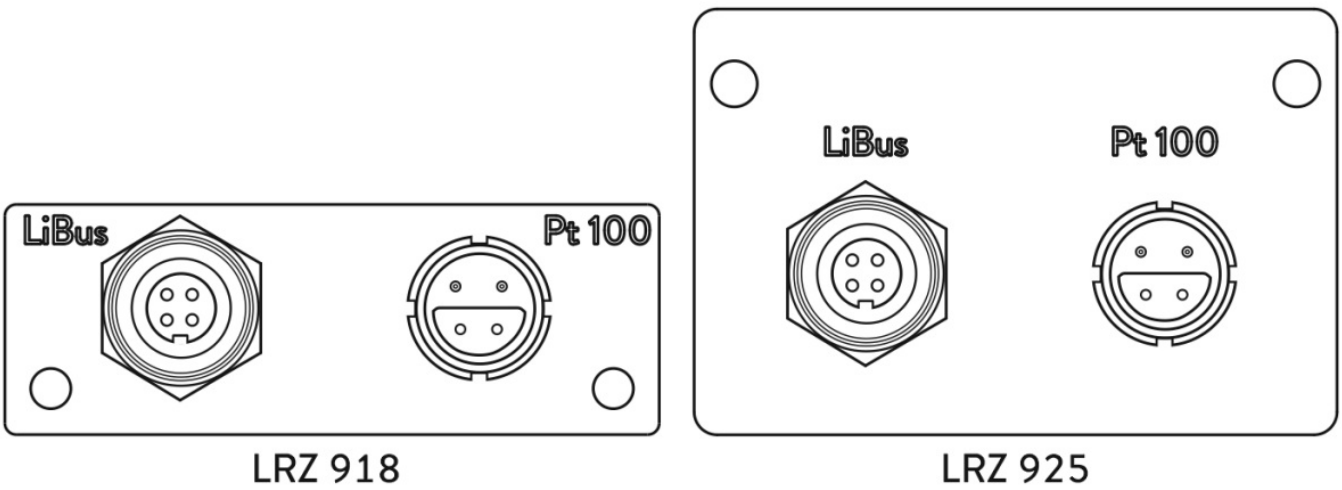
LAUDA LRZ 918 Interface Module User Manual

LAUDA LRZ 918 Interface Module



Contents

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General

Many types of LAUDA constant temperature equipment have vacant module slots for installing additional interfaces. The number, size and arrangement of the module slots vary depending on the device and are described in the operating manual accompanying the constant temperature equipment. Two additional module slots available as accessories can be fitted to a LiBus module box, which is then connected as an external casing to the LiBus interface on the constant temperature equipment.

This operating manual describes how to install and configure the following interface modules:

- Pt100/LiBus module (small cover), catalog no. LRZ 918
- Pt100/LiBus module (large cover), catalog no. LRZ 925

Intended use

The interface module can only be operated as intended and under the conditions specified in this operating manual.
The interface module is an accessory that increases the connections options of LAUDA constant temperature equipment. It may only be installed in constant temperature equipment that supports the interface provided. Refer to the chapter “Compatibility” in this operating manual for a list of compatible product lines.
Operation of the interface module is also permitted in combination with the LiBus module box (LAUDA catalog no. LCZ 9727). This operating manual also contains a description of how to install and connect up the module box.

Reasonably foreseeable improper use

- Operation after incomplete assembly
- Operation on incompatible constant temperature equipment
- Operation using cables or connections that are defective or do not confirm to standards

Compatibility

Pt100/LiBus module (small cover), LRZ 918
This interface module is available as an accessory for the following LAUDA product lines, which do not come with a Pt100 connection as standard:

- ECO
- Variocoo

Pt100/LiBus module (large cover), LRZ 925
This interface module is an accessory designed to provide a Pt100 connection for the following LAUDA product lines:

- Integral IN
- Variocool NRTL

Operating interfaces of the same type
Several LiBus interfaces can be used on constant temperature equipment.
Constant temperature equipment from the Integral IN and Variocool NRTL product lines are designed for operation with two Pt100-interfaces. The address of the additional installed Pt100/ LiBus module must be changed using the coding switch, see

 Chapter 4.3 “Coding switch”

Technical changes

All technical modifications are prohibited without the written consent of the manufacturer. Damage resulting from a failure to observe this condition will void all warranty claims.
However, LAUDA reserves the right to make general technical modifications.

Warranty conditions

LAUDA grants a standard warranty of one year.

Copyright

This operating manual was written in German, checked and approved. If the content of other language editions deviates from the German edition, the information in the German edition shall take precedence. If you notice any discrepancies in the content, please contact LAUDA Service, see

 Chapter 1.6 “Contact LAUDA”

Contact LAUDA

Contact the LAUDA Service department in the following cases:

- Troubleshooting
- Technical questions
- Ordering accessories and spare parts

Please contact our sales department for questions relating to your specific application.

Contact information
LAUDA Service
Phone: +49 (0)9343 503-350
Fax: +49 (0)9343 503-283
Email: **service@lauda.de**

Safety

 **General safety information and warnings**

- Read this operating manual carefully before use.

- Keep the operating manual in a place within easy reach of the interface module.
- This operating manual is part of the interface module. If the interface module is passed on, the operating manual must be kept with it.
- This operating manual is applicable in combination with the operating manual of the constant temperature equipment in which the interface module is installed.
- Manuals for LAUDA products are available for download on the LAUDA website: **https://www.lauda.de**
- The warnings and safety instructions in this operating manual must be observed without fail.
- There are also certain requirements for personnel, see

Chapter 2.3 “Personnel qualification”

Structure of warnings

Warning signs	Type of danger
	Warning – danger zone.
Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an imminently dangerous situation that will result in de ath or serious injury if it is not avoided.
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.
NOTICE!	This combination of symbol and signal word indicates a potentially dangerous situation that can result in mat erial and environmental damage if it is not avoided.

Information about the interface module

- Always disconnect the constant temperature equipment from the power supply before installing the interface module or connecting interfaces.
- Always take the recommended safety measures against electrostatic discharge before handling interface modules.
- Avoid touching the circuit board with metallic tools.
- Do not start up the constant temperature equipment before installation of the interface module is complete.
- Store any unused interface modules in their packaging in accordance with the specified ambient conditions.
- Use only suitable cables of sufficient length for cable connections.
- Make sure that the protective screen on the cables and connectors complies with EMC regulations. LAUDA recommends using preassembled cables.
- Always lay cables correctly so that they do not pose a tripping hazard.
  Secure the laid cables and make sure that they cannot be damaged during operation.
- Check the condition of the cables and interfaces prior to each operation.

