

The New Generation of Communicating Controllers



ZigBee Power Plug ZPLUG

User Manual



Révision 4.0

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WARRANTY

The device supplied to the buyer and/or the recipient is guaranteed by CLEODE against any malfunctions originating from a design and/or manufacturing flaw, for a period of twelve (12) months following delivery. The buyer and/or recipient is (are) responsible for proving the existence of the said defects or flaws. This warranty is applicable in accordance with articles 1641 to 1648 of the French Civil Code and in compliance with the French statutory warranty. The warranty covers the replacement free of charge of devices and parts affected by a design and/or manufacturing flaw excluding conspicuous defects in the device that are covered by the buyer and/or the recipient.

In order to invoke the warranty, the buyer must immediately send written notice to CLEODE of the flaws that it attributes to the device. It must enable CLEODE to have access to the device to observe these defects and repair them. The warranty provided by CLEODE is strictly limited to the equipment provided and shall only have for effect the replacement or repair, at CLEODE's expense, on its own premises, of all devices or parts that are not functioning as a result of defects or flaws. CLEODE reserves the right to modify the devices in order to comply with the warranty.

The warranty does not apply to replacement or repairs that may result from normal wear and tear of devices, systems or products, damage or accidents resulting from negligence, failure to supervise or maintain, or incorrect use of the devices, systems and/or products.

The maintenance service is provided by CLEODE with all reasonable care possible and in compliance with the current state of the arts.

The exchange of parts or repairs performed under the warranty cannot result in extending the length of the warranty. In no event can the unavailability of the device due to servicing give rise to compensation for any reason whatsoever. The seller is released from all obligations relating to the warranty if the product or device has been modified without prior written consent, or if original parts have been replaced by parts which it has not manufactured without prior consent. If unforeseen damage is caused by the device, it is expressly agreed that the seller can only be liable for the reimbursement of monies received for the purchase of the device if it has been destroyed. Under no circumstances can the seller be held liable for indirect or contingent damage. The seller is released from any liability and the buyer waives any rights against it if an accident or direct or indirect damage is caused to the buyer following a defect, incorrect usage, incorrect maintenance or normal wear of the device sold.

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TABLE OF REVISIONS

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0.1	CLEODE	Initial version	03/09/2009
1.0	CLEODE	Validated document	08/09/2009
1.1	CLEODE	Add Technical features chapter	24/09/2009
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3.1	CLEODE	Updated for the amplified signal	09/10/2012
4.0	CLEODE	Validated document	09/10/2012

REFERENCE DOCUMENTS

N°	Document	Description
[1]	ZigBee_Cluster_Library_Public	Zigbee Cluster Library specification
[2]	ZigBee_Home_Automation_Profile	Home Automation profile specification
[3]	ZigBee_Specification	ZigBee Specification
[4]	ZigBee_Smart_Energy_Profile	Zigbee Smart Energy profile specification

I INTRODUCTION

I.1 ZPLUG PRESENTATION

The ZigBee™ AC 220V plug ZPLUG™ is a module the user can plug on directly in standard 220VAC outlets (C, E or F type) for **3500W** max appliance. It is able to monitor how much electricity an appliance plugged into it is using.

The ZPLUG has this form:



Figure 1 : ZPLUG presentation

I.2 COPYRIGHT

The CLEODE trademark and the CLEODE logo are properties of CLEODE SA, France. This document also refers to trademarks and other product names that are registered trademarks of their respective owners.

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II ZPLUG DESCRIPTION

II.1 ZIGBEE PRESENTATION

The ZPLUG contains an application with :

- Switching on/off the appliance plugged into the plug. This is based on the MainPowerOutlet application defined in the ZigBee Home Automation profile.
- The measure of the consumption of the appliance plugged into the plug. The power socket can accept devices up to **3500 watts**.

For more detail on the data exchange between device and network, see documents [1], [2], [3] and [4].

The ZPLUG embedded the router functionality with amplified signal up to + 20 dBm. This means that the ZPLUG is able to extend the ZigBee Network.

II.2 DESCRIPTION OF THE AVAILABLE INFORMATION

The switching is made by sending a command On/Off on the *On/Off* cluster.

The simple metering is used to monitor how much electricity an appliance plugged into it is using. This application is able to send the current demand of energy in KW and the most recent summed value of energy used in KWh.

II.2.1 DESCRIPTION OF THE APPLICATION

- Device ID : Mains Power Outlet
- Endpoint : 1
- Clusters :

Côté serveur	Côté client
Basic (0x00)	/
Identify (0x03)	/
Groups (0x04)	/
Scenes (0x05)	/
On/Off (0x06)	/
Simple Metering (0x0702)	/

II.2.2 CLUSTERS DESCRIPTION

This is a terse description of clusters and attributes implemented in the switch ZigBee™. For more precision on the functioning of these, would like refer to documents [1] and [4].

