

Advanced temperature calibration micro baths

LR-Cal/ LTC 100-F: -35...+165°C / -31...+329°F
LR-Cal/ LTC 100-F-PLUS: -40...+165°C / -40...+329°F
LR-Cal/ LTC 200-F: +30...+225°C / +86...+437°F

- PID temperature controller with 4.3 inch touch screen
- Large reservoir volume 0.7 liter, depth 190 mm / 7.48 inch, diameter 60 mm / 2.36 inch
- Accuracy $\pm 0.1^\circ\text{C}$ / $\pm 0.2^\circ\text{F}$
- Temperature uniformity $\pm 0.05^\circ\text{C}$ / $\pm 0.09^\circ\text{F}$
- Temperature stability $\pm 0.01^\circ\text{C}$ / $\pm 0.02^\circ\text{F}$
- Very easy operation via touch screen
- Programs (ramps), Alarm, Events
- Data logging, trend graphs
- Adjustable speed magnetic stirrer
- Optional with 2nd. PID for external reference sensor, switchable via touch screen
- 10-point calibration for internal and optional external reference sensor possible, menu-driven
- Optional conversion to dry block calibrator



The image shows the instrument with optional input for external reference and with external probe.

The advanced temperature micro baths **LR-Cal/ LTC 100-F**, **LR-Cal/ LTC 100-F-PLUS** and **LR-Cal/ LTC 200-F** are portable stirred liquid baths. The instruments are suitable for checking, adjusting and calibrating temperature sensors and thermometers of all sizes, diameters and shapes, without the need of specifically drilled metal blocks. Ideal for glass thermometers and 90° angled probes as units under test.



The images show the instrument with optional input for external reference, with optional external reference probe and with optional tank lid with 6 holes for fixing units under test.



All 3 models are equipped with a large reservoir of 0.7 l volume, 190 mm depth and 60 mm diameter.



All 3 models are equipped with 2 USB sockets and 1 ethernet socket as well as a socket for an optional external reference probe.

LTC 100-F
LTC 100-F-PLUS
LTC 200-F

Advanced Micro Baths for Temperature
Calibration -35...+165°C, -40...+165°C and +30...+225°C



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Rue des Farnards - CRT2 - CS 10210 - 59273 FRETIN
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Technical data

Model:	LR-Cal LTC 100-F	LR-Cal LTC 100-F-PLUS	LR-Cal LTC 200-F
Operating temperature range:	-35°C...+165°C / -31°F...+229°F *)	-40°C...+165°C / -40°F...+229°F **)	+30°C...+225°C / +86°F...+437°F
Temperature regulation:	internal Pt 100 sensor, PID temperature controller OPTION: additional for external reference probe, switchable		
Temperature stability:	±0.01°C / ±0.02°F		
Temperature uniformity:	±0.05°C / ±0.09°F		
Temperature circulation:	adjustable magnetic stirrer, made in Teflon		
Display:	4,3" colour Touch-Screen		
Display resolution:	0.1°C / 0.01°C / 0.001°C		
Accuracy:	±0.1°C / ±0.2°F		
Functions:	Programs (ramps), Trends, Data logging, 10-point calibration, alarm, events		
Reservoir aperture:	60 mm / 2.36 inch diameter		
Insertion depth:	190 mm / 7.48 inch		
Max. filling level:	150 mm		
Reservoir volume	0.7 liter		
Temperature generation:	peltier elements	advanced peltier elements	heating elements
Heating time (typical): ***)	-5...+100°C / +23...+215°F: 25 min	-5...+100°C / +23...+215°F: 25 min	+25...+220°C / +77...+428°F: 42 min
Cooling time (typical): ***)	+25...-30°C / +77...-13°F: 48 min	+25...-40°C / +77...-40°F: 1 h 40 min	+220...+100°C / +428...+212°F: 35 min
Interfaces:	2 x USB + 1 x Ethernet		
Supply:	115...230 VAC 50/60 Hz		
Power consumption:	max. 310 W		max. 320 W
Dimension:	280 x 370 x 490 mm		
Weight:	15.2 kg		
Storage conditions:	Temperature -10...+60°C rel. humidity 30...95% r.h. (non-condensing)		
Order-Code instrument:	LTC100-F	LTC100-F-PLUS	LTC200-F
Order-Code for optional input for external reference:	LTC-EXTSENS		

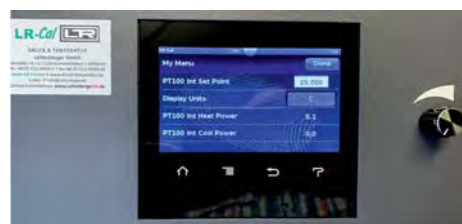
*) the minimum temperature is 55°C / 131°F below ambient temperature, absolute minimum temperature -35°C / -31°F.

