

# Room Controller

## Reference Manual



Room Controller RC100

WRKT4100J5NC

Room Controller RC101

WRKT4101J5NC

V 1.0



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## 1 List of Abbreviations

<b>Abbreviation</b>	<b>Description</b>
RC	Room Controller
I/O	Input and Output
DND/MUR	Do Not Disturb/Make Up Room
E. Saver	Energy Saver

## 2 Product Description

### 2.1 General Information

Panasonic Room Controller is an input and output device designed to fulfil the automation requirements of a typical hotel room. The entire configuration of the hotel room can be easily done with the accompanying PC application (Room Controller Configurator), and this configuration can be uploaded to Panasonic Room Controller via a USB memory stick. USB interface also allows firmware updates. Printable configuration instructions document is generated by the PC application for the ease of installation. Panasonic Room Controller has outputs that supports 2A-16A and 25A loads for the control of the various devices and lighting. It has 13 dry contact inputs, 2 wide range voltage inputs (AC/DC), 1 motion/presence sensor input, 1 card holder input, 5V supply output for sensors and card holder, 1 DND/MUR interface, 2 air conditioning interface. It mounts on din-rail.

### 2.2 Main Features

- Energy Saving
- Switching – Lighting
- Shutter/Blind Control (AC)
- Digital I/O
- Wide Range Voltage Inputs (10-230V)
- Air Conditioner Control
- DND/MUR
- Logic Functions
- Master Off
- USB Configuration/Programming

## 2.3 Product Versions

Product Features	Room Controller RC100	Room Controller RC101
Energy Saving	√	√
Switching – Lighting	√	√
Shutter/Blind AC	-	√
Digital I/O	√	√
Wide Range Voltage Inputs	-	√
Air Conditioner Control	√	√
DND/MUR	√	√
Logic Functions	√	√
Master Off	√	√

### 2.3.1 Room Controller RC101

- It has an energy saving function that can be configured according to Card Holder and Motion Sensor and a 25A relay output (C9) associated with Energy Saving.
- It has 13 dry contact inputs (IN1 ~ IN13) and 8 relay outputs (C1 ~ C8) to configure Switching/Lighting, Shutter/Blind, Digital I/O, Logic and Master Off functions.
- It has 2 wide range voltage inputs to configure with the Voltage Input function. Relay outputs (C1 ~ C8) can be controlled using these inputs.
- It has DND IN, MUR IN, DND (C10) and MUR (C11) outputs to configure with DND/MUR function.

### 2.3.2 Room Controller RC100

- It has an energy saving function that can be configured according to Card Holder and Motion Sensor and a 25A relay output (C9) associated with Energy Saving.
- It has 2 dry contact inputs (IN1 - IN2) and 1 relay output (C1) to configure Switching/Lighting, Digital I/O, Logic and Master Off functions.
- It has DND IN, MUR IN, DND (C10) and MUR (C11) outputs to configure with DND/MUR function.

## 2.4 Technical Information

Power	
Operating voltage	12V DC ( $\pm 5\%$ ) (SELV)
Power consumption	<3W (RC100) <6W (RC101)
Environmental conditions	
Ambient temperature	-5 C ... +45 C
Storage temperature	-10 C ... +55 C
Transportation temperature	-25 °C ... +70 °C
Ambient humidity	5...93% (non-condensing)
Housing	
Dimensions (HxWxD)	90mmx143.8mmx69.8mm
Mounting (IEC60715)	35 mm top-hat rail (TH35)
Mounting width	DIN rail 144mm (8 modules)
Connection type	Screw terminal Single wire: 1,5mm <sup>2</sup> ...4mm <sup>2</sup> or 2x1,5mm <sup>2</sup> ...2x2,5mm <sup>2</sup> Stranded wire without ferrule: 0,75mm <sup>2</sup> ...4mm <sup>2</sup> Stranded wire without ferrule: 0,5mm <sup>2</sup> ...2,5mm <sup>2</sup>
USB PORT	USB type A female connector
Weight	0.37 kg (RC100) 0.55 kg (RC101)
Electrical safety	
Protection type (IEC60529)	IP 20
Pollution degree (IEC60664)	2
Protection class (IEC61140)	II
Overvoltage category (IEC60664)	III
Standards	
EMC/LVD	EN 60669-2-1

Input & Output	
HV Input	2ch isolated 10-230V AC/DC Inputs (RC101)
Dry Contact Input	8ch dry contact inputs (RC100) <i>(2 general + 4 dedicated + 1 PIRsensor + 1 EnergySaver)</i>
	19ch dry contact inputs (RC101) <i>(13 general + 4 dedicated + 1 PIRsensor + 1 EnergySaver)</i>
Energy Saver and PIR Sensor Power Output	5VDC 100mA, <i>for supplying energy saver unit (PEWTR devices) and PIR Sensor both.</i>
Relay Outputs  <i>Normally Open, Potential free, <math>\mu</math>-contacts, Monostable</i>	4x 2A 230 V AC 50/60 Hz, 2A (PF=1) C10, C11, C12, C13 (RC100 / RC101)
	1x 16A 230 V AC 50/60 Hz, 16A (PF=1), max. inrush 80A/20ms C1 (RC100)
	8x 16A 230 V AC 50/60 Hz, 16A (PF=1), max. inrush 80A/20ms C1, C2, C3, C4, C5, C6, C7, C8 (RC101)
	1x 25A 230 V AC 50/60 Hz, 25A (PF=1) C9 (RC100 / RC101)
Physical Interface	
USB 2.0 port	1 USB type A female. <i>(for Updating firmware and device configuration.)</i>

