LR-Cal [LR]

Portable temperature calibration micro baths
-35...+165°C / -40...+165°C / +30...+225°C

micro bath

additional inserts

micro bath
or
dry block

+

=

LR-Cal
temperature calibrator

Advanced micro bath temperature calibrators also as dry well metal block calibrator

LR-Cal LTC 150-F: -35...+165°C
LR-Cal LTC 150-F-PLUS: -40...+165°C
LR-Cal LTC 250-F: +30...+225°C

- Simple and intuitive operation via color 4.3-inch touch screen

- All-in-one execution (micro bath, dry block, black body)

- Trend graph display with a resolution of up to 0.1°C and selection of the time period

- Program function with up to 8 segments

- Selectable operating language: German, English, French, Spanish or Italian

- RS485 ModBus RTU communications

- Magnetic stirrer, adjustable via touch screen

- Recalibration of the internal Pt 100 reference sensor possible via touch screen at 8 calibration temperature points


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-35...+165°C / -40...+165°C / +30...+225°C

LR-*Cal* LR

The portable temperature calibration micro baths
LR-*Cal* LTC 150-F, **LR-*Cal* LTC 150-F-PLUS** and
LR-*Cal* LTC 250-F serve as a temperature source and
reference device in one, for the testing, adjustment and
calibration of all types of temperature measuring devices.
They are also particularly suitable for laboratory and glass
thermometers and temperature sensors with e.g. 90° bends.
With optional calibration bath inserts code **LTC-F-INSERT-FL**
make changing the operating fluid considerably easier, e.g. if you
often change the medium due to temperature.
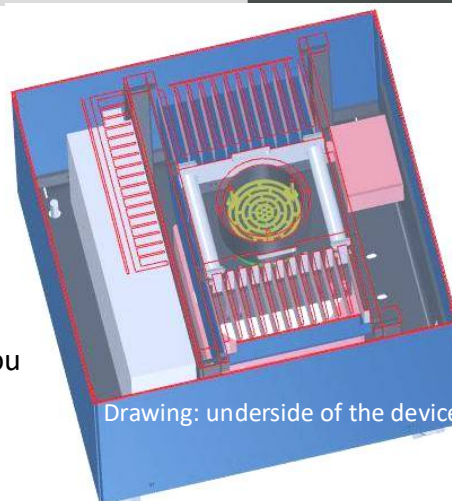
Drawing: underside of the device

Technical data

	LR-*Cal* LTC 150-F	**LR-*Cal* LTC 150-F-PLUS**	**LR-*Cal* LTC 250-F**
Operating temperature range:	-35...+165°C *) -31...+329°F *)	-40...+165°C **) -40...+329°F **)	+30...+255°C ***) +86...+491°F ***)
Minimum starting temperature:	55°C **below** ambient temperature	60°C **below** ambient temperature	-/-
Accuracy:	±0.1°C		
Resolution:	0.1 - 0.01 - 0.001°C or °F, selectable		
Reference temperature sensor:	internal		
Recalibration of internal sensor:	via touch-screen, at 8 calibration temperature points		
Display:	4.3 inch colour touch screen		
Operation languages:	German, English, French, Spanish, Italian		
Calibration container:	60 mm diameter x 190 mm		
Heating time **LR-*Cal* LTC 150-F(-PLUS)**:	from -5°C to +100°C / from 23°F to +212°F: ~15 minutes		
Heating time **LR-*Cal* LTC 250-F**:	from +30°C to +220°C / from +86°F to +428°F: ~28 minutes		
Cooling time **LR-*Cal* LTC 150-F(-PLUS)**:	from +25°C to -25°C / from +77°F to -13°F: ~ 20 minutes		
Cooling time **LR-*Cal* LTC 250-F**:	from +220°C to +100°C / from +428°F to +12°F: ~ 30 minutes		
Interface:	RS485 ModBus RTU communication (DB9-connector)		
Housing material:	Metal		
Dimensions:	250 x 370 x 440 mm		250 x 370 x 400 mm
Weight:	approx. 12.8 kg		approx. 10.3 kg
Power supply:	100...234 VAC 50/60 Hz		
Power consumption:	approx. 310 W		approx. 600 W
Order-Codes (base unit):	**LTC150-F**	**LTC150-F-PLUS**	**LTC250-F**
Liquid bath / liquid bath insert:			
Temperature stability	±0.01°C		
Temperature uniformity	±0.03°C		
Calibration bath volume	0.7 liters		0.6 liters
Magnet stirrer:	easy regulation via touch-screen		
Metal dry block insert - only for temperatures starting from -35°C / -31°F!:			
Temperature stability:	±0.01°C		
Temperature uniformity:	±0.05°C		
Dimension of the inserts:	59.5 mm x 165 mm		

