CHERUBINI

Z WAVE PLUS

META SMART PLUG 7
A510093 16A EU
A510094 10A IT
A510095 16A IT

A510093   A510094   A510095

Presa intelligente   **IT**

Smart Plug   **EN**

Smart Plug   **DE**

Prise intelligente   **FR**

Enchufe inteligente   **ES**

CE   ISTRUZIONI - INSTRUCTIONS - EINSTELLANLEITUNGEN
INSTRUCTIONS - INSTRUCCIONES

Index:

E N G L I S H

EU declaration of conformity

CHERUBINI S.p.A. declares that the product is in conformity with the relevant Union harmonisation legislation: Directive 2014/53/EU, Directive 2011/65/EU.

The full text of the EU declaration of conformity is available upon request at the following website: www.cherubini.it.

Failure to comply with these instructions annuls CHERUBINI's responsibilities and guarantee.

The crossed-out wheelie bin symbol indicates that the product must be collected separately from other waste at the end of its useful life. Therefore, users should deliver this product to appropriate waste collection points or return it to their dealers at the end of its service life. See your local authority's regulations. Adequate waste sorting for subsequent processing and environmentally compatible disposal helps to avoid possible negative effects on the environment and public health and promotes reuse and/or recycling of the materials used to make the equipment.

DEVICE DESCRIPTION

Smart Plug 7 is a smart socket that allows you to control a device connected to it, and at the same time monitors the instantaneous power and energy consumption of the load. In addition, the Smart Plug 7 can detect overvoltage and overcurrent events and indicate them through the flashing of a multi-coloured LED.

It operates in any Z-Wave™ network with other Z-Wave™/Z-Wave Plus™ certified devices and controllers from any other manufacturer. As a constantly powered node, the device will act as repeater regardless of the vendor in order to increase the reliability of the network.

This device is a security enabled Z-Wave Plus™ product that is able to use encrypted Z-Wave Plus™ messages to communicate to other security enabled Z-Wave Plus™ products.

This device must be used in conjunction with a Security Enabled Z-Wave™ Controller in order to fully utilize all implemented functions.

Integrated Button
with LED indicator

Integrated Button	Allows the load to be switched on/off
	3 clicks to enter in *Learn Mode*
	Long press to enter **Offline Configuration Mode**

TECHNICAL SPECIFICATIONS

Power supply	110 - 230 VAC ± 10% 50/60 Hz
Maximum Load on Relay	2800 VA - 2300VAC - 12A
System temperature limitation	105 °C
Work temperature	From -10° to 40° C
Power consumption	< 260 mW in standby
	< 480 mW with working load
Radio frequency	868,4 MHz
Protection system	S2 Security
Maximum transmission power	5 dBm
Maximum distance	Up to 100 m outdoor
	Up to 40 m indoor
Dimensions	52x73x100 mm
Actuator element	16 Amp relay
Compliance	CE, RoHs
Electrical IP Rating	IP20

Meter Specifications

Parametri	Active Power, Energy
Range del Meter	Voltage RMS: 250 V
	RMS Electricity: 45 A
	Active Power: ± 11250 W
	Energy: 2.000.000 kWh
Risoluzione	Voltage RMS: 0.1 V
	RMS Electricity: 0.01 A
	Active Power: 0.01 W
	Energy: 0.001 kWh
Errore massimo	Voltage (dynamic range 20:1): ±0.95%.
	Electricity (dynamic range 1000:1): ±2.9%.
	Active Power (dynamic range 4000:1):
	• PF=1: ±4%
	PF=0.8: ±5.5%

SAFETY INFORMATION

⚠️ **WARNING:** Do not connect loads that exceed the maximum load permitted by the actuator element.

⚠️ **WARNING:** The device must be installed in norm-compliant systems suitably protected from overloads and short circuits.

DEVICE INSTALLATION

1) Plug the device into a power outlet.
2) Include the device in the Z-Wave™ network.

LED STATUS INDICATOR

The system includes an RGB LED that shows the device's status during installation:

Solid RED: load off

Solid GREEN: load on.

Solid BLUE: the device is Offline setup mode

4 GREEN blinks then OFF: the device has been just added to a Z-Wave™ network in S2 Authenticate Mode

4 BLUE blinks then OFF: the device has been just added to a Z-Wave™ network in S2 Unauthenticated Mode

4 RED blinks then OFF: the device has been just added to a Z-Wave™ network without security

Sequence of GREEN-BLUE *Learn Mode* for inclusion

Sequence of RED-BLUE *Learn Mode* for exclusion

GREEN-BLUE-RED sequence: undervoltage event detected

Continuous BLUE flashing: overvoltage event detected

Continuous RED flashing: overcurrent event detected.