## 2.5 Dimensional drawings

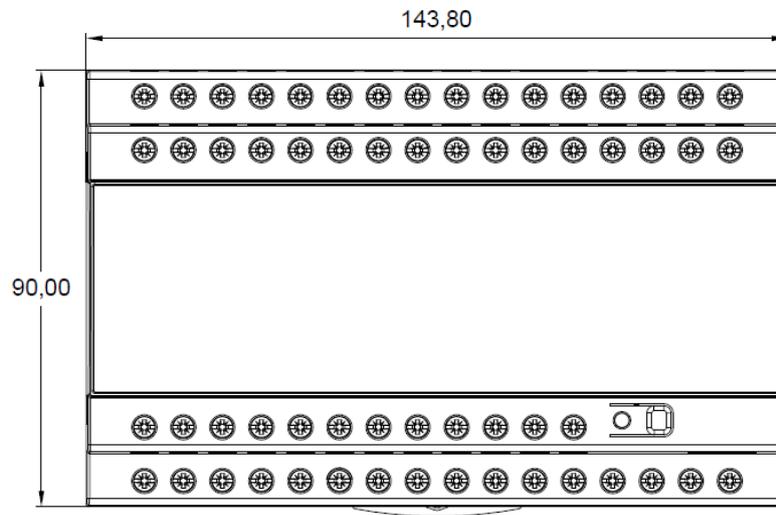


Figure 1 Top view of the Room Controller

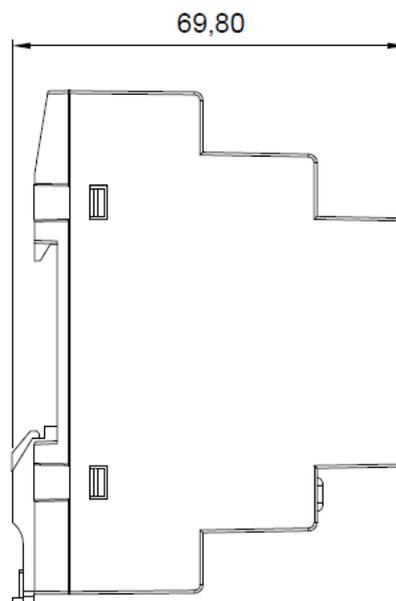


Figure 2 Side view of the Room Controller

## 2.6 Product Components

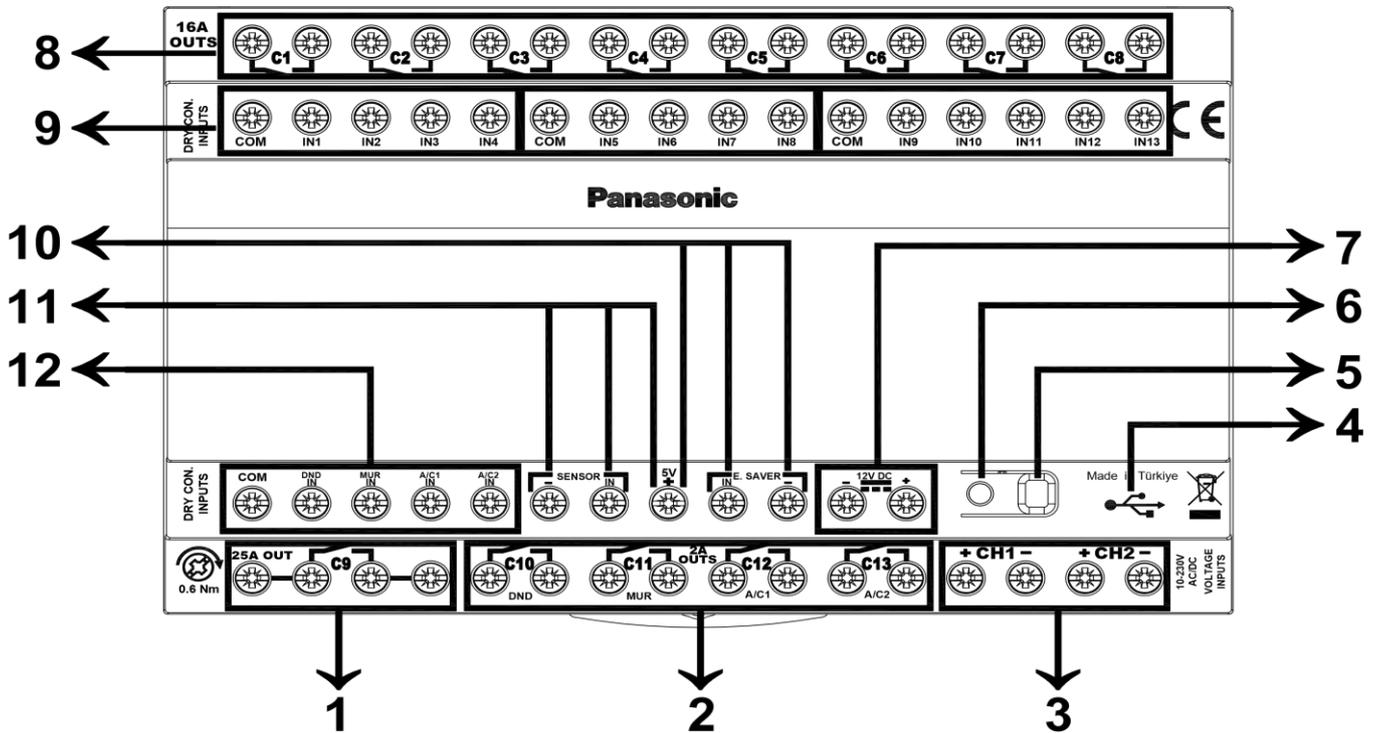


Figure 3 Product Components

1. 25-A Output
2. 2-A Outputs (DND, MUR, A/C)
3. Wide Range Voltage Inputs
4. USB Port
5. Program Button
6. Status LED
7. 12V DC Input
8. 16A Outputs
9. Dry Contact Inputs
10. Energy Saver Connections
11. Sensor Connections
12. DND MUR, A/C Inputs

## 2.7 Connection

### 2.7.1 Dry-contacts Connection

#### 2.7.1.1 Lighting and Digital I/O connection

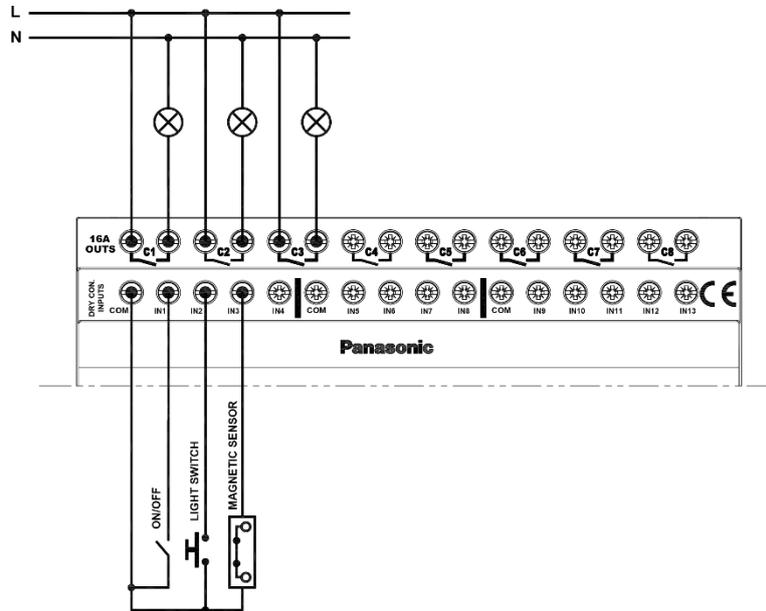


Figure 4 Lighting and Digital I/O connection

-  Don't apply an external voltage to dry contact inputs. Applying an external voltage damages the device.
-  COM terminals are internally interconnected to each other.
-  Do not connect more than 16A current load to relay outputs between C1 and C8. Connecting more than 16A current load damages the device.

### 2.7.1.2 shutter / blind connection

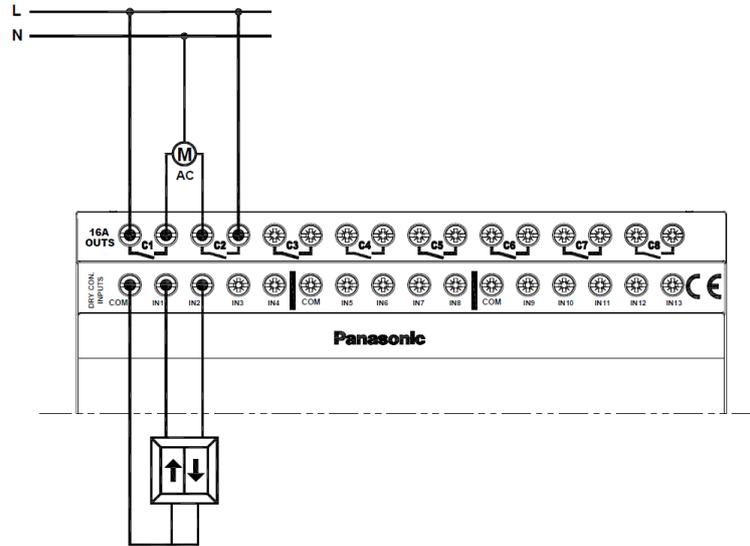


Figure 5 Shutter/Blind Connection

- Don't apply an external voltage to dry contact inputs. Applying an external voltage damages, the device.
- COM terminals are internally interconnected to each other.
- Do not connect more than 16A current load to relay outputs between C1 and C8. Connecting more than 16A current load damages the device.

### 2.7.1.3 Master Off Functionality Connection

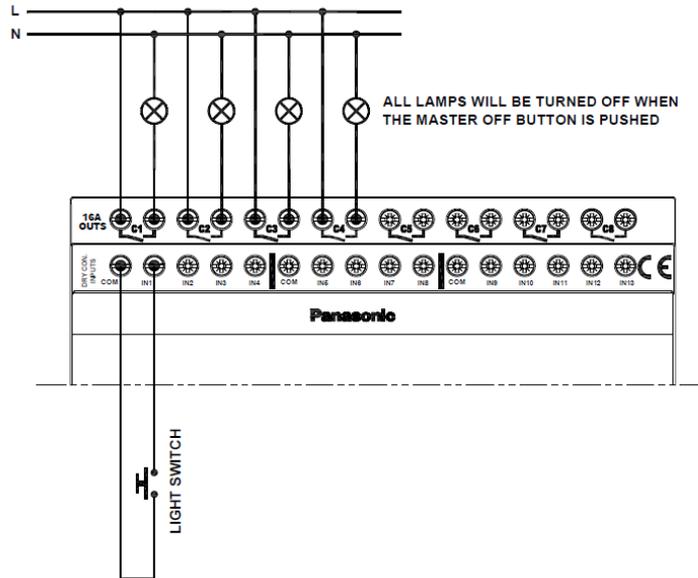


Figure 6 Master Off Connection

- Don't apply an external voltage to dry contact inputs. Applying an external voltage damages the device.
- COM terminals are internally interconnected to each other.
- Do not connect more than 16A current load to relay outputs between C1 and C8. Connecting more than 16A current load damages the device.

