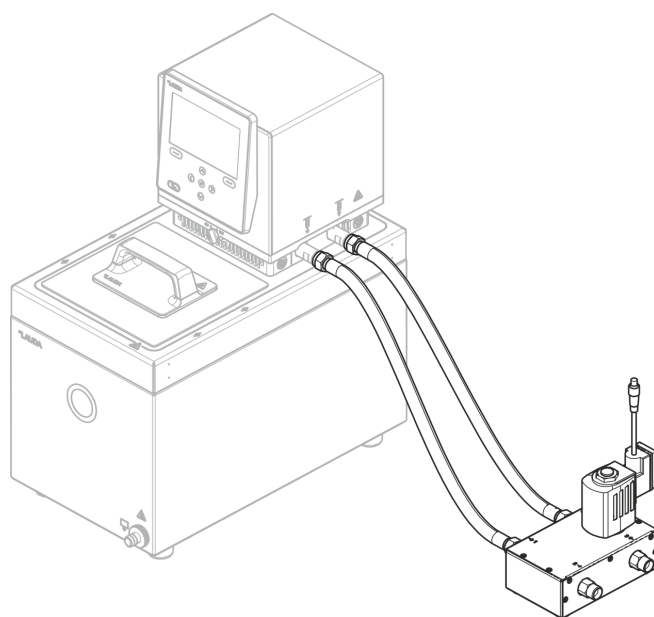


Mounting instructions

LAUDA Universa MAX and Universa PRO

Shut-off valve/reverse flow protection with LiBus control



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Q4DT-P_09-116, 1, en_US 09/02/2026 © 2026

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1 Introduction

The shut-off valve/reverse flow protection with LiBus control (catalog number A001753), hereinafter referred to as a shut-off valve, enables safe operation of the thermostat with a closed external consumer (for example, a double-jacket vessel).

If the external consumer is not airtight and without the use of the shut-off valve, the heat transfer liquid may leak from the external consumer or thermostat when the pump is at a standstill.

The shut-off valve is designed for a heat transfer liquid operating temperature range of -40°C to 130°C.

Operation is possible if the thermostat's pump and control unit is equipped with a connection socket for the LAUDA internal device bus (LiBus):

- The MAX pump and control unit is equipped with a LiBus socket as standard.
- The PRO pump and control unit can be retrofitted with the external Pt100/LiBus module (catalog number LRZ 925).



If the LiBus socket is already occupied, the LiBus T-connector accessory (catalog number EKS 073) can be used to provide an additional LiBus connection.

This instructions explains how to install the shut-off valve on MAX and PRO variants of LAUDA Universa bath thermostats, and is valid for the following accessory set. Read the manual carefully before starting work.

Part number	Description
A001753	Shut-off valve/reverse flow protection with LiBus control

Intended use

This accessory set may only be operated under the conditions stated in the device's operation manual. Any other use is considered improper. It is the operator's responsibility to ensure that the devices are used properly.

Software versions

This manual is valid for Universa thermostats and accessory sets with the following software versions or higher.

Software	Valid from version
Control system (U_R)	1.00
Protection system (U_S)	1.02
Shut-off valve	3.14

Accompanying documents

- Operation manual for Universa MAX and Universa PRO (Document number Q4DT-E_13-020)



The instructions, warnings and safety information in the operating manual must be followed when carrying out all work on the device that is required for the installation of the accessory set and depends on the condition of the device.

Warranty conditions and disclaimer

LAUDA grants a standard warranty of one year. The components have been produced in compliance with high quality and safety requirements. Personal injury and material damage that are attributable e.g. to one or more of the following causes are excluded from the warranty and liability of LAUDA DR. R. WOBSER GMBH & CO. KG:

- Failure to follow these mounting instructions.
- Incorrect installation, commissioning, maintenance and operation.
- Improperly performed repairs and transport.
- Unauthorized structural changes to the device and accessories.
- Any damage caused by continued use in spite of an obvious defect.
- Failure to use original spare parts and original accessories.
- Improper use of the device and accessories.

