Julabo
THE TEMPERATURE CONTROL COMPANY

CORIO™ C

Heating immersion circulator, open bath heating circulator, refrigerated circulator

Original operating manual

30001666.A

02/2024

EN

Legal

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Illustrations in this operating manual are for illustrative purposes and are not necessarily displayed to scale.

1 Foreword

Congratulations!

You have made an excellent choice.

JULABO would like to thank you for the trust you have placed in our company and products.

This operating manual will help you become acquainted with the use of our units. Read the operating manual carefully. Keep the operating manual handy at all times.

2 About this manual

This manual is intended for the equipment specified on the cover page.

NOTE

Observe the safety instructions!
Read the Safety section of this manual before using the equipment for the first time.

2.1 Original JULABO spare parts

Hassle-free continuous operation and safety also depend on the quality of the spare parts used.

Only original JULABO spare parts guarantee the highest possible quality and safety. Original JULABO spare parts are available directly from JULABO or your specialist dealer.
Please note that JULABO cannot provide a warranty service if non-original JULABO spare parts are used.

2.2 Accessories

JULABO offers a wide range of accessories for the devices. Accessories are not described in this manual.

The complete range of accessories for the devices described in this manual can be found on our website **www.julabo.com**. Use the Search function on the website.

2.3 Warnings

The manual contains warnings to increase safety when using the device. Warnings must always be observed.

A warning sign displayed in signal color precedes the signal word. The signal word, highlighted in color, specifies the severity of the hazard.

DANGER

This signal word designates a danger with a high level of risk which, if it not prevented, will result in death or serious injuries.

WARNING

This signal word designates a danger with a medium level of risk which, if it not prevented, may result in death or serious injuries.

CAUTION

This signal word designates a danger with a low level of risk which, if it not prevented, may result in minor to moderate injuries.

NOTE

This signal word designates a possibly harmful situation. If it is not avoided, the system or objects in its vicinity may be damaged.

2.4 Symbols used

Various symbols are used throughout this manual to aid reading comprehension. This list describes the symbols used.

- 🛠 Tools needed for the following approach
- ► Prerequisite to be met for the following procedure
- 1. Numbered action steps
- ➥ Interim result for individual action steps
- ☝ Additional note for individual action steps
- ✓ Final result of a procedure
- <> Terms in angle brackets denote control menu
- [] Terms in square brackets denote keys, softkeys and buttons

3 Intended use

This section defines the purpose of the unit so that the operator can operate the unit safely and avoid misuse.

JULABO heating immersion circulators and open heating bath circulators are designed to control water temperature. Samples in suitable tanks can be temperature-controlled.

These devices are not suitable for direct temperature control applications for food, other consumables, or pharmaceutical or other medical products.

Do not use bath fluids other than water, as this is not in accordance with the device's intended use.

These devices are not suitable for use in explosive environments.

These devices are not intended for use in living areas. They may cause interference with radio reception.

4 Safety

4.1 Safety instructions

The unit is built in accordance with state of the art technology and recognized safety regulations. Despite this, its use may pose a risk to life and limb for the user or third parties.

Therefore, always read and observe the following safety instructions before using the product.

Hot surfaces!

The following parts and elements may become hot during operation:
– Bath fluid
– Heating element
– Bath lid
– Bath surface
– Connections for external application

Contact may cause severe burns or scalds to hands and arms, face and limbs.
- Keep sufficient distance from hot surfaces and fluids.
- Wear suitable protective gloves.

Electric shock from electrical system!

Touching damaged live parts can cause severe electric shocks and lead to injury or even death.
- Have damaged insulation and parts of the electrical system immediately repaired by JULABO service technicians or a qualified specialist workshop
- Immediately replace damaged power cords
- When connected with a mains plug, this mains plug must always be readily accessible

Wear personal protective equipment!

Lacking or unsuitable personal protective equipment increases the risk of health damage and injury.

Personal protective equipment includes, for example:
– Work gloves
– Safety shoes
- Protective clothing
– Breathing protection
- Hearing protection
– Face and eye protection

- Specify and provide personal protective equipment for the respective application.
- Use only personal protective equipment that is in good condition and provides effective protection.
- Adapt personal protective equipment to the person, e.g., by size.

Keep safety symbols legible!