## 2.7.2 Card Holder Connection

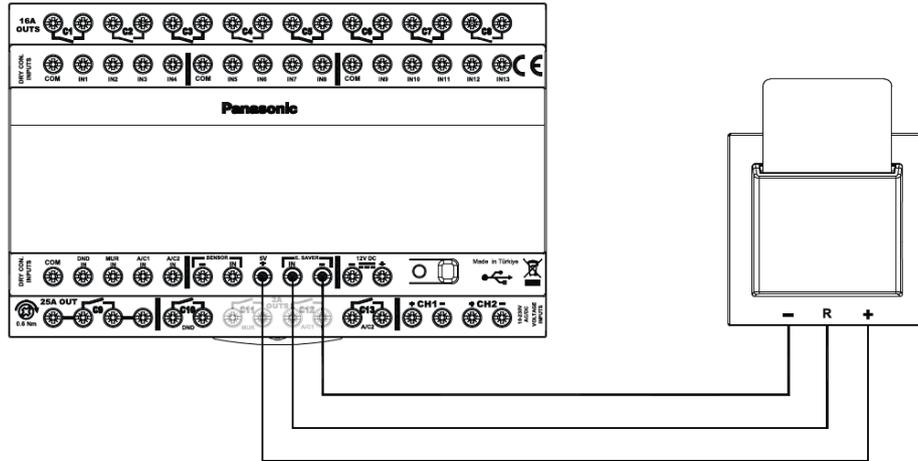


Figure 7 Card Holder connection

**!** Only supported devices are permitted to be connected to 5V output and E. Saver port. In case of connecting an unsupported device, the Room Controller Module may be damaged.

Supported devices:

- Panasonic Energy Saver Card Reader 13.56Hz MP (Wxxx0580)
- Panasonic Energy Saver Card Reader SW (Wxxx0582)

For the complete list please contact the sales team.

### 2.7.3 10 – 230V AC/DC Voltage Input Connection

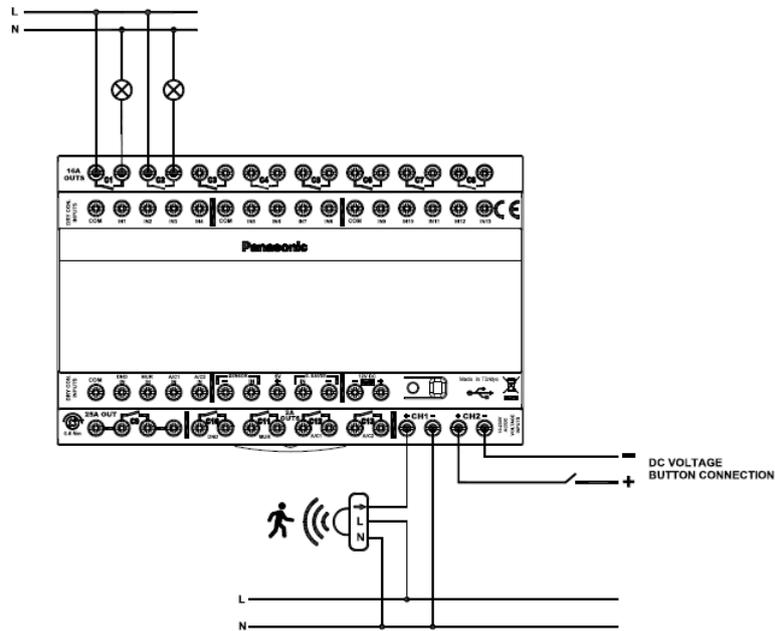


Figure 8 Voltage Input connection

- ⚠ Correct polarity must be observed when a DC voltage is applied on the 10-230V AC/DC inputs. The input status cannot be read if a wrong connection is made.
- ⚠ Do not connect more than 16A current load to relay outputs between C1 and C8. Connecting more than 16A current load damages the device.

### 2.7.4 Air Conditioner Connection

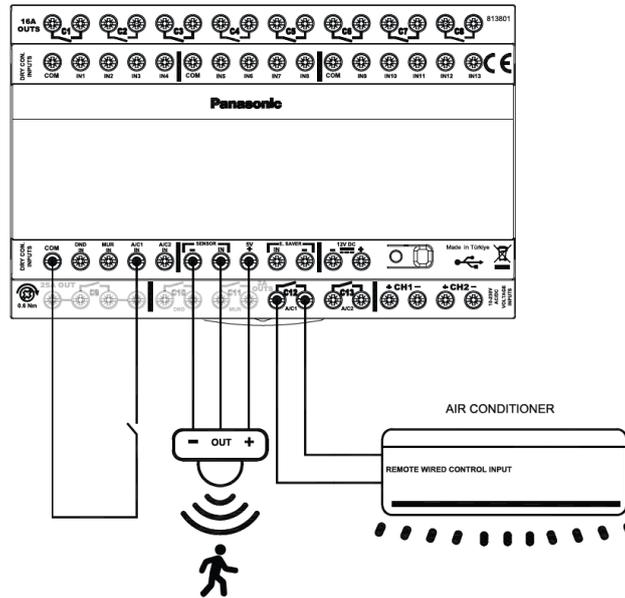


Figure 9 Air Conditioner connection

**!** Do not connect more than 2A current load to relay outputs between C10 – C13. Connecting more than 2A current load damages the device.

**!** Don't apply an external voltage to dry contact inputs. Applying an external voltage damages, the device.

**!** Only supported Sensors (5VDC 100mA) are permitted to be connected to the 5V Output and Sensor port. The Room Controller Module may be damaged if an unsupported device is connected.

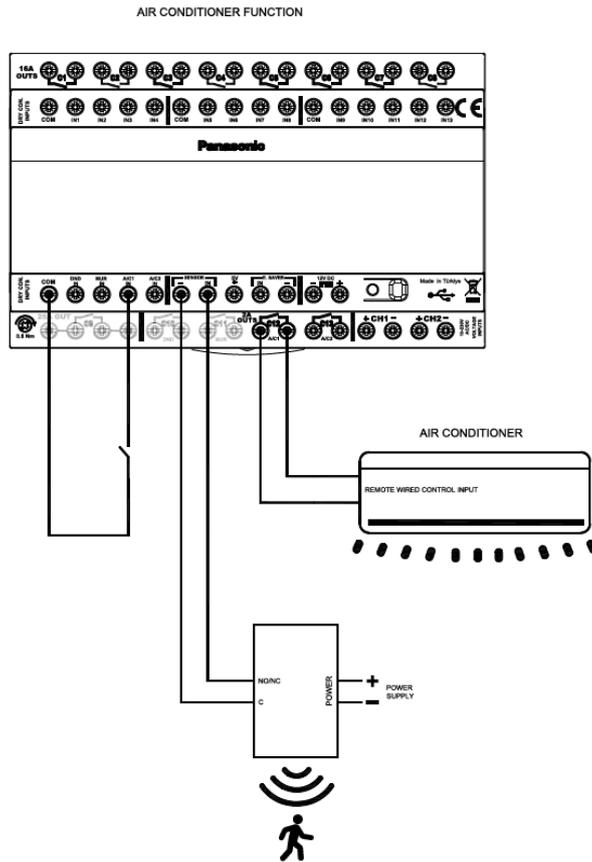


Figure 10 Air Conditioner connection

Do not connect more than 2A current load to relay outputs between C10 – C13. Connecting more than 2A current load damages the device.

