FASTCHECK3010
FASTCHECK3010G





FASTCHECK3010 **FASTCHECK3010G**

User Manual/Manual del usuario/Manuel d'utilisation/ Benutzerhandbuch/Manuale Utente

EN MULTIFUNCTION INSTALLATION TESTER

ES INSTRUMENTO MULTIFUNCIÓN PARA LA VERIFICACIÓN DE LA SEGURIDAD ELÉCTRICA

FR INSTRUMENT MULTIFONCTIONS POUR LE CONTRÔLE DE LA SÉCURITÉ ÉLECTRIQUE

IT MULTIFUNZIONE PER VERIFICHE DEGLI IMPIANTI ELETTRICI

DE INSTALLATIONSTESTER

ENGLISH

INTRODUCTION

Congratulations for purchasing the FASTCHECK3010, the first multifunction tester in the shape of a socket tester. It allows the test of electrical system according to the IEC standard as the common installation tester do. In addition to the TRMS Voltage measurement and the Socket Tester features allow Installation test to be performed from anyone (RCD, LOOP L-PE) in according to IEC61557-3 and IEC61557-6.
Super bright color Display TFT 1,77" with internal memory for store results.
SuperCap technology let the instruments turn on even when disconnected from the socket.

SAFETY and WARNINGS



Attention: Follow the instructions given in the manual; improper use could cause damage to the instrument or create dangerous situations for the operator.



High Voltage Danger: risk of electric shocks

This products is manufactured following IEC/EN61010-1, guidelines for safety installation testers.Follow this user manual for avoid damage the instruments :

- Do not measure in high humidity or wet enviroment.
- Avoid measurement in highly flammable place.
- Avoid contact with the circuit unders test if you are not measuring
- Avoid contact with metallic part that can be under voltage
- If the instruments look broken or damaged please avoid the use for measure.



Maximum Voltage input is 265 V. Do not connect the instrument to higher voltage. Permanenet damage to the instruments and electrical shock can occur if you don't respect this guidelines.

GENERAL DESCRIPTION

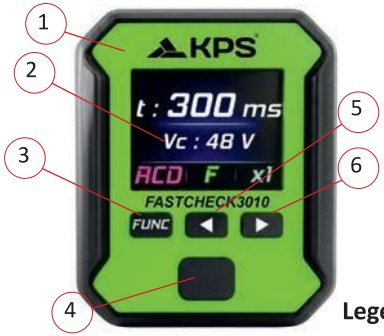
FASTCHECK3010 executes the following test:

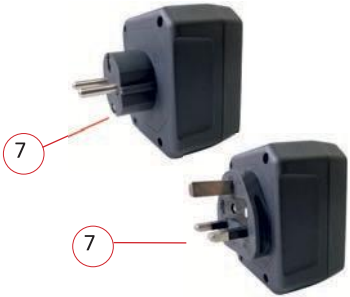
1. **VOLT and Socket Test** (Correct wiring of Plug)
2. **Voltage measurement** L-N , TRMS
3. **Residual Current (RCD)** type A, AC and F also in AUTO mode with **CONTACT VOLTAGE measurement**
4. **Z LOOP** (**Global earth resistance** in TT system and impedance L-Pe in TN with short circuit current)
5. **Short circuit current**
6. **Voltage harmonics up to 49 th**
7. **THD%** (Total harmonics Distortion)
8. **Frequency of the fundamental Harmonics and up to 49 th**

Function can be selected thorugh the dedicated button .Sub function features can be selected through the arrow button for example for selecting the RCD type or evaluate different harmonics. The instruments is powered from the line and due to the SUPERCAP technology can keep the power even when disconnected from the line .Fully charged supercap allow 45 second after switch off from the line.This allow the user to read the value after the RCD is tripped out(with tripping time) or when is difficult to read the display value
Outcome are always **GREEN** when the measured value is correct in according the local regulamentation or **RED** when the test is not passed.
In the SOCKET TEST uncorrect value the instruments generate also a sound alarm.

