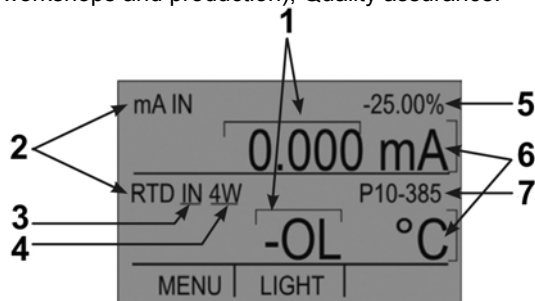


### Multi-Function Calibrator LEC 200

- Highest accuracy in class up to  $\pm 0.015\%$  of reading.
- Source / Read thermocouples (13), RTDs (19; ohms, current, voltage, frequency and pulse trains (only source).
- Isolated mA / V read-back circuit for complete transmitter calibration.
- Programming of setpoints to speed up calibration tasks..
- Entry of custom RTD coefficients.

The Multi-Function Calibrator **LEC 200** provides a feature set unmatched in high accuracy, hand-held calibrators in its price range. The **LEC 200** provides the functions and accuracy associated with fixed installation, laboratory instruments, and has everything needed for virtually any calibration task. Measure and source thermocouples, RTDs, current, voltage, frequency and source pulse trains. A communications port compatible with several pressure modules is provided, as is an isolated mA/V read-back circuit.

There is a wide range of application capabilities for the **LEC 200**: Calibration service companies / service industry, Instrument and control workshops, Industry (Laboratories, workshops and production), Quality assurance.



The handling of the **LEC 200** is very easy.

Arrow keys, direct numeric keypad entry, and three software-driven function buttons, plus a large backlit, menu-driven graphics display combine to provide a highly intuitive, simple yet powerful operator interface.

- |                          |                         |
|--------------------------|-------------------------|
| 1 = numeric displays     | 4 = additional settings |
| 2 = primary parameters   | 5 = span indicator      |
| 3 = Input/Output control | 6 = units               |
|                          | 7 = sensor types        |

#### Additional features:

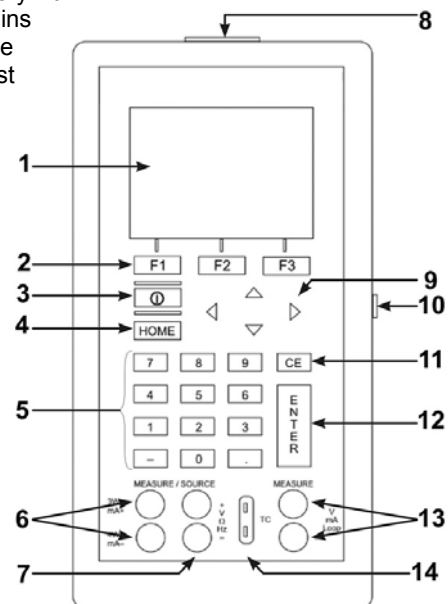
Built-in 250  $\Omega$  resistor for HART™ compatibility, 24 V loop power supply, compatibility with smart transmitters and PLCs, full fuseless protection, and a serial communications port for full control with ASCII commands, are just some of the additional features that make the **LEC 200** the single, most indispensable tool available for virtually any calibration task. The **LEC 200** is supplied in a rugged rubber boot.

**Scope of supply:** LEC 200, manual, test leads (3 sets red/black), Factory calibration certificate, 4 AA NiMH batteries, protective rubber boot.

**Options and accessories:** DKD certificate of calibration, rechargeable battery kit incl. quick charger, power cord and adapters, Battery set (4 x NiMH), AC mains adapter, RS-232 communications cable, USB serial converter, Thermocouple wire kit J, K, T, E or R/S, N, B with mini plugs, Low EMF beryllium copper test leads (red and black), Test leads (1 set red/black).

Overview keypad of **LEC 200** multi-function calibrator:

- 1 = Display.
- 2 = F1, F2, F3 -function keys, used to operate the menu bar at the bottom of the calibrator display .
- 3 = On / Off
- 4 = HOME, returns to home menu.
- 5 = Numeric keys.
- 6 = MEASURE / SOURCE, mA terminals, 3W, 4W.
- 7 = MEASURE / SOURCE, V, RTD, 2W, Hz.
- 8 = Connector for external pressure module.
- 9 = User arrow, select which decade to be changed in output value; increase, decrease or ramp output value.
- 10 = Interface, serial port.
- 11 = Clear Entry, allows the user to clear a value.
- 12 = Enter key.
- 13 = Input terminals for measuring current, voltage and supplying mA terminals loop power.
- 14 = Thermocouple Input / Output



