

# PORTABLE APPLIANCE AND WELDING MACHINES TESTER PAT-806

**NEW!**



**EN**

**60974-4**

**CAT II**

**300V**

PAT-806 digital meters are used to measure the parameters of portable electrical equipment (power tools, white goods, etc.) which determine their safety: resistance of protective conductors, insulation resistance, continuity of connections, leakage current, power. **Specifically the instrument is dedicated to measure the welding equipment.**

**PAT-806 can be used to test the equipment performed in accordance with standards:**

- **EN 60974-4:** Arc welding equipment - Part 4: Periodic inspection and testing.
- **EN 60745-1:** Hand-held motor-operated electric tools. Safety. General requirements.
- **EN 61029:** Safety of transportable motor-operated electric tools. General requirements.
- **EN 60335-1:** Household and similar electrical appliances -Safety -Part 1: General requirements.
- **EN 60950:** Safety of information technology equipment (IT Equipment).
- **VDE 0404-1:** Prüf- und Messeinrichtungen zum Prüfen der elektrischen Sicherheit von elektrischen Geräten. Teil 1: Allgemeine Anforderungen.
- **VDE 0404-2:** Prüf- und Messeinrichtungen zum Prüfen der elektrischen Sicherheit von elektrischen Geräten. Teil 2: Prüfeinrichtungen für Prüfungen nach Instandsetzung, Änderung oder für Wiederholungsprüfungen.
- **VDE 0701-0702** Prüfung nach Instandsetzung, Änderung elektrischer Geräte. Wiederholungsprüfung elektrischer Geräte. Allgemeine Anforderungen für die elektrische Sicherheit.



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## Basic functions:

- **measurement of parameters of arc welding machines (EN 60974-4):**
  - welding machine no-load voltage measurement,
  - $U_p$  voltage (peak),
  - welding circuit leakage current measurement,
- measurement of protective conductor resistance with the currents: 200mA, 10A, 25A ( protection class I),
- measurement of insulation resistance – three measurement voltages: 100V, 250V and 500V
- measurement of equivalent leakage current,
- measurement of PE leakage current,
- measurement of residual leakage current,
- measurement of touch leakage current,
- measurement of equivalent leakage current,
- measurement of power,
- measurement of current consumption,
- IEC lead test,
- fuse test,
- check of the L-N circuit test,
- measurement of mains voltage and frequency.

## Other:

- automatic measurement range selection,
- 990 memory cells for measurement results with option of uploading to a PC through a USB port or printing,
- professional software for data processing and reporting,
- cooperation with a barcode reader and printer,
- supports pendrive flash memory,
- large and clear display with backlight,
- ergonomic operation.

### Standard accessories:

- Power supply cord
- 1.2 m 10/25 A two-core test lead "U2/I2"
- „Crocodile" clip K03; black - 2 pcs
- Kelvin clip
- Pin probe with banana connector; black
- Sonel high-current probe
- Test lead with banana plug; 1,2m; 2,5mm<sup>2</sup> black - 2 pcs
- USB cable
- 0314 015.VXP 15 A 250 VAC 6.3x32 mm Littlefuse fuse (2 pcs)
- Carrying case L5
- Sonel Reader software
- Calibration certificate

WAPRZAS1  
WAPRZ1X2DZBB2  
WAKROBL30K03  
WAKROKELK06  
WASONBLOGB3  
WASONSPGB1  
WAPRZ1X2BLBB2X5  
WAPRZUSB  
WAPQZB15PAT  
WAFUTL5

### Additional accessories:

- 1.2 m 10/25 A two-core test lead "U1/I1"
- 1 kV black "crocodile" clip
- 1 kV black probe
- 1.2 m black test lead terminated with banana plugs, black
- Cord - Schuko/IEC adapter (for testing extension cords)
- 16 A three-phase socket adapter
- 16 A switched three-phase socket adapter
- 32 A three-phase socket adapter
- 32 A switched three-phase socket adapter
- 16 A industrial socket adapter
- 32 A industrial socket adapter
- IEC adapter for testing IEC cords terminated with a "Mickey Mouse" connector
- Sonel PAT software
- USB bar code reader
- Portable USB report/bar code
- Stickers with bar codes (a reel of 100 stickers)
- Permanent adhesive tape