ℹ️ **INFO:** The *Learn Mode* status is activated or deactivated with 3 clicks on the integrated button.

ADD/REMOVE THE DEVICE INTO A Z-WAVE™ NETWORK *(classic)*

Standard Inclusion (add)

All META Serie 7 devices are compatible with all Z-Wave™/Z-Wave Plus™ certified controllers. The devices support both the *Network Wide Inclusion* mechanism (which offers the ability to be included in a network, even if the device is not directly connected to the controller) and *Normal Inclusion*.

By default, the inclusion procedure starts in *Normal Inclusion* mode and after a short timeout the procedure continues in *Network Wide Inclusion* mode that lasts for about 20 Seconds.

Only a controller can add the device into the network. After activating the inclusion function by the controller, the device can be added by setting it in *Learn Mode*.
The adding of a device is executed by activating the adding procedure in the inclusion section of the controller interface and then executing 3 clicks on the integrated button. As soon as the inclusion procedure initiates the LED indicator starts a sequence of GREEN-BLUE blinks. The device is included in the network when the LED status remains steady RED or GREEN (depending on whether the load is off or on, respectively) and the interview is completed.

Standard exclusion (remove)

Only a controller can remove the device from the network. After activating the exclusion function by the controller, the device can be removed by setting it in *Learn Mode*.

The procedure of exclusion can be activated by **Removing** a node from the Z-Wave™ network and executing 3 clicks on the integrated button; as soon as the exclusion initiates, the LED indicator starts a sequence of RED-BLUE blinks.

The device is excluded from the network when the LED status indicator remains steady RED or GREEN (depending on whether the load is off or on, respectively) and the device is removed from the controller interface.

SMARTSTART INCLUSION

Z-Wave™ SmartStart aims to shift the tasks related to inclusion of an end device into a Z-Wave™ network away from the end device itself, and towards the more user-friendly interface of the gateway.

Z-Wave™ SmartStart removes the need for initiating the end device to start inclusion. Inclusion is initiated automatically on power-ON and repeated at dynamic intervals for as long as the device is not included into a Z-Wave™ network. As the new device announces itself on power-ON, the protocol will provide notifications, and the gateway can initiate the inclusion process in the background, without the need for user interaction or any interruption of normal operation. The SmartStart inclusion process only includes authenticated devices.

META Serie 7 devices can be added into a Z-Wave™ network by scanning the Z-Wave™ QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

The SmartStart QR and the full DSK string code can be found on the back of the device. The PIN is the first group of 5 digits printed underlined. If you plan to use the DSK, it is important that you take a picture of the label and keep it in a safe place.

S2 SECURE INCLUSION

When adding META Serie 7 devices to a Z-Wave™ network with a controller supporting Security 2 Authenticated (S2), the PIN code of the Z-Wave™ Device Specific Key (DSK) is required. The unique DSK code is printed on the product label. The first five digits of the key are highlighted and underlined to help the user identify the PIN code.

Pin Code

SUPPORTED COMMAND CLASSES

Command Class	Version	Non-Secure CC	Secure CC
BASIC	2		x
ZWAVEPLUS_INFO	2	x	
ASSOCIATION	2		x
MULTI_CHANNEL_ASSOCIATION	3		x
ASSOCIATION_GRP_INFO	3		x
TRANSPORT_SERVICE	2	x	
VERSION	3		x
MANUFACTURER_SPECIFIC	2		x
DEVICE_RESET_LOCALLY	1		x
INDICATOR	3		x
POWERLEVEL	1		x
SECURITY_2	1	x	
SUPERVISION	1	x	
FIRMWARE_UPDATE_MD	5		x
APPLICATION_STATUS	1	x	
CONFIGURATION_V4	4		x
SWITCH_BINARY	2		x
CENTRAL_SCENE	3		x
METER	5		x

Supporting Command Class Basic

The basic command classes are mapped into the Switch Binary Command Class.

