

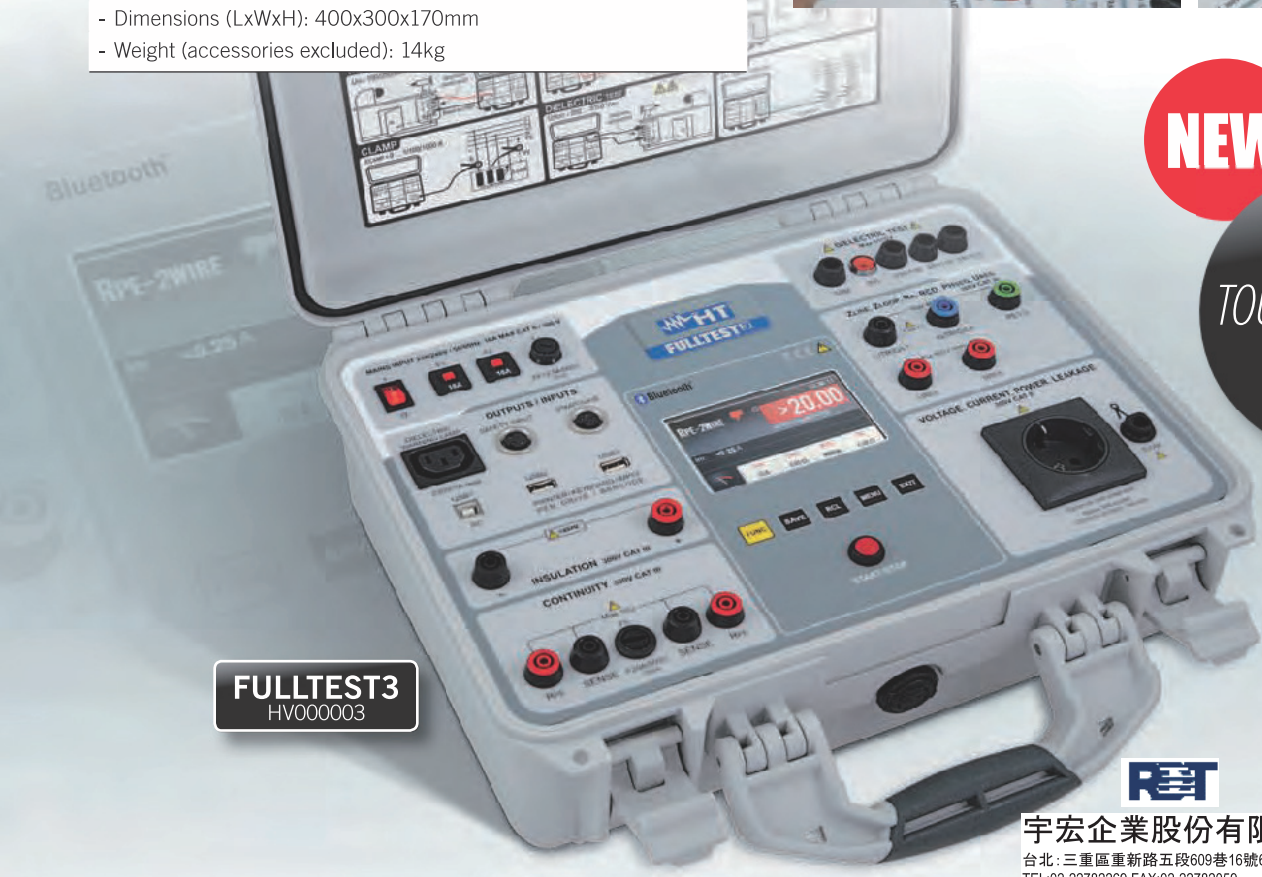
# FULLTEST3

## MULTIFUNCTION INSTRUMENT FOR TESTS ON ELECTRICAL MACHINES (IEC/EN60204-1:2006) AND ELECTRICAL PANELS (IEC/EN61439-1)

The innovative model FULLTEST3 was designed to perform safety tests on electric machines and panel boards in compliance with IEC/EN60204-1 and IEC/EN61439-1. Thanks to its features the instrument allows to carry out several tests with a high flexibility of use so fully or partially complying with other standards (e.g. routine tests according to IEC/EN60335-1). In addition to insulation, withstanding and continuity measurements on protective conductors FULLTEST3 is capable of performing tests on both general and selective RCDS type A, AC and B as well as Line/Fault impedance with high resolution 0.1 mΩ (with optional accessory model IMP57), overall earth resistance without RCD tripping and leakage current with current transducer. The instrument is provided with a modern color touch-screen graphic LCD, three USB ports for connection to PC, USB pen drive, USB printers and any bar code reader.