Safety symbols on the unit warn of dangers in hazardous areas and are an important part of the unit's safety equipment. Missing safety symbols increase the risk of injury to persons.

- Clean dirty safety symbols.
- Replace damaged and unrecognizable safety symbols immediately.

Maintenance and repair work!

Improper maintenance and repair work jeopardizes operational safety. This can result in serious injury or death.

- Only carry out work described in this operating manual. Switch off the unit and disconnect it from the power supply before carrying out any work.
- All other maintenance and repair work may only be carried out by a JULABO service technician or a qualified specialist workshop.

4.2 Safety symbols

There are safety symbols included with the device, which should be attached to the device before initial operation.

Safety symbols	Description
	Warning of a danger zone. Note operating manual
	Warning about hot surface
	Warning of cold surface
	Read operating manual before switching on

4.3 Safety function

Technical protective devices provide for safe operation. If a safety function is triggered, the operator is alerted with a message on the display and an acoustic signal.

Overheating protection

The overheating protection prevents overheating of the heater.

- The protective mechanism is triggered when the device recognizes a temperature difference of more than 20 K between the working temperature sensor and the safety temperature sensor. Am error message appears on the display. A restart is required.

Low liquid level protection

A level switch recognizes when the bath fluid fill level in the bath tank is too low. The unit has a warning system to prevent overheating of the heater or dry running of the pump.

- The low liquid level alarm is triggered when the float reaches its lower limit stop. The device switches off the pump and heater. A continuous signal tone sounds. An error message appears on the display. A restart is required.

5 Product description

5.1 Product overview

The circulators can be combined with various baths with volumes of up to 30 l. Depending on the device combination and accessories used, the circulators work in a temperature range from +20°C to +100°C.

Heating immersion circulator

CORIO C circulator for bath tanks up to 30 l.

Open heating bath circulator

Circulator with transparent bath tank. Example: CORIO C-BT9.

5.2 Operating and functional elements

The following figure shows the operating and functional elements and their position on the unit.

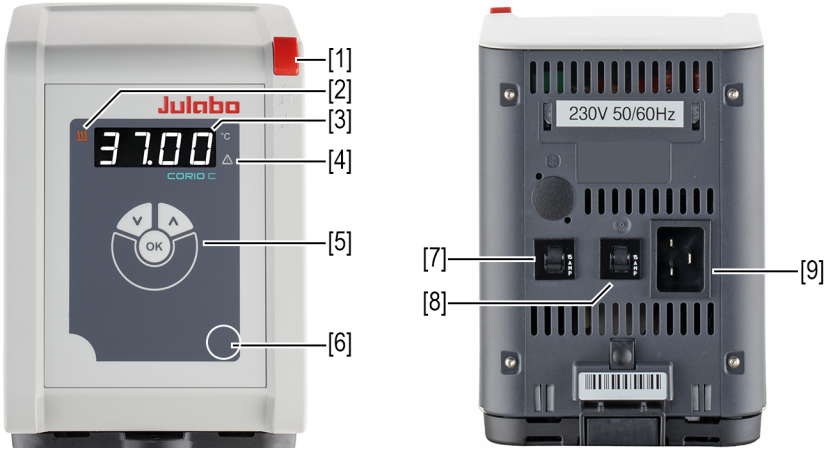


Fig. 1: Control and function elements

1	Mains switch
2	Heating control LED
3	LED display
4	Alarm control LED
5	Keypad with display
6	Service key (covered)
7	Mains fuse, resettable
8	Mains fuse, resettable
9	Mains connection

5.2.1 Key description

The device is operated using the key panel. This is used to control all menu functions and make entries.

Key	Function
	Press **[OK]** to start a temperature control application or to stop a running temperature control application. Press **[OK]** to enable a selected function, open a menu option, or confirm a set value.
	Use the arrow keys to select a function or set a value. Short press for single steps, press and hold for fast counting.

5.3 Alarm messages

Alarms and warnings are indicated on the display using error codes. Important error code descriptions can be found in the appendix. If you are unable to rectify a fault, contact Technical Service.

Alarm:

In the event of an alarm, the control LED lights up. The temperature control is stopped. At the same time, a continuous acoustic signal sounds and an error code is shown on the display. The acoustic signal can be deactivated by pressing the **[OK]** key. The fault causing the alarm must be remedied. A restart is required.