Inserts for the calibration container: see next page.

LR-Cal LR

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LTC 150-F
LTC 150-F-PLUS
LTC 250-F

Additional calibration bath inserts (optional) make it easier to use your device if the operating medium (silicone oil) needs to be changed more frequently (due to temperature).

Micro bath insert

Order-Code: **LTC-F-INSERT-FL**
Micro bath insert incl. suspension basket, magnetic stirrer and transport lid.
Insertion depth 190 mm, diameter 60 mm, volume 0.7 Liter

Dry block (well) inserts
(the temperature must not be lower than -35°C!)

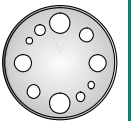Order-Code: **LTC-F-MB-04**
Metal block insert with 4 holes:
1 x 3.5 mm + 1 x 6.5 mm + 1 x 8.5 mm + 1 x 10.5 mm diameter
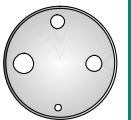
Order-Code: **LTC-F-INSERT-10**
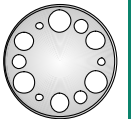**Metal block insert** with 10 holes:
2 x 3.5 mm + 2 x 4.5 mm + 2 x 6.5 mm + 2 x 8.5 mm + 2 x 10.5 mm diameter
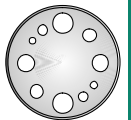
Order-Code: **LTC-F-INSERT-12**
Metal block insert with 12 holes:
3 x 3.5 mm + 3 x 6.5 mm + 3 x 8.5 mm + 3 x 10.5 mm diameter

Order-Code: **LTC-F-INSERT-10S**
Metal block insert with 10 holes: 2 x 3.5 mm + 4.5 mm + 5.0 mm + 5.5 mm
+ 6.5 mm + 8.5 mm + 9.0 mm + 9.5 mm + 10.5 mm diameter

Order-Code: **LTC-F-INSERT-B**
Metal block insert without holes (for self-drilling)

Order-Code: **LTC-F-INSERT-OF**
Metal block insert for surface probes
(operating range: -20°C...+150°C)

Order-Code: **LTC-F-INSERT-BB**
**Black body insert** for IR thermometers
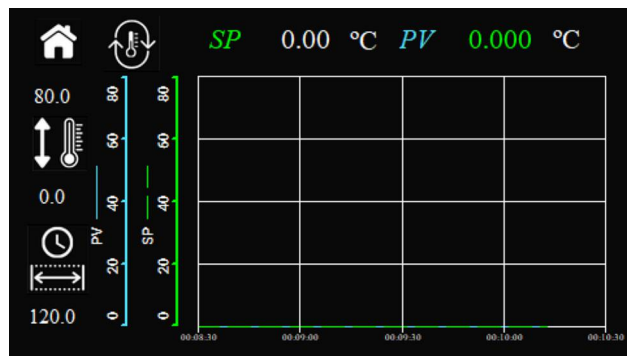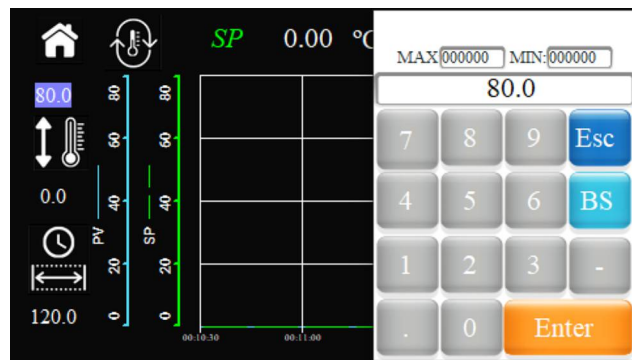(operating range: -14°C...+165°C)