- FUNCTIONS**
- Continuity of earth conductors with 200mA
  - Continuity of earth conductors with I>10A, V<12V
  - Continuity of earth conductors with I>25A, V<12V
  - Insulation with 100, 250, 500, 1000VDC
  - Withstanding test with test voltage from 250V to 5100V
  - Withstanding test in BURN mode
  - Discharging time on DUT's plug and internal circuits
  - Leakage current on machine's socket
  - General and selective type A, AC and B RCD tripping time and current (up to 1000mA nominal current)
  - Contact voltage
  - Line/Fault impedance and prospective short circuit/fault current
  - Line/Fault impedance with high resolution (0.1mΩ) with IMP57 optional accessory
  - Prospective short circuit/fault current
  - Global earth resistance without RCD's tripping
  - Phase sequence
  - Leakage current by means of HT96U optional accessory
  - Adjustable timer
  - Adjustable thresholds
  - Touch screen color display
  - Internal memory
  - Fuse-protected inputs
  - USB port for PC connection
  - USB ports to connect memory sticks, USB printers, barcode readers, etc.
  - Power supply: 230V, 50/60Hz
  - Safety: IEC/EN61010-1, IEC/EN61557-1-2-3-4-6-7
  - Dimensions (LxWxH): 400x300x170mm
  - Weight (accessories excluded): 14kg

ACCESSORIES	Code
<b>Standard</b>	
Power cable	
Set of 2x 2.5mm <sup>2</sup> red 3m long cables	
Set of 0.75mm <sup>2</sup> blue and green 3m long cables	
Set of 2x 5kV withstanding test cables	
Bananas to schuko-plug cable	
3x CATIII test lead	
3x CATII test lead	
3x alligator clip	
Windows software with USB cable	
Carrying bag for accessories	
ISO9000 calibration certificate	
User manual	
<b>Optional</b>	
Accessory for loop impedance with high resolution	IMP57
Leakage current transducer	HT96U



**FULLTEST3**  
HV000003

**NEW**  
WITH  
TOUCH-SCREEN  
DISPLAY





## 1. ELECTRICAL SPECIFICATIONS

Accuracy indicated as  $\pm$  [% readings + (number of digits \* resolution)] at  $23^{\circ}\text{C} \pm 5^{\circ}\text{C} < 80\% \text{HR}$ 

### Continuity of protection conductor with $I > 200\text{mA}$

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
0.00 $\div$ 19.99	0.01	$\pm(3.0\% \text{rdg} + 3\text{dgt})$	CAT III 300V
20.0 $\div$ 199.9	0.1		

Standard test leads: cables 2.5mmq, 2m length  
 Output voltage: approx. 4.5V AC  
 Test current:  $> 200\text{mA DC}$  ( $R < 20\Omega$  with standard test leads)  
 Timer on measure: 1s  $\div$  60min (in step of 1s)  
 Measure method: 2 wires

### Continuity of protection conductor with with $I > 10\text{A}$

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
0.000 $\div$ 1.999	0.001	$\pm(3.0\% \text{rdg} + 3\text{dgt})$	CAT III 300V
2.00 $\div$ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length  
 Output voltage: approx. 4.5V AC  
 Test current:  $> 10\text{A AC}$  ( $R < 0.5\Omega$  with standard test leads)  
 Timer on measure: 1s  $\div$  60min (in step of 1s)  
 Measure method: 2 wires

### Continuity of protection conductor with $I > 25\text{A}$

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
0.000 $\div$ 1.999	0.001	$\pm(3.0\% \text{rdg} + 3\text{dgt})$	CAT III 300V
2.00 $\div$ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length  
 Output voltage: approx. 4.5V AC  
 Test current:  $> 25\text{A AC}$  ( $R < 0.1\Omega$  with standard test leads)  
 Timer on measure: 1s  $\div$  60min (in step of 1s)  
 Measure method: 2 wires

### Continuity of protection conductor with – IEC/EN60204-1:2006

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
0.000 $\div$ 1.999	0.001	$\pm(3.0\% \text{rdg} + 3\text{dgt})$	CAT III 300V
2.00 $\div$ 19.99	0.01		