Personnel qualification

Specialized personnel

Certain activities on the device must be performed by specialized personnel. Specialized personnel are people whose professional education, knowledge, and experience as well as knowledge of relevant standards qualify them to assess the function and risks associated with the device and its use.

Protective equipment



Protective gloves

Protective gloves must be worn for certain tasks. The protective gloves must comply with standard DIN EN ISO 374-1. The protective gloves must be chemically resistant.



Protective work clothing

Protective clothing must be worn for certain tasks. This protective clothing must meet the legal requirements for personal protective equipment. Protective clothing with long sleeves must be worn. Additionally safety shoes are required.



Safety glasses

Safety glasses must be worn for certain tasks. The safety glasses must comply with the standard DIN EN 166. The glasses must be tightly closed and equipped with side plates.

Structure of the warnings

Warning signs	Type of danger
	Warning – hot surface.
	Warning – danger zone.
Signal word	Meaning
WARNING!	This combination of symbol and signal word indicates a potentially dangerous situation that can result in death or serious injury if it is not avoided.
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a potentially dangerous situation that can result in material and environmental damage if it is not avoided.
 NOTICE! Origin of the hazard	
	Possible consequences of the hazard
	● Measure 1 ● Measure...

2 Safety information

After switching off the thermostat, the temperature in the external consumer (e.g. 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 external consumer, the pressure in the system will rise.

If you use the shut-off valve/reverse flow protection on the external consumer and close the valves when switching off the thermostat, the increase in fluid volume may lead to an excessive build-up of pressure that can cause the external consumer to burst. For this reason, install a pressure relief device on the external consumer.



WARNING!
Contact with live parts

Electric shock

- Disconnect the device from the power supply before performing any mounting work.



WARNING!
Danger of the device rolling away or overturning

Impact, crushing

- Do not tilt the device!
- Position the device on an even, non-slip surface with a sufficient load carrying capacity!
- Actuate the caster brake when setting up the device!
- Do not place heavy parts on the device!



CAUTION!
Contact with hot / cold device parts, accessories and heat transfer liquid

Scalding, hot or cold burns

- Allow device parts, accessories and heat transfer liquid to reach room temperature before touching.

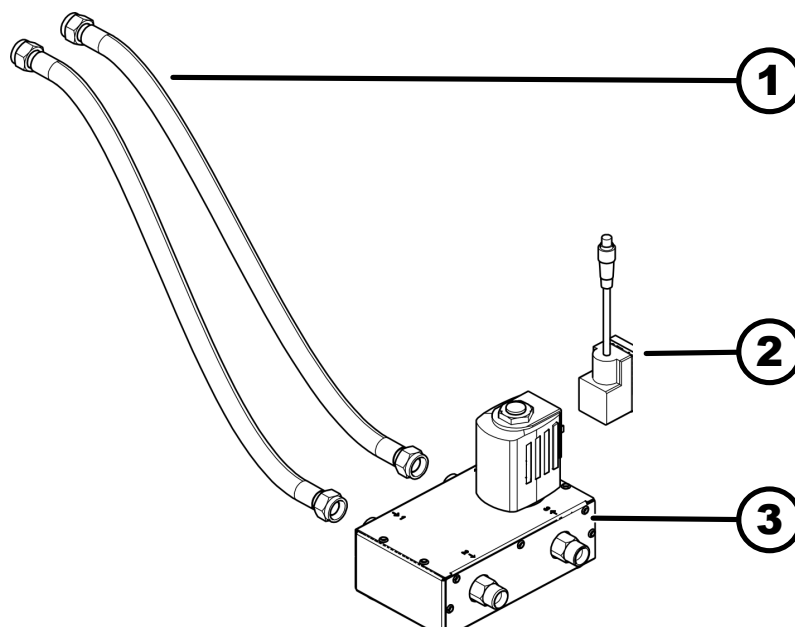


CAUTION!
Bursting of external consuming unit due to excess pressure

Scalding, frostbite, cuts

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

3 Scope of delivery



No.	Quantity	Description
1	2	Stainless steel metal hose (Connection thread: M16 × 1, length: 100 cm)
2	1	Solenoid valve connector with control board and control cable (1.5 m)
3	1	Shut-off valve/reverse flow protection (with non-return valve, solenoid valve and mounted solenoid valve coil)
-	1	Mounting instructions