Don't apply an external voltage to dry contact inputs. Applying an external voltage damages, the device.

Sensors with dry contact output can be connected to the sensor port. The Room Controller Module may be damaged if an unsupported device is connected.



## 3 Device Behavior

### 3.1 Factory Default / Normal Operation

In the delivered state, the device comes without any configuration. Please use “Room Controller Configurator” to create a configuration (Refer to section 6, Configurator Tabs) and upload (Refer to section 3.2, Configuring/Firmware Updating) it to the device. In normal operation of the device, LED colors identifies the errors and faults as shown in the following table.

LED STATUS		
<b>No Configuration (Factory Default)</b>	Sequentially red and green LEDs blink in 500ms period	
<b>Normal Operation</b>	Green LED is constantly ON	
<b>ERROR</b>	<b>High/Low Supply Voltage</b>	Red LED is constantly ON
	<b>Energy Saving / PIR Sensor Short Circuit</b>	Yellow LED is constantly ON
	<b>USB Error (Read/Write, Invalid Folder, Short Circuit)</b>	Red LED is constantly ON for 5-sec then turns to the last status

## 3.2 Configuring / Firmware Updating

User has to upload a configuration by using the accompanying PC application (Room Controller Configurator), and this configuration can be uploaded to Panasonic Room Controller via a USB memory stick. (Refer to section 4.1 USB Port Operations)

USB interface also allows firmware updates.

All these operations can be realized using the button and following the status LED indicators on the device. There are 2 menu items of the device, which are Configuration Upload and Firmware Update.

Mode Selection	Button Status	LED Status
Inserting Menu	Long Press (More than 3-sec)	Green LED blinks in 500 ms period
Changing Menu Item	Short Press (Less than 1-sec)	LED color changes to the color of the next item
Confirming the Action	Long Press (More than 1-sec)	LED blinks in 100 ms to the color of the selected item
Exiting Menu	No operation during 5-sec	LED, turns to last status before menu selection

Device menu can be reached with long press. (more than 3-sec) Inside the menu short presses (less than 1-sec) will allow user to switch between the menu items. Every menu item is identified with a color code that is mentioned below. After the required menu item is selected long press (more than 1-sec) will confirm the action. If the action is successful LED will blink rapidly in 100 ms to the color of the selected item and the device will restart. If a failure happens during the menu operations, LED will stay in red for 5-sec and the device will turn back to last status before menu operations.

Item No	Menu Item Name	Color of the Item
1	Configuration Upload	Green Blink
2	Firmware Update	Red Blink

**Configuration Upload:** Using this device menu action, configuration created by Room Controller Configurator application can be uploaded to the device via USB memory stick. To indicate that the device is in this mode LED flashes in green color. USB memory stick that contains the configuration file should be inserted before confirming the configuration upload action with 1-sec-long press.

**Firmware Update:** Using this device menu action, firmware of the device can be updated via USB memory stick. To indicate that the device is in this mode LED flashes in red color. USB memory stick that contains the firmware file should be inserted before confirming the firmware update action with 1-sec-long press.

### 3.3 Energy Saving Bypass

While the energy saving function was included, when the user does not want to use this function, it can bypass it.

In case of a malfunction in the Sensor or Card Holder, a combination is made with the button and energy is supplied continuously so that the room is not de-energized.

If the Conf. button is pressed 5 times in a row, the energy saving function is bypassed, then if the button is pressed 5 times in a row again, it returns to its previous state.

<b>Mode Selection</b>	<b>Button Status</b>	<b>LED Status</b>
<b>Inserting Energy Saving Bypass</b>	5 x Short Press (Less than 1-sec)	Yellow LED blinks in 100 ms period

## 4 USB Port

The user can upload the device configuration created with the Room Controller Configurator and the firmware provided by the device manufacturer (*PEWTR*) to the device using a USB memory stick.

 The USB memory stick used must be compatible with the USB 2.0 standard and formatted to the FAT32 file system. When using an incompatible USB stick, writing and reading operations to the device may be incorrect.

### 4.1 USB Port Operations

For loading the device configuration, the encrypted "config.rccfg" file created with the Room Controller Configurator is copied to the USB memory stick and uploaded to the device using the button and status led. For updating the Firmware, the encrypted "standalone\_io\_ENC2.srec" firmware file provided by the manufacturer (*PEWTR*) is copied to the USB memory stick and uploaded to the device using the button and status LED.

For detailed menu steps, see 3.2 Configuring / Firmware Updating. In addition, application and bootloader version information can be read from the device via the USB memory stick.

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## 5 Inputs/Outputs

### 5.1 Input Types

In Room Controller Module there are two types of inputs:

- **Dry-contact inputs**  
A dry-contact input detects whether or not an input switch is open or closed. Room Controller modules have 19 x dry-contact inputs in the RC101 version and it have 8 x dry-contact input in the RC100 version.
- **10-230V AC/DC inputs**  
These inputs are suitable to read 10-230V AC/DC signals. Only Room Controller Module RC101 has 2 x 10-230V AC/DC inputs.

### 5.2 Output Types

All outputs of the Room Controller Modules are dry-contact relays. But it has channels with different current values:

- **2A dry-contact output**  
Room Controller Module has 4 x 2A dry contact relays reserved for use for 2 x Air Conditioner (C10-C11) and 2 x DND/MUR (C12 – C13).
- **16A dry-contact output**  
Room Controller Module has 1 (C1) in RC100 version and 8 (C1 – C8) in RC101 version, 16A dry contact relays reserved for general purpose usage.
- **25A dry-contact output**  
The Room Control Module has 1 (C9) 25A dry contact relay reserved for use in high current requirements.

## 6 Configurator Pages

Room Controller Configurator opens with Home Page as seen in Figure-12.

