



Digital Multimeter

PCE-ITM 20

PCE-ITM 20

This digital multimeter PCE-ITM 20 combines a versatile multimeter with an insulation tester. In addition to the usual measured quantities such as voltage, current and resistance, this digital multimeter PCE-ITM 20 is also equipped with a frequency and capacitance measurement. A thermocouple included in the delivery can also be used to measure the temperature. Automatic range selection (Autorange) allows fast and safe operation with the isolation multimeter, while the large backlit LCD display ensures good readability.

The highlight of this isolation multimeter is the integrated insulation tester. With test voltages of up to 1000 V, insulation resistances of up to 5000 M Ω (5 G Ω) are measured. Likewise, the isolation multimeter can directly measure the PI and DAR value. Thus, it is quickly possible to make a statement about the insulation value of the DUT with the help of the insulation multimeter.

In addition, this isolation multimeter has an internal memory. This gives you the opportunity to recall the stored measured values for subsequent analysis in the display and to transfer the measured values via the wireless USB interface from the isolation multimeter to a PC.

- ▶ Automatic range selection
- ▶ Capacitance measurement
- ▶ Integrated isolation tester
- ▶ Large LCD display, backlight
- ▶ Internal memory
- ▶ Hold Function
- ▶ To IEC 1010, CAT III 1000 V, CAT IV 600 V
- ▶ Frequency measurement

General Features PCE- ITM 20			
Memory	9999 memory points		< 1.5 at 1000V
Housing	Double moulded housing, IP67 (waterproof and dustproof)	Display	50000 digit LCD illuminated with bargraph
Drop test	2 m / 6ft, 6in	Automatic shutdown	after 15 minutes
Diode test	Test current 0.9-mA	Measurement rate / update display	10 Hz
	Open circuit voltage 2.8-mA	Power supply	6 x 1.5V AA batteries
Continuity test	Acoustic signal at resistance < 35 Ω / Test current < 0.35-mA	Interface	Wireless USB
Peak detection	> 1ms	Fuses	mA, μ A: 0.5 A / 1000V fast ceramic A: 10 A / 1000V fast ceramic
Temperature sensor	Thermoelement Type K	Operating conditions	5 ... 40°C / 41 ... 104°F, max 80% r.H.
Input impedance	DC: > 10 M Ω AC: > 9 M Ω	Storage conditions	-20 ... 60°C / -4 ... 140°F, max. 80% r.H.
AC coupling	TRMS	Operating altitude	Max. 2000 m / 6561 feet
Bandwidth AC voltage	50 Hz ... 1 kHz	Weight	ca. 720 g / 1.6 lbs
Crest factor	<3 at 500V	Dimensions	220 x 95 x 50 mm / 8.6 x 3.7 x 1.9 in



Safety standards	EN61010-1
	IEC 61010-1 Part 2 (2001)
	CAT IV 600V, CAT III 1000V
	UL 61010-1 Part 2 (2004)
	CAN/CSA C22.2 No 6110-1 Part 2
	(2004)
	UL 61010B-2-031 Part 1 (2003)

Test voltage / test current	Measuring range	Resolution	Accuracy
50V / 1-mA @ 50 kΩ	0.01 ... 5 MΩ	0.0001 MΩ	± (4 % + 20 digits)
	5 ... 50 MΩ	0.001 MΩ	± (4 % + 20 digits)
	50 ... 500 MΩ	0.01 MΩ	± (4 % + 20 digits)
	500 ... 1000 MΩ	0.1 MΩ	not specified
125V / 1-mA @ 125 kΩ	0.01 ... 5 MΩ	0.001 MΩ	± (2 % + 20 digits)
	5 ... 50 MΩ	0.001 MΩ	± (2 % + 20 digits)
	50 ... 500 MΩ	0.01 MΩ	± (3 % + 20 digits)
	500 ... 5000 MΩ	0.1 MΩ	± (4 % + 20 digits)
250V / 1-mA @ 250 kΩ	0.01 ... 5 MΩ	0.0001 MΩ	± (2 % + 20 digits)
	5 ... 50 MΩ	0.001 MΩ	± (2 % + 20 digits)
	50 ... 500 MΩ	0.01 MΩ	± (3 % + 20 digits)
	500 ... 5000 MΩ	0.1 MΩ	± (4 % + 20 digits)
500V / 1-mA @ 500 kΩ	0.01 ... 5 MΩ	0.0001 MΩ	± (2 % + 20 digits)
	5 ... 50 MΩ	0.001 MΩ	± (2 % + 20 digits)
	50 ... 500 MΩ	0.01 MΩ	± (3 % + 20 digits)
	500 ... 5000 MΩ	0.1 MΩ	± (4 % + 20 digits)
1000V / 1-mA @ 1000 kΩ	0.01 ... 5 MΩ	0.0001 MΩ	± (2 % + 20 digits)
	5 ... 50 MΩ	0.001 MΩ	± (2 % + 20 digits)
	50 ... 500 MΩ	0.01 MΩ	± (3 % + 20 digits)
	500 ... 5000 MΩ	0.1 MΩ	± (4 % + 20 digits)
Short circuit current	<1.5-mA		

