



# NEPTUNE

PROFESSIONAL INSULATION  
AND CONTINUITY MULTIMETER

# Neptune. Beyond multimeters.

1000V

TRMS  
AC+DC

LoZ

CAT IV  
600V

CAT III  
1000V

autoRange

- › **Autorange** function and automatic detection of **AC, DC** for all measurements.
- › **DC, AC TRMS, AC+DC TRMS voltage** up to **1000V**.
- › **Low-impedance LoZ input** to **exclude** measurements of **“stray voltages”**.
- › **DC, AC TRMS, AC+DC TRMS current** by means of an optional external clamp transducer.
- › Measurement of voltage or current **frequency**.
- › **Resistance and continuity** with **buzzer**.
- › **MAX/MIN/PEAK/HOLD** functions.



Voltage measurement with test leads.



Continuity of protective conductors with 200mA.

## Why choose Neptune?

- › I can quickly **measure insulation up to 1000V**, just like top-of-the-range testers.
- › I measure **continuity** of protective conductors with **200mA** to solve the most common problems related to masses.
- › I measure **Inrush currents, Harmonics** and **THD%**, just like top-of-the-range power quality analyzers.
- › I have a **wide range of external clamp transducers** for measuring **AC TRMS, DC, AC+DC current** and **Inrush current**, starting from **1mA** up to **3000A**.
- › I **compare each measurement with the limits prescribed by the Guidelines** and I provide a clear result **OK** 👍 or **NOT OK** 🚫
- › I am a multimeter with **functions** only available if using **top-of-the-range instruments**.
- › I am **Portable, Compact** and **Resistant**.

## Insulation: for extra safety.

- › I measure **Insulation Resistance** up to **1000V** and I evaluate the values of parameters **PI** and **DAR**, which are very useful for diagnostic purposes of materials in appliances undergoing long lasting monitoring.

## Continuity of protective conductors with 200mA.

- › I check the **continuity** of **protective** and **equipotential** conductors (PE) with a test current of **200mA**.
- › I carry out tests **between earth poles** of all plug sockets and **on the earth node**.
- › I check continuity of the **main external masses** like water or gas pipes and earth node.

## I measure voltage accurately.

- › I measure AC/DC voltage with a **“low impedance input” (LoZ)** in order to **eliminate incorrect readings** due to stray voltages **because of parasitic capacitive coupling**.

## I do not follow one current: I follow them all! Current measurement.

- › I measure **AC/DC current** through the **external clamp transducer** of type **“Standard”** or **“Flexible”** up to **3000A**
- › I can also measure **leakage current** starting from **1mA** through the optional clamp transducer HT96U
- › I measure **inrush currents** of electric **motors and loads** through function **DIRC (Dynamic InRush Current)**, which allows measuring **inrush currents with user-defined time frames**
- › I use function **AC+DC** to detect a **possible presence** of **overlapping direct components on a generic alternating current**. This **can be useful** when measuring **typical impulsive signals** of non-linear loads (welding machines, ovens, etc.).

## Harmonics. An open book to me.

- › I measure **THD%** and **values of voltage and current harmonics**, expressed both in **absolute** and in **percentage value**
- › I have **H<sub>2</sub>O function** (Higher Harmonic Ordering), **which orders harmonics by amplitude**, immediately **displaying the values** of the **highest harmonics found** in the system with **no need to “scroll down”** all harmonics in order to **identify the highest values**.

## Phase sequence.

- › I detect **phase sequence** by simply touching phase conductors in a sequence.



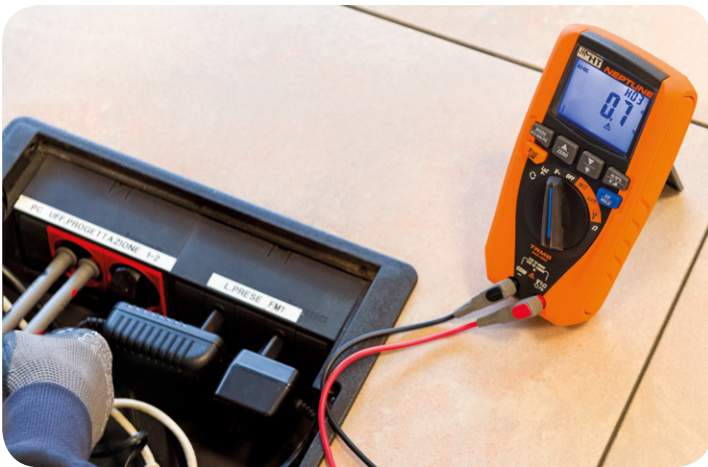
CALIBRATION  
CERTIFICATE  
ISO 9000  
INCLUDED



Zeroing of **stray voltage**.



Measurement of **Insulation Resistance** (optional Schuko C2065 adapter).



Measurement of **voltage harmonics**.



**Continuity of protective conductors**.



Measurement of **phase sequence with one lead**.



Measurement of **current through flexible transducer F3000U**.

