PROVA 135 LoopThermo®
4-20mA Loop Calibrator + Thermometer

CE

Applications:

1. **Calibration of 4~20mA** panel meters.

2. **LED brightness testing (0~24mA).**

3. **Temperature calibration** of panel meters or instruments for 11 types of thermocouples.

Features:

1. **Source 4~20mA, 0~24mA** with 1μA resolution (1KΩ load, 24V loop supply), basic accuracy 0.025%.
2. **Source 0~24.000V** with 1mV resolution.
3. **Source frequency 1~20000Hz** square wave with programmable duty cycle (1~99%).
4. **Auto step** and **auto ramp** for sourcing mA, V.
5. Easy fixed 25% up and down, or programmable percentage (1~99%) increase and decrease (mA, V).
6. **Measure DC mA** with loop power (24V output).
7. **Measure DC V**.
8. **Measure Temperature** (°C, °F) of 11 types of thermocouples (K, J, E, T, R, S, N, L, U, B and C).
9. <u>Calibrator grade precision</u> temperature measurement with 0.1°C & 0.1°F resolution.
10. Detection of thermocouples disconnection.
11. Source and Measure at the same time.
12. Warning for overload, output open (mA) or short (V).
13. Short circuit protection for output.
14. Battery power indication (%) when turn on the calibrator.

Electrical Specifications:

(23+/- 5℃, 10 minutes after turning on the power)

DC mA SOURCE (Max. load 1KΩ, Max. voltage supply 24V）

Range	Resolution	Accuracy
0~4mA		± 0.025% ±10μA
4~20mA	1μA	± 0.025% ±5μA
20~24mA		± 0.025% ±5μA

When output Open, the LCD displays "OL".

DC V SOURCE (Max. load 24mA, Short circuit protection < 25mA)

Range	Resolution	Accuracy
0~4V		± 0.05% ± 10mV
4~20V	1mV	± 0.05% ±5mV
20~24V		± 0.05% ±5mV

When output Short circuit, the LCD displays "OL".

Frequency SOURCE (TTL, Square wave, Duty cycle = 1~99%）

Range（Hz）	Resolution	Accuracy
1.0~1000.0Hz	0.1Hz	±0.1%±0.3Hz
1000~10000Hz	1Hz	±0.1%±3Hz
10000~20000Hz	1Hz	±0.1%±30Hz

Temperature of Thermocouples (MEASURE)

(Resolution 0.1∘C&0.1∘F, Internal cold junction compensation, Thermocouples accuracy not included, 3 minutes after plugging in thermocouples.)

	°C		°F	
	Range	Accuracy	Range	Accuracy
K	-200 to -150	2.0	-328 to -238	3.6
	-150 to 0	1.2	-238 to 32	2.1
	0 to 1000	0.8	32 to 1832	1.4
	1000 to 1370	1.2	1832 to 2498	2.1
J	-200 to -150	2.0	-328 to -238	3.6
	-150 to 0	1.0	-238 to 32	1.8
	0 to 1050	0.7	32 to 1922	1.2
E	-200 to -150	1.5	-328 to -238	2.7
	-150 to 0	0.9	-238 to 32	1.6
	0 to 850	0.7	32 to 1562	1.2
T	-200 to -150	1.5	-328 to -238	2.7
	-150 to 0	1.2	-238 to 32	2.1
	0 to 400	0.8	32 to 752	1.4
R	0 to 500	1.8	32 to 932	3.2
	500 to 1760	1.5	932 to 3200	2.7
S	0 to 500	1.8	32 to 932	3.2
	500 to 1760	1.5	932 to 3200	2.7
N	-200 to 0	1.5	-328 to 32	2.7
	0 to 1300	0.9	32 to 2372	1.6
L	-200 to 0	0.9	-328 to 32	1.6
	0 to 900	0.7	32 to 1652	1.2
U	-200 to 0	1.1	-328 to 32	1.9
	0 to 600	0.7	32 to 1112	1.2
B	600 to 800	2.2	1112 to 1472	3.9
	800 to 1000	1.8	1472 to 1832	3.2
	1000 to 1820	1.4	1832 to 3308	2.5
C	0 to 1800	1.0	32 to 3272	1.8
	1800 to 2310	1.5	3272 to 4190	2.7

DC mA MEASURE

Range	Resolution	Accuracy
0.005~4mA	1uA	±0.025%±5dgts
4~20mA		
20~24mA		

If reading of mA (measure) is less than 5 digits, it is displayed as 0.

DC V MEASURE

Range	Resolution	Accuracy
0~24V	0.001V	±0.025%±5dgts

If reading of V (measure) is less than 5 digits, it is displayed as 0.

General Specifications:

Dimension	214.0 (L) x 98.7(W) x 56.0(H) mm 8.4" (L) x 3.9" (W) x 2.2" (H)
Weight	650g / 22.9oz (batteries included)
Operation Environment	0℃ ~ 50℃ < 85% RH
Storage Environment	-20℃ ~ 60℃ < 75% RH
Accessories	Carrying case x 1 User manual x 1 1.5V SUM-3 Battery x 5 K-type thermocouples (1M, single plug) x 1 Alligator clips x 2 (black and red) Test leads x 2 (black and red)

PROVA INSTRUMENTS INC.

Add: 6F-2, No. 129, Lane 235, Pao-Chiao Road, Shin-Tien District, New Taipei City 23145, TAIWAN

Tel: 886-2-89191255   **Fax:** 886-2-89191489

E-mail: prova@ms3.hinet.net   **Website:** www.prova.com.tw