- Immediately clean any soiled parts, in particular unused interfaces.
- Make sure that the signals transmitted via the interface correspond to the permitted operating parameters of the interface module.

Personnel qualification

Specialized personnel

Only specialized personnel are permitted to install interfaces modules. Specialized personnel are personnel whose education, knowledge, and experience qualify them to assess the function and risks associated with the device and its use.

Unpacking

 DANGER! Transport damage
Electric shock • Closely inspect the device for transport damage prior to commissioning! • Never operate a device that has sustained transport damage!

! NOTICE! Electrostatic discharge	
	Material damage
	• Always observe safety measures against electrostatic dis- charge.

Please observe the following installation sequence:

1. Remove the interface module from its packaging.
2. If you want to store the interface module at the installation location, use the outer packaging. This packaging is protected against static charging.
3. After installing the equipment, dispose of the packaging materials in line with environmental regulations, see  “Packaging”

 If you discover any damage on the interface module, contact LAUDA Service immediately, see  Chapter 1.6 “Contact LAUDA”

Device Description

Purpose

The Pt100/LiBus module was developed for the following purposes:

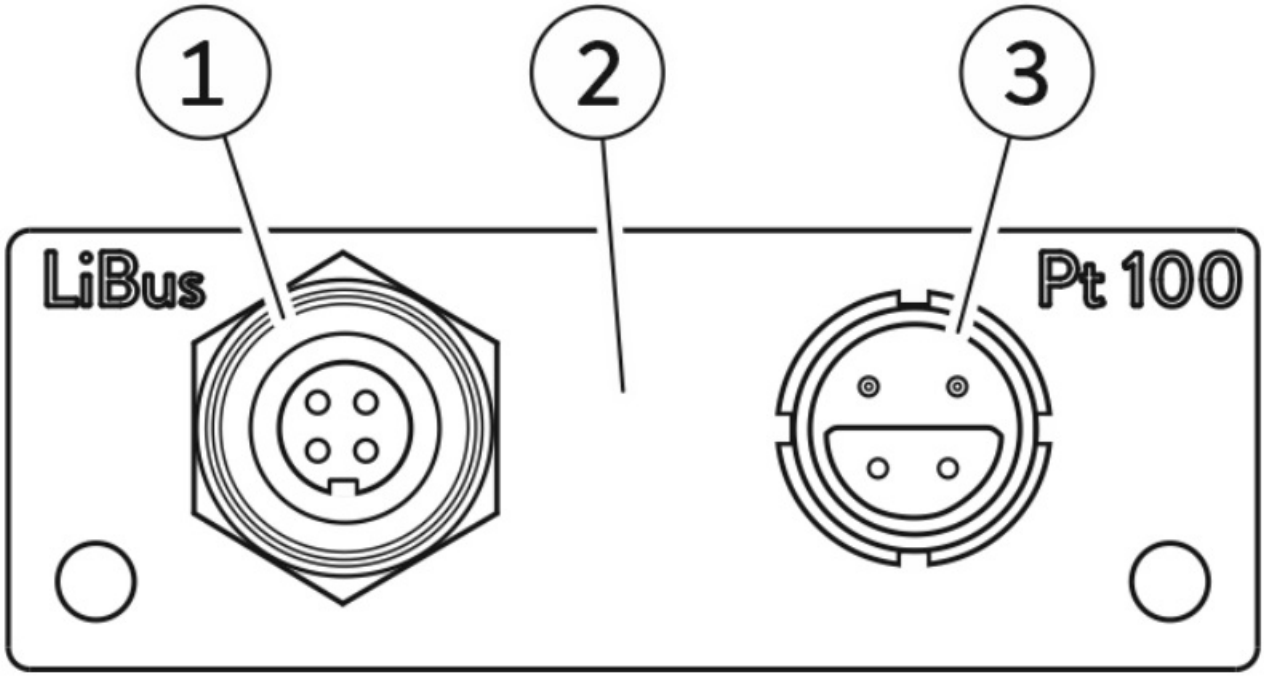
- To connect an external Pt100 temperature probe.
- To integrate an extra LiBus interface into constant temperature equipment.

The abbreviation “LiBus” stands for “LAUDA internal BUS” and refers to the CAN-based fieldbus system used in LAUDA equipment.

