



CAT II

300 V

IEC

61557

IP40

WiFi

TOUCH  
SCREEN

QR CODE  
SYSTEM

## Modern testing of appliances, power tools and welding machines

### Features

- Power supply 95...265 V
- Measurement of devices with 110 V and 230 V 50/60 Hz power supply
- Measuring system that enables:
  - **PAT-96** | measurement of welding equipment parameters:
    - » rated voltage of welding devices in no-load condition,
    - » welding circuit leakage current,
    - » primary leakage current,
  - protective conductor resistance measurement,
  - measurement of insulation resistance in three points,
  - measurement of substitute, differential and touch leakage current,
  - functional test,
  - test of RCD and PRCD switches,
  - ...and much more.
- Intuitive user interface.
- Cooperation with a label printer and QR code scanner.



## Application

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Sonel PAT-96 is an ideal choice for professionals involved in the maintenance and repair of welding equipment, power tools and other appliances. Thanks to its accurate testing, it provides a detailed analysis of the technical condition of the equipment under examination. It guarantees both the safety of users and the long-term maintenance of equipment in optimal technical condition. Developed on the basis of the experience gained, the Sonel PAT-96 tester is designed for both field and industrial challenges.

## Welding machines

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PAT-96 was created for testing welding equipment in compliance with EN 60974-4 standard.



## Capabilities

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Thanks to the extensive measuring part, PAT-86 enables comprehensive checking of electrical devices. The touch screen and autoprotcedures section make testing quick and efficient. The automatic procedure wizard means even more flexibility for the instrument. The meter has a built-in help system.

The meter cooperates with a label printer and QR scanner, which greatly facilitates the recordkeeping of tools. The following printouts are available:

- initial measurement report,
- QR code, where, which stores unique data to identify the device in the database.

These data can be read and added to the meter memory using the optional QR code scanner.

The whole picture is complemented by a compact and durable housing. It provides instrument protection during both measurements and transport.

## Memory

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The memory has a tree structure, built from folders, objects and devices. For each device tested it contains its description, location of measurements, customer data and registration number.

## Standards

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The instrument can be used to test equipment according to standards, among others:

- EN 50699
- EN 50678
- EN 60974-4
- VDE 0701-0702
- VDE 0404-1
- VDE 0404-2
- EN 60745-1
- EN 62841
- EN 60335-1
- EN 60950
- EN IEC 62368-1
- AS/NZS 3760



# Technical specification

Measurement functions	Range	Resolution	Accuracy ±(% m.v. + digits)
<b>Resistance of protective conductor (PE)</b> I = 200 mA / 10 A / 25 A	up to 19.99 Ω	from 1 mΩ	from ±(3% m.v. + 4 digits)
<b>Insulation resistance</b> U <sub>ISO</sub> = 100 V / 250 V / 500 V / 1000 V	up to 599.9 MΩ	from 1 kΩ	±(5% m.v. + 8 digits)
<b>Current (clamp measurement)</b>	up to 24.9 A	from 1 mA	±(5% m.v. + 5 digits)
<b>Visual test</b>		✓	
<b>Continuity check of protective conductor (PE)</b>		✓	
<b>Insulation resistance measurement at three points</b>		✓	
<b>IEC cable test</b>		✓	
<b>Functional test</b>			
Apparent power S	up to 3.99 kVA	from 1 VA	±(5% m.v. + 3 digits)
Active power P	up to 3.99 kW	from 1 W	±(5% m.v. + 3 digits)
Reactive power Q	up to 3.99 kvar	from 1 var	±(5% m.v. + 3 digits)
Power Factor (PF)	up to 1.00	0.01	±(10% m.v. + 5 digits)
Current consumption for power measurement	up to 15.99 A	0.01 A	±(2% m.v. + 3 digits)
THD for voltage and current	up to 999.9%	0.1%	±(5% m.v. + 5 digits)
cosφ	up to 1.0	0.1	±(5% m.v. + 5 digits)
<b>PAT-96   Voltage measurement for welding machines</b>			
RMS voltage U <sub>RMS</sub>	up to 170.0 V	0.1 V	±(2.5% m.v. + 5 digits)
DC and AC peak voltage	up to 240.0 V	0.1 V	±(2.5% m.v. + 5 digits)
Voltage U <sub>0</sub>	up to 240.0 V	0.1 V	±(2.5% m.v. + 5 digits)
<b>Leakage current measurement</b>			
<b>PAT-96  </b> Welding circuit leakage current I <sub>L</sub>	up to 14.99 mA	0.01 mA	±(5% m.v. + 2 digits)
<b>PAT-96  </b> Leakage current of the welding machine's primary circuit I <sub>p</sub>	up to 14.99 mA	0.01 mA	±(5% m.v. + 5 digits)
PE leakage current and differential leakage current	up to 19.9 mA	0.01 mA	±(5% m.v. + 2 digits)
Substitute leakage current	up to 19.9 mA	0.01 mA	±(5% m.v. + 2 digits)
Touch leakage current	up to 4.999 mA	0.001 mA	±(5% m.v. + 3 digits)
<b>RCD and PRCD switch test</b>			
Measurement of RCD parameters according to IEC 61557	up to 300 ms	1 ms	±(2% m.v. + 2 digits)
Measurement of RCD tripping current I <sub>A</sub> for sinusoidal residual current (AC type)	up to 30 mA	0.1 mA	±5% I <sub>Δn</sub>
<b>Measurement of power network parameters</b>			
Voltage	up to 265.0 V	0.1 V	±(2% m.v. + 2 digits)
Frequency	up to 65.0 Hz	0.1 Hz	±(2% m.v. + 2 digits)

