



# VOLTCRAFT®

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“Since 1982, 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.”

# VC650BT DIGITAL MULTIMETER

Nº 124411

CE

VERSION 12/21

Robust, reliable, practical, safe - these are the attributes which describe this professional multimeter. This multimeter sets benchmarks with its safety features. At input voltages  $>30$  V the display will show a warning icon. Its unique safety concept is rounded out by the 1000 V high-breaking-capacity fuses, the warning sound when measurement leads are incorrectly connected and the impedance switching to avoid incorrect measurements due to stray voltages. A USB interface is included as standard. Temperature, true RMS and low-pass filter measurements as well as an integrated data logger round out the features of the VC650BT.

## HIGHLIGHTS

CAT IV 600V //

40000 Counts //

USB interface //

True RMS //

Integrated data logger //

Low-pass filter measurement //

Standard measurement ranges V, A,  $\Omega$ ,  
frequency, capacitance //

Automatic range selection //

Diode test //

Acoustic continuity checker //

Temperature measurement //

Low battery function //

Data hold //

REL //

Duty cycle //



# TECHNICAL DATA

System requirement	Microsoft Windows® 2000 / XP / Vista™ / 7
Operating voltage	6 x 1.5 V/DC battery type C or 230 V/AC, 50 Hz
Symbol	Max. 40000 counts (characters)
Measuring rate	approx. 2 – 3 measurement/s, Bargraph approx. 10 measurements/s
Measuring lead length	approx. 90 cm each
Measuring impedance	10 M $\Omega$ (V range)
Working conditions	0 to +30 °C(<75 %RH), +30 to +40 °C(<50 %RH)
Operating altitude	max. 2000 m
Storage temperature	-10 to +50 °C
Fuse type	10A 1000V $\Phi$ 10.5x38mm, 500 mA 1000 V, $\Phi$ 6.35x32mm
Weight	1.94 kg
Dimension (W x H x D)	24.2 x 10.5 x 30.5 cm

## Direct voltage

Range	Accuracy	Resolution
400 mV	$\pm(0.03 \% + 10 \text{ digits})$	0.01 mV
4 V	$\pm(0.05 \% + 10 \text{ digits})$	0.0001 V
40 V		0.001 V
400 V		0.01 V
600 V		0.1 V
Overload protection: 1000 V; Impedance 10 M $\Omega$		

## Alternative voltage

Range	Accuracy	Resolution	Frequency range
4 V	$\pm(0.5 \% + 40 \text{ digits})$	0.0001 V	45 – 1,000 Hz
	$\pm(1.2 \% + 40 \text{ digits})$		1,000 – 10,000 Hz
	$\pm(3 \% + 40 \text{ digits})$		10,000 – 20,000 Hz
	$\pm(4 \% + 40 \text{ digits})$		20,000 – 100,000 Hz
40 V	$\pm(0.5 \% + 40 \text{ digits})$	0.001 V	45 – 1,000 Hz
	$\pm(1.2 \% + 40 \text{ digits})$		1,000 – 10,000 Hz
	$\pm(3 \% + 40 \text{ digits})$		10,000 – 20,000 Hz
	$\pm(6 \% + 40 \text{ digits})$		20,000 – 100,000 Hz
400 V	$\pm(0.5 \% + 40 \text{ digits})$	0.01 V	45 – 1,000 Hz
	$\pm(1.2 \% + 40 \text{ digits})$		1,000 – 10,000 Hz
	$\pm(3 \% + 40 \text{ digits})$		10,000 – 20,000 Hz
	N/A		20,000 – 100,000 Hz
600 V	$\pm(1.2 \% + 40 \text{ digits})$	0.1 V	45 – 1,000 Hz
	$\pm(3 \% + 40 \text{ digits})$		1,000 – 10,000 Hz
	$\pm(6 \% + 40 \text{ digits})$		10,000 – 20,000 Hz
	N/A		20,000 – 100,000 Hz
Overload protection: 1000 V; Impedance: about 10 M $\Omega$ TrueRMS in the measuring range of 10 – 100%; Crest factor: max. 3.0 (at 750 V max. 1.5)			

