



User Manual

PLUG - *PCH-0002*



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## 1. General instructions

The installation and use of PRY-CAM Home devices requires compliance with the warnings contained in this chapter.

To avoid damage to things and people, carefully read the following instructions and always follow them together with the standards and directives on electrical safety.

	<b>DANGER</b>	
<p><b>Danger of death from electrocution</b></p> <p>Potentially lethal voltages are present in live components.</p> <ul style="list-style-type: none"><li>• Switch off the voltage at the connection point and secure it against reactivation.</li><li>• Before carrying out any work, disconnect the power supplies using an installed disconnect switch.</li><li>• Make sure that all conductors to be connected are voltage-free.</li><li>• Use the device only in dry environments and keep it away from moisture.</li><li>• Install the device only in electrical cabinets and make sure that the connection fields for the external conductors and the neutral conductor are laid behind a cover or contact protection.</li><li>• Unplug the device before cleaning and then use only a dry cloth.</li><li>• Respect the minimum distances between the mains cable and live components or use suitable insulation.</li></ul>		



## WARNING



### **Danger of fire due to dirty or oxidized contacts on undercurrent aluminium conductors**

The connection of aluminium conductors with dirty or oxidized contacts reduces the current carrying capacity of the undercurrent terminals, increasing the contact resistances. Components can overheat and catch fire as a result.

- Clean the contacts, brush them, and treat them with an acid and alkaline substance (e.g. Vaseline or specific conductive paste).



## WARNING



### **Danger of death from electrocution**

In case of missing overvoltage protection, Overvoltage (e.g. in the event of lightning) can be transmitted via the network cables inside the building and to other devices connected to the same network.

- Make sure that all devices on the same network are integrated into the existing surge protector.
- In case of external laying of network cables, it is necessary to ensure suitable protection from overvoltage at the point of passage between the external area and the network inside the building.

## 1.1. Safety Information



PRY-CAM HOME PLUG can only be used in combination with PRY-CAM HOME MASTER

The devices in the PRY-CAM HOME family are part of a monitoring solution for low voltage applications. The devices are designed to test an electrical system and to detect electrical values at the measurement points and make them available via cloud.

PRY-CAM HOME PLUG can only be used on the secondary distribution line of the house, on the load side, after the electricity meter and in combination with PRY-CAM HOME MASTER.

The device is to be used only in accordance with this instruction manual and any use other than that specified in this chapter of the document is not permitted.

	<b>WARNING</b>	
<b>The use of this tool other than what is specified in this manual could damage its safety.</b>		

## 1.2. During the operation

While using the instrument, the user is obliged to observe all the normal rules of electrical safety and prevention against electric shocks;

Do not use the instrument if it appears damaged;

Use the instrument only in accordance with what is described in this manual: Use particular care when working with live conductors or BUSBARS;

Do not use the device near explosive gases, vapours or highly dusty areas;

Use only accessory tools appropriate to the type of test to be performed.

When the instrument is connected to the circuit, do not touch the unused and / or exposed terminals.

Pay particular attention when working with systems whose voltage is higher than 60Vdc or 30Vac rms. Use the device only on systems

whose rated voltage is known. Do not use the instrument in electrical systems whose voltage is higher than 300V in CAT II.

Do not disassemble the device and / or use it disassembled.

All the instructions described in this manual must be carried out by qualified personnel only. A "qualified person" is someone who is familiar with the installation, construction and operation of equipment and the dangers involved. He is trained and authorized to power and disconnect electrical circuits in accordance with established practices.









If any anomaly or malfunction is detected, take the instrument out of service and make sure no one can use it before it has been repaired.

### 1.3. Passive protection

Device power supply protected by fuse.