Structure

1. LiBus socket, 4-pin
2. Cover with holes for fastening screws
3. Pt100 socket, LEMO, 1S series, 4-pin

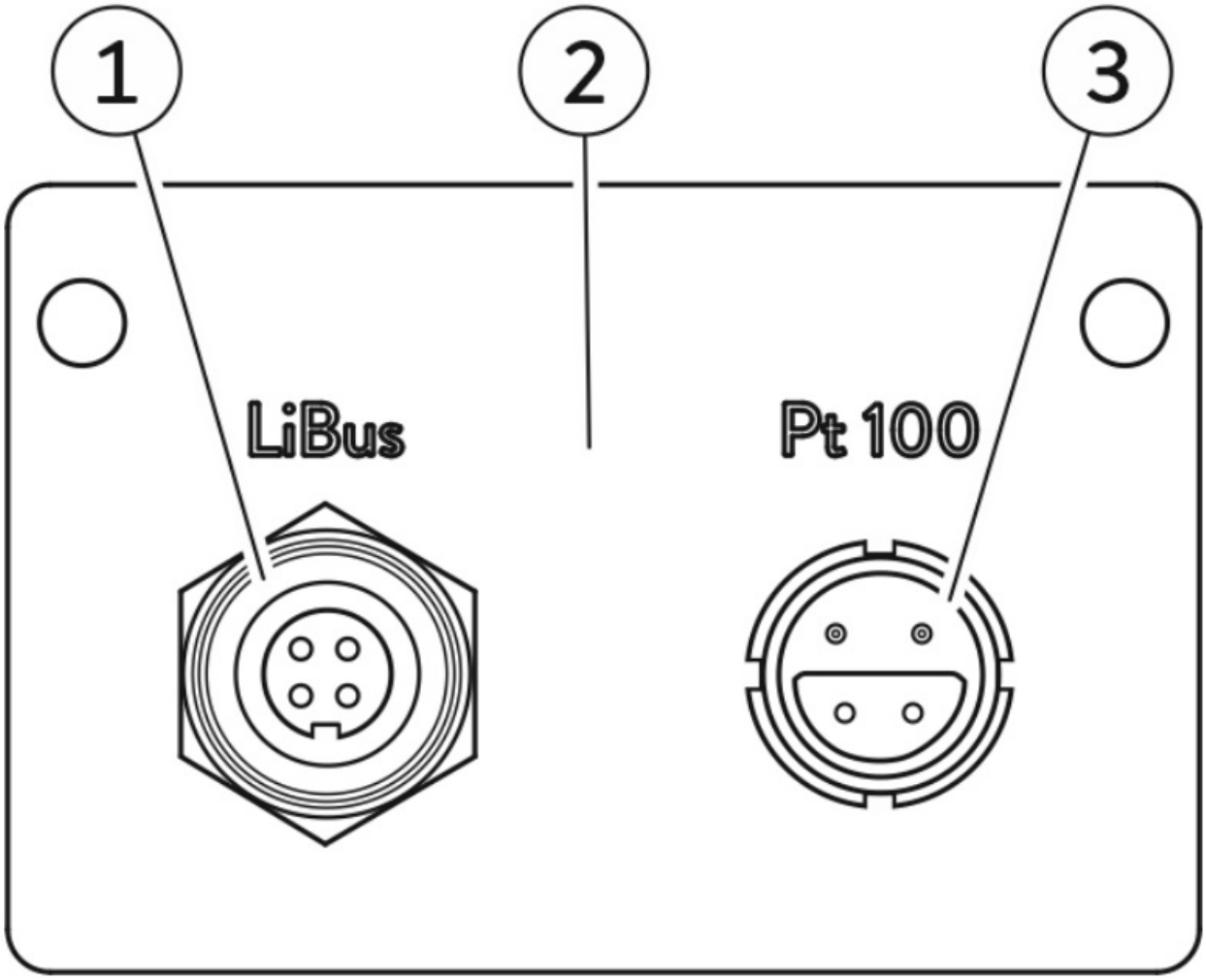
Fig. 1: Pt100/LiBus module LRZ 918



Refer to Ä “Pt100 interface” and

“LiBus interface” for more information on contact assignment.

Fig. 2: Pt100/LiBus module LRZ 925



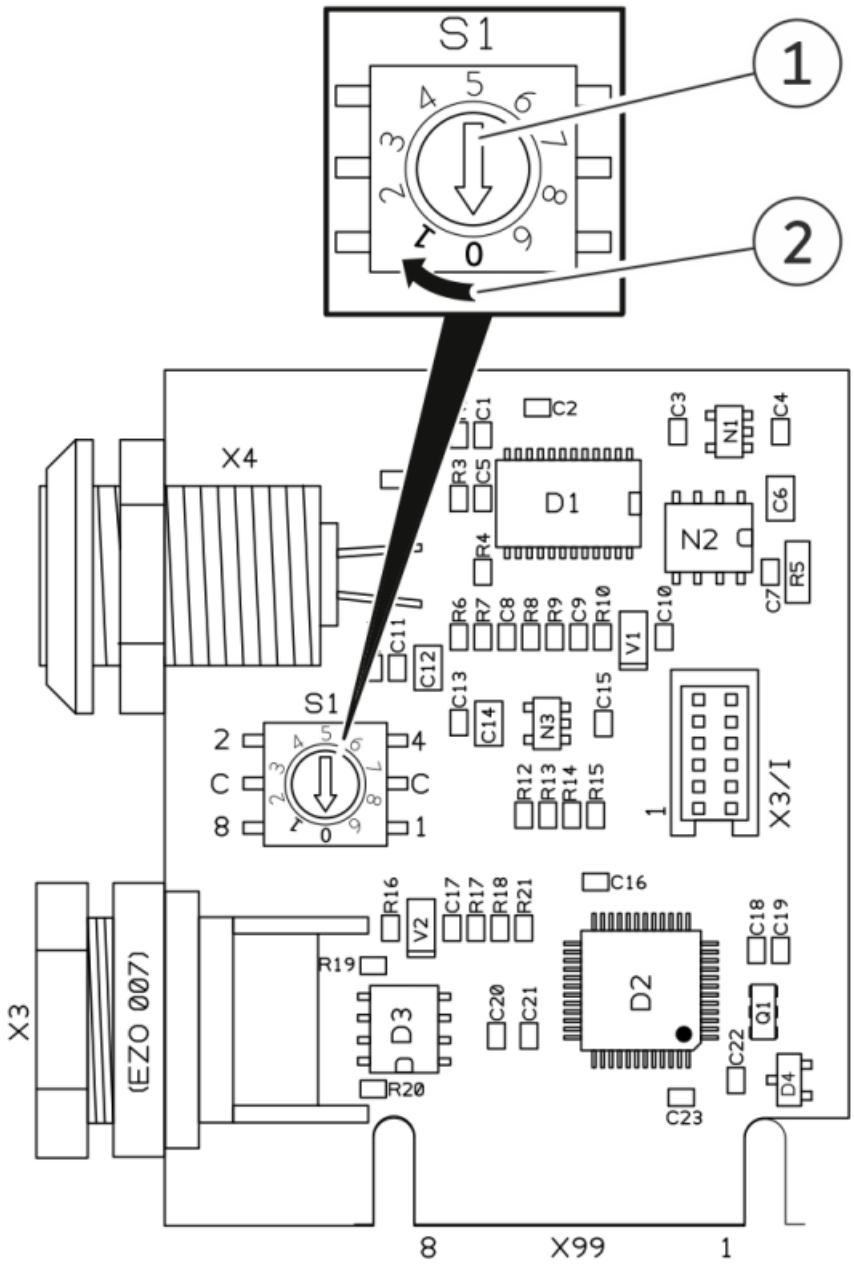
Coding switch

Operation with two external temperature probes is supported by the Integral IN and Variocool NRTL product lines.

