



Product Datasheet

English

Stock No: 161-1624

Heavy Duty True RMS Digital Multimeter

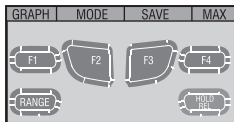
EN



Feature

Understanding the Push Buttons

The 6 push buttons on the front of the Meter activate features that augment the function selected using the rotary switch, navigate menus or control power to Meter circuits.



F1 Software key. Default switch to Graph measure.

F2 Software key. Default modes related to the rotary switch function

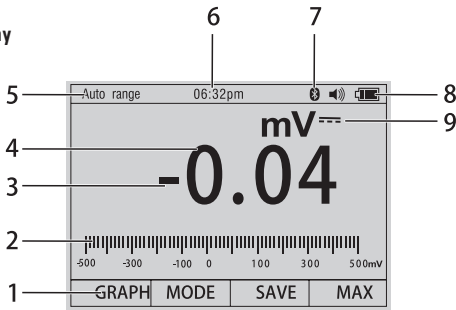
F3 Software key. Default into save mode default Display. And wake up for APO.

F4 Software key. Default modes MIN/MAX starts and stops MIN/MAX recording.

RANGE Into manual range and select range of the measure. Pressing the Range button for greater than 1 second will return to Auto Range.

HOLD/REL Freezes the present reading in the display and allows the display to be saved. Pressing the HOLD/REL button for greater than 1 second it will switch relative mode.

Understanding the Display



1-Soft key labels indicate the function of the button just below the displayed label.

2-Bar graph Analogue display of the input signal.

3-Minus sign indicates a negative reading.

4-Displays measurement information about the input signal.

5-Indicates the range the meter is in and the ranging mode (auto or manual)

6-Time indicates the time set in the internal clock.

7-Battery level indicates the charge level batteries.

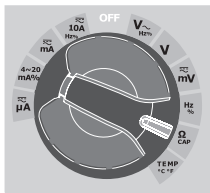
8-Beeper indicates the meter's beeper is enabled (not associated with the continuity beeper).

9-Units indicates the units of measure.

Understanding the Rotary Switch

Select a primary measurement function by positioning the rotary switch to one of the icons around its perimeter. For each function, the meter presents a standard display for that function (range, measurement units, and modifiers). Button choices made in one function do not carry over into another function.

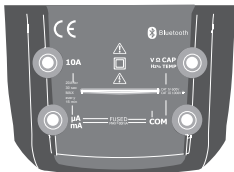
V ~	AC voltage measurements
V —	DC and AC + DC voltage measurements
mV	DC(AC) milli-volts measurements
Ω \rightarrow \rightarrow CAP	Resistance, Diode test, capacitance and CONTINUITY
Hz%	measurements
Temp	Frequency measurements
A	Temperature measurements
mA	AC, dc amps measurements
4-20 mA%	AC, dc milliamps measurements
μA	% 4-20 mA measurements. AC, DC microampere measurements up to 5000 μ A.



Using the Input Terminals

All functions except current, use the VOHMS and COM input terminals. The two current input terminals

10A	Input for 0 A to 10 A current (20 VA overload for 30 seconds on, 10 minutes off)
μA mA	Input for 0 A to 500 mA current measurements.
COM	Return terminal for all measurements
V Ω \rightarrow \rightarrow Hz% CAP Temp	Input for voltage, continuity, resistance, diode test, conductance, capacitance.



Specifications

AC Voltage	Range	Resolution	50/ 60Hz	< 1kHz	< 5kHz	< 20kHz [1]
	500mV	0.01mV	±0.5% + 5	± 1.0% + 5	± 3.0% + 5	± 5.5% + 20
	5V	0.0001V				
	50V	0.001V				
	500V	0.01V		± 1.5% + 10	± 3.5% + 10	unspecified
	1000V	0.1V			unspecified	unspecified

[1] Upper 10% of range

Function	Range	Resolution	Accuracy
DC Voltage	500mV [1]	0.01mV	0.1% + 5digits
	5V	0.0001V	0.05% + 5digits
	50V	0.001V	0.05% + 5digits
	500V	0.01V	0.05% + 5digits
	1000V	0.1V	0.1% + 5

[1] When using the relative mode (REL Ω) to compensate for offsets.