WAPRZ1X2DZBB1  
WAKROBL30K03  
WASONBLOGB1  
WAPRZ1X2BLBB2X5  
WAADAPATIEC2  
WAADAPAT16P  
WAADAPAT16PR  
WAADAPAT32P  
WAADAPAT32PR  
WAADAPAT16F1  
WAADAPAT32F1  
WAADAPATIEC1  
WAPROSONPAT1  
WAADACK1  
WAADAD1  
WANAKKODPAS  
WANAKD1



### Conforms to the EMC requirements according to EN 61326-1:2009 and EN 61326-2-2:2006

#### Electrical safety:

- insulation according to
- measurement category
- enclosure protection rating acc. to EN 60529:

EN 61010-1 and IEC 61557  
II 300V acc.to EN 61010-1  
IP40

#### Other technical specification:

- power supply
- load current
- measurement results memory
- data transmission to PC
- dimensions:
- weight
- operating temperature:
- storage temperature:
- humidity

187...265 V, 50 Hz  
max. 16 A (230 V)  
990 cells  
USB  
330 x 235 x 120 mm  
4,75 kg  
0...+40 °C  
-20...+70 °C  
20...80%





## Measurement of protective earth conductor resistance I=200mA (protection class I)

| Display range  | Resolution | Accuracy              |
|----------------|------------|-----------------------|
| 0,00...0,99 Ω  | 0,01 Ω     | ±(4% m.v. + 2 digits) |
| 1,00...19,99 Ω |            | ±(4% m.v. + 3 digits) |

- test current: ≥200 mA for R=0,2...1,99 Ω
- upper limit adjustable in the 10 mΩ ... 1,99 Ω range with the 0,01 Ω resolution
- measurement time adjustable in 1...60 s range, with the 1 s resolution

## Measurement of protective earth conductor resistance I=10 A (protection class I)

| Display range | Resolution | Accuracy                |
|---------------|------------|-------------------------|
| 0...999 mΩ    | 1 mΩ       | ±(3% m.v. + 4 digits)   |
| 1,00...1,99 Ω | 0,01 Ω     | ±(3% m.v. + 40 digits)* |

\* for two-wire measurement

- technical method
- test current: ≥10 A for R≤0,5 Ω
- limit adjustable in the 10 mΩ ... 1,99 Ω range with the 0,01 Ω resolution
- measurement time adjustable in 1...60 s range, with the 1 s resolution

## Measurement of protective earth conductor resistance I=25A (protection class I)

| Display range | Resolution | Accuracy                |
|---------------|------------|-------------------------|
| 0...999 mΩ    | 1 mΩ       | ±(3% m.v. + 4 digits)   |
| 1,00...1,99 Ω | 0,01 Ω     | ±(3% m.v. + 40 digits)* |

\* for two-wire measurement

- technical method
- measurement with sinusoidal current of the mains frequency, test current: ≥25 A for R≤0,2 Ω
- limit adjustable in the 10 mΩ ... 1,99 Ω range with the 0,01 Ω resolution
- measurement time adjustable in 1...60 s range, with the 1 s resolution

## Measurement of L-N circuit resistance

| Display range  | Resolution | Accuracy              |
|----------------|------------|-----------------------|
| 0...999 Ω      | 1 Ω        | ±(5% m.v. + 5 digits) |
| 1,00...4,99 kΩ | 0,01 Ω     |                       |

- test voltage: 4...8 V AC
- short-circuit current: max. 5 mA

## Measurement of insulation resistance

Measurement range according to IEC 61557-2 for:

**U<sub>n</sub>=100 V:** 100 kΩ...99,9 MΩ

**U<sub>n</sub>=250 V:** 250 kΩ...199,9 MΩ

**U<sub>n</sub>=500 V:** 500 kΩ...599,9 MΩ

| U <sub>n</sub> | Range           | Resolution | Accuracy              |
|----------------|-----------------|------------|-----------------------|
| 100V           | 0...1999 kΩ     | 1 kΩ       | ±(5% m.v. + 8 digits) |
|                | 2,0...19,99 MΩ  | 0,01 MΩ    |                       |
|                | 20,0...99,9 MΩ  | 0,1 MΩ     |                       |
| 250V           | 0...1999 kΩ     | 1 kΩ       |                       |
|                | 2,00...19,99 MΩ | 0,01 MΩ    |                       |
|                | 20,0...199,9 MΩ | 0,1 MΩ     |                       |
| 500V           | 0...1999 kΩ     | 1 kΩ       |                       |
|                | 2...19,99 MΩ    | 0,01 MΩ    |                       |
|                | 20,0...599,9 MΩ | 0,1 MΩ     |                       |

