



# optec

energie ist messbar

Optec AG | Guyer-Zeller-Strasse 14 | CH-8620 Wetzikon ZH

Telefon: +41 44 933 07 70 | E-Mail: info@optec.ch  
www.optec.ch

## FULLTEST3

SAFETY CHECK ON PANELS, MACHINES  
AND ELECTRIC LINES  
IEC/EN60204-1 AND IEC/EN61439-1





## All measurements

- **Continuity of the protective conductor** with  $V < 12V$  and  $200mA$ ,  $I > 10A$ ,  $I > 25A$ .
- **Insulation resistance** with test voltages 100, 250, 500, 1000VDC.
- **Dielectric strength** with programmable voltage from 250V to 5100VAC.
- **Tripping time and current of RCDs** type A, AC, B General and selective up to 1000mA<sup>(1)</sup>.
- **Advanced Loop** for the verification of magnetothermal protections, fuses and cable sizes.
- **Overall earth resistance** without RCD tripping.
- **Discharge time/residual voltage** on plugs and internal circuits.
- **Absorbed/leaked current** and power at plug of machines.
- **Contact voltage.**
- **Leakage current** through external transducer.
- **Phase sequence.**
- **Timer and limit thresholds selectable** through programmable ramps.

<sup>(1)</sup> B up to 300mA.

## IEC/EN61439-1-2

TEST TO BE CARRIED OUT	PANELS IEC/EN61439-1-2 CAT III 230V/400V
Insulation distances in the air and on surfaces	Dielectric strength (3400V / 5100VAC)
Continuity of the earthing and of protective conductors	Continuity (>10A, 0.1Ω)
Insulation measurement	Only if $I_n < 250A$ - ISO 500V
Withstand voltage at operating frequency	Dielectric strength (1890V AC)
Pulse withstand voltage	Dielectric strength (3400V / 5100VAC)
Test on insulating material sheaths	Dielectric strength (2835V AC)
Residual voltage measurement	Discharge ( $V < 60V$ , 5s)

## EN60204-1

TEST TO BE CARRIED OUT	ON BOARD THE MACHINE IEC/EN60204-1
Continuity of the earthing and of protective conductors	Continuity >200mA
Automatic stop of power supply (RCD, MCB, Fuses)	Test of RCD (TT), MCB and Fuses (TN)
Insulation measurement	ISO 500VDC
Withstand voltage at operating frequency	Dielectric strength (1000V AC, 1s)
Residual voltage measurement	Discharge ( $V < 60V$ , 5s/1s)

## Why choose FULLTEST3?

- **Distribution boards:** it carries out measurements in compliance with standard **IEC/EN 61439-1-2** (CEI 17-113/CEI 17-114) and, in particular, Dielectric strength tests with voltages up to 5100VAC and Continuity tests on protective conductors with test current up to 25A.
- **Electric equipment of the machines:** It carries out measurements in compliance with standard **EN60204-1** (CEI 44-5) and, in particular, verification of RCDs (up to 1A), magnetothermal switches and fuses.
- **Tests in an automatic sequence:** The user has the possibility to program a sequence of tests with automatic start up to a maximum of 8.
- **Colour touch-screen display:** it guarantees immediate access to the test result **OK** and **NOT OK**.
- **Internal memory:** Possibility of saving up to 999 items in the internal memory or on the USB PEN DRIVE.
- **Reports and attachments:** Bluetooth and USB interface for data transfer onto the PC or to the portable printer<sup>(2)</sup>.

<sup>(2)</sup> For the printer, it is possible to use only the instrument's USB port.



## Measures, Prints and Certifies immediately.

To **certify the correct performance** of safety tests according to the laws in force, it is possible, through the USB port, to connect to the FT3MPT2 printer<sup>(3)</sup> and **immediately print the result with the measured values**, the **name of the operator**, with possible **comments** entered by using the **touchscreen keyboard**, date and time.