The following is valid for Pt100/LiBus modules with coding switch:
The printed circuit board on the Pt100/LiBus module has a coding switch for setting the address of the Pt100 interface:

- Position 0: The Pt100 interface is assigned the name External Pt100 (factory setting) in the menu of the constant temperature equipment.
- Position 1: The Pt100 interface is assigned the name External Pt100-2 .
- Positions 2 – 9: Currently without any function.

Fig. 3: Pt100 module coding switch



Only change the setting if you want to use this Pt100/LiBus module to operate a second external temperature probe on the constant temperature equipment.
Check the coding switch setting before installing the Pt100/LiBus module in constant temperature equipment.

Setting the address of the second Pt100 interface:

1. Use a slotted screwdriver to set the adjusting wheel (1) on the coding switch.
2. Turn the adjusting wheel (1) to position 1 (2) to address the Pt100 interface with the name External Pt100-2 .

Before Starting Up

Installing the interface module

The interface module is connected to an internal LiBus ribbon cable and inserted into a vacant module slot. The number and arrangement of the module slots vary depending on the device. The module slots are protected by a cover that is screwed onto the casing or attached to the slot opening.

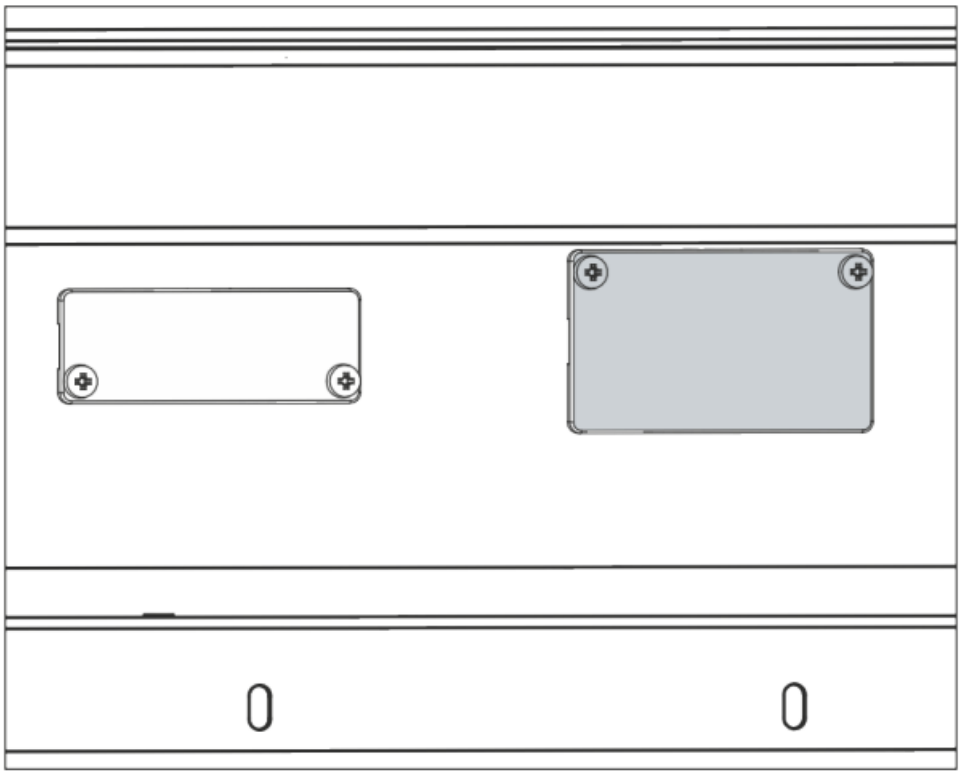
WARNING! Touching live parts	
	Electric shock
	• Disconnect the device from the power supply before starting any installation work. • Always observe safety measures against electrostatic dis- charge.

The module installation description essentially applies to all LAUDA constant temperature equipment; the example diagrams here show the installation of an analog module in constant temperature equipment from the Variocool product line.
Please note that an interface module with a small cover can only be installed in a low module slot. The fitted cover must cover the opening on the module slot completely.
You will require two M3 x 10 screws and a suitable screwdriver to secure the interface module.

Please observe the following installation sequence:

1. Turn off the constant temperature equipment and pull out the mains plug.
2. If necessary, remove the screws from the cover on the relevant module slot. If necessary, use a slotted screwdriver to prise off the cover.

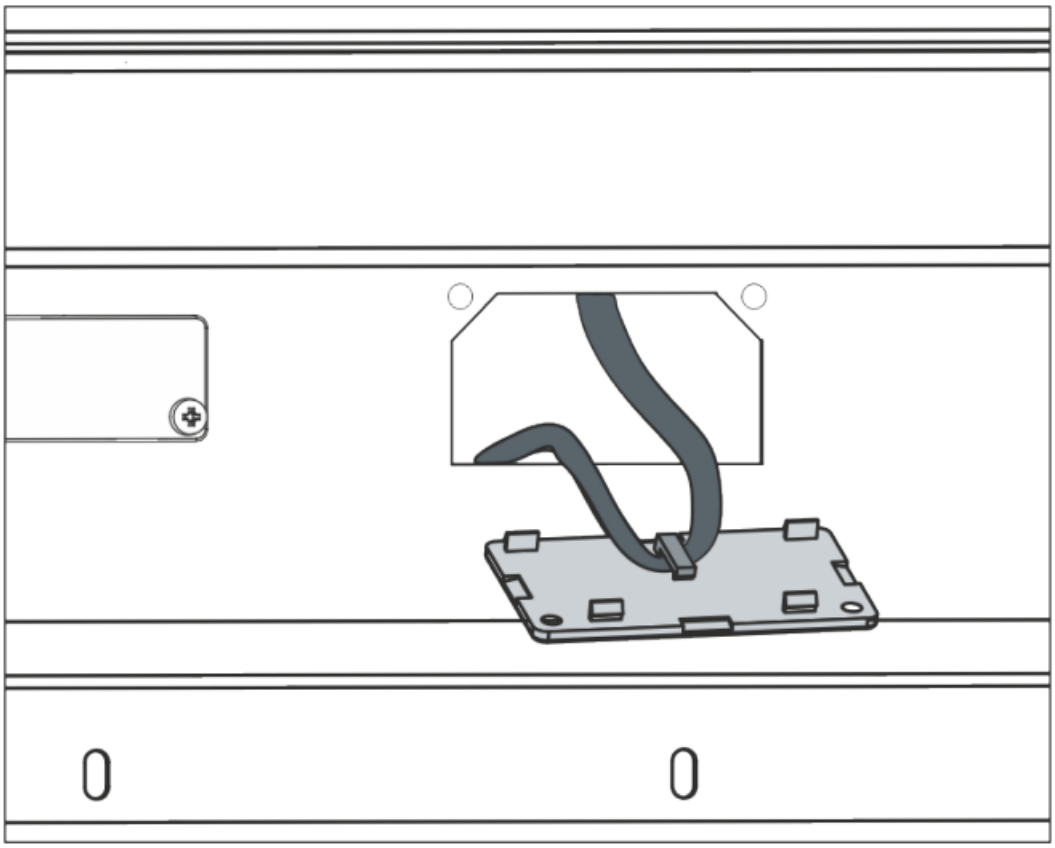
   Fig. 4: Removing the cover (schematic diagram)