Warning:

In the event of a warning, the temperature control application is not interrupted. A signal tone is emitted at intervals. The display alternates between the actual temperature and the error code. The acoustic signal can be deactivated by pressing the **[OK]** key. If the underlying cause of the warning is remedied, the signal tone ceases. Depending on the cause, warnings may cease automatically after a period of time, e.g. when the device cools down.

5.4 Technical data

Performance specifications measured in accordance with DIN12876.
Performance specifications apply at an ambient temperature of 20°C.

Grouping of the device acc. to CISPR 11:

- The device is an ISM device of group 1, which uses high frequency for internal purposes
- Class A: Use in an industrial electromagnetic environment

In accordance with IEC 61010-1, the device is designed for safe operation under the following ambient conditions:

- Indoor use
- Altitude up to 2000 m above sea level
- Ambient temperature +5 … +40°C
- Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly down to 50% relative humidity at 40°C
- Mains voltage fluctuations up to ±10% of the nominal voltage permissible if not otherwise specified
- Pollution degree level 2

Protection class according to EN 60 529:

- Protection class IP21

CORIO C					
Temperature control application					
Working temperature range	°C	+20 … +100			
Temperature stability	°C	± 0.03			
Temperature resolution	°C	0.01			
Temperature control		PID1			
Temperature setting		Digital			
ATC sensor adjustment		1-point adjustment			
Pump					
Volume flow rate at 0 bar	l/min	6			
Supply pressure at 0 l	bar	0.1			
Maximum viscosity	cSt	1			
Dimensions					
Dimensions (W x D x H)	cm	13.2 x 16.0 x 36.2			
Immersion depth	cm	16.6			
Weight	kg	1.9			
Display					
Display		LED			
Performance data					
Mains connection		100-115 V, 50/60 Hz		230 V, 50/60 Hz	
		100 V 50/60 Hz	115 V 60 Hz	230 V 50/60 Hz	
Current consumption	A	8	10	9	
Heating capacity	kW	0.8	1.0	2.0	
Mains fuse, resettable	A	15			

5.4.1 Material of parts that come into contact with the medium

The table lists parts that could come into contact with the bath fluid as well as the material that the parts are made of. This data can be used to check the compatibility of the parts with the bath fluid used.

Parts that come into contact with the medium	Material
Motor	1.4301
Pump	PPS
Heating element	1.4404/316L
Inbuilt temperature sensor Pt100	1.4571
Connection of temperature sensor	1.4301
Float	1.4401
Float pipe	1.4571
Hose olive	1.4301
Single-ear clamp	1.4301
Hose	FPM/FKM

5.4.2 Bath fluids

Only water with an electrical conductivity of 0.1 to 50 µS is permitted as bath fluid.

NOTE

No liability accepted for usage of bath fluids that are not suitable!

Unsuitable bath fluids that are not approved by JULABO can damage the water bath.

- Use bath fluids that are recommended by JULABO
- Before filling, check the parts that are in contact with the medium for compatibility with the bath fluid
- Do not exceed the maximum permissible viscosity during operation
- Consult JULABO before using a bath fluid other than the recommended one

Water as bath fluid

- Water can be used for working temperatures from +5 °C to +90 °C
- Recommended: Use only ultrapure or distilled water.
- When using ultrapure or distilled water, add 0.1 g Na_2CO_3 per liter of water.

6 Transport and installation

6.1 Transporting the device

This section describes how to transport the device safely.

CAUTION

Burn hazard on the heating element!
The heating element may still be hot even after the device has been switched off, and may cause burns if touched.

- Allow the device to cool down to room temperature after switching off
- Wear protective gloves

► The device is switched off and cooled to room temperature.

1. Disconnect the mains cable from the device.
2. Disconnect the circulator from the bath before transport.
3. Empty the bath.

☝ See the technical data for weight information.

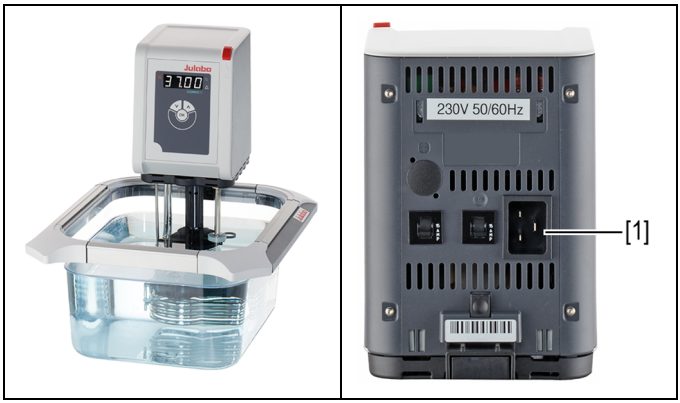
✓ The device can be safely transported to its installation location.