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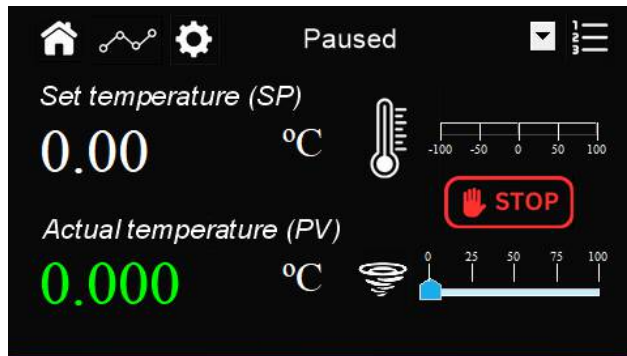
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LTC 150-F
LTC 150-F-PLUS
LTC 250-F

Portable temperature calibration micro baths
-35...+165°C / -40...+165°C / +30...+225°C

LR-Cal LR

Simple and easy operation via touch screen
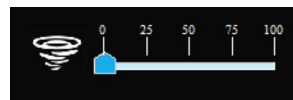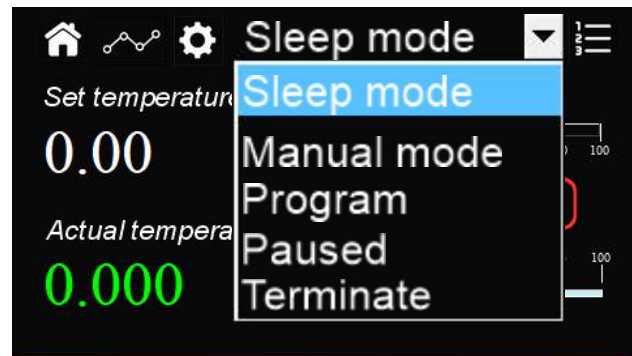
Regulation of the magnetic stirrer via touch screen

Top view:
Calibration bath opening with basket
and mixer rod

Standard scope of delivery

Micro bath **LR-*Cal* LTC 150-F** or **LR-*Cal* LTC 150-F-PLUS** or **LR-*Cal* LTC 250-F**

Tank lid with 5 + 1 holes (Order-Code: **LTC-F-DECKEL-05**)

Mains power cable (EU)

Operating manual (German/English)

Factory certificate of calibration EN 10204 3.1

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LR-Cal LR

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LTC 150-F
LTC 150-F-PLUS
LTC 250-F

Operating fluids (silicone oil), to be ordered seperately

Bottle with 1 l silicone oil

Specific heat: 1.5 KJ/kg K.
Thermal conductivity: 0.140 W/m K.

Order-Code	Operating temp. Range	Flash-point	for LR-Cal LTC 150-F	for LR-Cal LTC 150-F-PLUS	for LR-Cal LTC 250-F
LTC-F-AC05	-40...+125°C	42°C	Recommended	Recommended	not recommended
LTC-F-AC10	-30...+160°C	170°C	Recommended	Recommended	not recommended
LTC-F-AC20	-20...+200°C	240°C	Recommended	Recommended	Recommended
LTC-F-AC50	+30...+220°C	280°C	not recommended	not recommended	Recommended
LTC-F-AC100	+70...+288°C	315°C	not recommended	not recommended	Recommended

Options and accessories

Order-Code: **DKD-T-KAL-TK-6T**
DAkkS certificate of calibration (instead of factory certificate)

Order-Code: **LTC-F-KOFFER**
Sturdy aluminum case (trolley) with fixed foam inserts,
with wheels and extendable handle

As SPARE PART:
Order-Code: **LTC-F-DECKEL-05** **for micro bath insert**
Tank lid made in transparent methacrylate.
With 5 drillings for units under test plus 1 center drilling for an
external reference probe, can be used also with 6 items under test.
This accessory supports easy fixing of units under test and avoids
temperature drops, caused by open reservoir.