4 Preparations and mounting instructions

- | | |
|-----------------------|----------------------------|
| Personnel: | ■ Specialized personnel |
| Protective equipment: | ■ Protective work clothing |
| | ■ Safety glasses |
| | ■ Protective gloves |
| Tool: | ■ Open-end wrench 17 mm |
| | ■ Open-end wrench 19 mm |

Mounting instructions

- Make sure that the device has been disconnected from the mains and secured against restarting.
- Check the scope of delivery of the accessory set for completeness and any possible damage.
- No additional sealing material is required for the screw connections. The screw connections are tight, provided that the contact surfaces are clean and undamaged and installation has been carried out correctly.
- During installation, make sure that no foreign bodies (dirt, metal chips, etc.) can enter the shut-off valve, hoses and other attachments.
- Tighten the screw connections until they are secure and cannot be easily loosened by hand. However, avoid continuing to turn with excessive force as soon as you feel significant resistance. The goal is to achieve tight, but not overtightened, screw connections.
- Depending on the application and the specific configuration (external consumer located either above or below the thermostat), the shut-off valve must be connected in the correct flow direction and the valves installed inside it must be arranged correctly.
- Place the shut-off valve in the vertical position with the coil facing upward.
- Only connect the control cable when the solenoid valve coil is fitted to the shut-off valve. Never apply power to the coil without it being fitted on the valve body to prevent the coil from burning out.

5 Installing the shut-off valve

Depending on the application and the specific configuration (external consumer located either above or below the thermostat), the shut-off valve must be connected in the correct flow direction and the valves installed inside it must be arranged correctly.

Connections on the shut-off valve

Flow direction arrows and connection numbers are indicated on the housing cover of the shut-off valve.

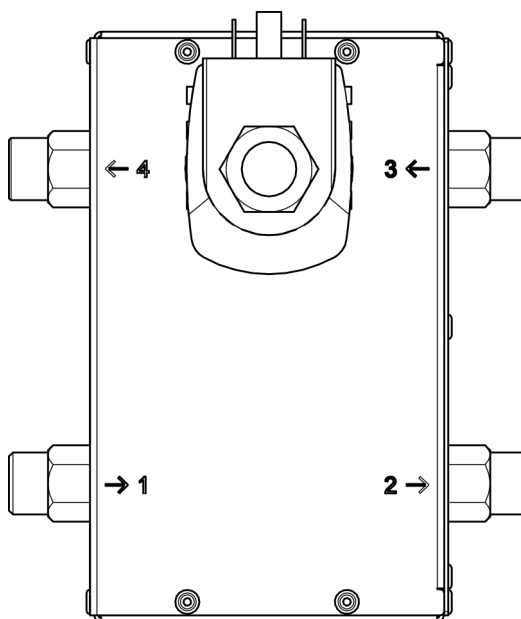


Fig. 1: Top view of the shut-off valve

Number	Description
→ 1	Non-return valve input
2 →	Non-return valve output
3 ←	Solenoid valve input
← 4	Solenoid valve output

5.1 Installation with the external consumer above the thermostat



The external consumer is located above the thermostat

If the external consumer is not airtight and without the use of the shut-off valve, heat transfer liquid may leak from the external consumer into the thermostat when the pump is at a standstill, which will cause it to overflow.