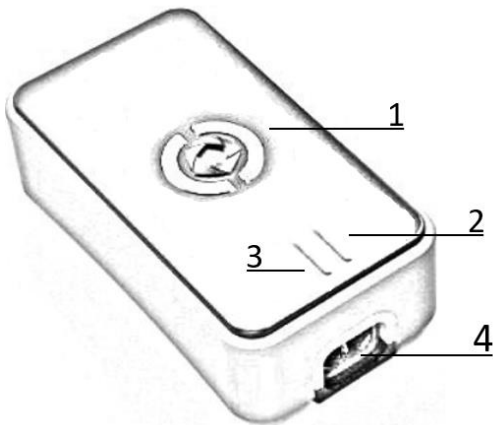
Metal Oxide Varistor for protection against fast transient bursts and voltage pulses (IEC 61000)

## 1.4. Symbol table

	<b>DANGER</b>		Causes serious injury or death
	<b>WARNING</b>		It can cause serious injury or death
	<b>ATTENTION</b>		It can cause minor or moderate injuries
<b>NOTICE</b>			It can cause damage to property
			Information
			Note



## 2. Product drawing



1. LEDs
2. Live wire Indication
3. Neutral wire indication
4. IEC 60320 C14 connector

The device has a ring of LEDs (1) for visual warnings. If the LEDs turn all red, then the earth connection is absent or the electrical system to where the device has been connected does not have a standard earth connection.

If the LED ring is coloured coherently with the live and neutral indications, brown LEDs corresponding to the live wire indication (2) and blue LEDs corresponding to the neutral wire indication (3), then the phase and neutral sequence is correct.

During the tests:

- **Brown / Solid Blue:** Standby and phase / neutral indication
- **Flashing yellow:** Voltage drop test in progress.
- **Rotating Yellow / Green:** Earth resistance test
- **Flashing red:** MCB test in progress
- **Rotating green:** Differential test in progress
- **Solid red:** Earth not connected.

### 3. Technical data

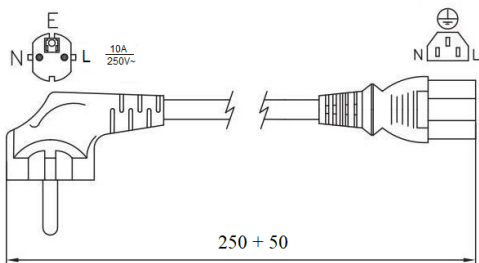
<b>Nominal Voltage</b>	230 V ~ ± 10%
<b>Frequency</b>	50 / 60 Hz
<b>Consumption</b>	3W
<b>Weight</b>	700gr
<b>Dimension (L x H x W)</b>	25 x 8 x 20.5cm
<b>Temperature</b>	5°C - 40°C
<b>Relative humidity</b>	70%
<b>Max Altitude</b>	2000m
<b>Degree of protection</b>	IP40
<b>Pollution degree</b>	2
<b>Oversvoltage Category</b>	300V – CAT II
<b>Usage</b>	Internal

<b>Technology</b>	<b>Frequency Band</b>	<b>Maximum output power</b>
LoRa	869.5 MHz	14 dBm

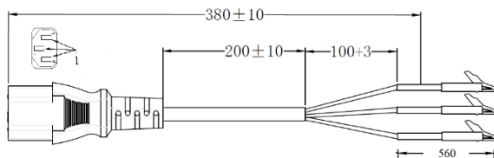
## 4. Operating Instruction

### 4.1. Electrical connection

È possibile collegare il dispositivo sia alle prese CEE 7/3, sia direttamente ai punti luce utilizzando il cavo con terminali a coccodrillo fornito con il dispositivo.






*1x Cable of 3x1 mm<sup>2</sup> cross section and 30 cm of length + IEC320/C13 connector + CEE 7/7 (10A, 250V AC)*



*1x Cable of 3x1 mm<sup>2</sup> cross section and 30 cm of length + IEC320/C13 connector + 3x crocodile terminals (10A, 250V AC)*