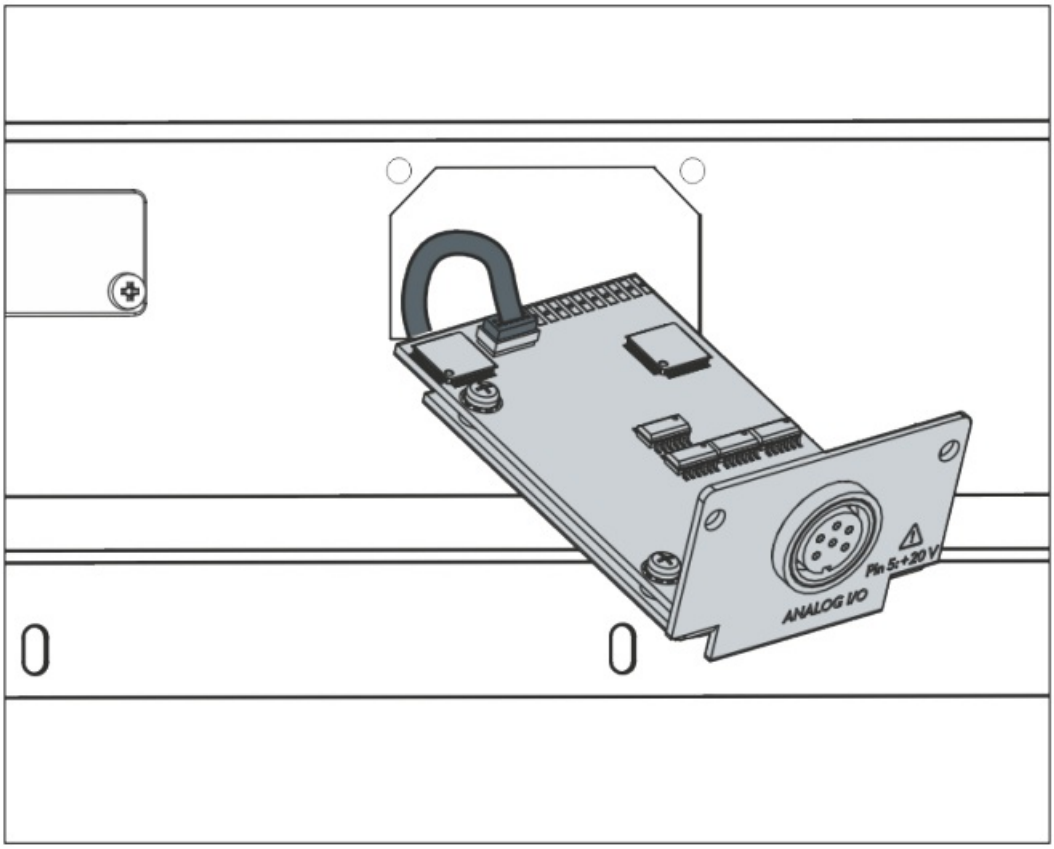
3. Remove the cover from the module slot.

   The module slot is open. The LiBus ribbon cable is attached to the inside of the cover and is easily accessible.
4. Disconnect the LiBus ribbon cable from the cover.

   Fig. 5: Detaching the LiBus ribbon cable (schematic diagram)



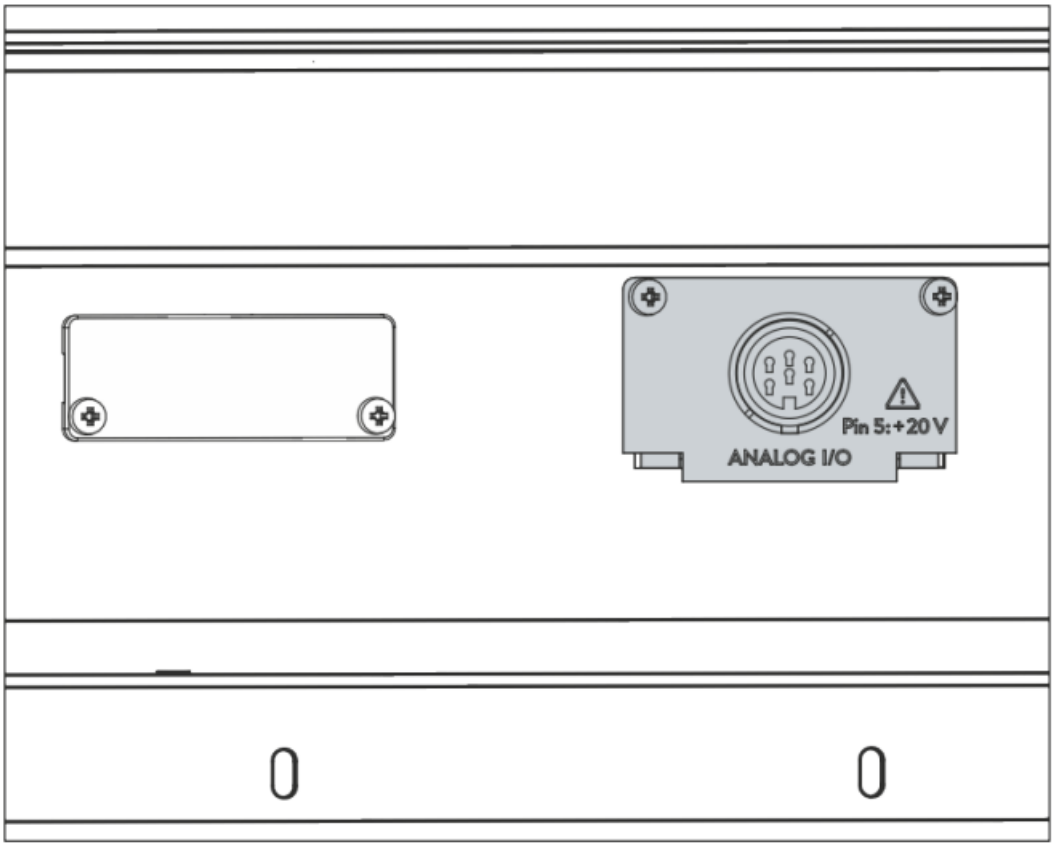
5. Connect the red plug on the LiBus ribbon cable to the red socket on the circuit board of the interface module.
   Plug and socket are reverse polarity protected: Make sure that the lug on the plug is aligned with the recess in the socket.
   The interface module is correctly connected to the constant temperature equipment.
6. Slide the LiBus ribbon cable and the interface module into the module slot.
   Fig. 6: Connecting the interface module (schematic diagram)