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PRODUCT DESCRIPTION





Legend:

1. Antiscratch glass
2. Display TFT 1,77”
3. Function
4. TEST
5. Subfeatures selection
6. Subfeatures selection
7. Plug

Function button allow to select the measure. Display shows the following features: Socket Test / VOLT - RCD - LOOP - Harmonics / Memory.
Arrow button ◀ ▶,allow to select subparameters for test and read the memory or to analyze the harmonics value up to 49th.
Central button can start the RCD test or LOOP Resistance (no trip RCD).

VOLTAGE MEASUREMENT AND SOCKET TEST

This function measures the voltage in TRMS (True Effective Value) between Phase and Neutral or between phase and phase in a bi-phase system and simultaneously tests the socket wiring.

Operation

Plug the FASTCHECK3010 into the socket and press the FUNC button to select the VOLT measurement. The voltage value will be shown only if the socket test is correct and the contact voltage is <50V. The GREEN bar on the display indicates that the TEST is "Socket OK." It is also possible to display the Frequency of the voltage by pressing and if you press the key again, the serial number and Firmware version will be displayed.
The Key goes back.



TRMS Voltage
The measurement indicates the TRMS voltage value between Phase and Neutral in a TT or TN system and the GREEN bar indicates that the outlet wiring is correct



Serial Number and Calibration Certificate
Each FASTCHECK3010 has a serial number and Firmware version that will allow the FASTCHECK APP to download measurements and the CALIBRATION CERTIFICATE.



Two-Phase System
Example of automatic recognition of a typical Biphase system.
The voltage value will appear in yellow in case of Bi-phase sytems).
Once the two-phase system has been identified, it will be possible to proceed with the measurements of RCD and LOOP and generate REPORTS.

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WIRING ERRORS

Plug the FASTCHECK3010 into the socket and check the wiring error messages indicated by the RED bar.



NO PE ERROR
This error indicates that the Ground connection is missing. It represents the most common and most dangerous error for electrical safety.
Solution: Disassemble the Receptacle and check the connections or Check the entire Earth system and all its connections.



INVERTED PHASE and NEUTRAL ERROR
This error indicates that the position of the Phase is reversed with respect to the Neutral. Often this type of Error is not considered dangerous
Solution: Disassemble the Receptacle and check the connections.

NOTE:The tester considers the wiring to be correct when the phase is on the right hand side of the plug



NO NEUTRAL ERROR or L-PE INVERTED
This error indicates that the neutral is not connected or the Phase and PE are Reversed
Solution: If necessary disassemble the Receptacle and check the connections.

Wiring Error (bar is Red and sound alarm)	**Solution**
• Phase - Neutral Reverse	➡ Adjust the socket wiring
• Phase - Ground Reverse	➡ Adjust the socket wiring
• Open Neutral	➡ Connect Neutral wire
• No Ground	➡ Check Earth connection
• Voltage Contact >50V	➡ Dangerous Voltage on mass

RCD (RESIDUAL CURRENT DEVICE)

This feature allow test of RCD according EC/EN 61557-6 with tripping time and Voltage contact. Test Current of 30 mA is injected through the ground for type A , AC and F.
Test Mode:

- x1 IΔn –Test with 30mA
- x5 IΔn –Test with 150mA
- AUTO –Test sequence x1/2 - x1/2 180° - x1 - x1 180° - x5 - x5 180°

RCD x1 , x5
Connect FASTCHECK3010 to the socket and press FUNC in order to select RCD function. Press the button ◀ for select the type of RCD and button ▶ for select the current (x1,x5) Press TEST button for 3 second for start the measure.



Fig. 4

Tripping Time is shown on the display and **Green bar** means the test is performed correctly
Vc is the contact Voltage.
If Contact Voltage **>50V** the RCD tripping test will be stopped and the bar became **RED**



Fig. 5

Display shown tripping time is higher than the limit standard and **Red Bar** means outcome **NOT OK** (Fig 5).
Vc is the Contact Voltage.

