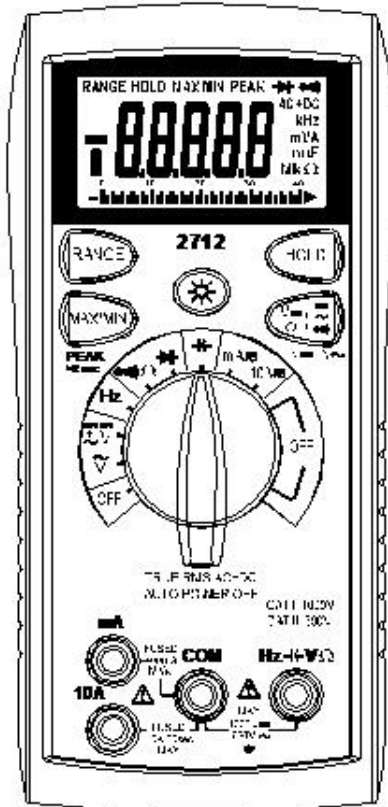


OPERATING INSTRUCTIONS MODEL 2712 DIGITAL MULTIMETER



SAFETY INFORMATION

The following safety information must be observed to ensure maximum personal safety during the operation at this meter:

Use the meter only as specified in this manual or the protection provided by the meter might be impaired.

Test the meter on a known voltage before using it to determine if hazardous voltage is present.

Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.

Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.

Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Small amounts of current can be dangerous.

Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.

When using the probes, keep your fingers behind the finger guards on the probes.

Measuring voltage which exceeds the limits of the multimeter may damage the meter and expose the operator to a shock hazard. Always recognize the meter voltage limits as stated on the front of the meter.

SPECIFICATIONS

Display: 4 1/2 digit liquid crystal display (LCD) with a maximum reading of 40000.

Analog bargraph: 40 segments with measurements 20 times per second.

Polarity: Automatic, positive implied, negative polarity indication.

Overrange: MSD (Most Significant Digit) blinks.

Zero: Automatic.

Low battery indication: The " " is displayed when the battery voltage drops below the operating level.

Measurement rate: 2 times per second, nominal.

Auto power off: Approx. 30 minutes.

75% relative humidity.

Temperature Coefficient: 0.1 x (specified accuracy) per °C. (°C to 18°C, 28°C to 50°C).

Altitude: 6561.7 feet (2000m).

Power: Single standard 9-volt battery, NEDA 1604, JIS 006P, IEC 6F22.

Battery life: 150 hours typical with carbon-zinc.

Dimensions: 165mm (H) x 78mm (W) x 42.5mm (D).

Weight: Approx. 10.0 oz. (285g) including holster.

Accessories: One pair test leads, one spare fuse, 9V battery (installed), and Operating Instructions.

DC VOLTS

Ranges: 400mV, 4V, 40V, 400V, 1000V

Resolution: 0.01mV

Accuracy: $\pm (0.15\% \text{ rdg} + 10 \text{ dgts})$ on 400mV range

$\pm (0.1\% \text{ rdg} + 5 \text{ dgts})$ on 4V to 1000V ranges

Input impedance: 400mV: $>3\text{M}\Omega$; 4V ~ 1000V: $2.3\text{M}\Omega$

Overload protection: 1000VDC or 750VAC rms

AC VOLTS (TRUE RMS) (45Hz ~ 1kHz)

Ranges: 400mV, 4V, 40V, 400V, 750V

Resolution: 0.01mV

Accuracy:

$\pm (1.2\% \text{ rdg} + 20 \text{ dgts})$ 45 ~ 60Hz on 400mV to 400V ranges

$\pm (1.5\% \text{ rdg} + 20 \text{ dgts})$ 60 ~ 500Hz on 4V range

$\pm (1.5\% \text{ rdg} + 20 \text{ dgts})$ 60 ~ 1kHz on 40V to 400V ranges

$\pm (2.0\% \text{ rdg} + 20 \text{ dgts})$ 45 ~ 500Hz on 750V range

AC+DC VOLTS (TRUE RMS) (45Hz ~ 1kHz)

Ranges: 400mV, 4V, 40V, 400V, 750V

Resolution: 0.01mV

Accuracy:

$\pm (1.5\% \text{ rdg} + 20 \text{ dgts})$ 45 ~ 60Hz on 4V to 400V ranges

$\pm (2.0\% \text{ rdg} + 20 \text{ dgts})$ 60 ~ 500Hz on 4V range

$\pm (2.0\% \text{ rdg} + 20 \text{ dgts})$ 60 ~ 1kHz on 40V to 400V ranges

$\pm (2.0\% \text{ rdg} + 20 \text{ dgts})$ 45 ~ 500Hz on 750V range

Crest factor: ≤ 3

AC coupled true rms specified from 10% to 100% of range.

Input impedance: 400mV: $>3\text{M}\Omega$; 4V ~ 750V: $2.3\text{M}\Omega$

Overload protection: 1000VDC or 750VAC rms

CURRENT

Ranges: 40mA, 400mA, 10A

Resolution: 1uA

DC accuracy:

$\pm (0.5\% \text{ rdg} + 10 \text{ dgts})$ on 40mA to 400mA ranges

$\pm (1.5\% \text{ rdg} + 10 \text{ dgts})$ on 10A range

AC accuracy: (TRUE RMS) (50Hz ~ 1kHz)

$\pm (2.0\% \text{ rdg} + 30 \text{ dgts})$ on 40mA to 400mA ranges

$\pm (2.5\% \text{ rdg} + 30 \text{ dgts})$ on 10A range

Crest factor: ≤ 3

AC coupled true rms specified from 10% to 100% of range.

Voltage burden: 0.2V on 40mA, 10A ranges

1V on 400mA range

Input protection: 0.5A/500V fast blow ceramic fuse

10A/500V fast blow ceramic fuse

10A Input: 10A for 60 seconds maximum followed by a 10 minute cooling period.

RESISTANCE

Ranges: 400 Ω , 4k Ω , 40k Ω , 400k Ω , 4M Ω , 40M Ω

Resolution: 0.01 Ω

Accuracy:

$\pm (0.3\% \text{ rdg} + 15 \text{ dgts})$ on 400 Ω range

$\pm (0.3\% \text{ rdg} + 5 \text{ dgts})$ on 4k Ω to 400k Ω ranges

$\pm (0.5\% \text{ rdg} + 10 \text{ dgts})$ on 4M Ω range

$\pm (1.5\% \text{ rdg} + 20 \text{ dgts})$ on 40M Ω range

Open circuit volts typical: 1.2Vdc (2.5Vdc on 400 Ω range)

Overload protection: 500VDC or AC rms

CAPACITANCE

Ranges: 4nF, 40nF, 400nF, 4uF, 40uF

Resolution: 1pF

Accuracy: $\pm (3.0\% \text{ rdg} + 20 \text{ dgts})$ on 4nF range

$\pm (3.0\% \text{ rdg} + 5 \text{ dgts})$ on 40nF to 400nF ranges

$\pm (3.0\% \text{ rdg} + 5 \text{ dgts})$ on 4uF to 20uF ranges

$\pm (5.0\% \text{ rdg} + 5 \text{ dgts})$ on 20uF to 40uF ranges

Overload protection: 500VDC or AC rms

FREQUENCY

Ranges: 100Hz, 1kHz, 10kHz, 100kHz, 500kHz

1.800.561.8187

www.itm.com

information@itm.com

Accuracy: Stated accuracy at 23°C $\pm$ 0.5°C, <