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### Technical Data

Display:	2-part, with 10 places and character size 8 mm
Input and Output:	
Resistance thermometers	Pt100 (385, 3926, 3916), Pt200, Pt500, Pt1000, Ni120, Cu10, Cu50, Cu100, YSI400, Pt10, Pt50
Thermocouples	Type J, K, T, E, R, S, B, L, U, N, C, XK, BP
Voltage and Current signal	0...30 VDC and 0...24 mA
Resistance	0...400 and 400...4000 Ohm
Frequency and Pulse	2 CPM...10,00 kHz
Loop supply voltage	24 VDC
RTD frequency response	5 ms (works with all pulsed transmitter)
Frequency & Pulse	1...20 V, selectable amplitude (Pulse: source only)
Interface	RS232 (USB with optional serial adapter)
Power supply	4 x AA alkaline batteries, 6 VDC, life time 20 h, icon in display as low battery indicator
EMC	EN 50082-1 from 1992 and EN 55022 from 1994 class B
Temperatures	Permissible operating temp. -10...+50°C; permissible storage temp. -20...+70°C
Stability	0,005 % of reading/°C outside of 23°C $\pm$ 5°C
Case ingress protection	IP 52
Dimensions and weight	220.9 x 106.6 x 58.4 mm; approx. 863 g

### Thermocouples (Input & Output)

### RTD (Input & Output)

TC Type	Range		Absolute uncertainty		RTD Type	Range		Absolute uncertainty	
	Min. °C	Max. °C	MIN $\pm$ °C	MAX $\pm$ °C		Min. °C	Max. °C	MIN $\pm$ °C	MAX $\pm$ °C
mV	-10	75	0.02% v.M. $\pm$ 10 $\mu$ V		Pt385. 100 $\Omega$	-200.0	800.0	0.10	0.29
B	600	1820	1.2	1.5	Pt3926. 100 $\Omega$	-200.0	630.0	0.10	0.24
C	0	2316	0.6	2.3	Pt3916. 100 $\Omega$	-200.0	630.0	0.08	0.25
E	-250	1000	0.2	0.6	Pt385. 200 $\Omega$	-200.0	630.0	0.40	0.66
J	-210	1200	0.2	0.4	Pt385. 500 $\Omega$	-200.0	630.0	0.18	0.34
K	-200	1372	0.3	0.6	Pt385. 1000 $\Omega$	-200.0	630.0	0.10	0.25
L	-200	900	0.2	0.25	Pt385. 10 $\Omega$	-200.0	800.0	0.78	1.19
N	-200	1300	0.4	0.8	Pt385. 50 $\Omega$	-200.0	800.0	0.18	0.39
R	0	1767	1.2	1.2	Ni120. 120 $\Omega$	-80.0	260.0	0.06	0.06
S	0	1767	1.2	1.2	Cu10	-100.0	260.0	0.82	0.82
T	-250	400	0.2	0.6	Cu50	-180.0	200.0	0.20	0.20
U	-200	600	0.25	0.5	Cu100	-180.0	200.0	0.13	0.13
XK	-200	800	0.2	0.2	YSI 400	15.0	50.0	0.05	0.05
BP	0	2500	0.9	2.3					

### Standard signals (Input & Output)

		Range	Absolute uncertainty (of reading)	
Current signal	Output	0...24.000 mA	0.015% $\pm$ 2 $\mu$ A	
	Input	0...24.000 mA	0.015% $\pm$ 2 $\mu$ A	
Voltage signals	Output	0...20.000 VDC	0.015% $\pm$ 2 mV	
	Input	0...30.000 VDC (isolated)	0.015% $\pm$ 2 mV	
		0...20.000 VDC (non-isolated)	0.015% $\pm$ 2 mV	
Resistance	Output	5.0...400.0 $\Omega$	0.015% $\pm$ 0.1 $\Omega$	
		5.0...400.0 $\Omega$	0.015% $\pm$ 0.03 $\Omega$	
		400.0...1500.0 $\Omega$	0.015% $\pm$ 0.3 $\Omega$	
		1500.0...4000.0 $\Omega$	0.015% $\pm$ 0.3 $\Omega$	
	Input	0...400.0 $\Omega$	0.015% $\pm$ 0.03 $\Omega$	
		400.0...4000.0 $\Omega$	0.015% $\pm$ 0.3 $\Omega$	
Frequency	Output	2...600.0 CPM	0.05	
		1...1000.0 Hz	0.05	
		1...10.00 kHz	0.125	
	Input	2...600.0 CPM	0.05 $\pm$ 0.1 CPM	
		1...1000.0 Hz	0.05 $\pm$ 0.1 Hz	
		1...10.00 kHz	0.05 $\pm$ 0.01 kHz	
Pulse	Output	1...30.000 counts		
		2 CPM...10 kHz		



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