



VOLTCRAFT®

VOLTCRAFT® - TOP PERFORMANCE IN EVERY WAY

“For more than 25 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.”

VC650BT **DIGITAL MULTIMETER**

N° 124411

CE

VERSION 09/14

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, Ω ,
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 Ω (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 Φ 10.5x38mm, 500 mA 1000 V, Φ 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 Ω		

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 Ω 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 Ω

Direct current

Range	Accuracy	Resolution
400 μ A	$\pm(0.3\% + 10 \text{ digits})$	0.01 μ A
4000 μ A	$\pm(0.5\% + 10 \text{ digits})$	0.1 μ 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 μ A	$\pm(0.6\% + 40 \text{ digits})$	0.01 μ A	45 – 1,000 Hz
	$\pm(1.2\% + 40 \text{ digits})$		1,000 – 10,000 Hz
400 μ A	$\pm(0.6\% + 40 \text{ digits})$	0.1 μ 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 (μ 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 Ω	$\pm(1.0\% + 10 \text{ digits})$ with REL function	0.01 Ω
4 k Ω	$\pm(0.6\% + 10 \text{ digits})$	0.0001 k Ω
40 k Ω		0.01 k Ω
400 k Ω		0.1 k Ω
4 M Ω	$\pm(1.2\% + 10 \text{ digits})$	0.001 M Ω
40 M Ω	$\pm(2\% + 5 \text{ digits})$	0.01 M Ω

Overload protection: 1000 V

Capacity

Range	Accuracy	Resolution
40 nF	±(2.5 % + 20 digits)	0.001 nF
400 nF		0.01 nF
4 µF		0.0001 µF
40 µF		0.001 µF
400 µF		0.01 µF
4000 µF	±(2.5 % + 20 digits)	0.1 µF

Frequency

Range	Accuracy	Resolution
40 Hz	±(0.02 % + 8 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 V_{eff} (ms)
Sensitivity (10 MHz – 40 MHz): 600 mV; Amplitude max. 30 V_{eff} (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

This data sheet is published by Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau (www.conrad.com).

All rights including translation reserved. Reproduction by any method, e.g. photocopy, microfilming, or the capture in electronic data processing systems require the prior written approval by the editor. Reprinting, also in part, is prohibited. This data sheet represents the technical status at the time of printing.