Basic Command received	Commando Mappato (Binary Switch)
Basic Set (0xFF)	Switch Binary Set (0xFF)
Basic Set (0x00)	Switch Binary Set (0x00)
Basic GET	Basic Report 0x00 if the Binary Switch is in OFF state 0x00 Basic Report 0xFF if the Binary Switch is in ON state 0xFF

Supporting Command Class Indicator

The device supports the Command Class Indicator V3 (ID 0x50). When the device receives an indicator set, the led blinks accordingly to the Indicator set received.

The color shown by the indicator will be:

RED: if the device is included without Security

BLUE: if the device is included in S2 Unauthenticated Mode

GREEN: if the device is already included in S2 Authenticated Mode.

DEVICE CONTROL

Smart Plug 7 can turn ON and OFF the load by using an integrated button, or from remote through a controller.

Controlling the device via integrated button

For the operation of the device within the Z-Wave™ network and controlling the loads connected to the device, control actions are performed on the integrated button.

The **CONTROL ACTIONS** are **EVENTS** performed on the **INTEGRATED BUTTON** which may be one or more Clicks.

Event	Actions on the switch
Click	Press briefly & Release
MultiClick=**n** click	Sequence of consecutive **n** clicks

Since the device supports Central Scene Notification all the events described in the table will be notified with a Central Scene Notification Report to the Lifeline. The events that trigger a Central Scene Notification Report can be customized with the configuration parameter in the Central Scene Notification Parameter section.

Controlling the device by a Z-Wave™ controller

The device can be controlled by any Z-Wave™ / Z-Wave Plus™ certified controller available in the market.

In the figure below, an example of control panel interfaces is depicted, showing how the device will appear once included in the gateway.
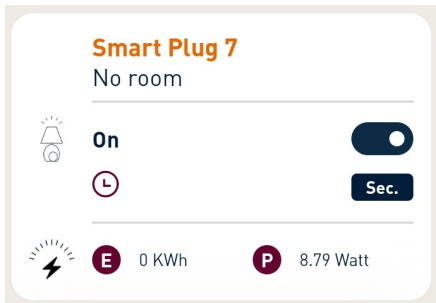
ASSOCIATIONS

Smart Plug 7 can control other devices like other relays or dimmers.
The device supports 4 association groups, each of which supports the association of up to 8 devices (nodes):

Group ID	Group Name	Max. N° of nodes supported in the group	Description	Command sent
1	Lifeline	8	Lifeline Group. Nodes belonging to this group will receive: notifications about device reset; changes related to the relay status and Indicator report and Central Scene Notification.	DEVICE_RESET_LOCALLY_NOTIFICATION SWITCH_BINARY_REPORT CENTRAL_SCENE_NOTIFICATION INDICATOR_REPORT
2	Follow-me	8	The state of the output (ON/OFF) will be propagated to the associated device.	BASIC_SET
3	clicks on button 1 G1	8	The associated device will be controlled based on the click events and output propagation defined by configuration parameters on the Association group management section.	
4	clicks on button 1 G2	8		

ℹ️ **INFO:** Association ensures direct transfer of control commands between devices and is performed without participation of the main controller.

ENGLISH

TIMER MANAGEMENT

It is possible to set a timer for switching the load On and/or Off. It is also possible to define which event will start the timer (e.g. only the output change triggered by a double click).

RESET TO THE FACTORY SETTINGS

The procedure for resetting to factory settings is as follows:
1. Press and hold the integrated button until the LED turns solid BLUE
2. Make 4 clicks on the integrated button to perform the reset.

INFO: If the reset is performed while the device is still part of a network, it notifies the other devices that it has been removed *(Device Reset Locally Notification).*

ENGLISH

FIRMWARE UPDATE

The system supports over-the-air firmware updates that do not require the device to be removed from its location. The firmware update can be activated from all certified controllers supporting version 2 of the Firmware Update function.

WARNING: The system will be rebooted at the end of the firmware update procedure. It is advisable to carry out the firmware update procedure only when necessary and following careful planning of the intervention.

OFFLINE SETUP MODE

The device has a unique feature that allows to configure some parameters without using any user interface. This feature enables the professional user to setup the main features of the device in the field even if the device is not included in a Z-Wave™ Network. When the device will be included in the network all these configuration parameters will be maintained.

To enter Offline Configuration Mode press and hold the integrated button until the LED turns solid BLUE.