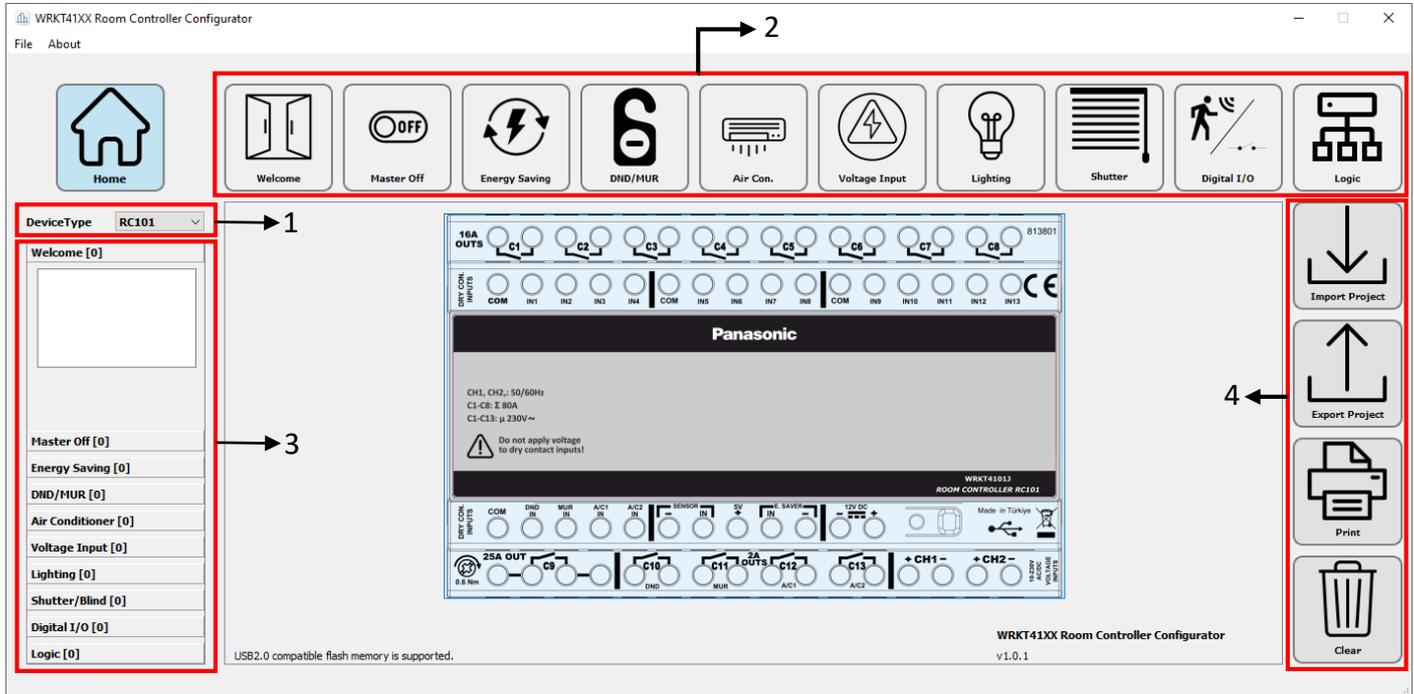


Figure 12 Room Controller Configurator Home Page

1. There is a device type selection combo box below the home icon. It starts with the Full model RC101 at start-up. The RC100 can be selected in the menu when it is desired to be used. Unsaved data will be lost when changing versions.
2. There are function icons where the device can be configured. Configuration pages can be opened using the function icons. All functions are active in RC101 version, Voltage Input and shutter functions are not supported in RC100 version.
3. There is a summary of the saved functions. Can be accessed from this menu to the saved functions.
4. There are icons where file operations can be performed.
  - With the “Import Project” icon, can be import previously saved configurations.
  - With “Export Project” icon, can be export which the functions that have been saved.
  - With the “Print” icon, can be get a print the summary of the saved configuration.
  - With the “Clear” icon, can be deleted whole configuration that have been saved and reset to their initial settings.

## 6.1 Master Off Page

With this function, general purpose outputs (C1 – C8) used with Voltage input, Lighting, Digital I/O and Logic functions can be turned off using the Master Off Input. A feedback LED output can also be set for the Master Off button. The user can save 4 of this function.

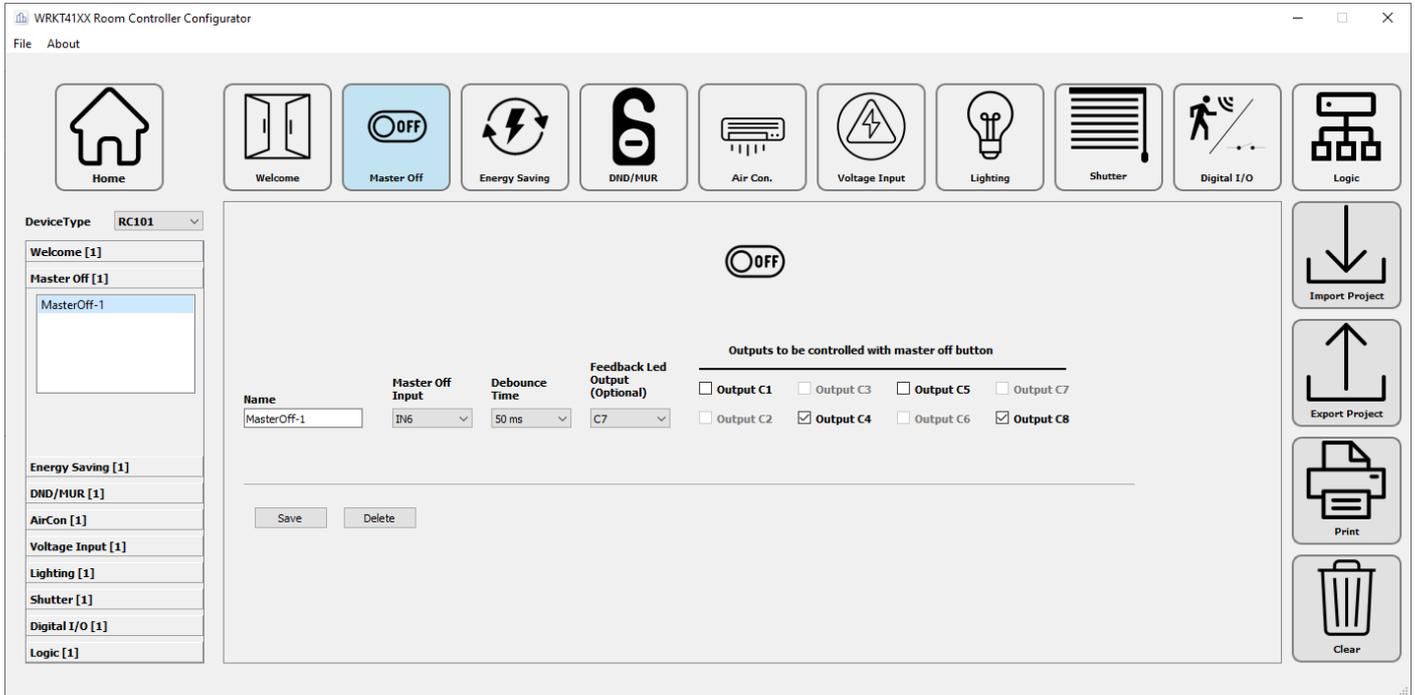


Figure 13 Room Controller Configurator Master Off Tab

### 6.1.1 Master Off Parameters

Name	Values	Description
Function name		The user can give the Master Off function a name for documentation purposes.  This parameter value has no effect on the function work.
Master Off Input	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Master Off Input.

<p>Debounce time</p>	<p>20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms</p>	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
<p>Feedback LED Output</p>	<p>C1 C2 C3 C4 C5 C6 C7 C8</p>	<p>Push Button is must be used for Master Off Input. If used Master Off button with Feedback LED, then one of the general purpose outputs can be used.</p> <p>Feedback LED's Output becomes active when master off input is detected, then it becomes passive when any input is detected.</p>
<p>Outputs to be controlled with Master Off Button</p>	<p>Check Box for C1 Check Box for C2 Check Box for C3 Check Box for C4 Check Box for C5 Check Box for C6 Check Box for C7 Check Box for C8</p>	<p>Outputs to be controlled with Master Off Function are selected in the check boxes.</p> <p>Selected outputs becomes passive when Master Off input is detected.</p>

## 6.2 Welcome Page

With this function, general purpose outputs (C1 – C8) used with Voltage input, Lighting, Digital I/O and Logic functions can be turned on using the welcome function. The user can save only one of this function.