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RCD (RESIDUAL CURRENT DEVICE)

AUTO function
Plug the instrument in the socket and press FUNC for select RCD function. Press arrow button ◀ for select type of RCD and button ▶ for select function AUTO .
Start measuring by pressing the TEST button,The instruments will execute all test in sequence when you re-arm the RCD and voltage is on.
AUTO mode consist of 6 test in the folowing sequence:

STEP 1	IΔn x1	0°	OK IF <300 ms
STEP 2	IΔn x1	180°	OK IF <300 ms
STEP 3	IΔn x5	0°	OK IF <40 ms
STEP 4	IΔn x5	180°	OK IF <40 ms
STEP 5	IΔn x1/2	0°	OK IF >1000 ms
STEP 6	IΔn x1/2	180°	OK IF >1000 ms



Fig. 6

Display Show RCD tripping time in ms. For every STEPtripping time in ms will be shown. GREEN (Fig 6) if the test and tripping time are conform to local tripping time regulamentation.



Fig. 7

Value in RED (Fig 7) means the test is not conform to the local guideline and the test will be stopped.

LOOP

The measurament is performed according IEC/EN61557-3 it measure impedance between Phase and Ground withouth RCD trip. Test Mode:

- TT Measure Earth Resistance (Ω) and Contact Voltage (V) Fig.8
- TN Measure Impedance Z L-Pe (Ω) and Ipsc prospective short circuit current (A) Fig.9
- Std Test with 15mA nominal current
- Low Test with 6mA. Use this setup if during the test the RCD trip due to the presence of leackage current in the electric system under test.

LOOP FUNCTION
Plug FASTCHECK3010 in the socket and press FUNC button for select LOOP. Press button ◀ for select TT or TN and press button ▶ for select TEST STD or LOW.
Press the TEST button for 2 second to start the measurement



Fig. 8



Fig. 9

> ⚠ *During the LOOP measurement, if the SUPER CAP is not fully charged, the Display may switch off or decrease the intensity, however the measurement will be performed and shown at the end.*

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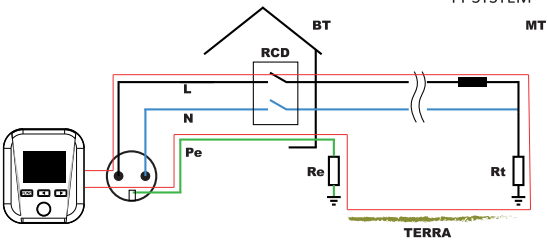
LOOP TT e TN

Z line - PE impedance measurement in TT system
Z: Global Earth Resistance
Vc: Contact Voltage
NOTA: Limit for earth ground resistance is defined as:

$$Rt \leq \frac{Vc}{I\Delta n}$$

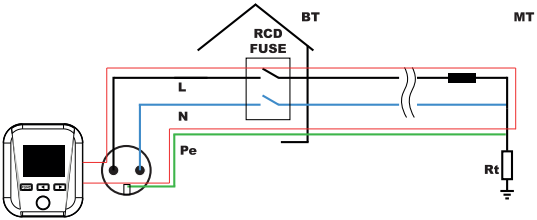
Vc:Contact Voltage Limit (50V o 25V)
IΔn: Nominal RCD current

TT SYSTEM



Impedance measurement Zs L-pe in TN system
Z: Fault Ground Impedance L-Pe
Ipsc: Prospective short circuit current (for check correct sizing of MCB or FUSE protecting the system)

TN-S SYSTEM



HAR VOLTAGE HARMONICS

This function allow to check Voltage quality and harmonics up to 49th .
TEST MODE:

- Fund Fundamental harmonic h1 (red), his frequency (~50Hz) and THD% Indicate total harmonic distorsion of voltage supply (Fig. 10).
- h2....50 Show VOLTAGE value TRMS of selected harmonics (red), his frequency and percentage (%) compared to h1 Fundamental 50Hz (Fig. 11)

HARMONICS FUNCTION
Plug FASTCHECK3010 in to the socket and choose Har function by pressing FUNC button. Press ▶ for select harmonics higher or button ◀ for select back to h1
Is it possible to disconnect FASTCHECK3010 from the supply power for easilly read and analyze the measurements until the SUPERCAP discharge (60 second when fully charged).



