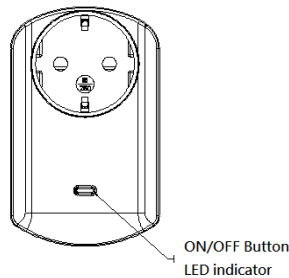




# Cockpit<sup>®</sup>

## SMART PLUG



Ordering code:

CKNODD1

Smart Plug module is part of Your Cockpit system. This module is a switch plug-in. It switches all kinds of loads. Local operation is possible by pressing the button on the module. Module measures power consumption. When detecting overload state module will be disabled and its On/Off button will be locked out while LED will flash quickly. Unplug and re-connect the module will reset its overload condition to normal status.

The module is designed to act as a repeater. Repeaters will re-transmit the RF signal to ensure that the signal is received by its intended destination by routing the signal around obstacles and radio dead spots. This module is able to detect current wattage (5~3150W) and overload wattage (3010~3300W) of connected lights or appliances.

### Include or Exclude from the Network

In the front casing, there is an On/Off button with LED indicator which is used to carry out inclusion, exclusion, reset or associations. When first power is applied, its LED flashes on and off alternately and repeatedly at 2-second intervals. It implies that it has not been assigned a node ID and cannot work with wireless enabled devices.

### Auto Inclusion

The function of auto inclusion will be executed as long as the module does not have Node ID and you plug the module into a wall outlet.

**Note:** Auto inclusion timeout is 4 minute during which the node information will be emitted once every 5 seconds. Unlike "inclusion" function as shown in the table below, the execution of auto inclusion is free from pressing the On/Off button on the module.

The table below lists an operation summary of basic wireless functions. Please refer to the instructions for your Cockpit to access the Setup function, and to include/exclude/associate devices.

Function	Description	LED Indication
No node ID	The Cockpit does not allocate a node ID to the module.	2-second on, 2-second off
Inclusion	1. Have Cockpit entered inclusion mode.	Press On, for on Press Off, for off
	2. Pressing On/Off button three times within 1.5 seconds will enter inclusion mode.	
Exclusion	1. Have Cockpit entered exclusion mode.	Press On, for on Press Off, for off
	2. Pressing On/Off button three times within 1.5 seconds will enter exclusion mode.	
	Node ID has been excluded.	2-second on, 2-second off
Reset	1. Pressing On/Off button three times within 1.5 seconds will enter inclusion mode.	Press On, for on Press Off, for off
	2. Within 1 second, press On/Off button again for 5 seconds until LED is off.	
	3. IDs are excluded.	2-second on, 2-second off

Association	1. Have Cockpit entered association mode. Or Pressing On/Off button three times within 1.5 seconds will enter association mode	Press On, for on Press Off, for off
	2. There are only one group for the module	
*Including a node ID allocated by Your Cockpit means inclusion. Excluding a node ID allocated by Your Cockpit means exclusion. *Failed or success in including/excluding the node ID can be viewed from the YourCockpit.		

### LED Indication

To distinguish what mode the module is in, view from the LED for identification.

State Type	LED Indication
Normal	Under normal operation, toggle On/Off button between On and Off. When pressing On, LED lights up, whereas Off, LED is off.
No node ID	Under normal operation, when node ID has not been allocated to the module, the LED flashes on and off alternately at 2-second intervals. By pressing On/Off button, it will stop flashing temporarily. However, after unplugging and reconnecting the module, the LED will flash on and off alternately at 2-second intervals.
Overload	When overload state occurs, the module is disabled and LED flashes on and off alternately at 0.5 second intervals. Overload state can be cleared by unplugging and reconnecting the module to the wall outlet.

### Choosing a Suitable Location

- Do not locate the module facing direct sunlight, humid or dusty place.
- The suitable ambient temperature for the module is 0°C~40°C.
- Do not locate the module where exists combustible substances or any source of heat, e.g. fires, radiators, boiler etc.
- After putting it into use, the body of module will become a little bit hot of which phenomenon is normal.

