

Controlled portable dry block temperature calibrators

Type LR-Cal LTC-DB-9030-35: -30...+150°C

Type LR-Cal LTC-DB-9050-35: -50...+120°C

The portable dry metal block temperature calibrators LR-Cal LTC-DB-9030-35 and LR-Cal LTC-DB-9050-35 serve as both as self-sufficient temperature source and reference device for testing, adjusting, and calibrating all types of temperature measuring devices and temperature switches. Cooling and heating are provided by powerful Peltier elements and electronically controlled fans.

Features:

- High control stability and accuracy.
- Easy operation via color touchscreen.
- Display resolution up to 0,001°C.
- Compact device with low weight.
- Various block inserts with different bore holes available.
- Block diameter 35 mm, depth 135 mm
- Programmable ramp function.
- USB interface for computer-assisted calibrations.
- PID controller(32-bit microprocessor).



This image shows the calibrator including the option [LTC-MP-3I](#)

Option: 3 measuring inputs - Order-Code [LTC-MP-3I](#)

Device version with 3 configurable measuring inputs, including 2 inputs for resistance thermometers (2-, 3-, or 4-wire) and thermocouple sensors (including cold junction compensation) and 1 input for temperature transducers with analog output signal 0...10 V or 4...20 mA. If you do not want to test or calibrate exclusively analog temperature measuring devices, we recommend these measuring inputs, Order-Code [LTC-MP-3I](#). Connectors for the electrical connection are included with this option.



Standard scope of delivery:

- LR-Cal LTC-DB calibrator in the version ordered
- Power supply cable
- 1 block insert with 6 drillings:
3.5 + 4.5 + 5.5 + 6.5 + 8.5 + 10.5 mm diameter
- 1 tool for removing block insert
- Set of spare fuses
- Electrical connection cable for testing/calibrating temperature switches (thermostats)
- Operating instructions (in German and English)
- Acceptance test certificate 3.1 in accordance with DIN EN 10204
- Only if option order-code [LTC-MP-3I](#) was ordered with the basic unit:
1 set of measuring sockets (red/black) for the three measuring inputs



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LTC-DB-9050-35 -30...+150°C or -50...+120°C

LR-Cal



Technical data:

Specification	LR-Cal	LTC-DB-9030-35	LTC-DB-9050-35
Temperature range:		-30...+150°C	-50...+120°C
Display:		Touch screen (color)	
Display accuracy:		±0.15°C full temperature range *	
Units of measure:		°C / °F / K	
Display resolution:		0.1° / 0.01° / 0.001°	
Mean heating time: (incl. stabilization)		approx. 28 min from +20°C to +140°C	approx. 17 min from ambient temp. to +120°C
Mean cooling time: (incl. stabilization)		approx. 23 min from +20°C to -25°C	approx. 37 min from ambient temp. to -45°C
Stability:		±0.03°C **	
Axial uniformity:		±0.01°C ***	
Hole (block) diameter:		35 mm	
Hole (block) depth:		135 mm	
Insert material:		anticorodal	
Switch test, voltage:		Open/Closed - 4,5 VDC	
Adjustable ramp function:		from 0.1°C /min.	
PC interface:		USB type B	
Automatic calibration:		at 5 temperature points	
External probes:		Optional: Order-Code LTC-MP-3I to be ordered together with device	
Operating voltage:		230 VAC (optional 115 VAC) 50/60 Hz	
Electric power:		350 W	400 W
Dimensions:		160 x 350 x 360 mm	
Weight incl. std.accessories		9.3 kg	

All values have been measured at ambient temperature of +20°C.

The achievement of stabilization is confirmed by a displayed root symbol √ and an audial beep.

* Temperature deviation between display and reference probe.