Standard test leads: cables 2.5mmq, 2m length  
 Line impedance range:  $0.001\Omega \div 2.000\Omega$  (in step of  $0.001\Omega$ )  
 Section of PE conductor: 1, 2.5, 4, 6, 10, 16, 25, 35, 50, 70mmq  
 Type of protection devices: MCB (magnetothermic) Curve B, C, D, K, Fuses type gG, aM  
 Nominal current MCB: 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve B)  
 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve C)  
 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32A (Curve D and Curve K)  
 Nominal current fuse: 2A  $\div$  1250A (Fuse gG) ; 2A  $\div$  6300A (Fuse aM)  
 Cable length range: 0.1  $\div$  999.9m  
 Type of cable selectable: Copper, Aluminum  
 Output voltage: approx. 4.5V AC  
 Test current:  $> 10\text{A AC}$   
 Timer on measure: 1s  $\div$  60min (in step of 1s)  
 Measure method: 4 wires



## Insulation resistance

Test voltage (V)	Range (MΩ)	Resolution (MΩ)	Accuracy	Overload protection
100	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	CAT III 300V
	10.0 ÷ 19.9	0.1		
	20.0 ÷ 99.9		±5.0%rdg	
250	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1	±5.0%rdg	
	20.0 ÷ 99.9			
	100 ÷ 249	1		
500	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1	±5.0%rdg	
	20.0 ÷ 99.9			
	100 ÷ 499	1		
1000	0.01 ÷ 9.99	0.01	±(3.0%rdg+3dgt)	
	10.0 ÷ 19.9	0.1	±5.0%rdg	
	20.0 ÷ 99.9			
	100 ÷ 999	1		

Nominal test voltage: 100, 250, 500, 1000VDC  
 Accuracy test voltage: (-0% ÷ 25%) Unom  
 Test current: > 1mA (fino a Unom/1mA)  
 Short circuit current: <15mA  
 Measurement modes: Manual, Auto, Timer  
 Timer on measure: 5s÷10min (resolution 1s)

## Dielectric test

Nominal test voltage Un (V)	Resolution (V)	Accuracy	Overload protection
250 ÷ 800	10	±3.0%Un	CAT III 300V
810 ÷ 2500			
2510 ÷ 5100			

Test voltage: 250V ÷ 5100V AC, 50/60Hz programmable in steps of 10V  
 Measurement modes: Manual, Ramp, Timer, Burn  
 Timer on measure: 10s ÷ 10min  
 Output power: 500VA at 5100V  
 Discharging current: selectable IAPP and IREAL modes

## Discharging current IAPP mode

Measurement range (mA)	Resolution (mA)	Accuracy	Overload protection
0 ÷ 200	1	±3.0%rdg + 2mA	CAT III 300V

## Discharging current IREAL mode

Measurement range (mA)	Resolution (mA)	Accuracy	Overload protection
0 ÷ 110	1	±3.0%rdg + 4mA	CAT III 300V

Discharging current threshold: 1 ÷ 110mA (adjustable in step of 1mA, for IAPP or IREAL modes)  
 Short circuit current: > 200mA

## Residual voltage – Modes INT and PLUG

Range (s)	Resolution (s)	Accuracy	Overload protection
10 ÷ 460 V AC	1	±(3.0%rdg + 3V)	CAT III 300V
10 ÷ 650 V DC			

Nominal main voltage: 230V o 240V  
 Input voltage (UTRIG): 0 ÷ 460V V AC  
 Measurement modes: INT (4 wire connection, discharging time 1s or 5s, Linear, Not Linear)  
 PLUG (2 wire connection, discharging time 1s, Linear, Not Linear)  
 Limit value residual voltage: 60V TRMS  
 Range AC voltage: 0.0 ÷ 710V  
 Input impedance: 100MΩ (URES), 450kΩ (UTRIG)



## Leakage current on the test socket

Range	Resolution	Accuracy	Overload protection
0.25mA ÷ 49.99mA	0.01mA	±(3.0%rdg + 3dgt)	CAT II 300V
0.05A ÷ 0.99A	0.01A		
1.0A ÷ 10.0A	0.1A		

Power supply: 195V ÷ 253V AC  
 Frequency range: 40Hz ÷ 100kHz  
 Limit value: 0.25mA ÷ 10.00mA selectable

## Absorbed current on test socket

Range (A)	Resolution (A)	Accuracy	Overload protection
0.00 ÷ 0.99	0.01	±(3.0%rdg + 3dgt)	CAT II 300V
1.0 ÷ 20.0	0.1		

