

VOLTCRAFT

VOLTCRAFT - TOP PERFORMANCE IN EVERY WAY

For more than 40 years, our product range has been dynamically adapting to the constant changes in the industry. We commit to offering first-class quality to our customers while delivering an excellent cost-performance ratio. This philosophy remains the cornerstone of Voltcraft's success.

VC 480 Digital Multimeter

CE

Item no: 3364265

The product is a digital multimeter and can be used to measure and display various electrical parameters.



FEATURES

CAT IV 1000V // IP67 protection level // 5 m drop protection //
High resolution 600000 display counts (DCV only) // Low-pass filter(VFD) // Min/Max/Peak //
Heat-resistant and cold-resistant // True RMS // Automatic or manual range selection //
Capacity measurements // AC frequency measurements and duty cycle

TECHNICAL DATA

Power supply

Power	3 x AA 1.5 V alkaline battery
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Multimeter

Ingress protection	IP67
Measurement category	CAT IV 1000 V
Pollution degree	2
Conformity	EN61010-1, 61010-2-033, 61326-1
Electromagnetic compatibility	In the RF field of 1 V/m: total accuracy = specified accuracy + 5 % of the range. In the RF field above 1 V/m: No specified index.
Display	digital 60000 / 600000 counts (high-resolution mode)
Fuse	F1 Fuse: 600 mA / 1000 V Φ 10 x 35 mm ceramic tube F2 Fuse: 11 A / 1000 V Φ 10 x 38 mm ceramic tube
Analog bar	33 segments; updates 32 times per second
Range selection	Automatic or manual
Polarity display	Automatic
Over-range prompt	"OL" is displayed
Operating altitude	<2000 m

Test leads

Conformity	EN 61010-031
Specification	CAT IV 1000 V, 20 A

Temperature probe

Type	K thermocouple
Temperature range	-20 to +230 °C

Ambient conditions

Operating temperature	-40 to +55 °C
Storage temperature	-45 to +60 °C
Operating/storage humidity	0 - 80 % RH (0 to +35 °C); 0 - 50 % RH (+35 to +55 °C)

Other

Dimensions (L x W x H)	206 x 93.5 x 51.6 mm
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Electrical measurement**Auto-V LoZ (Automatic AC/DC voltage)**

Range	Resolution	Frequency response	70 % Accuracy: $\pm (a \% + b)$			Overload protection
			$\pm$	a %	b	
600.0 V	0.1 V	DS	$\pm$	1.1 %	7	1000 Vrms
		45 Hz ~ 1 kHz	$\pm$	1.1 %	7	

- Input impedance: About 2 K Ω .
- Accuracy guarantee range: 10 % ~ 100 % of range
- For Auto-V LoZ, the AC or DC voltage will be automatically selected based on the low impedance input inducted.

DC voltage 600000 counts

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	1000 Vrms
600.000 mV	0.001 mV	$\pm$	0.021 %	14	1000 Vrms
6.0000 V	0.00001 V	$\pm$	0.021 %	14	
60.000 V	0.0001 V	$\pm$	0.021 %	14	
600.00 V	0.001 V	$\pm$	0.021 %	14	
1000.00 V	0.01 V	$\pm$	0.11 %	14	

- Input impedance ≥ 10 M Ω .
- To ensure accuracy, the input signal shall be 1 % - 100 % of the current range.
- For 600.00 mV, accuracy is guaranteed by using the Relative Mode (REL) function to compensate for short-circuit bias.

AC voltage

Range	Resolution	Frequency re- sponse	70 % Accuracy: ± (a % + b)			Overload protection
			±	a %	b	
600.00 mV	0.01 mV	45 ~ 1 kHz	±	0.4 %	29	1000 Vrms
		1 k ~ 5 kHz	±	0.6 %	29	
		5 k ~ 20 kHz	±	0.7 %	43	
		20 k ~ 100 kHz	±	3.6 %	57	
6.0000 V	0.0001 V	45 ~ 1 kHz	±	0.6 %	43	
		1 k ~ 5 kHz	±	0.7 %	57	
		5 k ~ 20 kHz	±	1.0 %	57	
		20 k ~ 100 kHz	±	5.7 %	57	
60.000 V	0.001 V	45 ~ 1 kHz	±	0.6 %	43	
		1 k ~ 5 kHz	±	0.7 %	57	
		5 k ~ 20 kHz	±	1.0 %	57	
		20 k ~ 100 kHz	±	5.7 %	57	
600.00 V	0.01 V	45 ~ 1 kHz	±	0.6 %	43	1000 Vrms
		1 k ~ 5 kHz	±	0.7 %	57	
		5 k ~ 20 kHz	±	1.0 %	57	
		20 k ~ 100 kHz	Unspecified			
1000.0 V	0.1 V	45 ~ 1 kHz	±	0.7 %	57	
		1 k ~ 5 kHz	±	1.1 %	57	
		5 k ~ 20 kHz	Unspecified			
		20 k ~ 100 kHz	Unspecified			