7 Initial operation

7.1 Connect the device to the power supply

This section describes how the circulator is connected as a bridge mounted circulator or heating circulator.

- ► The circulator is mounted as a bridge mounted or heating circulator.
- ► The power cable is ready for use.



1. Insert the power cable on the back of the circulator into the mains connection [1].
2. Connect the circulator to the power supply using the power cable.

✓ The circulator is connected.

7.2 Fill device

This section describes how the device should be filled with bath fluid during initial operation.

Specifications for filling volume can be found in the technical data.

- ► The device is mounted on a bath and switched off.

1. Fill the bath with water.

☝ Maximum filling height 30 mm below the upper edge of the bath.

☝ The bath fluid expands with increasing temperature and can overflow.

☝ With decreasing temperature, the low liquid level protection can be triggered and interrupt the temperature control process.

2. Place the sample in the bath.
3. If necessary, adjust the level by refilling or draining.

☝ Once the working temperature has been reached and the sample inserted, the bath fluid level in the bath tank should cover the heating coil of the heating circulator.
✓ The unit is filled with bath fluid.

8 Operation

8.1 Switch on the unit

This section describes how to switch on the device.

► The device is connected and ready for operation.
1. Switch the unit on at the mains switch.
➥ All display elements light up briefly, the software boots and starts the device.
✓ The device is switched on and ready for operation. The display shows "OFF". If the auto start function is activated, then the device starts directly into the last setting.

8.2 Switch off the unit

This section describes how to switch off the device.

► The device is switched on.
1. Stop a running temperature control application.
2. Switch the device off at the mains switch.
✓ The device is switched off.

8.3 Configuring setpoint temperature

Device is running the temperature control application to the configured setpoint temperature. The factory setting is 10°C. The setpoint temperature can be changed while the temperature control application is running. The set value is saved.

► The unit is switched on.
1. Press one of the arrow keys briefly.
➥ The display switches from the actual value display to the setpoint display, then shows the last saved setpoint temperature. The digits before the decimal point flash.
2. Use the arrow keys to set the value before the decimal point and confirm with **[OK]**.

➥ The set value is applied. The decimal point flashes.
3. Use the arrow keys to set the value after the decimal point and confirm with **[OK]**.
➥ The set value is applied. The new setpoint temperature flashes briefly.
✓ The setpoint temperature is set and active.

8.4 Start temperature control application

You can start a temperature control application right on the device, or program one using the timer.

► The unit is ready for use.
1. Switch the unit on at the mains switch.
2. Use the arrow keys to set the desired setpoint temperature.
3. Press and hold the **[OK]** key until the temperature control application starts.
✓ The setpoint temperature is saved. The display flashes briefly. The unit starts the temperature control application at once. The temperature control application can be stopped with the **[OK]** key.
☝ Observe the following for heating circulators:
For temperature control applications near or below the ambient temperature: Use a cooling coil or JULABO immersion cooler.

8.5 Activate autostart function

The autostart function makes it possible to start a temperature control application directly using the mains switch or via an intermediate timer.

The device is configured ex works in such a ways that it switches to a safe operating status in the event of power failure. The autostart function is deactivated. The display shows "OFF." The refrigeration aggregate, heater, and pump motor are disconnected from the mains voltage.

► The unit is switched off.
► The autostart function is deactivated.
1. Simultaneously press and hold the **[OK]** key and the power switch until the device is switched on.
➥ The display shows **<AOn>**.
✓ The autostart function is activated. The temperature control application starts immediately with the preset values, each time the device is switched on, as long as the autostart function is active. To deactivate the autostart function, switch off the device and repeat the procedure. The display will then show **<AOFF>**.

You can also insert and program a timer. In this case the mains switch of the device must remain on.

8.6 Setting the timer

The timer can be used to program the duration of a temperature control application from 0 to 999 minutes. The setpoint temperature is maintained for the programmed time. After the set duration has elapsed, the device switches to standby mode.