Multimeter	Measuring range	Resolution	Accuracy
Measuring parameters	50 mV	0.001 mV	± (0.06 % + 20 digits)
DC	500 mV	0.01 mV	± (0.06 % + 6 digits)
	5 V	0.0001 V	± (0.06 % + 4 digits)
	50 V	0.001 V	± (0.06 % + 4 digits)
	500 V	0.01 V	± (0.06 % + 4 digits)
	1000 V	0.1 V	± (0.1 % + 3 digits)
AC	50 mV	0.001 mV	± (1 % + 50 digits)
AC + DC	500 mV	0.01 mV	± (1 % + 50 digits)
50 ... 1000 Hz	5 V	0.0001 V	± (1 % + 30 digits)
	50 V	0.001 V	± (1 % + 30 digits)
	500 V	0.01 V	± (1 % + 30 digits)
	1000 V	0.1 V	± (1 % + 30 digits)

The specified accuracy for alternating voltage refers to 5 ... 100% of the measuring range

Subject to change

Direct current	Measuring range	Resolution	Accuracy
	500 µA	0.01 µA	± (0.5 % + 3 digits)
	5000 µA	0.1 µA	± (0.5 % + 3 digits)
	50 mA	0.001 mA	± (0.5 % + 3 digits)
	500 mA	0.01 A	± (0.5 % + 3 digits)
	10 A	0.001 A	± (0.5 % + 3 digits)
Alternating current	500 µA	0.01 µA	± (1% + 30 digits)
AC + DC	5000 µA	0.1 µA	± (1% + 30 digits)
50 1000 Hz	50 mA	0.001 mA	± (1% + 30 digits)
	500 mA	0.01 A	± (1% + 30 digits)
	10 A	0.001 A	± (1% + 30 digits)
The specified accuracy for alternating current refers to 5 ... 100% of the measuring range			
Resistance	Measuring range	Resolution	Accuracy
	50 Ω	0.01 Ω	± (0.2 % + 20 digits)
	500 Ω	0.1 Ω	± (0.1 % + 10 digits)
	5 kΩ	0.0001 kΩ	± (0.1 % + 3 digits)
	50 kΩ	0.001 kΩ	± (0.1 % + 3 digits)
	500 kΩ	0.01 kΩ	± (0.1 % + 3 digits)
	5 MΩ	0.001 MΩ	± (1 % + 10 digits)
	50M Ω	0.001 MΩ	± (1.5 % + 50 digits)
Capacitance	50 nF	0.001 nF	± (1.5 % + 50 digits)
	50 nF	0.01nF	± (1.5 % + 10 digits)
	500 nF	0.1 nF	± (1.5 % + 10 digits)
	5 µF	0.001µF	± (1.5 % + 5 digits)
	50 µF	0.01µF	± (1.5 % + 5 digits)
	500 µF	0.1µF	± (1.5 % + 5 digits)
	5 mF	0.001 mF	± (3 % + 30 digits)
	10 mF	0.01 mF	± (3 % + 30 digits)
Frequency	50 Hz	0.001 Hz	± (0.02 % + 3 digits)
(Electronics)	500 Hz	0.01 Hz	± (0.02 % + 3 digits)
	5 kHz	0.0001 kHz	± (0.02 % + 3 digits)
	50 kHz	0.001 kHz	± (0.02 % + 3 digits)
	500 kHz	0.01 kHz	± (0.02 % + 3 digits)
	5 MHz	0.0001 MHz	± (0.02 % + 3 digits)
	50 MHz	0.001 MHz	± (0.02 % + 3 digits)
	100 MHz	0.01 MHz	not specified
Sensitivity: 0.8 VRMS min @ 20% ... 80% duty cycle <100 kHz 5 V RMS min @ 20% ... 80%> 100 kHz			
	Measuring range	Resolution	Accuracy
Frequency (Electronics)	40 Hz ... 10 kHz	0.01 1 Hz ... 0.001 kHz	± (0.1%)
Duty Cycle	0.1 ... 99.9%	0.01%	± (1.2% + 2 digits)
Pulse width	100 µS ... 100 ms; Frequency: 5 Hz ... 150 kHz		
Temperature -	58 ... 2462°F	0.1°F	± (0.5 % + 7°F)
Type K Thermoelement	-50 ... 13350 °C	0.1°C	± (0.5 % + 3.5°C)
4 ... 20 mA%	-25 ... 125%	0.01%	± 50 digits
Resistance 50 Ω range	50 Ω	0.001 Ω	± (1 % + 20 digits)
	500 Ω	0.01 Ω	± (1 % + 20 digits)
Open circuit voltage: 5V; Overload protection 250V			

Subject to change