When the device is in *Offline setup mode* the led becomes solid Blue and the following configurations are permitted:

1 click	Resets the meter
2 clicks	Activate a switch Off timer of 10 minutes. Equivalent to set parameter n.30 to 15 and parameter n. 31 to 6000.
3 clicks	Activate a switch Off timer of 5 minutes. Equivalent to set parameter n. 30 to 15 and parameter n. 31 to 3000.
4 clicks	Resets the device to factory settings
After receiving the command the led blinks a number of times equal to the number of clicks recognized.	
6 clicks	Exit from Offline setup mode and return to normal operation.
Hold down for 5 seconds	Reset all configuration parameters to their default value and return to normal operation.

After entering in Offline setup mode, the device returns to normal operation if no action on the switch is detected for more than 20 Seconds.

OVERVOLTAGE AND OVERCURRENT ALARMS

Smart Plug 7 is able to detect overvoltage and overcurrent events, and show them through a blinking LED:
- **Continuous RED flashing -** Overcurrent event
- **Continuous BLUE flashing -** Overvoltage event
- **BLUE - RED - GREEN sequence -** Undervoltage event

The voltage and current thresholds identifying these events can be set via the appropriate configuration parameters.

In the case of an overcurrent event, along with the alarm flashing, the load is also switched off.

Once the detected event has ceased, a click on the integrated button is sufficient to interrupt the flashing of the LED. The click performed to interrupt the alarm flashing does not cause the relay to switch.

CONFIGURATIONS

Input Configuration

Parameter Number	Size	Parameter Name	Default Value	Description
10	1	IN_TOGGLE	3	Defines which event on input 1 switches the output *(output connected to the load)*.

Parameters Values		Min: 0	Max: 3

Value	Description
0	Disabled
1	1 click
2	2 clicks

If you support more than 1 event, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default Value: 1 click, 2 clicks, 3 →3.

Parameter Number	Size	Parameter Name	Default Value	Description
11	1	IN_ON_ EXCLUSION	0	Defines which events on the input do not turn on the output.

Parameters Values		Min: 0	Max: 3

Value	Description
0	Disable
1	1 click
2	2 clicks

If you support more than 1 event, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default Value: Disable →0

Parameter Number	Size	Parameter Name	Default Value	Description
12	1	IN_OFF_EXCLUSION	0	Defines which events on the input do not switch off the output.
Parameters Values			**Min: 0**	**Max: 3**
Value	Description			
0	Disable			
1	1 click			
2	2 clicks			

If you support more than 1 event, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default Value: Disable →0

E N G L I S H

Output Configuration:

Parameter Number	Size	Parameter Name	Default Value	Description
23	1	STARTUP_OUT	2	Defines the output status at device start-up (device status after a reboot).
Parameters Values			**Min: 0**	**Max: 2**
Value	Description			
0	OFF			
1	ON			
2	Previous status			

Timer management

Allows the activation of a load on timer and a load off timer independently. To activate these timers, it is necessary:
1) Define which event will start the timer (Parameter 30)
2) To set the Off timer define the time with parameter 31
3) To set the On timer define the time with parameter 32.

Parameter Number	Size	Parameter Name	Default Value	Description
30	**1**	**TIMER_ SETUP**	**0**	Defines which events trigger timers when the output status has changed.
Parameters Values			**Min: 0**	**Max: 99**

Value	Description
0	Disabled
1	1 click
2	2 clicks
32	Network (status change trigger by gateway or other devices in the Z-Wave network).
64	System (based on the startup status, or other timer event).

If more than 1 event are supported, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default value: Disabled →0

Parameter Number	Size	Parameter Name	Default Value	Description
31	**4**	**OFF_ TIMEOUT**	**0**	Time in tenth of seconds after which the output will be switched Off.
Parameters Values			**Min: 0**	**Max: 360000**

Value	Description
0-360000	Specific time expressed in tenth of seconds for Status change.

ENGLISH

Parameter Number	Size	Parameter Name	Default Value	Description
32	**4**	**ON_ TIMEOUT**	**0**	Time in tenth of seconds after which the output will be switched On.

Parameters Values		Min: 0	Max: 360000

Value	Description
0-360000	Specific time expressed in tenth of seconds for Status change.

ENGLISH

Association group management

This section indicates the configuration parameters associated with the G1 and G2 control groups respectively.

Parameter Number	Size	Parameter Name	Default Value	Description
40	**1**	**G1_SETUP**	**1**	Defines which events on the input control G1 association group.

