* → *Valve 3*

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