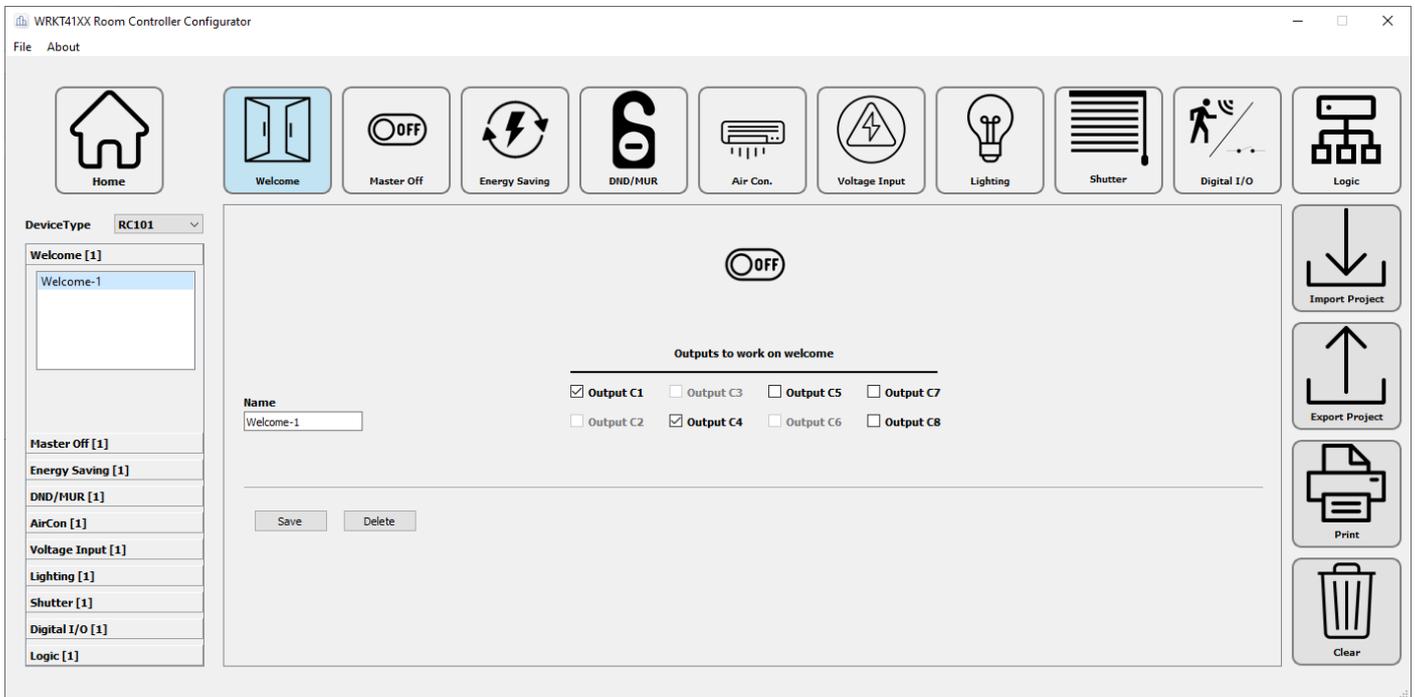


Figure 13 Room Controller Configurator Welcome Tab

### 6.2.1 Welcome Parameters

Name	Values	Description
Function name		The user can give the Welcome function a name for documentation purposes.  This parameter value has no effect on the function work.
Outputs to work on welcome	Check Box for C1 Check Box for C2 Check Box for C3 Check Box for C4 Check Box for C5 Check Box for C6 Check Box for C7 Check Box for C8	Outputs to be controlled with Welcome Function are selected in the check boxes. Selected outputs becomes active when presence is detected.

### 6.3 Energy Saving Page

Energy Saving Function manages the energizing status of the system. If this function is not saved, then system is energizing always. The user can save only one of this function. Energy Saving Function can be configured by the 3 ways:

**1. Using only card holder**

The system’s energy will be controlled by card holder. If the card is inserted, the system will be energized and the functions will be active. Else if the card is removed, the system ‘s energy will be cut off and the functions will be passive.

**2. Using only presence detection**

The system’s energy will be controlled by evaluating the door switch and motion sensor conditions. It is also considered as motion detection when any key is pressed in the room.

**3. Using combination of card holder and presence detection**

The system’s energy will be controlled by using combination of card holder and presence detection. If the card is inserted, the system energy will be controlled by evaluating the door switch and motion sensor conditions. It is also considered as motion detection when any key is pressed in the room. Else if the card is ejected, the system ‘s energy will be cut off and the functions will be passive.

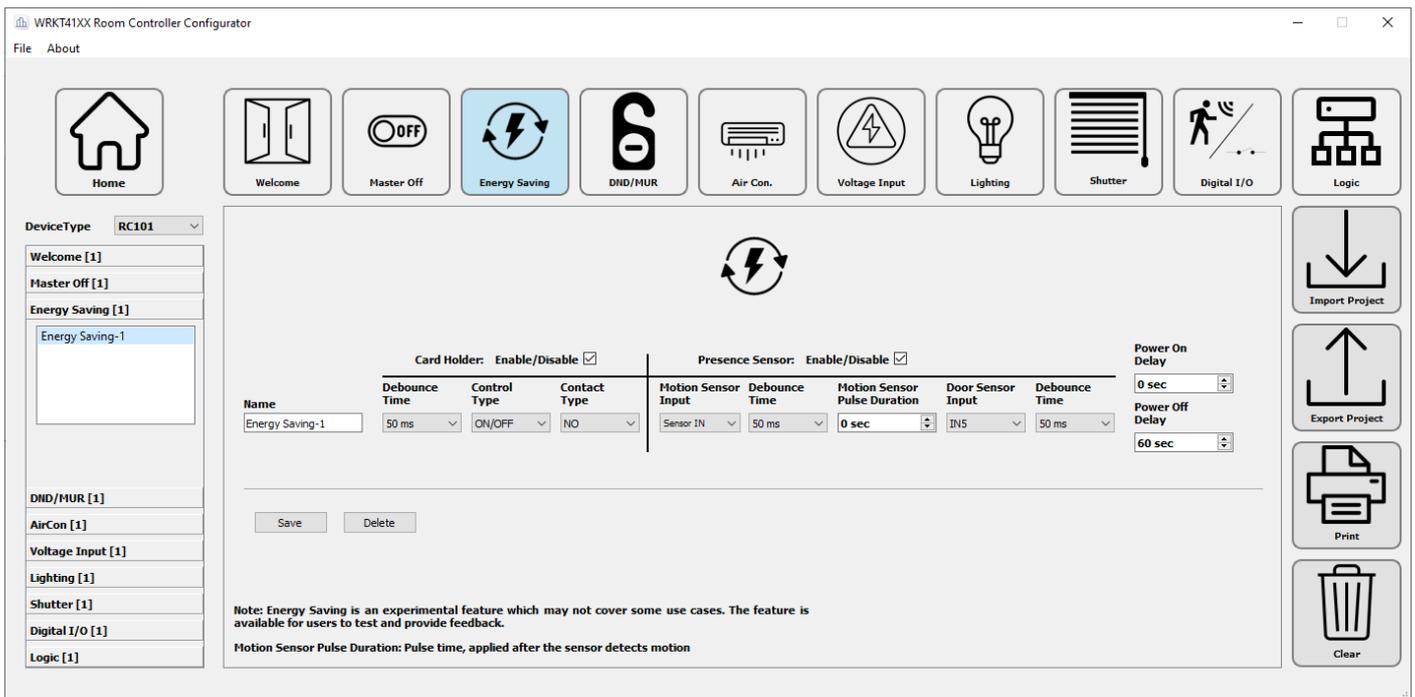


Figure 14 Room Controller Configurator Energy Saving Page

### 6.3.1 Energy Saving Parameters

Name	Values	Description
Function name		<p>The user can give the Energy Saving function a name for documentation purposes.</p> <p>This parameter value has no effect on the function work.</p>
Card Holder Enable/Disable	Checkbox is checked Checkbox is unchecked	This parameter defines the using status of the Card Holder for energy saving.
Debounce time (for Card Holder)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
Control Type (for Card Holder)	ON/OFF PULSE	<p>This parameter defines the control type of the card holder input.</p> <p>“ON/OFF” control type has 2 state. In one state the card switch is active and in the other state the card switch is passive.</p> <p>With the “PULSE” control type, when pressed once, it turns passive if the card switch is active and active if it is passive.</p>
Contact Type (for Card Holder)	NO NC	<p>This parameter defines the contact type of the card holder input.</p> <p>“NO” contact type:</p> <ul style="list-style-type: none"> <li>• contact is open → Card is removed</li> <li>• contact is close → Card is inserted</li> </ul> <p>“NC” contact type:</p> <ul style="list-style-type: none"> <li>• contact is close → Card is removed</li> <li>• contact is open → Card is inserted</li> </ul>
Presence Sensor Enable/Disable	Checkbox is checked Checkbox is unchecked	This parameter defines the using status of the Presence Detection Algorithm for energy saving.
Motion Sensor Input	IN1 IN2 IN3, IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Motion Sensor Input.

Debounce time (for Motion Sensor)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
Motion Sensor Pulse Duration	0 – 999999 seconds	This parameter enables a sensor detection delay after the door closing.
Door Sensor Input	IN1 IN2 IN3, IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Door Switch Input.
Debounce time (for Door Sensor)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
Power On Delay	0 – 999999 seconds	This parameter enables a delay before the system Power Up.
Power Off Delay	0 – 999999 seconds	This parameter enables a delay before the system Power Off.

## 6.4 DND/MUR Page

This function manages the working type of the DND/MUR. The user can save only one of this function. Panasonic Room Controller contains dedicated input and outputs for DND and MUR functionalities. DND input (DND IN) and MUR input (MUR IN) and respected outputs C10 (DND) and C11 (MUR) can be used to interface DND/MUR. Also an optional doorbell output can be connected to outputs C1-C8.