7. Secure the cover to the casing using two M3 x 10 screws.

   The new interface on the constant temperature equipment is ready for operation.

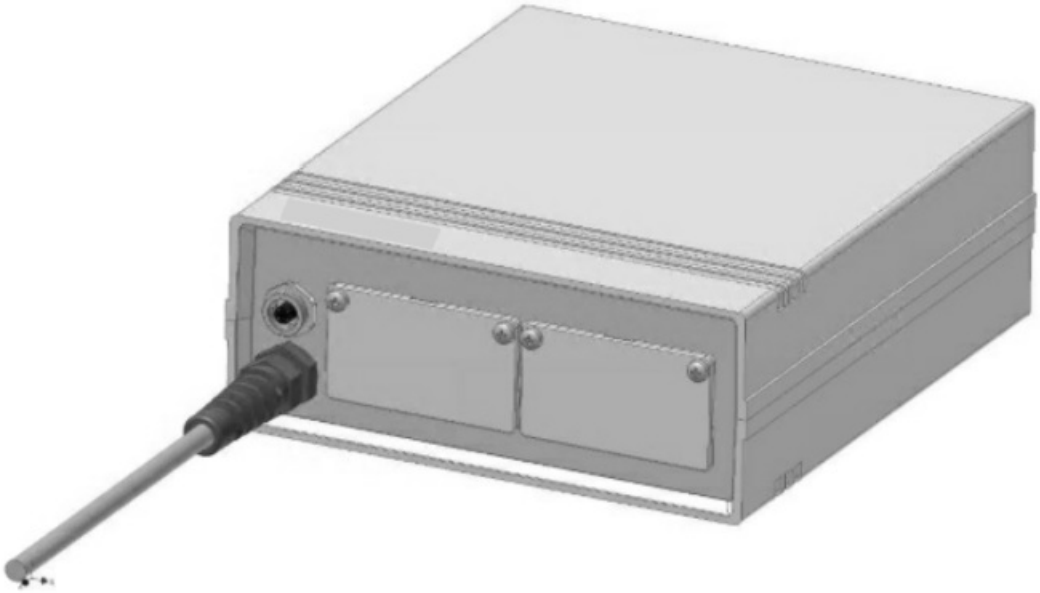
   Fig. 7: Securing the cover (schematic diagram)



Using the module box

You can extend LAUDA constant temperature equipment by two additional module slots using the LiBus module box. The module box is designed for interface modules with a large cover and is connected to constant temperature equipment via a vacant LiBus socket. The socket on the constant temperature equipment bears the label LiBus.

Fig. 8: LiBus module box, catalog no. LCZ 9727



Please observe the following installation sequence:

1. Switch off the constant temperature equipment.
2. Disconnect the cable on the module box from the constant temperature equipment.
   The module box is disconnected from the power supply.
3. Check which interfaces are already present on the constant temperature equipment and module box.
   Observe the information on interface module compatibility.
   Only install an interface module with the same type of interface if operation with several of these interfaces is permitted.
4. Install the required interface module in the module box. Please read the information on installing the module box in the constant temperature equipment, see chapter “Installing the interface module”.
5. Position the module box close to the constant temperature equipment.
6. Connect the cable on the module box to the LiBus socket on the constant temperature equipment.
   The interfaces on the module box are ready for operation.

Commissioning

Contact assignment

If you have assembled the cables yourself, please note the following:

- Statutory EMC requirements also apply to the cable connections. Use only shielded connection lines with shielded plugs/ sockets.
- Reliably isolate all equipment connected to the extra-low voltage inputs and outputs according to DIN EN 61140 to safeguard against dangerous contact voltages. For example, use double or reinforced insulation according to DIN EN 60730-1 or DIN 60950-1.

Refer to Ä Chapter 12 “Accessories” on page 23 for accessory information on assembling connection cables.
The Pt100 interface is designed as a 4-pin circular connector with screw plug (LEMO).