## Measuring function AC + DC voltage

Range	Accuracy	Resolution	Frequency range
4 V	$\pm(1\% + 80 \text{ digits})$	0.0001 V	45 - 1,000 Hz
	$\pm(3\% + 40 \text{ digits})$		1,000 - 10,000 Hz
	$\pm(6\% + 40 \text{ digits})$		10,000 - 35,000 Hz
40 V	$\pm(1\% + 80 \text{ digits})$	0.001 V	45 - 1,000 Hz
	$\pm(3\% + 40 \text{ digits})$		1,000 - 10,000 Hz
	$\pm(6\% + 40 \text{ digits})$		10,000 - 35,000 Hz
400 V	$\pm(1\% + 80 \text{ digits})$	0.01 V	45 - 1,000 Hz
	N/A		1,000 - 10,000 Hz
	N/A		10,000 - 35,000 Hz
600 V	$\pm(1\% + 80 \text{ digits})$	0.1 V	45 - 1,000 Hz
	N/A		1,000 - 10,000 Hz
	N/A		10,000 - 35,000 Hz

Overload protection: 1000 V; Impedance: about 10 M $\Omega$

## Direct current

Range	Accuracy	Resolution
400 $\mu$ A	$\pm(0.3\% + 10 \text{ digits})$	0.01 $\mu$ A
4000 $\mu$ A	$\pm(0.5\% + 10 \text{ digits})$	0.1 $\mu$ A
40 mA		0.001 mA
400 mA		0.01 mA
10 A	$\pm(1.5\% + 20 \text{ digits})$	0.001 A

## Alternating current

Range	Accuracy	Resolution	Frequency range
400 $\mu$ A	$\pm(0.6\% + 40 \text{ digits})$	0.01 $\mu$ A	45 - 1,000 Hz
	$\pm(1.2\% + 40 \text{ digits})$		1,000 - 10,000 Hz
400 $\mu$ A	$\pm(0.6\% + 40 \text{ digits})$	0.1 $\mu$ A	45 - 1,000 Hz
	$\pm(1.2\% + 40 \text{ digits})$		1,000 - 10,000 Hz
400 mA	$\pm(0.6\% + 40 \text{ digits})$	0.001 mA	45 - 1,000 Hz
	$\pm(1.2\% + 40 \text{ digits})$		1,000 - 10,000 Hz
400 mA	$\pm(0.6\% + 40 \text{ digits})$	0.01 mA	45 - 1,000 Hz
	$\pm(1.2\% + 40 \text{ digits})$		1,000 - 10,000 Hz
10 A	$\pm(2\% + 40 \text{ digits})$	0.001 A	45 - 1,000 Hz
	$\pm(4\% + 40 \text{ digits})$		1,000 - 10,000 Hz

Overload protection: Fuses, 500 mA ( $\mu$ AmA) / 10 A(10 A); measuring time limit max. 10 s with 10 min break; Overload protection: 1000 V; TrueRMS in the measuring range of 10 - 100 %

## Impedance

Range	Accuracy	Resolution
400 $\Omega$	$\pm(1.0\% + 10 \text{ digits})$ with REL function	0.01 $\Omega$
4 k $\Omega$	$\pm(0.6\% + 10 \text{ digits})$	0.0001 k $\Omega$
40 k $\Omega$		0.01 k $\Omega$
400 k $\Omega$		0.1 k $\Omega$
4 M $\Omega$	$\pm(1.2\% + 10 \text{ digits})$	0.001 M $\Omega$
40 M $\Omega$	$\pm(2\% + 5 \text{ digits})$	0.01 M $\Omega$

Overload protection: 1000 V

## Capacity

Range	Accuracy	Resolution
40 nF	$\pm(2.5 \% + 20 \text{ digits})$	0.001 nF
400 nF		0.01 nF
4 $\mu$ F		0.0001 $\mu$ F
40 $\mu$ F		0.001 $\mu$ F
400 $\mu$ F		0.01 $\mu$ F
4000 $\mu$ F	$\pm(2.5 \% + 20 \text{ digits})$	0.1 $\mu$ F

## Frequency

Range	Accuracy	Resolution
40 Hz	$\pm(0.02 \% + 8 \text{ digits})$	0.001 Hz
400 Hz		0.01 Hz
4 kHz		0.0001 kHz
40 kHz		1 Hz
400 kHz		10 Hz
4 MHz		0.0001 MHz
40 MHz		0.001 MHz
400 MHz	N/A	0.01 MHz

Overload protection: 1000 V;  
Sensitivity (10 Hz – 10 MHz): 200 mV; Amplitude max. 30 Veff (ms)  
Sensitivity (10 MHz – 40 MHz): 600 mV; Amplitude max. 30 Veff (ms)  
Sensitivity (>40 MHz); N/A

# PACKAGE CONTENT

Multimeter // Power Cord // 1 kit measurement leads // 1 kit alligator clips // K type thermo couple // Software CD // Operating instructions

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