► The unit is switched on.
1. Press the **[Down Arrow]** and **[OK]** keys simultaneously.
➥ The display shows **<t 0>**.
2. Use the arrow keys to set the minutes and confirm with **[OK]**.
➥ The display flashes briefly.
✓ The timer is programmed and active.

The decimal point flashes on the display until the timer starts. The timer starts when the setpoint temperature is reached and maintained, with a precision of ±0.1°K, for at least 30 seconds. Below 1 minute, the remaining run time is shown in seconds.

After the set time has elapsed, a double acoustic signal sounds and the device switches to standby mode.

The setpoint temperature can still be changed until it is reached. The timer remains active and starts when the new setpoint temperature is reached. If the setpoint temperature is changed while the timer is running, the timer is deactivated.

Press the **[OK]** key to stop the running timer.

8.7 Adjusting the temperature sensor (ATC)

For physical reasons, there can be a temperature difference in the bath tank between the temperature sensor and a defined, more remote point within the bath fluid volume. As a result, the measured temperature deviates slightly from the actual bath temperature. Adjustment of the temperature sensor can increase accuracy of the temperature control application.

► The bath tank is filled.
► The unit is switched on.
1. Hang the calibrated thermometer in the bath tank and place the bath lid on top.
2. Set the desired setpoint temperature and start the temperature control application.
➥ When the setpoint is reached, allow the temperature to stabilize for several minutes.
☝ The more stable the temperature in the bath tank, the more precise the adjustment result.

3. Simultaneously press the Service key and **[Down Arrow]** keys until the decimal point flashes.
4. Enter the read reference temperature and confirm with **[OK]**.

➥ The calibration value is applied directly. The display shows **<CAL>** for confirmation.

☝ The entered reference temperature must be within ±5°C of the setpoint temperature, otherwise an error message appears and the entry is ignored.

✓ The temperature sensor is adjusted.

9 Maintenance

9.1 Check safety symbols

The safety labels affixed to the device must be clearly legible at all times. Their condition must be checked every two years.

1. Check the safety signs on the device for legibility and completeness.
2. Replace defective or missing safety markings.

☝ Safety signs can be reordered from JULABO.

✓ The safety signs on the device have been checked.

9.2 Test the low liquid level safety function

This section describes how you can test that the low liquid level safety function is operational.

► The device is switched on.

1. Remove the bath lid.
2. Using a long object, e.g. a straightedge, carefully push the circulator float downwards until it reaches its mechanical stop.

➥ An acoustic signal sounds and the error code "E 01" is displayed. The low liquid level safety function works.

3. Switch the device off, wait a few seconds, then switch the device on again.

➥ The alarm message is deactivated.

4. Close the bath opening.

✓ The low liquid level safety function has been tested for functionality.

9.3 Replace detachable power cord

The device is equipped with a detachable power cord.

If the power cord needs to be replaced, ensure that the new one is at least dimensioned for the device power requirements. Insufficiently dimensioned power cords must not be used. See type plate for mains voltage and current value.

We recommend only using original JULABO spare parts.

9.4 Emptying

The device must be completely drained if it is to be sent in for technical service or is to be properly disposed of.

In general, the device should be completely emptied before longer shutdowns or when there is a change to the external application.

CAUTION

Risk of burns from hot bath fluid!

Bath fluid can become very hot during a temperature control process.
Contact with hot bath fluid can cause scalding.

- Before draining the device, let it cool to room temperature
- Avoid direct contact with hot bath fluid
- Wear protective gloves

► The device is switched off and disconnected from the mains voltage.

1. Remove the sample from the bath.
2. Remove the circulator from the bath.
3. Tilt the bath over a sink.

✓ The device is emptied.

9.5 Clean device

The circulator and bath tank, and also a cooling machine if connected, should be cleaned from time to time.

In addition to this, the device must be appropriately decontaminated if hazardous substances have been spilled on or into the device.

- Lint-free cloth
- Mild cleaning agent

NOTE

Damage to the electronics due to water penetration!
Ingress of water can damage electronic components of the device and thus lead to failure of the device.

- Clean the outside of the device with a damp cloth only
- Prevent water from entering the device

► The device is switched off and disconnected from the mains voltage.