**Installation**

1. Plug this On/Off module into a wall outlet near the load to be controlled.
2. Plug the load into the module. Make sure the load to be controlled cannot exceed 2990/3000 watts.
3. Press the button or module on the load to the ON position.
4. To manually turn ON the module, press and release the On/Off button. The LED will turn ON, and the load plugged into the module will also turn ON.
5. To manually turn OFF the module, simply press and release the On/Off button. The LED will turn OFF and the load plugged into the module will also turn OFF.

**Programming**

**1. Basic Command Class / Binary Module Command Class**

The module will respond to BASIC and BINARY commands that are part of the Wireless system.

1-1 BASIC\_GET / BINARY\_MODULE\_GET

Upon receipt of the following commands from Your Cockpit, the module will report its On/Off state to the Group1 node.

Basic Get Command: <b>[Command Class Basic, Basic Get]</b>
Basic Report Command: Report OFF: <b>[Command Class Basic, Basic Report, Value = 0(0x00)]</b> Report ON: <b>[Command Class Basic, Basic Report, Value = (255)0xFF]</b>

Binary Module Get Command: <b>[Command Class Module Binary, Module Binary Get]</b>
Binary Module Report Command: Report OFF: <b>[Command Class Module Binary, Module Binary Report, Value =0(0x00)]</b> Report ON: <b>[Command Class Module Binary, Module Binary Report, Value = (255)0xFF]</b>

1-2 BASIC\_SET / MODULE\_BINARY\_SET

Upon receipt of the following commands from Cockpit, the load attached to the module will turn on or off.

<b>[Command Class Basic, Basic Set, Value = (255)0xFF]</b> : the load attached to the Module turns on.
<b>[Command Class Basic, Basic Set, Value = 0(0x00)]</b> : the load attached to the Module turns off.
<b>[Command Class Module Binary, Module Binary Set, Value = (255)0xFF]</b> : the load attached to the Module turns on.
<b>[Command Class Module Binary, Module Binary Set, Value = 0(0x00)]</b> : the load attached to the Module turns off.

**2. Wirelesses Groups (Association Command Class Version 1)**

The module can be set to send reports to control associated wireless devices. It supports one association group with one node support for Grouping 1. For grouping 1, the module will report its latest status to Cockpit.

Grouping 1 includes, MODULE\_BINARY\_REPORT, METER\_REPORT\_COMMAND

2-1 Auto report to Grouping 1 (Maximum Node 1)

2-1-1 On/Off Event Report

When "on" or "off" state has been changed, it will send Binary Module Report to the node of Grouping 1.

Binary Module Report

ON: <b>[Command Class Module Binary, Module Binary Report, Value =(255)0xFF]</b>
OFF: <b>[Command Class Module Binary, Module Binary Report, Value =0(0x00)]</b>

2-1-2 Instant Power Consumption vary over 5% report

When the power consumption of load varies over 5%, it will send Meter report to the nodes of Grouping 1.

Meter Report Command: <b>[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1 , Meter Value 2 , Meter Value 3 , Meter Value 4]</b>
--

2-2 Response to Meter Get Command

The module will report its (1) instant Power Consumption (Watt) or (2) accumulated power consumption(KWH) or (3) AC load Voltage (V) or (4) AC load current ( I ) (5) load power factor (PF) to YourCockpit after receive the Meter Get Command from YourCockpit.

2-2-1 Instant Power Consumption (Watt) of module. When receiving Meter Get Command, it will report Meter Report Command to the node.

Meter Get Command: <b>[Command Class Meter, Meter Get, Scale =0x02(W)]</b>
--

Meter Report Command: <b>[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1 , Meter Value 2 , Meter Value 3 , Meter Value 4]</b>
--

Rate Type = 0x01

Meter Type = 0x01

Precision = 1

Scale = 0x02(W)

Size = 4 Bytes (Meter Value)

Meter Value 1 = (W) MSB

Meter Value 2 = (W)

Meter Value 3 = (W)

Meter Value 4 = (W) LSB

Example:

Meter Value 1 = 0x00 (W)

Meter Value 2 = 0x00 (W)

Meter Value 3 = 0x03 (W)

Meter Value 4 = 0xEA (W)

Meter (W) = Meter Value 3 \*256 + Meter Value 4 = 100.2W

2-2-2 Accumulated Power Consumption (KW/h)

Meter Get Command: <b>[Command Class Meter, Meter Get, Scale = 0x00 KW/h]</b>
Meter Report Command: <b>[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1 , Meter Value 2 , Meter Value 3 , Meter Value 4]</b>

When receiving Meter Get Command, it will report Meter Report Command to the node.