- Displaying TRMS value
- Input impedance: ≥ 10 M Ω . Input coupling mode: ACV is AC coupling.

- To ensure accuracy, the input signal is required to be 5 % - 100 % (45 ~ 5 kHz) and 10 % - 100 % (> 5 kHz) of the current range. Note: 10 % to 15 % of range: 80 counts for accuracy: (> 1 kHz).
- The AC crest factor can reach 3 at 30,000 counts. By 60,000 counts it drops to about 1.5. For non-sinusoidal waveforms, the additional error is increased by ± 2.0 %.
- When measuring the frequency in the current range, the input signal must be greater than 10 % of the current range, and the duty cycle value provides a reference.
- VFD: 1 kHz 3 dB attenuation. Frequency: 45 Hz ~ 200 Hz. Additional error: ± 2.0 %. Count: 6000.

AC + DC voltage

Range	Resolution	Frequency response	70 % Accuracy: $\pm (a \% + b)$			Overload protection
			$\pm$	a %	b	
600.0 mV	0.1 mV	45 ~ 1 kHz	$\pm$	1.1 %	7	1000 Vrms
		1 k ~ 5 kHz	$\pm$	1.4 %	11	
		5 k ~ 20 kHz	$\pm$	2.9 %	11	
		20 k ~ 40 kHz	$\pm$	5.7 %	11	
6.000 V	0.001 V	45 ~ 1 kHz	$\pm$	1.1 %	7	
		1 k ~ 5 kHz	$\pm$	1.4 %	11	
		5 k ~ 20 kHz	$\pm$	2.9 %	11	
		20 k ~ 40 kHz	$\pm$	5.7 %	11	
60.000 V	0.01 V	45 ~ 1 kHz	$\pm$	1.1 %	7	
		1 k ~ 5 kHz	$\pm$	1.4 %	11	
		5 k ~ 20 kHz	$\pm$	2.9 %	11	
		20 k ~ 40 kHz	$\pm$	5.7 %	11	
600.0 V	0.1 V	45 ~ 1 kHz	$\pm$	1.1 %	7	
		1 k ~ 5 kHz	$\pm$	1.4 %	11	
		5 k ~ 20 kHz	$\pm$	2.9 %	11	
1000 V	1 V	45 ~ 1 kHz	$\pm$	1.1 %	7	
		1 k ~ 5 kHz	$\pm$	2.9 %	11	

- Input impedance ≥ 10 M Ω .
- To ensure the accuracy, the input signal is required to be 10 % - 100 % of the current range. The index is only defined for pure DC voltage and pure AC voltage signals. The mixed signal is calculated according to the formula . Note: 10 % to 15 % of range: 80 counts are added for accuracy: (> 1 kHz).
- 6000-count; without analog bar displayed.

Resistance

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
600.00 Ω	0.01 Ω	$\pm$	0.10 %	14	1000 Vrms
6.0000 k Ω	0.0001 k Ω	$\pm$	0.10 %	3	
60.000 k Ω	0.001 k Ω	$\pm$	0.1 %	3	
600.00 k Ω	0.01 k Ω	$\pm$	0.1 %	3	
6.0000 M Ω	0.0001 M Ω	$\pm$	0.4 %	9	
60.00 M Ω	0.01 M Ω	$\pm$	2.9 %	9	1000 Vrms

- For 60 M Ω : Humidity < 50 %
- For 60 M: 6000 counts; for other ranges: 60000 counts.
- To ensure accuracy, the input signal shall be 1 % - 100 % of the current range. Note: 1 % to 10 % of range: 3 counts are added for accuracy.