Power supply: 195V ÷ 253V AC  
 Frequency range: 15Hz ÷ 723Hz

## Active / Apparent power on test socket

Range (W/VA)	Resolution (W/VA)	Accuracy	Overload protection
0.0 ÷ 99.9	0.1	±(5.0%rdg + 10dgt)	CAT II 300V
100 ÷ 999	1	±(5.0%rdg + 3dgt)	
1.00k ÷ 5.06k	10		

Power supply: 195V ÷ 253V AC  
 Frequency range: 15Hz ÷ 723Hz  
 Timer: 5s ÷ 60min (resolution 1s)  
 Limit value apparent power: 6VA ÷ 5.06kVA

## Power factor

Range	Resolution	Accuracy	Overload protection
0.00 ÷ 1.00	0.01	See Papp, Pact	CAT II 300V

## Leakage current with external transducer clamp HT96U (optional accessory)

Selectable range	Measurement range	Resolution	Accuracy (*)	Overload protection
1A	0.0 ÷ 99.9mA	0.1mA	±(3.0%rdg + 3dgt)	Measurement lead connected to ground
	100mA ÷ 1000mA	1mA		
100A	0.00A ÷ 9.99A	0.01A		
	10.0A ÷ 100.0A	0.1A		
1000A	0.0A ÷ 99.9A	1A		
	100A ÷ 1000A			

(\*) Accuracy of instrument without clamp  
 Type of clamp: HT96U optional accessory (available ranges 1A, 100A, 1000A)  
 Transduced input voltage: 0 ÷ 1V AC  
 Input impedance: 1MΩ  
 Frequency range: 40Hz ÷ 100kHz



## RCD Test

Nominal currents selectable:	10mA, 30mA, 100mA, 300mA, 500mA, 650mA, 1000mA
Type RCD:	AC, A, B, General, Selective, Delayed
Measurement modes:	x1/2, x1, x2, xK (K= 4 B type, K=5 AC, A type), Ramp, Auto (seq:x1/2, x1, xK), Ut
Range voltage / frequency:	100V ÷ 265V / (50Hz/60Hz) ±0.5Hz
Contact voltage limits:	25V, 50V selectable
Test current polarity:	0°, 180° selectable

### During of trip out test [ms] – TT/TN systems (Resolution:1ms, Accuracy: ±(3.0%rdg+ 2ms))

	x 1/2			x1			x2			xK			AUTO			Rampa		
	G	S	R	G	S	R	G	S	R	G	S	R	G	S	R	G	S	R
<b>10mA</b>	AC	1000	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	<b>30mA</b>	A	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	<b>100mA</b>	B	1000	1000	1000	1000	1000	1000	1000			200	250	✓	✓	320		
<b>300mA</b>	AC	1000	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	B	1000	1000	1000	1000	1000	1000	1000	1000							320		
<b>500mA</b>	AC	1000	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	1000	1000	200	250					320		
	B	1000	1000	1000												320		
<b>650mA</b>	AC	1000	1000	1000	1000	1000	1000	1000	1000	200	250	50	150	✓	✓	320		
	A	1000	1000	1000	1000	1000	1000	1000	1000	200	250					320		
	B															320		
<b>1000mA</b>	AC	1000	1000	1000	1000	1000	1000	1000	1000	200	250					320		
	A	1000	1000	1000	1000	1000	1000	1000	1000							320		
	B															320		

## Line / Loop Impedance P-P, P-N, P-PE

Range (Ω)	Resolution (Ω)	Accuracy	Overload protection
0.000 ÷ 2.000 (*)	0.1m	±(3.0%rdg + 3dgt)	CAT III 300V
0.00 ÷ 9.99	0.01		
10.0 ÷ 99.9	0.1		
100 ÷ 199	1		

(\*) Only with optional accessory IMP57

Measurement modes:	Loop/Ipssc, kA, I2t test, trip current , Ut (indirect contact)
Type of protection devices:	MCB (magnetothermic) Curve B, C, D, K, Fuse type gG, aM
Corrente nominale MCB:	6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve B) 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50, 63A (Curve C) 0.5, 1, 1.6, 2, 4, 6, 10, 13, 16, 20, 25, 32A (Curve D and Curve K)
Nominal current fuses:	2A ÷ 1250A (Fuse gG) ; 2A ÷ 6300A (Fuse aM)
Breakdown current MCB/Fuses::	1kA ÷ 25kA selectable
Section of cable:	1 ÷ 70mmq selectable
Cable type:	Copper, Aluminum
Type of cable insulation:	PVC, Butyl rubber, EPR/XLPE
Number of parallel cables (I2t test):	1 ÷ 99
Trip out time of protection devices:	0.1s, 0.2s, 0.4s, 5s
P-N, P-PE / P-PP voltage:	100 ÷ 265V / 100 ÷ 460V
Frequency:	(50Hz/60Hz) ±0.5Hz