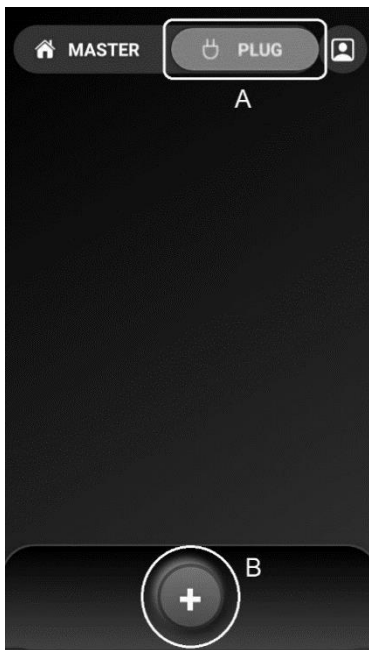
## 4.2. Device configuration via APP

	PRY-CAM HOME PLUG can be used only in collaboration with the PRY-CAM HOME MASTER.
	To correctly configure the PRY-CAM Home Master it is necessary to have a smartphone with internet connection and able to download the "PRY-CAM Home Professional" APP from the market.
	To take advantage of all the features of the PRY-CAM Home Master, the device must be installed in an area with stable Wi-Fi internet coverage. If a stable connection cannot be provided, the device will operate in reduced mode using the NB-IoT connection, if present.

### Configuration sequence:

1. Check the installation of a PRY-CAM HOME MASTER on the system (refer to the PRY-CAM HOME MASTER documentation for installation instructions);
2. Download the "PRY-CAM Home" APP from the market (App Store or Google Play);
3. Register new account following the registration procedure or login;

4. Register a new PRY-CAM HOME PLUG by tapping on "PLUG". (A) at the top right of the dashboard and then tap on "+" (B);



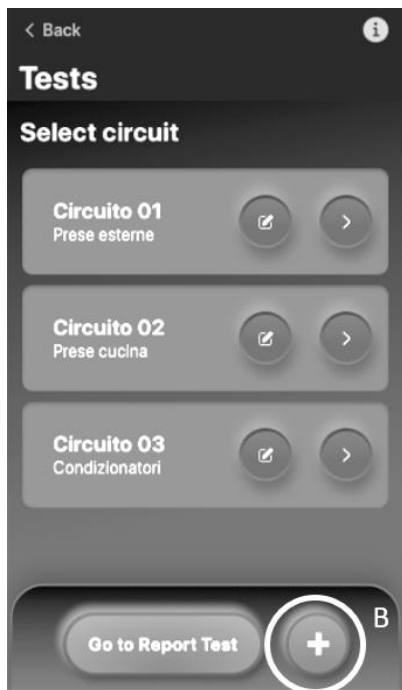
5. Choose a name for the device and enter the serial number printed on the device (e.g. 00AA1122).
6. On the dashboard tap on "+";

7. In the next screen, enter the system master data, the contractual power and the country of installation;
8. On the dashboard tap on the newly created master data and then on "Connect";
9. Activate the Wi-Fi network generated by the MASTER (Access Point) via the device's Professional mode by pressing the button on the MASTER device for about 5 seconds until the LED flashes purple.
10. Connect your smartphone to the Wi-Fi connection generated by your device (e.g. PHOME-123456);

11. From the MASTER Dashboard, tap on "Data" (C) to use the multimeter functionality and view all system parameters. Tap on "Test" (D) to start testing the system.



12. In order to carry out the tests, all the circuits that are part of the system to be tested must be recorded by tapping on "+" (B);





13. For each system insert the characteristics of the nearest electric switch (upstream):

(E) Type of switch

MCB: Miniature Circuit Breaker

RCCB: Residual Current Circuit Breaker

(F) Switch class

(G) Rated current

(H) tripping differential current



The system supports differential switches type A and AC

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## New Circuit

NAME

DESCRIPTION

TYPE OF SWITCH CLASS

MGT E MGT-D C F D

IN IDN

10A 0.03/AC

G H

Add Circuit

- To associate the measurement points to the circuit, it is necessary to specify them by tapping on “+”.
- For each measurement, point enter the name, type and select the PRY-CAM HOME PLUG device that will be used for testing.



