

Portable dry block temperature calibrator

Type LR-Cal LTC-DB-0600-35: Ambient temp. ...+600°C

The portable dry metal block temperature calibrator LR-Cal LTC-DB-0600-35 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.

A tangential airflow system in the housing protects the test specimens by directing high temperatures out of the rear of the housing.

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, usable depth 185 mm
- Programmable ramp function.
- USB interface for computer-assisted calibrations.
- PID controller (32-bit microprocessor).
- Innovative ventilation system to protect test specimens from excessive ambient temperatures.



This image shows the calibrator including the option LTC-MP-31

Option: 3 measuring inputs - Order-Code LTC-MP-31

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-31. Connectors for the electrical connection are included with this option.

**Less thermal stress for your test items:**

The innovative ventilation concept of the LR-Cal LTC-DB-0600-35 significantly reduces the temperature at the top of the calibrator. A targeted tangential air flow passes evenly through the device and directs the warm air to the rear in a controlled manner. This keeps the measuring heads and housings of your test objects in a noticeably cooler environment. Measurement and compensation errors that can arise due to excessive ambient temperatures are thus effectively minimized.

Technical data:

Specification	LR-Cal	LTC-DB-0600-35
Temperature range:		from ambient temperature to +600°C
Display:		Touch screen (color)
Display accuracy:		±0.3°C *
Units of measure:		°C / °F / K
Display resolution:		0.1° / 0.01° / 0.001°
Mean heating time: (incl. stabilization)		approx. 40 min.
Mean cooling time: (incl. stabilization)		from ambient temperature to +550° approx. 60 min.
Stability:		±0.05°C full temperature range **
Axial uniformity:		±0.15°C at +400°C ***
Radial uniformity:		±0.35°C at +400°C
Hole diameter:		35 mm
Hole depth:		185 mm
Block insert material:		nickel plated brass
Switch test, voltage:		Open/Closed - 12 VDC
Adjustable ramp function:		from 0.1°C/min.
PC interface:		USB type B
Automatic calibration:		on 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:		800 W
Dimensions:		160 x 360 x 350 mm
Weight incl. std.access.		10.0 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 40 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)

Standard scope of delivery:

- LR-Cal LTC-DB-0600-35 calibrator
- Power supply cable
- 1 block insert with 5 drillings:
3.5 + 5.0 + 6.5 + 8.5 + 12.5 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



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: $\pm 0.09^\circ\text{C}$ at +300°C: $\pm 0.14^\circ\text{C}$	at 0°C: $\pm 0.08^\circ\text{C}$ at +450°C: $\pm 0.30^\circ\text{C}$	at +150°C: $\pm 0.11^\circ\text{C}$ at +600°C: $\pm 0.40^\circ\text{C}$
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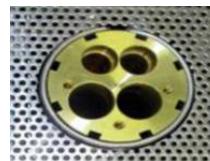
Thermocouples:

Type B	at +950°C: $\pm 0.97^\circ\text{C}$	at 1050°C: $\pm 1.03^\circ\text{C}$	at +1200°C: $\pm 1.12^\circ\text{C}$
Type E	at -40°C: $\pm 0.42^\circ\text{C}$	at 0°C: $\pm 0.40^\circ\text{C}$	at +350°C: $\pm 0.61^\circ\text{C}$
Type J	at +200°C: $\pm 0.52^\circ\text{C}$	at +450°C: $\pm 0.67^\circ\text{C}$	at +700°C: $\pm 0.82^\circ\text{C}$
Types K + N + R + S	at +400°C: $\pm 0.64^\circ\text{C}$	at +700°C: $\pm 0.82^\circ\text{C}$	at +1000°C: $\pm 1.00^\circ\text{C}$
Type T	at -40°C: $\pm 0.42^\circ\text{C}$	at 0°C: $\pm 0.40^\circ\text{C}$	at +350°C: $\pm 0.61^\circ\text{C}$

Available block inserts:

Dimension: 35 x 190 mm
Material: chromium plated brass

Usable depth: 185 mm



Order-Code:	Number of drillings	Standard drillings
LTC-BI-35-190-0	0	no (blank, for self-drilling by customer)
LTC-BI-35-190-5A	5	3.5 + 5.0 + 6.5 + 8.5 + 12.5 mm diameter (included in standard supply of the calibrator)
LTC-BI-35-190-5B	5	6.5 + 6.5 + 6.5 + 6.5 mm diameter
LTC-BI-35-190-5C	5	5.0 + 5.0 + 5.0 + 6.5 mm diameter
Order-Code:	Number of drillings	customer-specific drillings (specify at ordering)
LTC-BI-35-190-C2	2	As per customers request, diameter 3.5...20 mm
LTC-BI-35-190-C3	3	As per customers request, diameter 3.5...20 mm
LTC-BI-35-190-C4	4	As per customers request, diameter 3.5...20 mm
LTC-BI-35-190-C5	5	As per customers request, diameter 3.5...20 mm
LTC-BI-35-190-C6	6	As per customers request, diameter 3.5...20 mm
LTC-BI-35-190-C9	9	As per customers request, diameter 3.5...7.0 mm
Order-Code:	Black body insert for infrared thermometer	
LTC-BI-35-190-BB	Back body insert (conical) 26...15 mm diameter x 145 mm depth	

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 trap (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)



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)