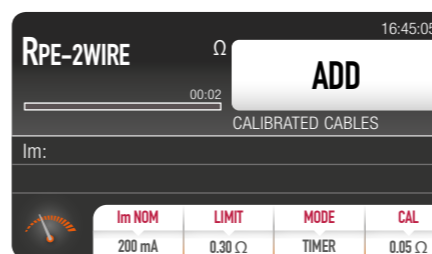
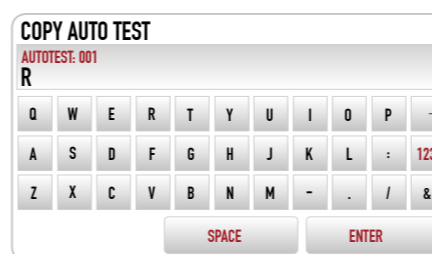
<sup>(3)</sup> FT3MPT2 printer is sold separately.



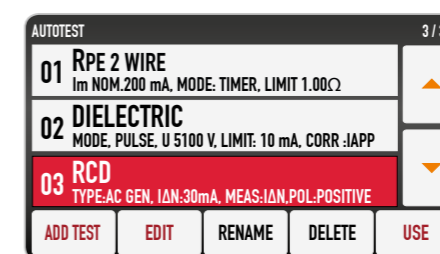
## Auto sequence tests.

With the **Autotest function** it is possible to **create automatic test sequences**<sup>(4)</sup> to speed up your measurements. Once you have created your **own custom sequences**, connect the test probes properly.

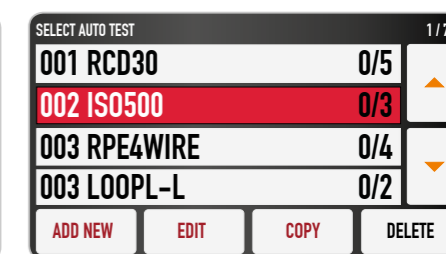
<sup>(4)</sup> Up to 8 tests per sequence.



Continuity measurement of protective conductors



Test on RCDs

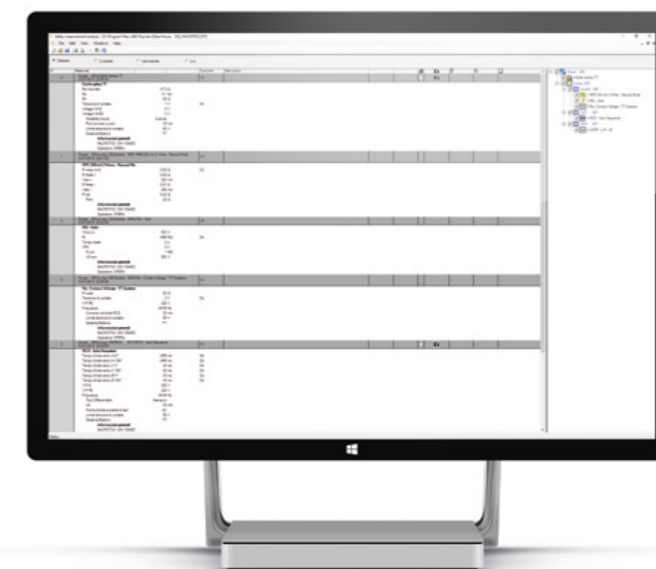


Test sequence list



## TopView The software for anything you need.

TopView is the software that allows satisfying the increasing requests for **reports** and **documentation**. It allows **producing documents**, **saving**, **analyzing data** and **creating custom professional documents** with **your own logo** and **your own company details**. **Export is immediate** and it is possible to choose among the following formats: Adobe **PDF** and Microsoft **XLS**.