** Max. temperature difference at stable temperature over 30 min.

*** Measured from the button up to 60 mm.

Options that must be ordered together with the basic unit, if required:

Order-Code:	Description:
LTC-MP-3I	Instrument version with 3 configurable measuring inputs, as follows: 2 x for Pt 100 / Pt 1000 (2-, 3- or 4-wires) and Thermocouples TC Types B, E, J, K, N, R, S und T (incl. cold junction compensation) 1 x for Temperature transducer with analogue output signal 0...10 V or 4...20 mA Incl. set of red/black plugs for the electrical connection
LTC-MP-115V	Instrument version for power supply 115 VAC 50/60 Hz (instead of for 230 VAC)

Accuracy of the 2 resistance and thermocouple inputs at option with order-code **LTC-MP-3I**:

Maximal deviations

Resistance thermometer:				
Pt 100 + Pt 1000	at -40°C:	±0.09°C	at 0°C:	±0.08°C
	at +300°C:	±0.14°C	at +450°C:	±0.30°C
			at +150°C:	±0.11°C
			at +600°C:	±0.40°C
Thermocouples:				
Type B	at +950°C:	±0.97°C	at 1050°C:	±1.03°C
Type E	at -40°C:	±0.42°C	at 0°C:	±0.40°C
Type J	at +200°C:	±0.52°C	at +450°C:	±0.67°C
Types K + N + R + S	at +400°C:	±0.64°C	at +700°C:	±0.82°C
Type T	at -40°C:	±0.42°C	at 0°C:	±0.40°C
			at +1200°C:	±1.12°C
			at +350°C:	±0.61°C
			at +700°C:	±0.82°C
			at +1000°C:	±1.00°C
			at +350°C:	±0.61°C

Available block inserts:

Outer dimensions: 34.7 x 135 mm



Order-Code:	Number of drillings	Standard drillings
LTC-BI-35-135-0	0	no (blank, for self-drilling by customer)
LTC-BI-35-135-6	6	3.5 + 4.5 + 5.5 + 6.5 + 8.5 + 10.5 mm diameter (included in standard supply of the calibrator)
LTC-BI-35-135-2	2	6.5 + 19.5 mm diameter
Order-Code:	Number of drillings	customer-specific drillings (specify at ordering)
LTC-BI-35-135-C1	1 to 3	As per customers request, diameter 3.5...20 mm
LTC-BI-35-135-C4	4 to 6	As per customers request, diameter 3.5...20 mm
LTC-BI-35-135-C7	7 to 10	As per customers request, diameter 3.5...20 mm
Order-Code:	Black body insert for infrared thermometer	
LTC-BI-35-135-BB	with 1 hole with 26 mm diameter	

To use the black body insert for calibrating infrared thermometers, you will also need order-code **BB-SENSOR-01** as an external reference sensor Pt 100 class A, as well as option **LTC-MB-3I** (version with 3 measuring inputs for external sensors, must be ordered together with the basic device).

Accessories:

Order-Code:	Beschreibung:
LTC-DB-TW	Removal tool (as spare part, 1 pc. included in device scope of delivery)
LTC-AQ2SP2	Windows-PC software LR-Cal AQ2sp2 (The device version with measurement inputs LTC-MP-3I is recommended for this purpose). Control of the calibrator from the PC, manual or automatic calibration of one or more test items, load and endurance tests, creation of calibration certificates
LRT-F-9040-0650-45	External Pt 100 reference probe -40...+650°C, diameter 4.4 mm
LRT-F-9040-0650-60	External Pt 100 reference probe -40...+650°C, diameter 6.0 mm
LRT-F-0000-1400-70	External reference thermocouple type S, 0...1400°C, diameter 7.0 mm
BB-SENSOR-01	External Pt 100 class A reference probe, diameter 3 mm, for Black Body block insert LTC-BI-35-135-BB
Note:	If the values from an external reference probe are to be shown on the device display, the LTC-MP-3I option must be ordered together with the calibrator.
LTC-FB-DB-KOFFER	Sturdy aluminium storage and transport case (37 x 29 x 42 cm) with space for device and accessories
LTC-FB-DB-TASCHE	Padded shoulder bag with shoulder strap (41 x 22 x 38 cm) with space for device and standard accessories
DKD-T-KAL-TK-6T	DAkkS calibration certificate (6 temperature points), traceable and accredited according to ISO 17025 for measuring chain consisting of device display and internal reference sensor, or, for device versions with LTC-MP-3I measuring inputs, measuring chain consisting of display and external reference sensor (external reference sensors LRT-F-... or BB-SENSOR-01 see above in this table)



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LR-Cal



Simple operation
via color touch screen

The image shows the front of the device with
the LTC-MP-3I option ordered
(3 measuring inputs for sensors)