Fig. 10



Fig. 11

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MEM Memory / REPORT

The instruments automatically save RCD and LOOP measurement in MEM area.
Press FUNC button for enter MEM page. Press ◀ button or ▶ for move through the saved data or press ◀ ▶ simultaneously to clear the memory.
It will be possible to store 64 consecutive measures.
By pressing the TEST button you can generate a QR CODE for the generation of REPORTS (Fig. 12). The 64 positions can be organized in chronological order. The las measurement will always be saved in the first free CELL in ascending order (1... 64).. surement for day of use . Last measure will be saved in the first Memory Slot free (1...64) or in the last cell if memory is full scaling all the other.



Fig. 12

REPORT CREATE
Press the TEST button to generate the QR CODE.
Scan the QR CODE with your smartphone using the FASTCHECK3010 REPORT APP.
All saved measurements will be included in a REPORT with the possibility of exporting in pdf or csv
Download the FASTCHECK3010 APP for **iOS** and **Android** systems.

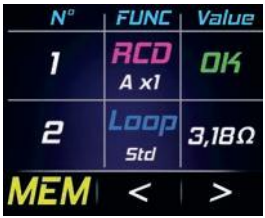


Fig. 13

MEMORY
Column N ° indicates the measurement number (Fig. 13).
The FUNC column indicates the saved measurement with its settings.
The Value column indicates the outcome of the measurement.
The result of the RCD measurement is indicated:
GREEN if the result is OK
RED if the result is NO OK.

TECHNICAL DATA

RCD IEC/EN61557-6

Voltage L-Pe 120÷265V - Frequency 50Hz ±5%

Type(RCD)	RISOLUZIONE	PRECISIONE
AC , A , F	<0.1IΔn	± (0.0% + 5%IΔn)
Time	0.1 ms	± (2 ms + 2 dgt)

LOOP (Fault Loop Impedance) IEC/EN61557-3

Voltage L-Pe 120÷265V - Frequency 50Hz ±5% Min.Value > 0,3 Ω

Std Current test 15mA

RANGE (Ω)	Resolution (Ω)	Accuracy
0.01 ÷ 9.99	0.01	± (5.0% + 8 dgt)
10 ÷ 99.9	0.1	± (5.0% + 8 dgt)
100 ÷ 999	1	± (5.0% + 8 dgt)
LOW Test Current 6mA		± (8.0% + 12 dgt)

Voltage AC TRMS (Phase-Neutral)

Crest Factor 1,5 ; Frequency 42 ÷ 69.0 Hz ±5%

RANGE (V)	Resolution (V)	Accuracy
120 ÷ 265	1	± (1.0% + 3 dgt)

Frequency

Voltage L-N 120÷265V - Frequency 50Hz ±5%

RANGE (Hz)	Resolution (Hz)	Accuracy
42 ÷ 69	0.1	± (2.0% + 1 dgt)

Voltage Harmonics

1 ÷ 50th Harmonics <0.8V will not be shown

RANGE (V)	Resolution(V)	Accuracy
0,8 ÷ 256	0.1	± (3.0% + 5 dgt)

Socket Test Voltage L-N 120÷265V

Open Ground or Neutral,Phase/Neutral Phase/Ground reverse - Vc>50V

TECHNICAL SPECIFICATION

INPUT:	
Overvoltage Category:	CAT III 300V verso terra
Max Voltage input:	265V AC
Maximum absorbed current:	<25mA
Input voltage fluctuation	10%
INPUT:	
Measures Guidelines:	IEC/EN61557-3
	IEC/EN61557-6
Safety Guidelines :	IEC/EN61010-1
	IEC/EN61010-2-030
EMC:	IEC/EN61326-1
Display and Memory:	
Display:	TFT 1,77” Display
Memory Slot:	64
Enviromental Specification:	
Altitude:	0 ÷ 2000 m
Reference Temperature:	23°C ÷ 5°C
Operational Temperature:	5°C ÷ 40°C
Maximum Humidity:	<80%RH
Stock temperature:	20°C ÷ 60°C
Stock Humidity:	<80%RH
Pollution degree:	2
Mechanical Characteristics:	
Size:	81,5 x 70 x 83) mm
Weight:	110gr