USB compact printer with rechargeable battery (Optional)

Carrying bag for accessories (Optional)

IMP57 (Optional)

HT96U (Optional)

FT3R-GLP (Optional)

FT3RMTCT (Optional)

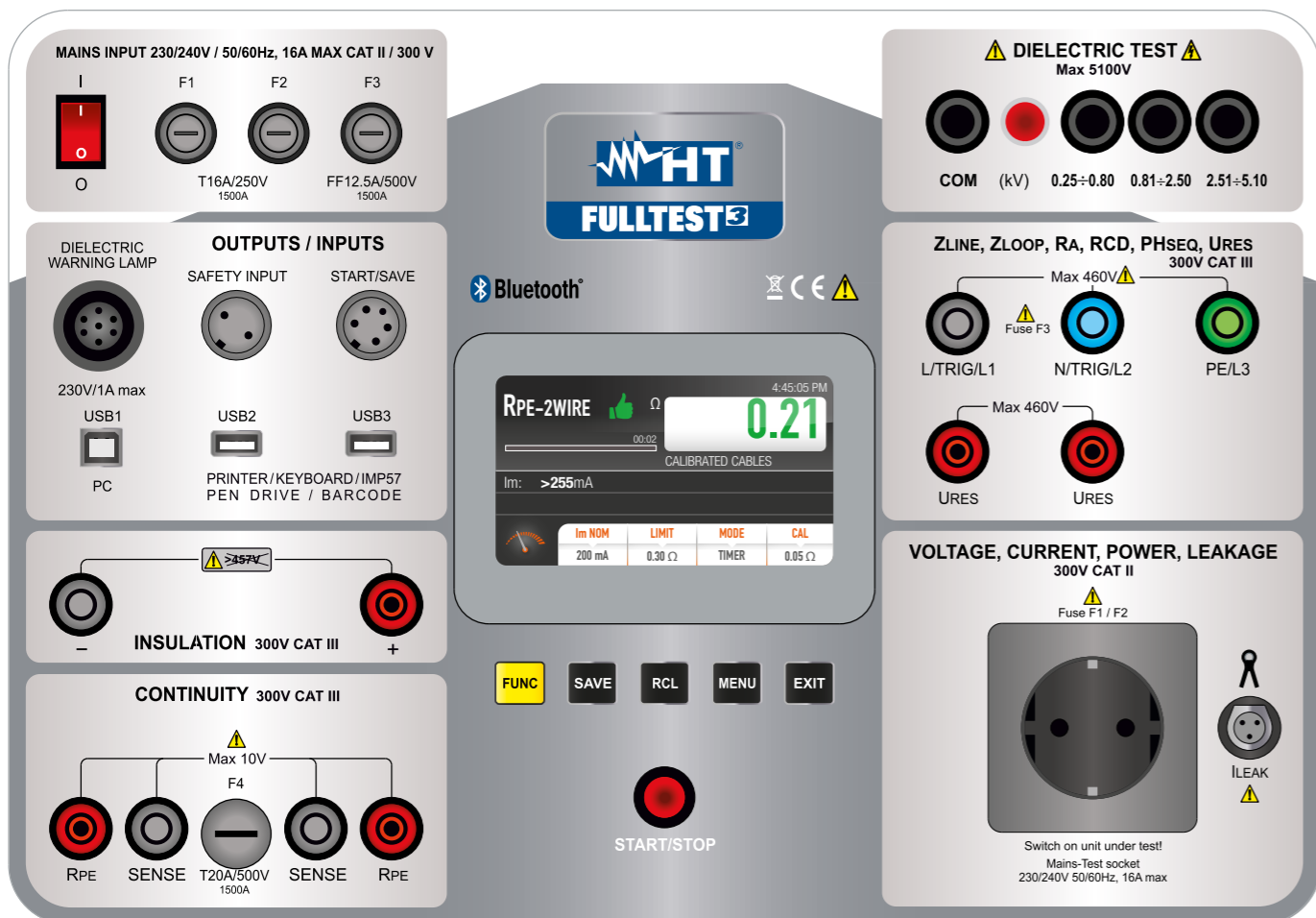
## Accessories provided

- **C2033X** 3-terminal cable with Shuko plug
- **2310-IECIV-200-N** Test cable, 2m, Black, 0.75mmq, 2 pcs
- **2317-IECIV-200-R** Test cable, 2m, Red, 2.5mmq, 2 pcs
- **2310-IECIV-200-B** Test cable, 2m, Blue, 0.75mmq
- **2310-IECIV-200-V** Test cable, 2m, Green, 0.75mmq
- **5004-IECN** Alligator clip, Black, 4 pcs
- **404-IECN** Measuring lead 4mm, Black, 3 pcs
- **FT3HVPRB1** Set of 2 safety cables for Dielectric tests
- **FT3BRSN** Carrying bag for accessories
- **TOPVIEW2007** Management software + USB cable C2007
- **Quick guide**
- **User manual** on CD-ROM
- **Calibration certificate** ISO9000

The accessories provided may vary according to the country.