Pt100 interface

Fig. 9: Socket / plug contacts

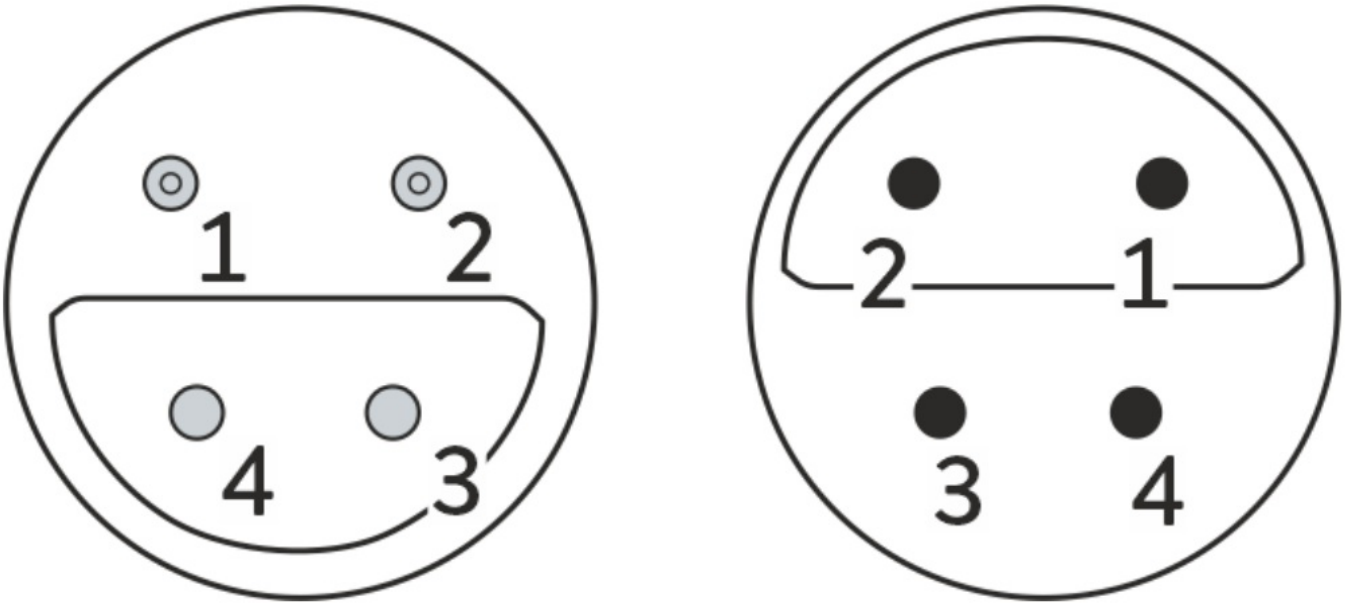
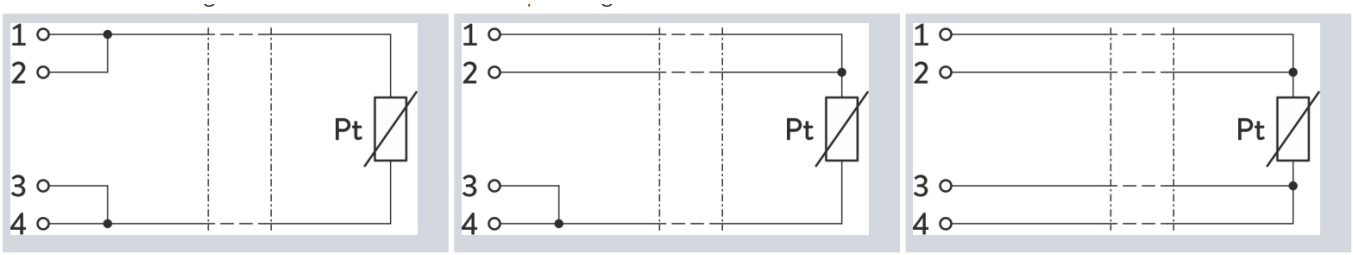


Table 1: Contact assignment of Pt100 interface

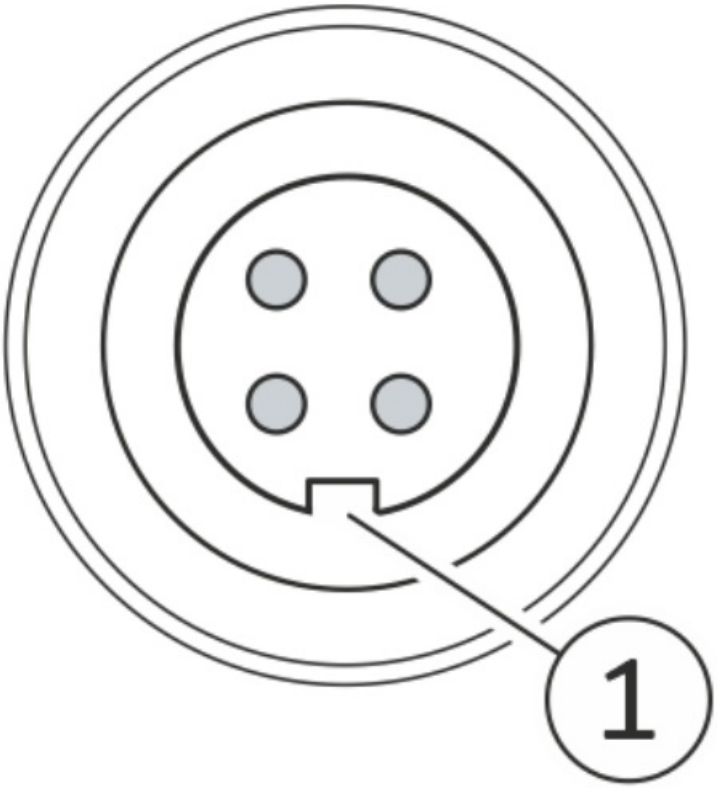
Contact	Function
1	+ I (current path)
2	+ U (voltage path)
3	– U (voltage path)
4	– I (current path)

Table 2: Circuit diagrams for Pt100 interface, depending on the cable version



LiBus interface

Fig. 10: LiBus socket reverse polarity protection



The LiBus interface is designed exclusively for operation with LAUDA products.
The LiBus interface is designed as a 4-pin circular connector with screw plug.
When connecting a cable, note the mechanical reverse polarity protection feature: The lug on the plug must be aligned with the recess in the socket (1).

Software update

Older software installed on constant temperature equipment may have to be updated for the new interface to work.

1. Switch on the constant temperature equipment after installing the new interface.
2. Check whether a software warning appears on the display:

   Warning SW too old : Please contact LAUDA Service, see

   Chapter 1.6 “Contact LAUDA” on page 6.

   No software warning: Operate the constant temperature equipment as normal.

Operation

Pt100 interface

After installing the Pt100/LiBus module, the main menu for the constant temperature equipment expands so that you can select the External Pt100 parameter for some settings. The External Pt100-2 parameter is also available for constant temperature equipment with two Pt100 interfaces.
Depending on the constant temperature equipment, the parameter External Pt100, for example, can be selected for the following functions:

- Control variable: Control the temperature control process via the external Pt100 temperature probe.
- Offset source: Control is based on the measured value provided by the Pt100 temperature probe. However, the control set point is generated by adding the Pt100 measured value to a specified offset value.

 Follow the instructions for configuring external control variables in the operating manual accompanying the constant temperature equipment.

LiBus interface

After adding a LiBus interface, you can operate the constant temperature equipment using compatible LAUDA accessories.

 Always read the relevant operating manual before operating any accessories.