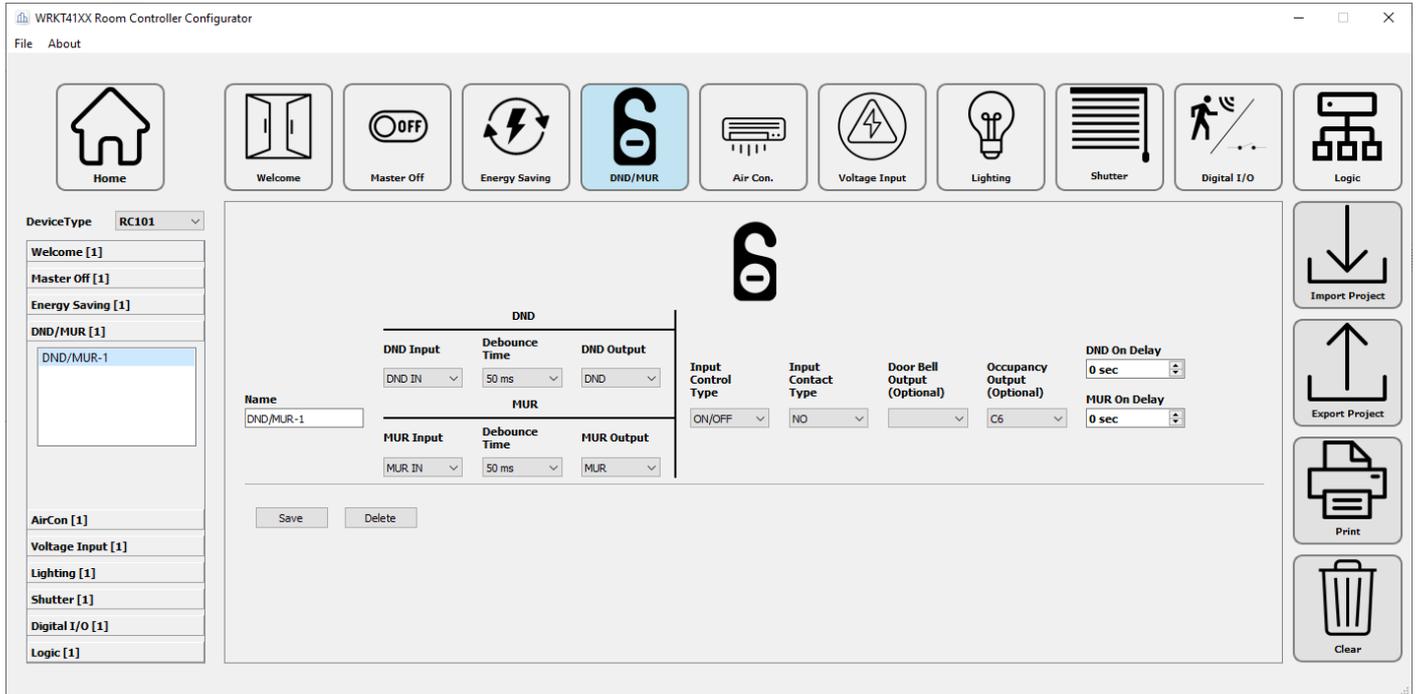


Figure 15 Room Controller Configurator DND/MUR Page

### 6.4.1 DND/MUR Parameters

Name	Values	Description
Function name		The user can give the DND/MUR function a name for documentation purposes.  This parameter value has no effect on the function work.
DND Input	DND IN	The DND input is reserved on the hardware. A different input cannot be selected.
Debounce time (for DND)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.

DND Output	DND	The DND output is reserved on the hardware. A different output cannot be selected.
MUR Input	MUR IN	The MUR input is reserved on the hardware. A different input cannot be selected.
Debounce time (for MUR)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.
MUR Output	MUR	The MUR output is reserved on the hardware. A different output cannot be selected.
Control Type	ON/OFF PULSE	This parameter defines the control type of the inputs.  “ON/OFF” control type has 2 state. In one state the input is active and in the other state the input is passive.  With the “PULSE” control type, when pressed once, it turns passive if the input is active and active if it is passive.
Contact Type	NO NC	This parameter defines the contact type of the inputs.  “NO” contact type: <ul style="list-style-type: none"> <li>• contact is open → Switching state = off</li> <li>• contact is close → Switching state = on</li> </ul> “NC” contact type: <ul style="list-style-type: none"> <li>• contact is close → Switching state = off</li> <li>• contact is open → Switching state = on</li> </ul>
Door Bell Output	C1 C2 C3 C4 C5 C6 C7 C8	This parameter is optional. If used it then one of the general purpose outputs can be used. Door Bell's Output becomes active when anything is not active or MUR are active, then it becomes passive when DND active.
Occupancy Output	C1 C2 C3 C4 C5 C6 C7 C8	This parameter is optional. If used it then one of the general purpose outputs can be used. Occupancy Output is active when the room is energized, and inactive when the room is de-energized.

---

DND On Delay	0 – 999999 seconds	This parameter enables a delay before the DND activation.
MUR On Delay	0 – 999999 seconds	This parameter enables a delay before the MUR activation.

## 6.5 Air Conditioner Page

This function manages the working type of the Air Conditioner Control. The user can save 2 of this function. Panasonic Room Controller can control up to two air conditioner thanks to its 2 identical sensor inputs (A/C1 IN, A/C2 IN) and 2 identical control outputs (C12, C13). Also motion/presence sensor input (SENSOR) can be used for the occupancy detection in the room.

Energy Saving Function can be configured by the 3 ways:

### 1. Using System Status

The air conditioner will be controlled according to the energy status of the system. If the system is active, the Air Conditioner will be energized. Else if the system is passive, the Air Conditioner be energy will be cut off.

### 2. Using only Balcony Sensor

The Air Conditioner will be controlled by Balcony Sensor. If the balcony door is closed, air conditioner will be active. Else if the balcony door is opened, air conditioner will be passive.

### 3. Using combination of balcony sensor and motion sensor

The Air Conditioner will be controlled by evaluating the balcony sensor and motion sensor conditions.