## Optional accessories

- **HT96U** AC clamp for leakage current, 1-100-1000A, diameter 54mm
- **IMP57** Accessory for measuring Loop impedance with high resolution
- **C2009AD** Cable with adapter for connection to IMP57
- **1066-IECN** Extension cable connector for cables with 4mm banana connector, Black
- **1066-IECR** Extension cable connector for cables with 4mm banana connector, Red
- **FT3BARCR** Bar code reader with USB port
- **FT3KBEN** English keyboard with USB port
- **FT3REDLP** Red lamp with 7m cable + connector
- **FT3RMTCT** Adapter for remote control with Start/Stop/Save function
- **FT3SFTSW** Safety contact with 7m cable for Dielectric tests
- **FT3HVTIP** Black banana-lead cable for Dielectric tests
- **FT3R-GLP** Red/green lamp with 7 m cable and connector
- **FT3BLACKBOX** Test box for Fulltest3
- **FT3MPT2** USB thermal printer with 32 columns



# Technical Specifications

## Continuity with 200mA

Measuring range:	0.01Ω ÷ 199.9Ω
Accuracy:	±(3.0% reading + 3 digits)
Test current:	> 200mA (R ≤ 20Ω)
Open-circuit voltage:	approx. 4.5VAC

## Continuity with 10/25A (2-wires, 4-wires)

Measuring range:	0.001Ω ÷ 19.99Ω
Accuracy:	±(3.0% reading + 3 digits)
Test current:	> 25A (R ≤ 0.1Ω), > 10A (R ≤ 0.5Ω)
Open-circuit voltage:	approx. 4.5VAC

## Insulation resistance

Test voltage:	100, 250, 500, 1000VDC
Measuring range:	0.01MΩ ÷ 99.9MΩ (100V) 0.01MΩ ÷ 250MΩ (250V) 0.01MΩ ÷ 500MΩ (500V) 0.01MΩ ÷ 1000MΩ (1000V)
Basic accuracy:	±(3.0% reading + 3 digits)
Test current:	> 1mA (up to Un / 1mA) > 2.2mA on 230kΩ @ 500V
Short-circuit current:	<15mA

## Dielectric strength (Withstanding)

AC test voltage:	250V ÷ 5100V programmable by steps of 10V
Accuracy:	±(3.0%Un)
Measuring modes:	Manual / Ramp / Burn
Discharging current:	0mA ÷ 200mA (IAPP), 0mA ÷ 110mA (IREAL)
Output power:	500VA (@ 5100V)

## Residual voltage (Ures)

Measuring range:	10V ÷ 460V (AC), 10V ÷ 650V (DC)
Accuracy:	±(3.0% reading + 3V)

## AC TRMS voltage

Measuring range:	195V ÷ 253V
Accuracy:	±(2% reading + 2digits)
Frequency:	15Hz ÷ 723Hz

## AC TRMS current on test socket

Measuring range:	0.01A ÷ 16.0A
Resolution:	0.01A ÷ 0.1A
Basic accuracy:	±(3% reading + 3 digits)
Frequency:	15Hz ÷ 723Hz

## AC active/apparent power

Measuring range:	0.0W / VA ÷ 5.06kW / kVA
Resolution:	0.1W / VA ÷ 10W / VA
Basic accuracy:	±(5% reading + 3 digits)

## Power factor (CosPhi)

Measuring range:	0.01 ÷ 1.00
Resolution:	0.01

## Leakage current with optional clamp HT96U

Measuring range:	0.1mA ÷ 1000A
Accuracy:	±(3% reading + 3 digits)