## Prospective short circuit current (Ipssc)

Range (A)	Resolution (A)	Accuracy	Overload protection
0.05 ÷ 0.99	0.01	Depending on the accuracy of Z measure	CAT III 300V
1.0 ÷ 99.9	0.1		
100 ÷ 999	1		
1.00k ÷ 46.00k	0.01k		





# FULLTEST3

Rel. 1.02 of 30/01/14

Professional meter for safety tests on device/switchboards

Pag 5 of 6

## Global earth resistance without RCDs tripping

Idn (mA)	Measure range ( $\Omega$ )	Resolution ( $\Omega$ )	Accuracy	Overload protection
10	0 ÷ 1999	1	$\pm(3.0\%rdg + 1\Omega)$	CAT III 300V
30	0.0 ÷ 99.9	0.1		
	100 ÷ 1999	1		
100	0.0 ÷ 99.9	0.1	$\pm(3.0\%rdg + 3dgt)$	
	100 ÷ 999	1		
300	0.0 ÷ 99.9	0.1		
	100 ÷ 299	1		
500	0.0 ÷ 99.9	0.1		
	100 ÷ 199	1		
650	0.0 ÷ 99.9	0.1		
	100 ÷ 149	1		
1000	0.0 ÷ 99.9	0.1		

Test current: Idn/2  
P-N, P-PE / P-PP voltage: 100 ÷ 265V, 50/60Hz  
Mains nominal voltage: 230V or 240V

## Contact voltage

Range (V)	Resolution (V)	Accuracy	Overload protection
0 ÷ 100 (Utlim = 50V)	1	$\pm(3\%rdg + 3V)$	CAT III 300V
0 ÷ 50 (Utlim = 25V)			

## Phase sequence rotation test

Range (V)	Frequency	Overload protection
360 ÷ 460	50Hz/60Hz $\pm 0.5Hz$	CAT III 300V

Indication of test: 1.2.3. (correct), 2.1.3. (incorrect), 1.1.X (not defined)

Technical specifications are subject to change without notice



宇宏企業股份有限公司

台北：三重區重新路五段609巷16號6樓之1

TEL:02-22782269 FAX:02-22782059

<http://www.fluke-tektronix.tw>

新竹：新竹縣竹北市台元26號4樓之10

TEL:03-552-6779 FAX:03-552-6739

<http://www.radiotek.com.tw>



## 2. GENERAL SPECIFICATIONS

### POWER SUPPLY:

Main voltage:	207V ÷ 253V AC - 50/60Hz ±5%
Absorbed current:	16Amax

### MECHANICAL SPECIFICATIONS:

Dimensions (L x W x H):	400 x 300 x 170mm
Weight:	15kg

### MEMORY AND INPUT/OUTPUT INTERFACES

Internal memory:	999 locations (three levels structure)
PC interface:	USB type "B"
Keyboard, printer, pen drive, barcode:	2 x USB type "A"
Warning lamp:	for Dielectric test
Keyboard for remote controls	START/STOP/SAVE keys
Bluetooth interface	connection to mobile devices

### ENVIRONMENTAL CONDITIONS:

Reference temperature:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Working humidity:	<80%HR
Storage temperature:	-10 ÷ 60°C
Storage humidity:	<80%HR

### REFERENCE GUIDELINES

Safety tests machines/switchboards/devices:	IEC/EN60204-1:2006 ; IEC/EN61439-1; IEC/EN60335-1
Literature:	IEC/EN61187
Instrument:	IEC/EN61557-1-2-3-4-6-13-14

### GENERAL CHARACTERISTICS:

Display :	TFT, LCD, color 4.3" with capacitive touch screen
Instrument safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT II 300V (I, Leak, Power), CAT III 300V (other tests)
Max. height of use:	2000m
Mechanical protection:	IP40
Input protections:	Fuses T16/250V, FF12.5A/500V, F20A/500V

**This instrument complies with the requirements of the European Low Voltage Directives 2006/95/EEC (LVD) and EMC 2004/108/EEC**

Technical specifications are subject to change without notice