The shut-off valve prevents the external consumer from draining:

- *The non-return valve prevents the return flow of heat transfer liquid from the external consumer to the flow on the thermostat.*
- *The solenoid valve prevents the return flow of heat transfer liquid from the external consumer to the outlet on the thermostat.*

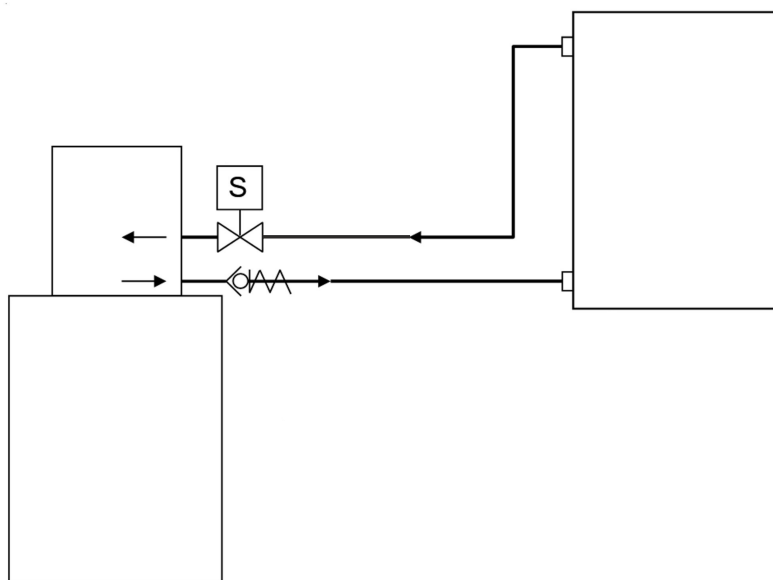
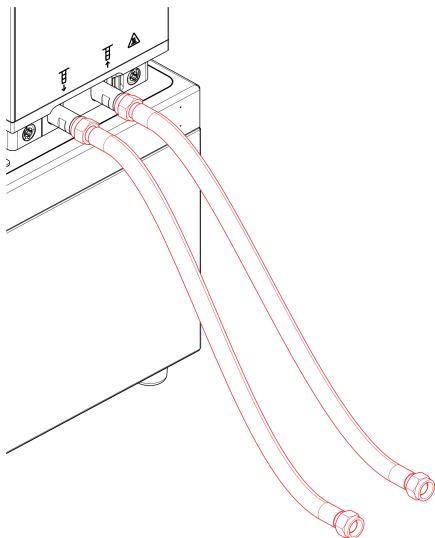
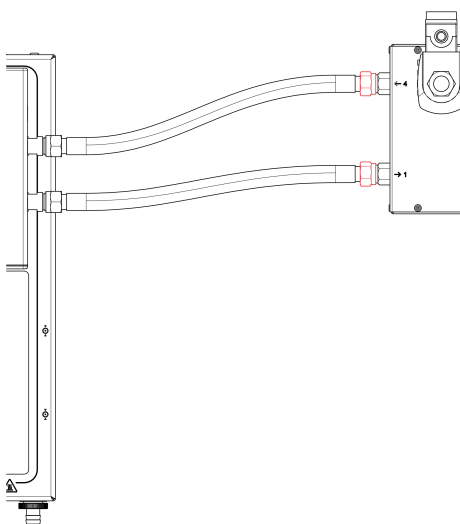


Fig. 2: Schematic layout with the external consumer above the thermostat

1. Compare the software versions of the thermostats with the requirements, see “Software versions” on page 4.
You can view the software versions in the device menu:
Device status → *Versions* → *Software version*
If necessary, request an update from LAUDA Service.
2. Turn off the thermostat and pull out the mains plug.
3. Make sure that the thermostat is drained.
4. If necessary, remove the stoppers and union nuts from the pump connectors on the thermostat.
5. Check that all parts and connection threads are clean and undamaged.



6. Screw a metal hose onto both the flow and outlet connections of the thermostat. Screw on the union nut by hand until the sealing surfaces between the connection sleeve and the cone of the hose nipple come together. Tighten the union nut using a 19-mm open-end wrench, holding the connection sleeve of the thermostat in place with a 17-mm open-end wrench.