1. Allow the device to cool down to room temperature.
2. Completely drain the bath fluid.
3. Clean the surface of the circulator and the bath tank with a damp cloth.

Some dish detergent may also be used for cleaning. If in doubt, ask technical service for alternative cleaning mediums.

✓ The device has now been cleaned.

9.6 Device storage

This section describes how to store the device.

► The device is switched off and disconnected from the mains voltage.

1. Empty all system components completely.
2. Clean the device.
3. Carefully dry the device and all its system components, e.g. with compressed air.
4. Close all connections.
5. Store the device in a dust-free, dry and frost-free location.

✓ The device is protected and can be safely stored there. It can be put into operation again as needed.

9.7 Technical Service

If the unit shows faults you cannot resolve, please contact our Technical Service.

JULABO GmbH
Technical Service
Gerhard-Juchheim-Strasse 1
77960 Seelbach / Germany
Tel.: +49 7823 51-66
Fax: +49 7823 51-99
Service.de@julabo.com

Before sending a device to Technical Service, the following points must be observed:

- Clean and decontaminate the device properly to avoid endangering service personnel.
- Include a brief description of the fault.
- Package the device safely for shipment.

9.8 Warranty

JULABO provides a warranty that the device will function perfectly as long as it is connected and used correctly and as described in the operating manual.

The warranty period is one year from the invoice date.

With the 1PLUS warranty, the warranty can be extended to two years free of charge.

The 1PLUS warranty gives the user a free extended warranty to 24 months, limit to a maximum of 10,000 hours of service.

A prerequisite for this is that the user registers the device at **www.julabo.com**, quoting its serial number, within four weeks of initial operation. The warranty applies from the date of JULABO GmbH's original invoice.

10 Disposal

10.1 Device disposal

When disposing of the device, the applicable country-specific guidelines must be observed.

► The circulator combination is switched off and disconnected from the mains voltage.
1. Empty the bath tank or cooling machine completely.
2. Disconnect all power cables and, if necessary, data cables from the circulator and from other connected devices.
3. If present, disconnect the circulator combination from a connected external application.
4. Remove the circulator from the bath tank or cooling machine.
5. Give the devices to an authorized disposal company.

☝ Disposed of the device in household waste, or similar facilities for the collection of domestic waste, is not permissible.

✓ The circulator combination is disposed of properly.

11 EC Declaration of Conformity

EG-Konformitätserklärung nach EG Maschinenrichtlinie 2006/42/EG, Anhang II A
EC-Declaration of Conformity to EC Machinery Directive 2006/42/EC, Annex II A

Hersteller / *Manufacturer*:

JULABO GmbH
Gerhard-Juchheim-Strasse 1
77960 Seelbach / Germany
Tel: +49 7823 51-0

CE

Hiermit erklären wir, dass das nachfolgend bezeichnete Produkt
We hereby declare, that the following product

Produkt / *Product*: Thermostat / *Circulator*

Typ / *Type*: CORIO C **Serien-Nr. / *Serial-No.*:** siehe Typenschild / *see type label*

aufgrund seiner Konzipierung und Bauart in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der nachfolgend aufgeführten EG-Richtlinien entspricht.
due to the design and construction, as assembled and marketed by our Company – complies with fundamental safety and health requirements according to the following EC-Directives.

Maschinenrichtlinie 2006/42/EG; Machinery Directive 2006/42/EC
EMV-Richtlinie 2014/30/EU; EMC-Directive 2014/30/EU
RoHS-Richtlinie 2011/65/EU; RoHS-Directive 2011/65/EU

Angewandte harmonisierte Normen und techn. Spezifikationen:
Applied following harmonized standards and technical specifications:

EN IEC 63000:2018
Technische Dokumentation zur Beurteilung von Elektro- und Elektronikgeräten hinsichtlich der Beschränkung gefährlicher Stoffe
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN ISO 12100 : 2010
Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung (ISO 12100:2010)
Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)

EN 61010-1 : 2010 / A1 : 2019 / AC : 2019-04, EN 61010-1 : 2010 / A1:2019
Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte, Teil 1: Allgemeine Anforderungen
Safety requirements for electrical equiment for measurement, control, and laboratory use, Part 1: General requirements