AC + DC			< 1kHz	< 5kHz
	5V	0.0001V	1.2% + 20	30% + 20
	50V	0.001V		
	500V	0.01V		
	1000V	0.1V		

Function	Range	Resolution	Accuracy
Resistance	500 Ω [1]	0.01 Ω	0.20% + 10
	5k Ω	0.0001k Ω	0.20% + 5
	50k Ω	0.001k Ω	0.20% + 5
	500k Ω	0.01k Ω	0.50% + 5
	5M Ω	0.0001M Ω	0.50% + 5
	50M Ω	0.001M Ω	2.0% + 10

[1] When using the relative mode (REL Ω) to compensate for offsets.

Function	Range	Resolution	Accuracy	
Temp (type-K)	-200 to 1350°C	0.1°C	$\pm(1.0\% \text{ reading} + 3.0^\circ\text{C})$ $\pm(1.0\% \text{ reading} + 5.4^\circ\text{F})$ (probe accuracy not included)	
	1. Does not include error of the thermocouple probe.			
	2. Accuracy specification assumes ambient temperature stable to $\pm 1^\circ\text{C}$.			
	3. Use a long time, reading will increase 2°C .			
DC Current	500 μA	0.01 μA	$\pm 0.2\% + 5$	
	5000 μA	0.1 μA	$\pm 0.2\% + 5$	
	50 mA	0.001 mA	$\pm 0.2\% + 5$	
	500 mA	0.01 mA	$\pm 0.3\% + 8$	
	10 A	0.001 A	$\pm 0.5\% + 8$	
AC Current			< 1 kHz	< 5 kHz
	500 μA	0.01 μA	$\pm(0.8\% + 5)$	$\pm(3\% + 5)$
	5000 μA	0.1 μA		
	50 mA	0.001 mA		
	500 mA	0.01 mA		
	10 A	0.001 A		
	(20 A: 30 sec max with reduced accuracy)			
	All AC current ranges are specified from 5% of range to 100% of range			

Function	Range	Resolution	Accuracy
Capacitance	5 nF[1]	0.001 nF	$\pm(1.5\% + 20)$
	50 nF	0.01 nF	$\pm(1.5\% + 8)$
	500 nF	0.1 nF	$\pm(1.0\% + 8)$
	5 μ F	0.001 μ F	$\pm(1.5\% + 8)$
	50 μ F	0.01 μ F	$\pm(1.0\% + 8)$
	500 μ F	0.1 μ F	$\pm(1.5\% + 8)$
	10 mF	0.01 mF	$\pm(2.5\% + 20)$
[1] With a film capacitor or better, using relative mode (REL Δ) to zero residual.			
Frequency (electronic)	50 Hz	0.001 Hz	$\pm(0.01\% + 5)$
	500 Hz	0.01 Hz	$\pm(0.01\% + 5)$
	5 kHz	0.0001 kHz	$\pm(0.01\% + 5)$
	50 kHz	0.001 kHz	$\pm(0.01\% + 5)$
	500 kHz	0.01 kHz	$\pm(0.01\% + 5)$
	5 MHz	0.0001 MHz	$\pm(0.01\% + 5)$
	10 MHz	0.001 MHz	unspecified
Sensitivity: 2V rms min. @ 20% to 80% duty cycle and < 100kHz; 5Vrms min @ 20% to 80% duty cycle and > 100kHz.			
Frequency (electrical)	10.00 Hz-10 kHz	0.01Hz - 0.001kHz	$\pm(0.5\% \text{ reading})$
	Sensitivity:2 V rms		
Duty Cycle	0.1 to 99.90%	0.01%	$\pm(1.2\% \text{ reading} + 2 \text{ digits})$
	Pulse width: 100 μ s - 100 ms, Frequency: 5 Hz to 150 kHz		