

PROVA 131

ProcessDMM (DMM + Multifunction Calibrator)

Features:

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

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.

Electrical Specifications:

(23+/- 5°C, 3 minutes after turning on the power)

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

Range	Resolution	Accuracy
4 - 20mA, 0 - 20mA, 0 - 24 mA	1μA	± 0.025% ±3μA

When output open, the LCD displays "OL".

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

Range	Resolution	Accuracy
0 - 100mV	0.1mV	± 0.05% ± 0.3mV
0.1 - 1.0000V	100μV	± 0.05% ± 300μV
1 - 12.000V	1mV	± 0.05% ± 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	±1%±3dgts
240V	10 mV	±1%±3dgts
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	±2%±5dgts
600V	100mV	±1.5%±5dgts	±2%±5dgts

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

Range (Hz)	Resolution	Accuracy
1.0~9999.9Hz	0.1Hz	0.1Hz
10000~20000Hz	1Hz	2Hz

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	1Hz	±0.5%±3Hz
4.000K~39.999KHz	1Hz	±0.5%±3Hz
40.00K~399.99KHz	10Hz	±0.5%±30Hz
0.4000M~3.999MHz	1KHz	±0.5%±3KHz
4.000M~39.999MHz	1KHz	±0.5%±3KHz

Duty Cycle SOURCE/MEASURE (1~20KHz)

Range	Resolution	Accuracy
1% to 99%	1%	±1%±30 μ S

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

Range	Resolution	Accuracy
400 Ω	0.01 Ω	±1%±2dgts
4K Ω	0.1 Ω	±1%±2dgts
40K Ω	1 Ω	±1%±2dgts
400K Ω	10 Ω	±1%±2dgts
4M Ω	100 Ω	±1.5%±2dgts
40M Ω	1K Ω	±1.5%±2dgts

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	±2.5%±5dgts

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	-382 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	-382 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	-382 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	-382 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

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°C ~ 50°C 85% RH
Storage Environment	-20°C ~ 60°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)

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