## Accessories provided

- **4324-2** Pair of Red/Black banana connectors with 2/4mm tip
- **YAAMK0001HTO** Pair of Red/Black alligator clips
- **YABAT0001HTO** Alkaline battery type AAA IEC LR03 1.5V, 4 pieces
- **YABRS0002HTO** Carrying bag
- **YAMUM0068HTO** User manual on CD-ROM
- **YAMUM0067HTO** Quick user guide
- **Calibration certificate** ISO9000

The accessories provided may vary according to the country.

## Optional accessories

- **F3000U** Flexible clamp with full scale 30/300/3000A AC and banana connectors
- **HT96U\*** Standard clamp with full scale 1/100/1000A AC and Hypertac connector
- **HT97U\*** Standard clamp with full scale 10/100/1000A AC and Hypertac connector
- **HT98U\*** Standard clamp with full scale 1000A DC and Hypertac connector
- **HT4006** Standard clamp with full scale 40/400A AC/DC and banana connectors
- **NOCANBA** Adapter for clamp connection with Hypertac connector
- **5004-IECR** Red alligator clip
- **5004-IECN** Black alligator clip
- **C2065** 3-wire cable Red, Black and Green with Schuko plug

\* Adapter NOCANBA necessary.

## Technical Specifications

### DC voltage

Measuring range: 0.0V ÷ 999.9V  
Resolution: 0.1V  
Accuracy: ±(0.5%reading + 2digits)

### AC TRMS, DC, AC+DC TRMS, LoZ voltage

Measuring range: 0.5V ÷ 999.9V  
Resolution: 0.1V  
Frequency range: 32Hz ÷ 1kHz  
Accuracy: ±(0.5%reading + 2digits)

### AC TRMS current with flexible clamp F3000U

Measuring range: 1A ÷ 3000A  
Basic resolution: 0.01A  
Accuracy: ±(0.5%reading + 2digits)

### AC TRMS, DC, AC+DC TRMS current with standard clamp

Measuring range: 1mV ÷ 1000mV  
Resolution: 1mV  
Accuracy: ±(0.5%reading + 2digits)

### Inrush current (DIRC) - Flexible clamp F3000U

Measuring range: 1A ÷ 3000A  
Basic resolution: 0.01A  
Frequency range: 42.5Hz ÷ 69Hz  
Accuracy: ±(2.0%reading + 2digits)  
Response time of peak: 1ms  
Max RMS response time: 16.6ms, 20ms, 50ms, 100ms, 150ms, 175ms, 200ms

### Inrush current (DIRC) - Standard clamp

Measuring range: 1mV ÷ 1000mV  
Resolution: 1mV  
Frequency range: 42.5Hz ÷ 69Hz  
Accuracy: ±(2.0%reading + 2digits)  
Response time of peak: 1ms  
Max RMS response time: 16.6ms, 20ms, 50ms, 100ms, 150ms, 175ms, 200ms

### Resistance and Continuity test

Measuring range: 0.0Ω ÷ 1999Ω  
Basic resolution: 0.1Ω  
Accuracy: ±(1.0%reading + 5digits)  
Buzzer test: R<30Ω

### Voltage / Current harmonics

Harmonic order: DC, 1<sup>st</sup> ÷ 25<sup>th</sup> + THD%  
Frequency range: 42.5Hz ÷ 69Hz  
Resolution: 0.1V / 0.1A  
Basic accuracy: ±(5.0%rdg + 10digits)

### Phase sequence with 1 terminal

Measuring range: 100V ÷ 999.9V  
Frequency range: 42.5Hz ÷ 69Hz

### Insulation resistance

Test voltages: 50,100,250,500,1000VDC  
Measuring range (@ 500V): 0.01MΩ ÷ 999MΩ  
Resolution: 0.01MΩ ÷ 1MΩ  
Basic accuracy (@ 500V): ±(2.0%reading + 2digits)  
Timer for measurements: 15s, 30s, 1min, 5min, 10min  
Measurement of Polarization Index (PI) and Dielectric Absorption Ratio (DAR)  
Automatic discharge of target

### Continuity of protective conductors

Test current: >200mA DC (@ R<5Ω)  
Measuring range: 0.00Ω ÷ 199.9Ω  
Open-circuit voltage: 4 < V<sub>o</sub> < 12V DC  
Accuracy: ±(2.0%reading + 2digits)

## General specifications

### General characteristics

Instrument safety: IEC/EN61010-1, IEC/EN61010-2-030,  
IEC/EN61010-2-033  
EMC: IEC/EN 61326-1  
Test MΩ: CEI 64-8, IEC/EN61557-2  
Test LoΩ: CEI 64-8, IEC/EN61557-4  
Phase sequence: IEC/EN 61557-7  
Insulation: double insulation  
Pollution level: 2  
Measurement category: CAT IV 600V, CAT III 1000V to earth and between inputs

### Mechanical characteristics

Size (L x W x H): 175 x 85 x 55mm  
Weight (batteries included): 420g  
Mechanical protection: IP40

### Power supply

Battery type: 4x1.5V batteries type AAA IEC LR03  
Auto power off: after 15 minutes' idling

### Display

Type of display: 4 dgt LCD, max 9999 dots, decimal sign, point, backlight and bargraph, indication of polarity  
Updating frequency: 2 times/s

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