**) the minimum temperature is 60°C / 140°F below ambient temperature, absolute minimum temperature -40°C / -40°F.

***) measured with 1 probe with 6 mm diameter at ambient temperature 22°C ±1°C.

This micro bath can be optional converted to a dry block temperature calibrator. See „Accessories“.

Easy operation via colour touch screen





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**Advanced Micro Baths for Temperature
Calibration -35...+165°C, -40...+165°C and +30...+225°C**

**LTC 100-F
LTC 100-F-PLUS
LTC 200-F**

Scope of standard delivery



Advanced micro bath for temperature calibration



Reservoir lid (for transport and storage purposes)



Mains power cable (EU)



Syringe for charging/discharging the reservoir with operating fluid

Operating manual



Factory certificate of calibration EN 10204 3.1

Operating fluids (silicone oil), to be ordered separately



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 100-F	for LR-Cal LTC 100-F-PLUS	for LR-Cal LTC 200-F
LTC-F-AC00	-100...+30°C	42°C	Recommended	Recommended	not recommended
LTC-F-AC10	-30...+60°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: **LTC-F-EXTSENS**

If you like to use the instrument with an external reference sensor (which is placed directly in the reservoir, very close to the units under test:

Option with 2nd. PID for external reference sensor incl. FA-DIN 6 plug for 3-/4-wire Pt 100 probe (incl. wiring diagram).

If a probe is required from us, please order code LTC-F-PT100 in addition.



Order-Code: **LTC-F-PT100**

External reference temperature probe Pt 100

complete with FA-DIN 6 plug for direct connection to the socket at the front of the calibrator. Temperature range -40...+500°C, probe diameter 4 mm, length 300 mm. For using this thermometer with the calibrator, LTC-F-EXTSENS must be ordered in addition. If this probe is ordered (also with LTC-F-EXTSENS) together with the instrument, the supplied factory certificate also indicates the values of this external probe.



Order-Code: **LTC-F-DECKEL-05**

Tank lid made in transparent methacrylate.

With 5 drillings for units under test plus 1 sender drilling for the optional 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.



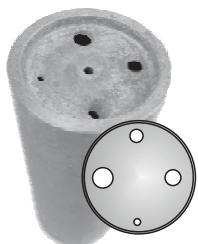
Order-Code: **DKD-T-KAL-TK-6T**

DAkkS certificate of calibration (instead of factory certificate of calibration).

Order-Code: **LTC-F-KOFFER**

Robust aluminium trolley with handle and reinforced wheels and with high density foam.

Option: Conversion to **dry block temperature calibrator**

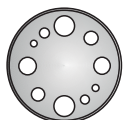


Order-Code: **LTC-F-MB-04**

Dry block option to use the micro bath as dry block temperature calibrator

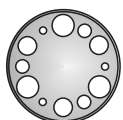
Material: aluminium. Dimension: 59.5 x 165 mm

Incl. 1 insert with 4 drillings: 1x3.5 + 1x6.5 + 1x8.5 + 1x10.5 mm diameter



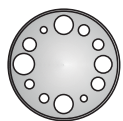
Order-Code: **LTC-F-INSERT-10**

Insert with 10 drillings: 2x3.5 + 2x4.5 + 2x6.5 + 2x8.5 + 2x10.5 mm diameter



Order-Code: **LTC-F-INSERT-12**

Insert with 12 drillings: 3x2.5 + 3x6.5 + 3x8.5 + 3x10.5 mm diameter



Order-Code: **LTC-F-INSERT-10S**

Insert with 12 drillings: 2x3.5 + 2x4.5 + 2x5.5 + 2x6.5 + 1x8.5 + 2x9.5 + 1x10.5 mm



Order-Code: **LTC-F-INSERT-B**

Insert without drillings (holes to be drilled by customer)