7. Screw the metal hose on the thermostat flow to the connection [→ 1] of the shut-off valve.

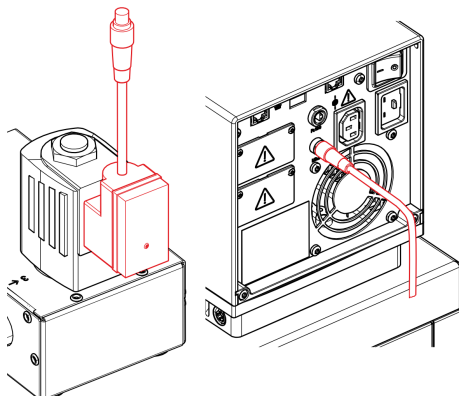
Screw the metal hose on the thermostat outlet to the connection [← 4] of the shut-off valve.

Tighten the union nuts using a 19-mm open-end wrench, holding the connection sleeve of the shut-off valve in place with a 17-mm open-end wrench.

8. **External consumer connection:**

Attach a suitable hose between the connection [2 →] of the shut-off valve and the bottom connection of the external consumer.

Attach a suitable hose between the connection [3 ←] of the shut-off valve and the top connection of the external consumer.



9. Electrical connection:

Attach the solenoid valve connector of the control cable to the solenoid valve coil and secure it with the screw.

Connect the control cable to the LiBus socket at the back of the pump and control unit, and secure the connector with the screw plug.

5.2 Installation with the external consumer below the thermostat



The external consumer and the thermostat are positioned at the same height, or the external consumer is below the thermostat

If the external consumer is not airtight and without the use of the shut-off valve, heat transfer liquid may leak from the thermostat into the external consumer when the pump is at a standstill, which will cause it to overflow.

The shut-off valve prevents the thermostat from draining:

- *The non-return valve prevents the return flow of heat transfer liquid from the outlet of the thermostat to the external consumer.*
- *The solenoid valve prevents the return flow of heat transfer liquid from the flow of the thermostat to the external consumer.*

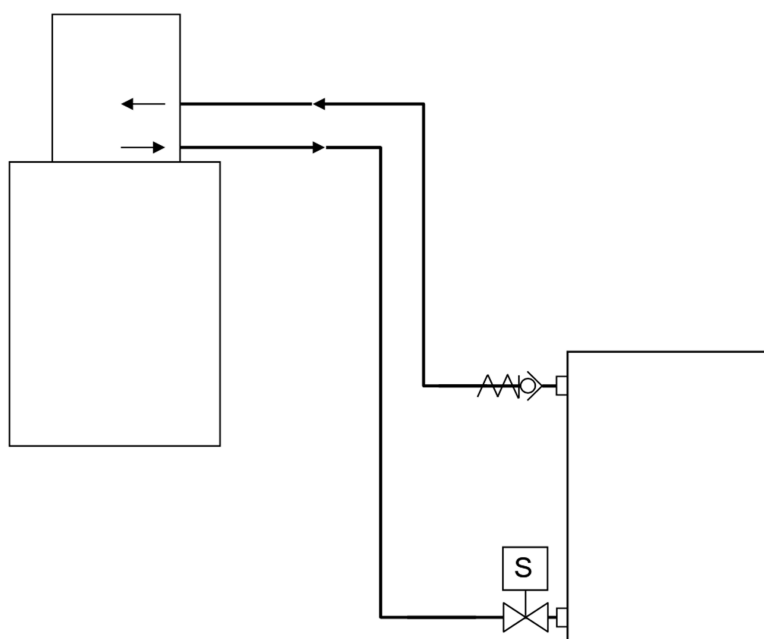


Fig. 3: Schematic layout with the external consumer below the thermostat



Hydrostatic pressure

Please note that in a configuration where the external consumer is located below the thermostat, hydrostatic pressure is added to the pump pressure. The external consumer is therefore under an increased pressure load.