If the PRY-CAM HOME PLUG device you intend to use does not appear in the list within 10 seconds, make sure you have correctly performed steps 4/5

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## New Test point

NAME

Light point  Socket

**Plug 01**

SERIAL 352-652-568

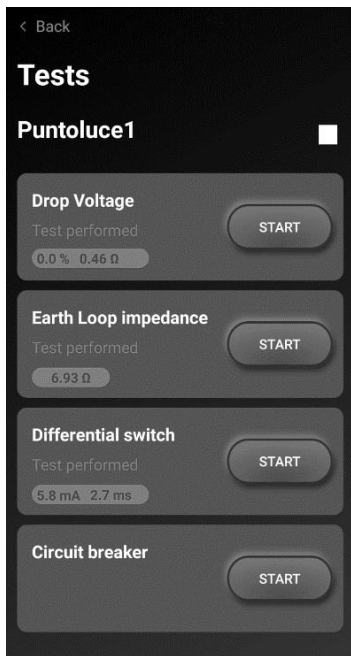
**Plug 02**




SERIAL 879-665-544

**Plug 03**

Add Test Point

16. Four types of tests can be carried out for each measurement point.
- Calculation of the percentage voltage drop
  - Calculation of earth resistance
  - Thermal-magnetic function test
  - Differential function test




 <b>WARNING</b> 	
<p><b>Risk of death by electrocution</b></p> <p>Some tests simulate a malfunction that can have lethal effects</p> <ul style="list-style-type: none"><li>• Make sure that the protection systems are correctly connected</li><li>• Make sure you follow the tests as required by the standards</li></ul>	
	It is advisable to carry out only one thermal-magnetic test per circuit.

17. Once all the tests have been carried out, you can send the report to the email used for registration. Return to the main system screen and tap on "Generate Report".

## 5. TEST


### 5.1. Voltage drop test

	To obtain the maximum measurement accuracy it is necessary to disconnect all the loads from the circuit under test.
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To perform the measurement, the circuit is loaded with a temporary known load (max. 5A) between phase and neutral connectors. The drop voltage caused by the load insertion is detected and used to obtain the overall impedance of the phase-neutral loop.

At the end of the test are shown:

- The value of the percentage voltage drop normalized to the maximum current available at the measuring point
- The resistance of the circuit expressed in  $m\Omega$

	To avoid overheating of the device, the PLUG allows only a test every 15 seconds.
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### 5.2. Earth loop fault resistance measurement


	To obtain the maximum measurement accuracy it is necessary to disconnect all the loads from the circuit under test.
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To perform the measurement, the circuit is loaded with a temporary known load (max. 100 mA) between phase and protection connectors. The drop voltage caused by the load insertion is detected and used to obtain the overall impedance of the phase-neutral loop. According to the system conditions, when the earth resistance is over 60 ohm or



the voltage between neutral and earth in unload system is over 15 V, or if a type A RCCB is in the circuit, the device is not able to perform the measurement with the maximum accuracy available. In this case the App reports an asterisk “\*” near the value obtained to indicate a minor accuracy.

At the end of the test is shown:

- The earth resistance of the circuit expressed in  $\Omega$

	The test can be performed only if the earth cable is correctly installed.
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### 5.3. Residual Current Circuit Breaker (RCCB) test

	<b>WARNING</b>	
<p><b>Risk of death by electrocution</b></p> <p>Some tests simulate a malfunction that can have lethal effects.</p> <ul style="list-style-type: none"><li>• Make sure that the protection systems are correctly connected.</li><li>• Make sure you follow the tests as required by the standards</li></ul>		

The test is performed in two steps, between the first and the second it is necessary to rearm the RCCB:



- 1) Measurement of intervention current. The measurement is performed applying to the circuit a step of residual current and measuring the value obtained at the moment of release, if the switch is in normal operating conditions. The maximum current value set is that indicated when inserting the measuring point (page 17).

- 2) Measurement of time for intervention. Measurement is performed applying the intervention differential current obtained from step 1 and measuring the time needed for the intervention of the RCCB.

At the end of the test are shown:

- Intervention current expressed in mA.
- Intervention time expressed in ms.