Maintenance

The interface module is maintenance-free.
Any dust and dirt deposits should be cleaned from the connections on the interface module on a regular basis, especially if the interfaces are not being used.

 WARNING! Live parts in contact with cleaning agent
Electric shock, material damage • Disconnect the device from the mains supply before starting any cleaning work. • Water and other fluids should not be allowed to enter the device.

! NOTICE! Repairs performed by unauthorized persons	
	Material damage
	• Only specialized personnel are permitted to carry out repairs.

1. Use a damp cloth or brush to remove any dust and dirt deposits.
2. When using compressed air: Always set a low working pressure to prevent mechanical damage to the connections.

 If you have any questions about technical modifications, please contact LAUDA Service, see

 Chapter 1.6 “Contact LAUDA”

Faults

If a fault occurs, the interface distinguishes between different message types, e.g. alarms, errors and warnings. The procedure for rectifying a fault depends on the device. Follow the corresponding instructions in the operating manual accompanying the constant temperature equipment.

If you are unable to rectify a fault, please contact LAUDA Service, see

Chapter 1.6 “Contact LAUDA”

Error

The Pt100/LiBus modules recognize the following error messages:

Code *	Meaning
1701 – 1704 / 2001 – 2004	Interface module hardware faulty. Contact the LAUDA department.
1705 / 2005	Clock frequency incorrect.
1706 / 2006	Distribution voltage too low.
1707 / 2007	Distribution voltage too low.
1708 / 2008	Backup memory faulty.
1710 / 2010	2-point calibration: Upper / lower point mixed up.
1711 / 2011	2-point calibration: Difference between upper / lower measuring point too small.
1712 / 2012	2-point calibration: Difference between upper / lower correction point too small.
1713 / 2013	2-point calibration: Difference between upper measuring / correction point too great.
1714 / 2014	2-point calibration: Difference between lower measuring / correction point too great.
1724 / 2024	Product line detection faulty.

* Error prefix 17 applies for interface Pt100, error prefix 20 for Pt100-2, see

Chapter 4.3 “Coding switch”

Warning

The Pt100/LiBus modules recognize the following warnings:

Code *	Meaning
1701 / 2001	Bus system faulty.
1702 / 2002	Unexpected reset detected.
1703 / 2003	Temperature probe faulty; replace the temperature probe.
1707 / 2007	Implausible parameter detected.
1708 / 2008	Bus system faulty.
1709 / 2009	Unknown module detected.
1710 – 1732 / 2010 – 2032	Software of component [###] outdated. Contact the LAUDA department.

* Error prefix 17 applies for interface Pt100, error prefix 20 for Pt100-2, see

Chapter 4.3 “Coding switch”

Decommissioning

 WARNING! Touching live parts	
	Electric shock
	• Disconnect the device from the power supply before starting any installation work. • Always observe safety measures against electrostatic dis- charge.

Decommission the interface module by removing it from the constant temperature equipment:

1. Observe the information in

   Chapter 5.1 “Installing the interface module”.

   Proceed in reverse order to remove.
2. Always attach the LiBus connecting cable to the inside of the module slot cover.
3. Fit the cover to the vacant module slot to protect the constant temperature equipment against the ingress of dirt.
4. Protect the interface module against static charging before placing it in storage. The storage location must meet the ambient conditions specified in the technical data.
5. If you intend to dispose of the module, please read the information in

   “Old device” first.

Disposal

Packaging

The packaging normally consists of environmentally friendly materials that can be easily recycled when properly disposed of.

1. Dispose of packaging materials in accordance with the applicable disposal guidelines in your region.
2. Comply with the requirements of Directive 94/62/EC (packaging and packaging waste) if disposing of the product in a member state of the EU.

Old device


The device must be properly decommissioned and disposed of at the end of its life cycle.

1. Dispose of the device in accordance with the applicable disposal guidelines in your region.
2. Comply with Directive 2012/19/EU (WEEE Waste of Electrical and Electronic Equipment) if disposing of the product takes place in a member state of the EU.

Accessories

The following LAUDA accessories are available for Pt100/LiBus modules:

Article	Catalog number
LiBus module box; Extension of constant temperature equipment by up to two int erface modules with large cover	LCZ 9727
Pt100	
LEMO connecting plug, 4-pin (NAMUR standard)	EQS 022
Connecting cable with 2 LEMO connecting plugs, 2.5 m	UK 246
Platinum resistance thermometer with LEMO socket, Stainless steel version according to DIN EN 60751, accur acy class A:	
Pt100-70, length 250 mm, diameter 4 mm, Temperature range -200…300 °C, half -life 1/s	ETP 009
Pt100-80, length 150 mm, diameter 1.9 mm, Temperature range -200…300 °C, h alf-life 1/s	ETP 012
Pt100-90, length 80 mm, diameter 4 mm, Temperature range -100…300 °C, half-l ife 1.5/s	ETP 050
Pt100-94, length 250 mm, diameter 4 mm, Temperature range -100…300 °C, half -life 1.5/s (with permanently attached silicone line, length 2 m)	ETP 059
LiBus	
LiBus T-extender with 2 LiBus sockets	EKS 073
LiBus extension cord, 5 m	EKS 068
LiBus extension cord, 25 m	EKS 069

Technical Data

Feature	Unit	Value / version	
Interface module			
Catalog number	[–]	LRZ 918	LRZ 925
Size of module slot, W x H	[mm]	51 x 17	51 x 27
External dimensions (excluding con nectors), W x H x D	[mm]	56 x 20 x 80	56 x 40 x 80
Weight	[kg]	0.1	
Operating voltage	[V DC]	24	
Maximum current consumption	[A]	0.1	
LiBus socket			
Version	[–]	4-pin	
Pt100 socket			
Version	[–]	LEMO, 1S series, 4-pin	
Ambient conditions			
Air humidity	[%]	Maximum relative air humidity 80 % at 31 °C and up t o 40 °C, 50 % with linear decrease.	
Ambient temperature range	[°C]	5 – 40	
Temperature range for storage	[°C]	5 – 50	

Customer Support

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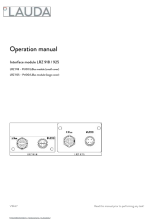
Documents / Resources

	**LAUDA LRZ 918 Interface Module** [pdf] User Manual LRZ 918, LRZ 925, LRZ 918 Interface Module, Interface Module, Module