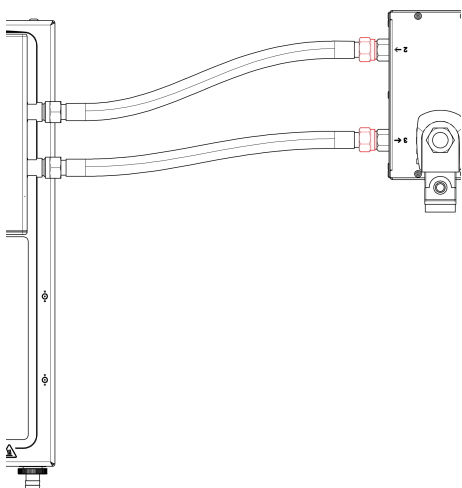
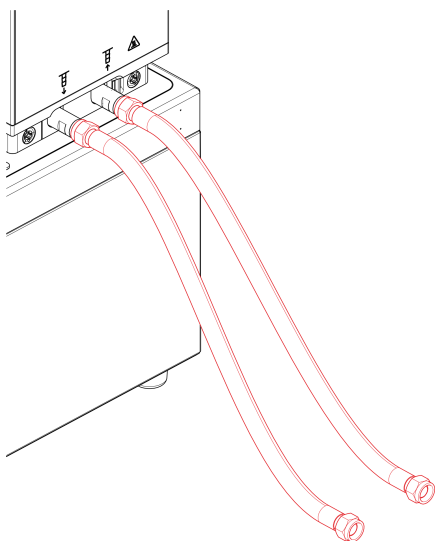
1. Compare the software versions of the thermostats with the requirements, see “Software versions” on page 4.

You can view the software versions in the device menu:

Device status → *Versions* → *Software version*

If necessary, request an update from LAUDA Service.

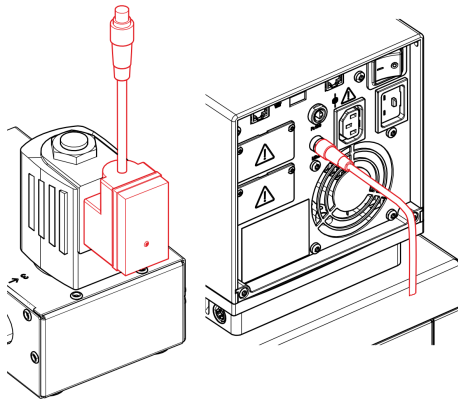
2. Turn off the thermostat and pull out the mains plug.
3. Make sure that the thermostat is drained.
4. If necessary, remove the stoppers and union nuts from the pump connectors on the thermostat.
5. Check that all parts and connection threads are clean and undamaged.
6. Screw a metal hose onto both the flow and outlet connections of the thermostat. Screw on the union nut by hand until the sealing surfaces between the connection sleeve and the cone of the hose nipple come together. Tighten the union nut using a 19-mm open-end wrench, holding the connection sleeve of the thermostat in place with a 17-mm open-end wrench.



7. Screw the metal hose on the thermostat flow to the connection [3 ←] of the shut-off valve.

Screw the metal hose on the thermostat outlet to the connection [2 →] of the shut-off valve.

Tighten the union nuts using a 19-mm open-end wrench, holding the connection sleeve of the shut-off valve in place with a 17-mm open-end wrench.



8. External consumer connection:

Attach a suitable hose between the connection [← 4] of the shut-off valve and the bottom connection of the external consumer.

Attach a suitable hose between the connection [→ 1] on the shut-off valve and the top connection on the external consumer.

9. Electrical connection:

Attach the solenoid valve connector of the control cable to the solenoid valve coil and secure it with the screw.

Connect the control cable to the LiBus socket at the back of the pump and control unit, and secure the connector with the screw plug.

6 Operation

The valves in the shut-off valve close automatically

- when the thermostat is switched off
- in Standby mode
- in the event of an error
- and in the event of a power failure.

The solenoid valve cannot be actuated manually via a menu function.

The non-return valve operates automatically and does not require external control. It opens solely through the pressure of the flowing heat transfer liquid and is closed by the resetting force of the spring inside the valve.

6.1 Displaying the software version and serial number

You can view the software version and serial number of the shut-off valve under the following menu items:

- Software version:
Device status → Versions → Software version → Shut-off valve
- Serial number:
Device status → Device information → Serial numbers → Shut-off valve

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