#### 5.4. Miniaturized Circuit Breaker (MCB) test

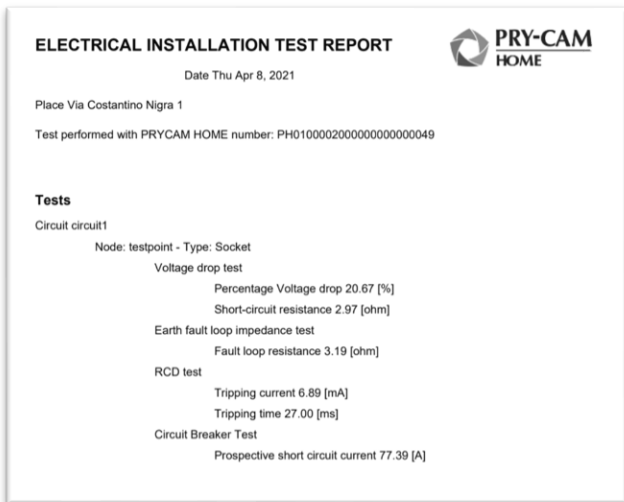
 <b>WARNING</b> 
<p><b>Risk of death by electrocution</b></p> <p>Some tests simulate a malfunction that can have lethal effects.</p> <ul style="list-style-type: none"><li>• Make sure that the protection systems are correctly connected.</li><li>• Make sure you follow the tests as required by the standards.</li></ul>

The test is performed by temporarily shorting phase and neutral connectors. Before running the test, verify that the system is protected by a MCB correctly sized.

At the end of the test is indicated if the protection device has intervened correctly.

<b>NOTICE</b>
It is recommended to carry out only one MCB test per circuit.

## 6. Report



*Figure 1 – Report example*

Opening the attachment received via mail it's possible to view in detail the measures performed in the test. The report presents: data and place where the test is carry out and the master name, the circuit name and the node tested, all the values resulting from the varius tests made:



- Voltage drop test (Paragraph 5.1)
- Earth loop fault resistance measurement (Paragraph 5.2)
- Residual Current Circuit Breaker test (Paragraph 5.3)
- Miniaturized Circuit Breaker (MCB) test (Paragraph 5.4)

## 7. Accessories

1 x cable with section 3x1 mm<sup>2</sup> and length 30 cm + IEC320/C13 connector + CEE 7/7 socket

1 x cable with section 3x1 mm<sup>2</sup> and length 30 cm + IEC320/C13 connector + 3x crocodile terminals

1 x Instruction manual



### **WARNING**



Use only the accessories provided with the product or other with same technical specifications.

## 8. Disposal and maintenance

### **For private households: Information on Disposal for Users of WEEE**

This symbol on the product(s) and / or accompanying documents means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product(s) to designated collection points where it will be accepted free of charge. Alternatively, in some countries, you may be able to return your products to your local retailer upon purchase of an equivalent new product. Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.



### **For professional users in the European Union**

If you wish to discard electrical and electronic equipment (EEE), please contact your dealer or supplier for further information.

### **For disposal in countries outside of the European Union**

This symbol is only valid in the European Union (EU). If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.



**DANGER**



**Risk of Death by electrocution**

- Disconnect the device before cleaning and later use only a dry cloth.

## 9. Support

In the event of problems with the App and / or Equipment and for any questions regarding the Service, you can contact the Supplier by writing to:

- Prysmian Electronics S.r.l., Via Chiese n. 6, 20126 Milano, Italia
- The e-mail references in the contact section of [www.prycamhome.com](http://www.prycamhome.com)

## 10. Declaration of conformity

Prysmian Electronics S.R.L. declare that the name of the radio model PCH-0001 with the PRY-CAM HOME brand is in compliance to the Directive 2014/53 UE.

The declaration of conformity complete text is available at the following web address:

[https://prycamhome.com/more/doc/DoC\\_PCH-0002.pdf](https://prycamhome.com/more/doc/DoC_PCH-0002.pdf)



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