Rate Type = 0x01

Meter Type = 0x01

Precision = 2

Scale = 0x00 (KWh)

Size = 4 bytes (Meter Value)

Meter Value 1 = (W) MSB

Meter Value 2 = (W)

Meter Value 3 = (W)

Meter Value 4 = (W) LSB

Example:

Scale = 0x00 (KWh)

Precision = 2

Size = 4 Bytes (KW/h)

Meter Value 1 = 0x00(W)

Meter Value 2 = 0x01(W)

Meter Value 3 = 0x38(W)

Meter Value 4 = 0xA3(W)

Accumulated power consumption (KW/h) = (Meter Value 2\*65536) + (Meter Value 3\*256) + (Meter Value 4) = 800.35 (KW/h)

#### 2-2-3 Clearing accumulated power consumption

Meter Reset Command: **[Command Class Meter, Meter Reset]**

#### 2-2-4 AC load Voltage (V)

When receiving Meter Get Command, it will report Meter Report Command to the node. Meter Get Command: **[Command Class Meter, Meter Get, Scale =0x04(V)]**

Meter Report Command:  
**[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1 , Meter Value 2]**

Rate Type = 0x01

Meter Type = 0x01

Precision = 1

Scale = 0x04(V)

Size = 2 Bytes (Meter Value)

Meter Value 1 = High Byte (V)

Meter Value 2 = Low Byte (V)

Example:

Scale = 0x04 (V)

Precision = 1

Size = 2 (2 Bytes of V)

Meter Value 1 = 0x09(V)

Meter Value 2 = 0x01(V)

AC load Voltage = (Meter Value 1\*256) +(Meter Value 2)= 230.5 (V)

2-2-5 AC load current ( I ) When receiving Meter Get Command, it will report Meter Report Command to the node.

Meter Get Command: **[Command Class Meter, Meter Get, Scale =0x05(I)]**

Meter Report Command:  
**[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1 , Meter Value 2]**

Rate Type = 0x01

Meter Type = 0x01

Precision = 2

Scale = 0x05(I)

Size = 2 Bytes (Meter Value)

Meter Value 1 = High Byte (I)

Meter Value 2 = Low Byte (I)

Example:

Scale = 0x05 (I)

Precision = 2

Size = 2 (2 Bytes of I)

Meter Value 1 = 0x01(I)

Meter Value 2 = 0x21(I)

AC load current = (Meter Value 1\*256) +(Meter Value 2)= 2.89 (A)

#### 2-2-6 load power factor (PF)

When receiving Meter Get Command, it will report Meter Report Command to the node.

Meter Get Command: **[Command Class Meter, Meter Get, Scale =0x06(PF)]**

Meter Report Command:  
**[Command Class Meter , Meter Report , scale(bit 2) +Rate Type +Meter Type , Precision + Scale(bit 1,0)+ Size , Meter Value 1]**

Rate Type = 0x01

Meter Type = 0x01

Precision = 2

Scale = 0x06(PF)

Size = 1 Bytes

Meter Value 1

Example:

Scale = 0x06 (PF)

Precision = 2

Size = 1 (1 Byte of PF)

Meter Value 1 = 0x63(PF)

Load power factor (PF) = Meter Value 1 =0.99

### 3. Wireless's Configuration

Configuration Parameter	Function	Size (Byte)	Value	Unit	Default	Description
1	Watt Meter Report Period	2	0x01-0x7FFF	5s	720	5*720s=3600s=1 hour
2	KWH Meter Report Period	2	0x01-0x7FFF	10min	6	6*10min=1 hour
3	Threshold of Watt for Load caution	2	10-3000	1Watt	3000	
4	Threshold of KWh for Load caution	2	1-10000	1KWh	10000	

#### 3-1 Watt Meter Report Period:

If the setting is configured for 1hour (set value =720), the module will report its instant power consumption every 1 hour to Group1 node. The maximum interval to report its instant power consumption is 45 hours (5s\*32767/3600=45hr).