Capacitance

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
60.00 nF	0.01 nF	$\pm$	1.1 %	14	1000 Vrms
600.0 nF	0.1 nF	$\pm$	1.1 %	4	
6.000 μ F	0.001 μ F	$\pm$	2.1 %	4	

60.00 μ F	0.01 μ F	$\pm$	3.6 %	4
600.0 μ F	0.1 μ F	$\pm$	5.0 %	4
6.000 mF	0.001 mF	$\pm$	7.1 %	7
60.00 mF	0.01 mF	$\pm$	9.3 %	7

– 6000 counts

– To ensure accuracy, the input signal shall be 5 % - 100 % of the current range.

– If the measured capacitance is ≤ 100 nF, it is recommended to use REL mode for measurement.

Continuity

Range	Resolution	Overload protection
600.00 k Ω	0.01 M Ω	1000 Vrms

– Open-circuit voltage is about 2 V

– ≤ 20 Ω : The buzzer beeps; ≥ 250 Ω : The buzzer keeps silent; 20 $\Omega < R < 150$ Ω : the buzzer may or may not sound.

Diode

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
3.0000 V	0.0001 V	$\pm$	1.0 %	5	1000 Vrms

AC current

Range	Resolution	Frequency response	70 % Accuracy: ± (a % + b)			Overload protection	
			±	a %	b		
600.00 µA	0.01 µA	45 ~ 1 kHz	±	0.7 %	71	Fuses	
		1 k ~ 5 kHz	±	1.0 %	71	F 0.6 A H	
		5 k ~ 10 kHz	±	2.9 %	71	1000 V	
6000.0 µA	0.1 µA	45 ~ 1 kHz	±	0.7 %	71	Fuses	
		1 k ~ 5 kHz	±	1.0 %	71	F 0.6 A H	
		5 k ~ 10 kHz	±	2.9 %	71	1000 V	
60.000 mA	0.001 mA	45 ~ 1 kHz	±	0.7 %	71		
		1 k ~ 5 kHz	±	1.0 %	71		
		5 k ~ 10 kHz	±	2.9 %	71		
600.00 mA	0.01 mA	45 ~ 1 kHz	±	0.7 %	71		
		1 k ~ 5 kHz	±	1.0 %	71		
		5 k ~ 10 kHz	±	2.9 %	71		
6.0000 A	0.0001 A	45 ~ 1 kHz	±	0.7 %	71		Fuses
		1 k ~ 5 kHz	±	1.0 %	71		F 11 A H
		5 k ~ 10 kHz	Unspecified				1000 V
10.000 A	0.001 A	45 ~ 1 kHz	±	0.7 %	71		
		1 k ~ 5 kHz	±	1.0 %	71		
		5 k ~ 10 kHz	Unspecified				

– To ensure accuracy, the input signal shall be 5 % - 100 % of the current range.

– For 10 A to 20 A, maximum continuous measurement time is 30 seconds, then stop measurement for 15 minutes at least; For > 10.00 A, for reference only; For > 20 A, “OL” is displayed.

– The AC crest factor can reach 3 at 30,000 counts. By 60,000 counts it drops to about 1.5. For non-sinusoidal waveforms, the additional error is increased by ± 2.0 %.

– When measuring the frequency in the current range, the input signal must be greater than 10 % of the current range, and the duty cycle value provides a reference.

DC current

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
600.00 μ A	0.01 μ A	$\pm$	0.21 %	29	Fuses F 0.6 A H 1000 V
6000.0 μ A	0.1 μ A	$\pm$	0.1 %	29	
60.000 mA	0.001 mA	$\pm$	0.21 %	29	
600.00 mA	0.01 mA	$\pm$	0.21 %	43	
6.0000 A	0.0001 A	$\pm$	0.7 %	29	Fuses
10.000 A	0.001 A	$\pm$	0.7 %	29	F 11 A H 1000 V

– For 10 A to 20 A, maximum continuous measurement time is 30 seconds, then stop measurement for 15 minutes at least; For > 10.00 A, for reference only; For > 20 A, “OL” is displayed.

– To ensure accuracy, the input signal shall be 1 %-100 % of the current range.

