

PROVA 131 ProcessDMM®

Multifunction Process Calibrator + DMM

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.
4. **Calibration of valve opening** by changing duty cycle of a PWM signal.
5. **Output Frequency** measurement of **Inverter**.

Features:

1. **Source 4~20mA** loop current (1K Ω load, 24V loop supply).
2. **Source 0~100mV, 0~1.000V, 0~12.000V.**
3. **Calibrate/Measure temperature** of 11 types of thermocouples (K, J, E, T, R, S, N, L, U, B and C).
4. 0.1 $^{\circ}$ C and 0.1 $^{\circ}$ F Resolution.
5. Detection of thermocouples disconnection.
6. **Source frequency** (1 to 20000Hz).
7. Programmable **duty cycle**.(0~100%) of frequency output.
8. **DMM** 24000 counts.
9. **DMM functions (Measure):** DC/AC mA, DC/AC mV, DC/AC V (AC TRMS); Ω , Frequency (duty cycle %), Diode, Continuity, Temperature ($^{\circ}$ C, $^{\circ}$ F).
10. Source and Measure Simultaneously.
11. Selectable **HART 250 Ω** resistor to facilitate use with HART communication device.
12. **Auto step** and **auto ramp** for sourcing mA, V and temperature
13. 25% \blacktriangle , 25% \blacktriangledown , or programmable percentage (0~100%) increase and decrease
14. **Warning** for overload, output open (mA) or short (mV, V).
15. **Short circuit protection** for voltage output.
16. **Battery** power indication (%).
17. Clear and easy user interface.

Electrical Specifications: (23 \pm 5 $^{\circ}$ C, 3 minutes after turning on the power)

DCmA SOURCE (Max. load 1K Ω , Max. voltage supply 24V)

Range	Resolution	Accuracy
4 - 20mA, 0 - 20mA, 0 - 24 mA	1 μ A	\pm 0.05% \pm 14 μ A* ¹

When output open, the LCD displays "OL".

*¹ Users will get the better accuracy \pm 0.05% \pm 5dpts if they can move the sliding switch to temperature or frequency function and then switch back to mA range before they perform the DCmA SOURCE function.

DCmV, DCV SOURCE (Max. load 1mA, Short circuit protection < 100mA)

Range	Resolution	Accuracy
0 - 100mV	10 μ V	\pm 0.05% \pm 30 μ V
0.1 - 1.0000V	100 μ V	\pm 0.05% \pm 300 μ V
1 - 12.000V	1mV	\pm 0.05% \pm 3mV

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

ACmA MEASURE (True RMS)

Range	Resolution	Accuracy	
		50/60Hz	40-1KHz
24mA	1uA	±1%±5dgts	±2%±5dgts

DCmA MEASURE

Range	Resolution	Accuracy
24mA	1uA	±0.05%±2dgts

DCV MEASURE (Overload protection AC 600V, Input impedance 10MΩ)

Range	Resolution	Accuracy
2.4V	0.1 mV	±1%±3dgts
24V	1 mV	
240V	10 mV	
600V	100mV	±1.5%±3dgts

ACV MEASURE (True RMS)

(Overload protection AC 600V, Input impedance 10MΩ)

Range	Resolution	Accuracy	
		50/60Hz	40-1KHz
24V	1 mV	±1%±5dgts	±2%±5dgts
240V	10 mV	±1%±5dgts	
600V	100mV	±1.5%±5dgts	

Frequency SOURCE (TTL, Square wave, Duty cycle = 50%)

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%±10Hz

Frequency MEASURE (Sensitivity RMS 1V)

Range (Hz)	Resolution	Accuracy
1.000~39.999Hz	0.001Hz	±0.5%±0.003Hz
40.00~399.99Hz	0.01Hz	±0.5%±0.03Hz
0.4000K~3.999KHz	0.1Hz	±0.5%±0.3Hz
4.000K~39.999KHz	1Hz	±0.5%±3Hz
40.00K~399.99KHz	10Hz	±0.5%±30Hz
0.4000M~1.2000MHz	1KHz	±0.5%±3KHz

Duty Cycle SOURCE/MEASURE (1~20KHz)

Range	Resolution	Accuracy
1% to 99%	1%	$\pm 1\% \pm 30 \mu S$

Temperature Thermocouples

(**SOURCE** and **MEASURE**, 0.1°C & 0.1°F Resolution, 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

Continuity MEASURE:

Open voltage 2V, Overload protection AC 600V, <10 Ω Beep.

Diode MEASURE (Open voltage 2V, Overload protection AC 600V)

Range	Resolution	Accuracy
0~1.9999V	0.0001V	$\pm 2.5\% \pm 5\text{dpts}$

Resistance (Ω) MEASURE (Open voltage 0.4V, Overload protection AC 600V)

Range	Resolution	Accuracy
400 Ω	0.01 Ω	$\pm 1\% \pm 20\text{dpts}$
4K Ω	0.1 Ω	$\pm 1\% \pm 2\text{dpts}$
40K Ω	1 Ω	
400K Ω	10 Ω	
4M Ω	100 Ω	$\pm 1.5\% \pm 2\text{dpts}$
40M Ω	1K Ω	

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 $^{\circ}\text{C}$ ~ 50 $^{\circ}\text{C}$, < 85% RH
Storage Environment	-20 $^{\circ}\text{C}$ ~ 60 $^{\circ}\text{C}$, < 75% RH
Accessories	Carrying case x 1 User manual x 1 1.5V SUM-3 Battery x 5 K-type thermocouples (dual plugs) 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