#### 3-2 KWH Meter Report Period:

If the setting is configured for 1hour (set value =6), the module will report its Accumulated Power Consumption (KW/h) every 1 hour to Group1 node. The maximum interval to report its Accumulated Power Consumption (KW/h) is 227.55 days (10min\*32767/1440=227.55 days).

#### 3-3 Threshold of Watt for Load Caution

This is a warning when the wattage of load over the pre-set threshold value, if the setting value is 3000, when the load wattage of Relay1 over this value, module will send warning alarm command to the Group1 node, the Range of the setting value is from 10 to 3000,and the default value is 3000.

#### 3-4 Threshold of KWh for Load Caution

This is a warning when the KWh of load over the preset threshold value, If the setting value is 10000, when the Accumulated Power Consumption of Relay1 over this value, module will send warning alarm command to the Group1 node, minimum value is 1KWh and default value is 10000 kWh.

### 4. Command Classes

The module supports Command Classes including...

- \* COMMAND\_CLASS\_MODULE\_BINARY
- \* COMMAND\_CLASS\_BASIC
- \* COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC\_V2
- \* COMMAND\_CLASS\_VERSION
- \* COMMAND\_CLASS\_MODULE\_ALL
- \* COMMAND\_CLASS\_ASSOCIATION\_V1
- \* COMMAND\_CLASS\_METER\_V3
- \* COMMAND\_CLASS\_CONFIGURATION

#### Troubleshooting

Symptom	Cause of Failure	Recommendation
The module not working and LED off	<ol style="list-style-type: none"> <li>The module is not plugged into the electrical outlet properly</li> <li>The module break down</li> </ol>	<ol style="list-style-type: none"> <li>Check power connections</li> <li>Don't open up the module and send it for repair.</li> </ol>
The module LED illuminating, but cannot control the ON/OFF module of the load attached	Check if the load plugged into the module has its own ON/OFF module	Set the ON/OFF module of the load attached to ON
The module LED illuminating, but the Detector cannot control the module	<ol style="list-style-type: none"> <li>Not carry out association</li> <li>Same frequency interference</li> </ol>	<ol style="list-style-type: none"> <li>Carry out association</li> <li>Wait for a while to re-try</li> </ol>
LED keep flashing, but cannot control	Overload occurs	Remove the load attached or check max. load cannot exceed 3010W~3300W

### Technical Specifications

Operating Voltage	230V/50Hz
Maximum Load	3000W for resistive load, 1500W for incandescent load or 320W for fluorescent load
Overload protection	3300W
Distance	up to 30m
Operating Temperature	0°C ~ 40°C, 85% RH max
Monitoring	-Electrical power load in W -Electric energy consumption in kWh
Power monitoring accuracy	P=5~40W, ±3 W P=40~3000W, ± 5%
Dimensions (WxHxD)	57.7mm x 94.5mm x 76.6mm
Weight	118 g
Wireless communication	868,4MHz, EIRP: +2,5 dBm
Protection Class	IP 20 (The device is for indoor use only)

Specifications are subject to change and improvement without notice.



Cockpit Smart Home d.o.o.  
 Ulica Klementa Juga 007  
 5250 Solkan, Slovenia  
 Web: [www.yourcockpit.biz](http://www.yourcockpit.biz)  
 Tel: +386 5 335 95 00

Date: 13.03.2018

#### Important disclaimer

This product uses radio to wirelessly communicate data between itself and other devices. Radio communication is inherently not always 100% reliable, and as such, this product should not be used in situations in which life and/or valuables are solely dependent on its function. **Warning!** Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new once, the retailer is legally obligated to take back your old appliance for disposal free of charge.

Document: Cockpit SL\_Smart Plug\_User Manual\_V1.3B\_eng