EN IEC 61010-2-010:2020
Sicherheitsbestimmungen für elektrische Mess- Steuer-, Regel- und Laborgeräte Teil 2-010: Besondere Anforderungen an Laborgeräte für das Erhitzen von Stoffen
Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 2-010: Particular requirements for laboratory equipment for the heating of materials

EN 61326-1 : 2013
Elektrische Mess-, Steuer-, Regel- und Laborgeräte- EMV-Anforderungen- Teil 1: Allgemeine Anforderungen
Electrical equipment for measurement, control, and laboratory use - EMC requirements - Part 1: General requirements

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen:
Authorized representative in charge of administering technical documentation:
Hr. Torsten Kauschke, im Haus / *on the manufacturer's premises as defined above*

Die Konformitätserklärung wurde ausgestellt
The declaration of conformity was issued and valid of

Seelbach, 16.05.2023

B. Roth

i.V. Bernd Rother, Senior Expert Products & Innovation

12 UK Declaration of Conformity

UK Office: JULABO UK Ltd., Unit 7, Casterton Road Business Park,
Old Great North Road, Little Casterton, Stamford, PE9 4EJ, United Kingdom,
Tel.: +44 1733 265892

UKCA-Declaration of Conformity

Manufacturer:

JULABO GmbH
Gerhard-Juchheim-Strasse 1
77960 Seelbach / Germany
Tel: +49 7823 51-0

This declaration is issued under the sole responsibility of the product manufacturer

Product: Circulator
Type: CORIO C **Serial-No.:** see type label

The object of the declaration described above is in conformity with the relevant UK Statutory Instruments and their amendments:

Supply of Machinery (Safety) Regulations 2008
Electromagnetic Compatibility Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Applied following harmonized standards and technical specifications:

EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN ISO 12100 : 2010
Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)

EN 61010-1 : 2010 / A1 : 2019 / AC : 2019-04, EN 61010-1 : 2010 / A1:2019
Safety requirements for electrical equiment for measurement, control, and laboratory use, Part 1: General requirements

EN IEC 61010-2-010:2020
Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 2-010: Particular requirements for laboratory equipment for the heating of materials

EN 61326-1 : 2013
Electrical equipment for measurement, control, and laboratory use - EMC requirements - Part 1: General requirements

Authorized representative in charge of administering technical documentation:

JULABO UK Ltd., Mr. Gary Etherington, Unit 7, Casterton Road Business Park, Little Casterton, Stamford PE9 4EJ United Kingdom, Telephone: +44 1733 265892

The declaration of conformity was issued and valid of

Seelbach, 16.05.2023

i.V. Bernd Rother, Senior Expert Products & Innovation

13 Appendix

13.1 Alarms and Warnings

If the device is connected to a network and remotely controlled, a status query via interface command will output any pending alarms or warnings as text. Alarm and warning messages are described in the table.

If a displayed error code is not described in the table or the error is still pending after switching off and on again, please contact Technical Service.

The listed error codes can occur depending on the device type and version.

-01	The unit is being operated with a bath fluid level that is too low.	• Top up the bath fluid. • Check the temperature control hoses for damage and replace if necessary.
-06	The temperature difference between the working temperature sensor and the safety temperature sensor is too large.	• Increase circulation. • Check the viscosity of the tempering fluid. • If the fault has not been remedied, contact Technical Service.
-14	The set protective temperature has been exceeded.	• Check working temperature range of the application. • Increase the value of the protective temperature or decrease the setpoint temperature until it is lower than the set protective temperature.
-60	Internal read/write error.	• Switch off the unit at the mains switch, wait 4 seconds and then switch the unit on again.
-61	CAN bus error	• Check CAN bus cable for damage and replace as necessary. Switch the unit on again. If the fault has not been remedied, contact Technical Service. • Alternatively: Deactivate the refrigeration unit. The circulator operates as a heater thermostat.
-63	Watchdog function has responded.	• Switch off the unit at the mains switch, wait 4 seconds and then switch the unit on again.

-83	Excessive power consumption via USB interface.	• Check inserted USB stick for defects and replace as necessary. The USB-A interface is not suitable for consumers with a higher required current than the maximum permissible current.
-108	The alarm latch of the protective equipment is still active.	• Switch off the unit at the mains switch, wait 4 seconds and then switch the unit on again.
-116	The alarm latch of the protective equipment is still active.	• Switch off the unit at the mains switch, wait 4 seconds and then switch the unit on again.