- Basic cluster :

This cluster is used to determine basic information about the device.

Attribute	Attribute ID
ZCLVersion	0x0000
ApplicationVersion	0x0001
StackVersion	0x0002
HWVersion	0x0003
ManufacturerName	0x0004
ModelIdentifier	0x0005
DateCode	0x0006
PowerSource	0x0007
LocationDescription	0x0010
PhysicalEnvironment	0x0011
DeviceEnabled	0x0012
AlarmMask	0x0013

- Cluster Identify :

This cluster is used to identify physically the object in the network. On writing of the value of the attribute *IdentifyTime* the LED of the object is going to flash during the time specified by this value.

Attribute	Attribute ID
IdentifyTime	0x0000

- Cluster Groups:

This cluster allows to storing the name of the groups to which Zplug belongs.

Attribute	Attribute ID
NameSupport	0x0000

- Cluster Scenes:

This cluster allows to managing the scene of which is a part Zplug.

Attribute	Attribute ID
SceneCount	0x0000
CurrentScene	0x0001
CurrentGroup	0x0002
SceneValid	0x0003
NameSupport	0x0004

- On/Off cluster:

This cluster is used to switching the device between On and Off states.

Attribute	Attribute ID
On/Off	0x0000

- Cluster Simple Metering :

The attributes of the cluster Simple Metering implemented in the power plug:

Attribute	Attribute ID
CurrentSummationDelivered	0x0000
Status	0x0200
UnitofMeasure	0x0300
Multiplier	0x0301
Divisor	0x0302
SummationFormatting	0x0303
DemandFormatting	0x0304
MeteringDeviceType	0x0306
InstantaneousDemand	0x0400

Two attributes of *SimpleMetering* send periodic reports :

- CurrentSummationDelivered : represents the most recent summed value of Energy in Kwh.
- InstantaneousDemand : represents the current Demand of Energy in Kw.

These used reports mechanisms described the document [1].

Every 12 hours, the value of CurrentSummationDelivered is store in memory, it allows in case of power cut to keep this value.

III INSTALLATION AND WORKING

III.1 INSTALLATION

The user has to plug the ZPLUG on a socket in the wall and plug the appliance on it.

At plugging, the ZPLUG sends beacon request on the network. If a ZigBee coordinator or router is able to associate the ZPLUG the ZPLUG enters in the network.

III.2 WORKING

III.2.1 ON/OFF SWITCHING

The first time the ZPLUG is plugged in the socket, the switch is ON.

In each switching, the ZPLUG keeps the value of the attribute ON / OFF in memory not volatile. Consequently, if a power cut or a disconnection of the ZPLUG arrives, this one will find the state of switching in the restart.

This switching can take place of two different ways:

- By pressing on the present button in facade,
- By sending a command on ZPLUG by the connection ZigBee.

When the output of the ZPLUG is fed, the LED of the ZPLUG is lit in red otherwise it is put out.

III.2.2 RESET ZPLUG

To make a reset of the network parameters of Zplug, you have to press on the button during at least 5s.

III.2.3 SCAN OF THE NETWORK

If your Zplug does not find a network available ZigBee it will make automatically a new scan at the end of 15 minutes. This time will increase twofold every time the ZPLUG makes a scan without finding of available network.

If you wish to boost a scan of the network manually you have to press during 3 seconds on the button of the ZPlug, this will have the effect of making the LED of the ZPLUG flash. If your ZPlug is already associated, presses it during 3 seconds on the button will have no effect

IV TECHNICAL FEATURES

Weight	150 g
Power Supply	220V French standard
Accuracy Measurement	±1 % of full scale
Commutation	Up to 16A on 220V
Transmission range	300 m outdoor 90 m indoor
Output Power	Up to + 20dBm
Managed channels (frequency)	16 channels ZigBee™ (2.405 à 2.480 GHz)

REPAIR AND MAINTENANCE

Defective equipments shall be first reported to the CLEODE support team in order to be assigned an RMA number. Be prepared to state your name, company and the serial number of the defective item to the support personnel.

The item shall then be returned to CLEODE with the following documents:

- The RMA number
- A copy of the delivery slip
- A detailed description of the default and the test context

The maintenance period is typically four (4) weeks starting from the date of reception of the equipment at the CLEODE headquarters.

Remark : A FAQ (Frequently Asked Questions) is available on the www.cleode.com web site.



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