## Line/Loop impedance (L-L, L-N, L-PE)

Measuring range:	0.01Ω ÷ 200Ω
Resolution:	0.01Ω min (1mΩ with optional accessory IMP57)
Accuracy:	±(3.0% reading + 3 digits)
Test voltage:	100 ÷ 265V (L-N, L-PE) / 100 ÷ 460V (L-L), 50/60Hz
Isc short-circuit current:	0.05kA ÷ 46kA
Selectable MCB protections:	curves B, C, D, K
Selectable fuse protections:	type aM and gG
Insulating materials (I2t test):	PVC, Butyl rubber, EPR, XLPE



Via della Boaria, 40  
48018 Faenza (RA) Italy  
T +39 0546 621002  
F +39 0546 621144  
E-mail [export@htitalia.it](mailto:export@htitalia.it)  
[ht-instruments.it](http://ht-instruments.it)



Am Waldfriedhof, 1b  
D-41352 Korschenbroich, Deutschland  
Tel. +49 (0)2161 564 581  
Fax +49 (0)2161 564 583  
E-mail: [info@ht-instruments.de](mailto:info@ht-instruments.de)  
[ht-instruments.de](http://ht-instruments.de)



C/ Legalitat, 89  
08024 Barcelona, España  
Tel. +34 93 4081777  
Fax +34 93 4083630  
E-mail: [info@htinstruments.es](mailto:info@htinstruments.es)  
[ht-instruments.es](http://ht-instruments.es)

## Tripping time/current of RCDs

RCD type:	AC (∞), A (∞), B up to 500mA (∞), General (G), Selective (S), Delayed (R)
Rated currents of RCDs:	10, 30, 100, 300, 500, 650, 1000mA
F-N, F-PE voltage:	100V ÷ 265V, 50 / 60Hz ± 5% (RCD type A and AC) 190V ÷ 265V RCD type B, 50 / 60Hz ± 5%
Test current half-wave:	0°, 180°
Tripping time accuracy:	±(3.0% reading + 2ms)
Test current multipliers:	x1/2, x1, x2, xK
Tripping current range:	(0.1 ÷ 1.1) Idn (General)
Tripping current accuracy:	5%Idn

## Overall earth resistance without RCD tripping

Voltage range F-N, F-PE:	100V ÷ 265V, 50 / 60Hz ± 5%
Measuring range:	0.1Ω ÷ 2000Ω (Idn = 30mA)
Accuracy:	±(3.0% reading + 1Ω)
Test current:	<Idn / 2

## Contact voltage Ut

Measuring range:	0V ÷ 100V (Uctlim = 50V); 0V ÷ 50V (Uctlim = 25V)
Accuracy:	±(3.0% reading + 3V)

## Phase sequence

Delta voltage range:	360V ÷ 460V, 50 / 60Hz ± 5%
Measurement type:	contact on metal parts

# General specifications

## Power supply

Mains voltage:	207V ÷ 253V, 50 / 60Hz
Max. absorbed current:	16A

## Mechanical characteristics

Size (L x W x H):	400 x 300 x 170mm
Weight:	15kg
Mechanical protection:	IP40

## Memory and output interface

Internal memory:	999 locations
Output interface:	USB 2.0
Saving on USB pen drive:	yes
Bluetooth interface connection:	yes
USB keyboard:	optional
USB printer:	optional
USB bar code reader:	optional
Keyboard for remote control:	optional
Control lamps for dielectric tests:	optional

## General characteristics

Display:	TFT, colour 4.3", touch-screen
Safety:	IEC/EN61010-1, IEC/EN61557-1-2-3-4-6-13-14; EN50191 (Dielectric tests)
Safety checks:	IEC/EN60204-1, IEC/EN61439-1 IEC/EN60335-1
Insulation:	class I (conductor PE)
Pollution level:	2
Measurement category:	CAT II 300V (Power), CAT III 300V (other tests)