% 4-20 mA

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
% 4-20 mA	0.01 %	Determined by the accuracy of DC 60 mA.			Fuses F 0.6 A H 1000 V

– Displayed value % = (measured current value - 4 mA) / (20 mA - 4 mA)

NCV (Non-contact AC voltage sensing)

Range	Note
NCV	– Inductive signal frequency: 50 - 60 Hz – Voltage < 30 V is not detected: “EF” is displayed. – Voltage >100 V is detected: “-----” is displayed, and an audible and visual alarm is triggered.

AC + DC current

Range	Resolution	Frequency response	70 % Accuracy: $\pm (a \% + b)$			Overload protection
			$\pm$	a %	b	
600.00 μ A	0.01 μ A	45 ~ 1 kHz	$\pm$	1.4 %	7	Fuses F 0.6 A H 1000 V
		1 k ~ 5 kHz	$\pm$	2.1 %	11	
		5 k ~ 10 kHz	$\pm$	3.6 %	11	
6000.0 μ A	0.1 μ A	45 ~ 1 kHz	$\pm$	1.4 %	7	
		1 k ~ 5 kHz	$\pm$	2.1 %	11	
		5 k ~ 10 kHz	$\pm$	3.6 %	11	
60.000 mA	0.001 mA	45 ~ 1 kHz	$\pm$	1.4 %	7	
		1 k ~ 5 kHz	$\pm$	2.1 %	11	
		5 k ~ 10 kHz	$\pm$	3.6 %	11	
600.00 mA	0.01 mA	45 ~ 1 kHz	$\pm$	1.4 %	7	
		1 k ~ 5 kHz	$\pm$	2.1 %	11	
		5 k ~ 10 kHz	$\pm$	3.6 %	11	
6.0000 A	0.0001 A	45 ~ 1 kHz	$\pm$	1.4 %	7	Fuses F 11 A H 1000 V
		1 k ~ 5 kHz	$\pm$	2.1 %	11	
10.000 A	0.001 A	45 ~ 1 kHz	$\pm$	1.4 %	7	
		1 k ~ 5 kHz	$\pm$	2.1 %	11	

– To ensure the accuracy, the input signal is required to be 10 % - 100 % of the current range. The index is only defined for pure DC current and pure AC current signals. The mixed signal is calculated according to the formula

– 6000-count; without analog bar displayed.

Frequency

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
10 Hz ~ 1 MHz	0.01 Hz ~ 1 kHz	$\pm$	0.003 %	7	1000 Vrms

– Input amplitude: 10 Hz ~ 1 MHz: 600 mV $\leq$ input amplitude $\leq$ 30 Vrms.

– For mV position, select the frequency by **Hz%** button.

Duty cycle

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
10 % ~ 90 %	0.1 %	$\pm$	1.7 %	7	1000 Vrms

– Duty cycle is only available for square wave measurements. The input amplitude shall be: 10 Hz ~ 10 kHz: 1 Vpp $\leq$ input amplitude $\leq$ 20 Vpp.

– For mV position, select the duty cycle by **Hz%** button.

Temperature

Range	Resolution	70 % Accuracy: $\pm (a \% + b)$			Overload protection
		$\pm$	a %	b	
-40 to +40 °C	0.1 °C	$\pm$	1.0 %	30	1000 Vrms
+40 to +400 °C		$\pm$	1.0 %	15	
+400 to +1000 °C		$\pm$	1.0 %	15	
-40 to +104 °F	0.1 °F	$\pm$	1.0 %	60	
-104 to +752 °F		$\pm$	1.0 %	30	
-752 to +1832 °F		$\pm$	1.0 %	30	

– Measure temperature by using a Type K thermocouple.

AC/DC current probe

Range	Resolution	Frequency response	70 % Accuracy: $\pm (a \% + b)$			Overload protection
			$\pm$	a %	b	
100.0 A (10 mV/A)	0.1 A	DC 45 Hz ~ 400 Hz	$\pm$	1.5 %	5	1000 Vrms
1000 A (10 mV/A)	1 A	DC 45 Hz ~ 400 Hz	$\pm$	2.0 %	5	

– Current range: 1 A - 1000 A

– To ensure accuracy, the input signal shall be 1 % - 100 % of the current range.

– If deviating from the center of the clamp, an additional error of ± 2.0 % of the reading is added to the specified accuracy.

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