Parameters Values		Min: 0	Max: 3

Value	Description
0	No control
1	1 click
2	2 clicks

If you support more than 1 event, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default value: 1 click →1

Parameter Number	Size	Parameter Name	Default Value	Description
41	1	G2_SETUP	2	Defines which events on the input control G2 association group.

Parameters Values		Min: 0	Max: 3

Value	Description
0	No control
1	1 click
2	2 clicks

If you support more than 1 event, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be 1 + 2 = 3
Default value: 2 clicks →2

Parameter Number	Size	Parameter Name	Default Value	Description
44	1	G1_ASS_ VALUE	101	The value used to control G1 association group.

Parameters Values		Min: 0	Max: 102

Value	Description
0	OFF
1-99	Specific diming value
100	ON
101	Propagate *(output 1 status to the associated device)*
102	Toggle remote *(change status ON/OFF of associated devices)*

Parameter Number	Size	Parameter Name	Default Value	Description
45	**1**	**G2_ASS_ VALUE**	**101**	The value used to control G2 association group.
Parameters Values			**Min: 0**	**Max: 102**

Value	Description
0	OFF
1-99	Specific diming value
100	ON
101	Propagate *(the state of the output to the associated device)*
102	Toggle remote *(change status ON/OFF of associated devices)*

Overvoltage and overcurrent protection

Parameter Number	Size	Parameter Name	Default Value	Description
46	**1**	**OVER_ VOLTAGE_ LIMIT**	**2530**	Defines the overvoltage limit in tenths of a volt.
Parameters Values			**Min: 900**	**Max: 2530**

Value	Description
900-2530	Overvoltage limit

Parameter Number	Size	Parameter Name	Default Value	Description
47	**1**	**DOWN_ VOLTAGE_ LIMIT**	**2070**	Defines the minimum voltage limit in tenths of a volt.
Parameters Values			**Min: 900**	**Max: 2530**

Value	Description
900-2530	Lower voltage limit

Parameter Number	Size	Parameter Name	Default Value	Description
48	1	OVER_CURRENT_LIMIT	MAX_VALUE	Defines the overcurrent limit in amps.

Parameters Values		Min: 1	Max_VALUE

Value	Description
1-Max	Overcurrent limit

For variants A510093 and A510095 **MAX_VALUE** is 12.
For variant A510094 **MAX_VALUE** is 10.

Central Scene management

Parameter Number	Size	Parameter Name	Default Value	Description
60	1	SCENE_SETUP	31	Define which event on the input trigger a central scene notification.

Parameters Values		Min: 0	Max: 3

Value	Description
0	None
1	1 click
2	2 clicks

If more than 1 event are supported, the value for the configuration parameter is the <u>sum</u> of the event values.
For example:
1 click and 2 clicks -> Parameter value must be $1 + 2 = 3$
Default value: 1 click, 2 click →3

Meter Report Configurations

Parameter Number	Size	Parameter Name	Default Value	Description
71	1	W_REPORT_ MAX_ DEL AY	10	The maximum time in minutes after whi-ch a new Meter report will be sent

Parameters Values		Min: 1	Max: 120

Value	Description
1-120	The maximum delay in minutes between one Meter report sequence and the next

Parameter Number	Size	Parameter Name	Default Value	Description
75	1	METER_ ISTANT_ REPORT	20	The percentage of change in power since the last report sent that triggers a new sequence of Meter reports

Parameters Values		Min: 0	Max: 100

Value	Description
0	No report is sent (for any power change)
1-100	The percentage of change in power since the last report sent that triggers a new Meter Report sequence

CHERUBINI S.p.A.
Via Adige 55
25081 Bedizzole (BS) - Italy
Tel. +39 030 6872.039
info@cherubini.it | www.cherubini.it

CHERUBINI Iberia S.L.
Avda. Unión Europea 11-H
Apdo. 283 - P. I. El Castillo
03630 Sax Alicante - Spain
Tel. +34 (0) 966 967 504 | Fax +34 (0) 966 967 505
info@cherubini.es | www.cherubini.es

CHERUBINI France SAS
ZI Du Mas Barbet
165 Impasse Ampère
30600 Vauvert - France
Tél. +33 (0) 466 77 88 58
info@cherubini.fr | www.cherubini.fr

CHERUBINI Deutschland GmbH
Rotter Viehtrift 4A - 53842 Troisdorf - Deutschland
Tel. +49 (0) 224 126 699 74 | Fax +49 (0) 224 126 699 73
info@cherubini-group.de | www.cherubini-group.de