- limit adjustable in the: 0.01...9.9 MΩ range with the 0.1 MΩ resolution
- adjustable measurement time: continuous measurement (Cont), or from 4 s to 3 min with 1 s resolution
- automatic discharge of the capacity of the tested device after measurement
- protection against measuring live devices
- output current max. 1.4 mA

## Measurement of PE and residual leakage current:

| Display range  | Resolution | Accuracy              |
|----------------|------------|-----------------------|
| 0,00...3,99 mA | 0,01 mA    | ±(5% m.v. + 2 digits) |
| 4,0...19,9 mA  | 0,1 mA     |                       |

- limit adjustable in the 0.01...9.9 mA range with the 0.01 mA/0.1 mA resolution
- adjustable measurement time: continuous measurement (Cont), or 1...60 s with 1 s resolution
- in the middle of the measurement time, the meter automatically switches the polarity at the measuring terminal and displays the greater value
- current measurement band 40 Hz...100 kHz (for leakage current) or 20 Hz...100 kHz (for residual leakage current)

## Measurement of equivalent leakage current:

| Display range  | Resolution | Accuracy              |
|----------------|------------|-----------------------|
| 0,00...3,99 mA | 0,01 mA    | ±(5% m.v. + 2 digits) |
| 4,0...19,9 mA  | 0,1 mA     |                       |

- limit adjustable in the 0.01...9.9 mA range with the 0.01 mA/0.1 mA resolution
- adjustable measurement time: continuous measurement (Cont), or 1...60 s with 1 s resolution
- open circuit voltage 25...50 V

## Measurement of touch leakage current:

| Display range   | Resolution | Accuracy              |
|-----------------|------------|-----------------------|
| 0,00...4,999 mA | 0,001 mA   | ±(5% m.v. + 3 digits) |

- limit adjustable in the 0.01...1.99 mA range with the 0.01 mA resolution
- adjustable measurement time: continuous measurement (Cont), or 4...60 s with 1 s resolution

## No-load voltage measurement for welding machines:

### Voltage measurement U<sub>R</sub> (r.m.s.):

| Display range | Resolution | Accuracy                |
|---------------|------------|-------------------------|
| 5,0...170,0 V | 0,1 V      | ±(2,5% w.m. + 5 digits) |

- upper limit adjustable in the 5,0...170,0 V range with the 1 V resolution

### U<sub>p</sub> (peak) voltage measurement:

| Display range | Resolution | Accuracy                |
|---------------|------------|-------------------------|
| 5,0...240,0 V | 0,1 V      | ±(2,5% w.m. + 5 digits) |

- upper limit adjustable in the 5,0...240,0 V range with the 1 V resolution

## Welding circuit leakage current measurement I<sub>L</sub>:

| Display range   | Resolution | Accuracy              |
|-----------------|------------|-----------------------|
| 0,00...14,99 mA | 0,01 mA    | ±(5% w.m. + 2 digits) |

- current measurement range results from the applied measurement system which is in accordance with EN 60974-4
- upper limit adjustable in the 0,10 mA...14,90 mA range with 0,1 mA resolution
- adjustable time of measurement: 3 s...60 s with 1 s resolution

## Measurement of power S:

| Display range | Resolution | Accuracy              |
|---------------|------------|-----------------------|
| 0...999 VA    | 1 VA       | ±(5% m.v. + 3 digits) |
| 1...3,99 kVA  | 0,01 kVA   |                       |

- adjustable measurement time: continuous measurement (Cont), or 1...60 s with 1s resolution

## Measurement of current consumption:

| Display range  | Resolution | Accuracy              |
|----------------|------------|-----------------------|
| 0,00...15,99 A | 0,01 A     | ±(2% m.v. + 3 digits) |

- adjustable measurement time: continuous measurement (Cont), or 1...60 s with 1s resolution

## Voltage measurement:

| Display range   | Resolution | Accuracy             |
|-----------------|------------|----------------------|
| 187,0...265,0 V | 0,01 V     | ±(2% w.m. + 2 cyfry) |

| Display range     | Resolution | Accuracy             |
|-------------------|------------|----------------------|
| 45,0 Hz...55,0 Hz | 0,1 Hz     | ±(2% w.m. + 2 cyfry) |

## PE network voltage measurement:

| Display range | Resolution | Accuracy             |
|---------------|------------|----------------------|
| 0,0...59,9 V  | 0,1 V      | ±(2% w.m. + 2 cyfry) |