m.v. - measured value

# Technical specification

## Technical data

Technical data	LCD 5" 1280 x 720 px
Power supply	mains: 95...265 V, 45...70 Hz rechargeable battery: Ni-MH 7.2 V / 2 Ah
Load current	max. 16 A (230 V)

## Safety and work conditions

Measuring category according to EN 61010	II 300 V
Ingress protection	IP40
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	318 x 257 x 152 mm
Weight	ca. 5 kg
Operating temperature	-10...+50°C
Storage temperature	-20...+70°C
Humidity	20...80%
Nominal temperature	23°C ± 2°C
Reference humidity	40%...60%
Altitude a.s.l.	≤2000 m

## Memory and communication

Memory of measurement results	9999 results
Data transmission	USB-B, Wi-Fi, LAN

## Other information

Measurement standards	EN 50678
	EN 50699
Quality standard - development, design and production	ISO 9001
	ISO 14001
	ISO 45001
The product meets the EMC (emission for industrial environment) requirements according to standards	EN 61326-1
	EN 61326-2-2



## Standard accessories



**Power cord**  
WAPRZAS1



**Test lead**  
1.8 m (crocodile clip)  
WAPRZ1X8ORKS  
**PAT-96 | 1.5 m (PAT plug/banana plugs)**  
WAPRZ1X5DZBB



**L-11 carrying case**  
WAFUTL11



**PAT-96 | Crocodile clip 1 kV 20 A**  
red  
WAKRORE20K02  
blue  
WAKROBU20K02



**2x 5x20 mm, 16 A fuse**  
WAPOZB16PAT  
**USB cable**  
WAPRZUSB



**Factory calibration certificate**

## Optional accessories



**Three-phase socket adapter 16 A**  
5P  
WAADAPAT16P  
5P switchable  
WAADAPAT16PR  
4P  
WAADAPAT16C  
4P switchable  
WAADAPAT16CPR



**Three-phase socket adapter 32 A**  
5P  
WAADAPAT32P  
5P switchable  
WAADAPAT32PR  
4P  
WAADAPAT32C  
4P switchable  
WAADAPAT32CPR



**3P industrial socket adapter**  
16 A  
WAADAPAT16F1  
32 A  
WAADAPAT32F1



**Pin probe 1 kV CAT III/1000 V CAT IV/600 V (banana socket) red**  
WASONRE0GB1



**Pin probe 1 kV CAT III/1000 V CAT IV/600 V (banana socket) blue**  
WASONBU0GB1



**High-current pin probe (banana sockets)**  
WASONSPGB1



**Kelvin clip 1 kV 25 A**  
WAKROKELK06



**Test lead PAT-95 | 1.5 m (PAT plug/banana plugs)**  
WAPRZ1X5DZBB



**Double-wire test lead 2.1 m (IEC C13/banana plugs)**  
WAPRZ2X1DZIECB



**C-3 current clamp (Ø 52 mm)**  
WACEGC30KR



**IEC 60320 C6 to C13 adapter**  
WAADAPATIEC1



**Barcode scanner (USB)**  
WAADACK2D



**Report / barcode printer (Wi-Fi / D3, portable)**  
WAADAD3



**IEC/Uni Schuko adapter for extension cords testing**  
WAADAPATIEC2



**Sonel PAT Analysis**  
WAPROSONPAT3



**Accessories for Brother printer**  
Ink tape  
WANAKD3



**Calibration certificate with accreditation**