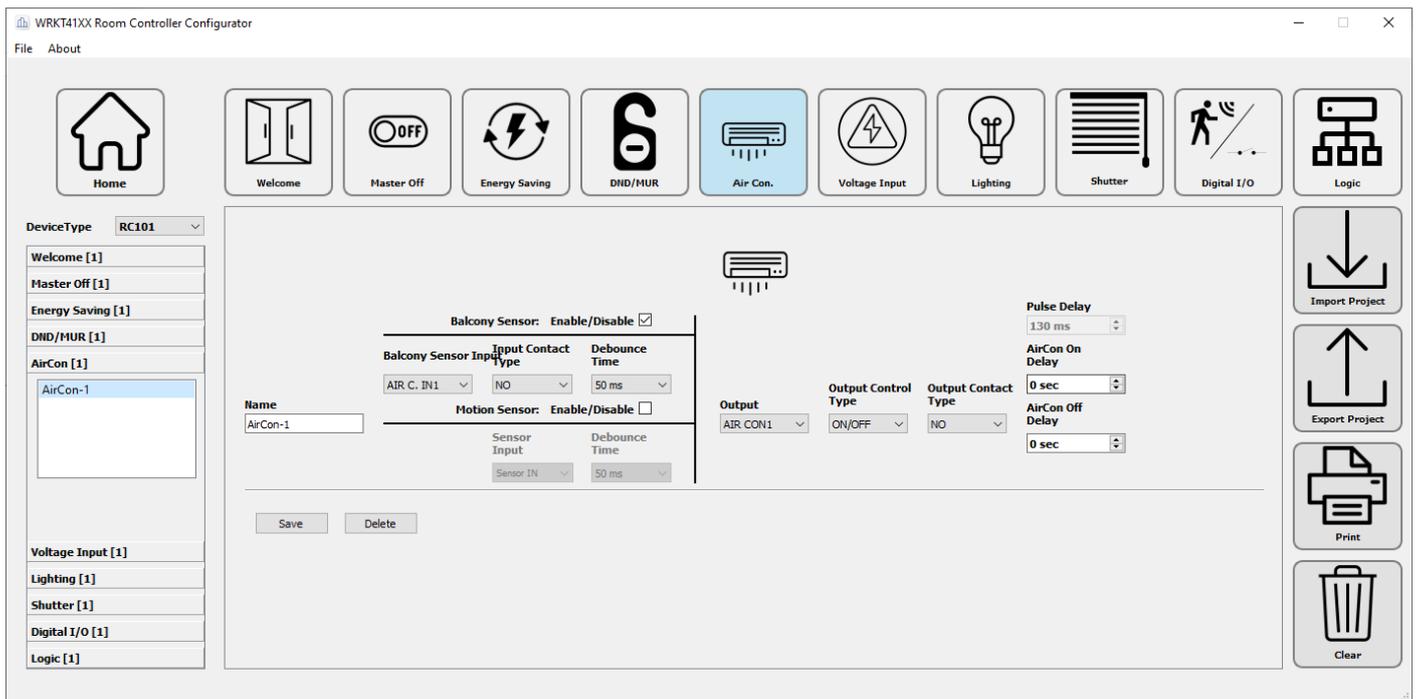


Figure 16 Room Controller Configurator Air Conditioner Page

### 6.4.1 Air Conditioner Parameters

Name	Values	Description
Function name		The user can give the Air Conditioner function a name for documentation purposes.  This parameter value has no effect on the function work.
Balcony Sensor Enable/Disable	Checkbox is checked Checkbox is unchecked	This parameter defines the using status of the Balcony Sensor for Air Conditioner control.

Balcony Sensor Input	AIR C. IN1 AIR C. IN2	The Air Conditioner inputs are reserved on the hardware. A different input cannot be selected.
Debounce time (for Balcony Sensor)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.
Contact Type (for Balcony Sensor)	NO NC	This parameter defines the contact type of the inputs.  “NO” contact type: <ul style="list-style-type: none"> <li>• contact is open → Switching state = off</li> <li>• contact is close → Switching state = on</li> </ul> “NC” contact type: <ul style="list-style-type: none"> <li>• contact is close → Switching state = off</li> <li>• contact is open → Switching state = on</li> </ul>
Motion Sensor Enable/Disable	Checkbox is checked Checkbox is unchecked	This parameter defines the using status of the Motion Sensor for Air Conditioner control.
Motion Sensor Input	Sensor IN	The Sensor input is reserved on the hardware. A different input cannot be selected.
Debounce time (for Motion Sensor)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.
Output	AIR CON1 AIR CON2	The Air Conditioner output is reserved on the hardware. A different output cannot be selected.
Output Control Type	ON/OFF PULSE	This parameter defines the control type of the inputs.  “ON/OFF” control type has 2 state. In one state the output is active and in the other state the input is passive.  With the “PULSE” control type, when change status, it gives a pulse equal to the pulse delay.

Output Contact Type	NO NC	<p>The relay of a switching output can be configured as normally open or normally closed contacts. In this way, the inversion of switching states is possible.</p> <p>Normally open:</p> <ul style="list-style-type: none"> <li>5. Switching state = off → Relay contact is open</li> <li>6. Switching state = on → Relay contact is closed</li> </ul> <p>Normally closed:</p> <ul style="list-style-type: none"> <li>7. Switching state = off → Relay contact is closed</li> <li>8. Switching state = on → Relay contact is open</li> </ul>
Pulse Delay	0 – 9999 milliseconds	This parameter defines a pulse delay the Air Conditioner changing status when output control type is "PULSE".
AirCon On Delay	0 – 999999 seconds	This parameter enables a delay before the Air Conditioner activation.
AirCon Off Delay	0 – 999999 seconds	This parameter enables a delay before the Air Conditioner passivation.

## 6.6 Voltage Input Page

This function manages the working type of the Voltage Input operations. The user can save 2 of this function. Panasonic Room Controller contains 2 identical wide range (10-230V) voltage inputs (CH1, CH2). Each of them can be used separately.

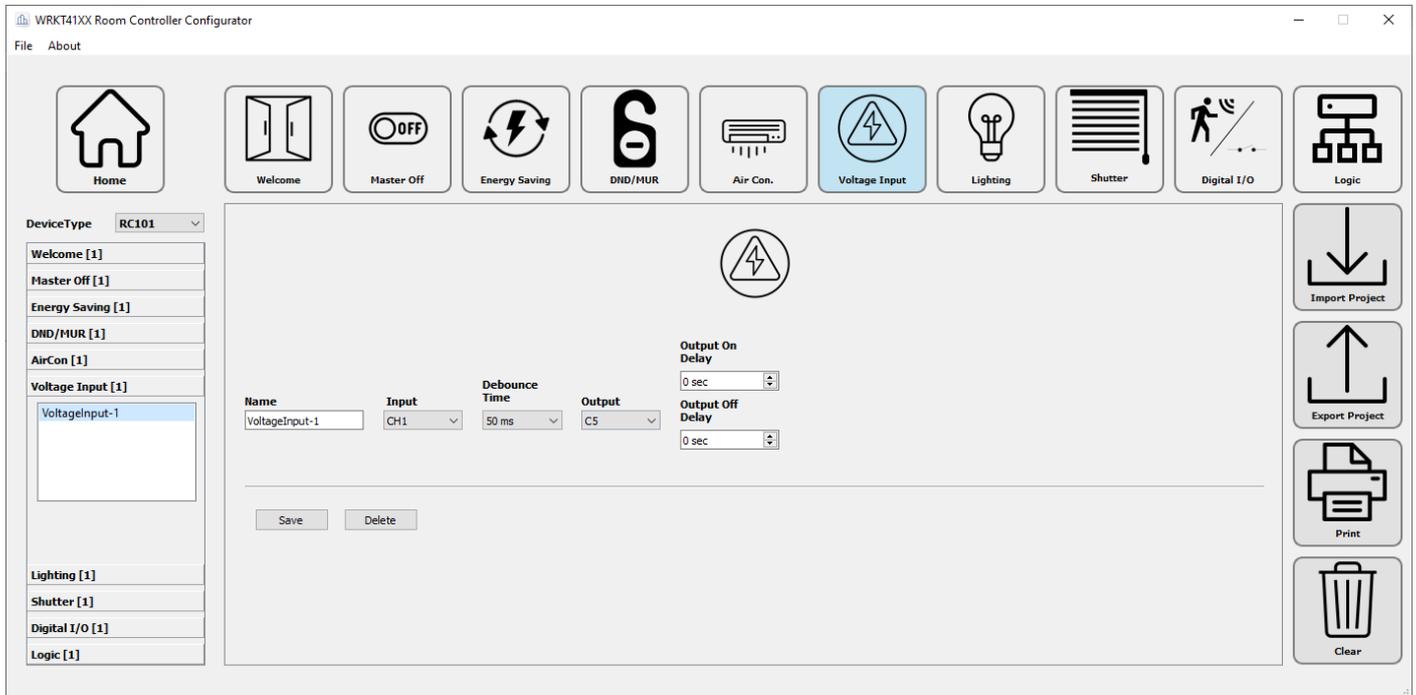


Figure 17 Room Controller Configurator Voltage Input Page

### 6.6.1 Voltage Input Parameters

Name	Values	Description
Function name		The user can give the Voltage Input function a name for documentation purposes.  This parameter value has no effect on the function work.
Input	CH1 CH2	Wide range (10-230V) voltage inputs are reserved on the hardware (CH1, CH2). A different input cannot be selected.
Debounce time	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.

---

Output	C1 C2 C3 C4 C5 C6 C7 C8	The user can use one of the general purpose outputs. Selected output becomes active when Voltage input is detected.
Output On Delay	0 – 999999 seconds	This parameter enables a delay before activation.
Output Off Delay	0 – 999999 seconds	This parameter enables a delay before passivation.

## 6.7 Lighting Page

This function manages the working type of the Lighting Control.

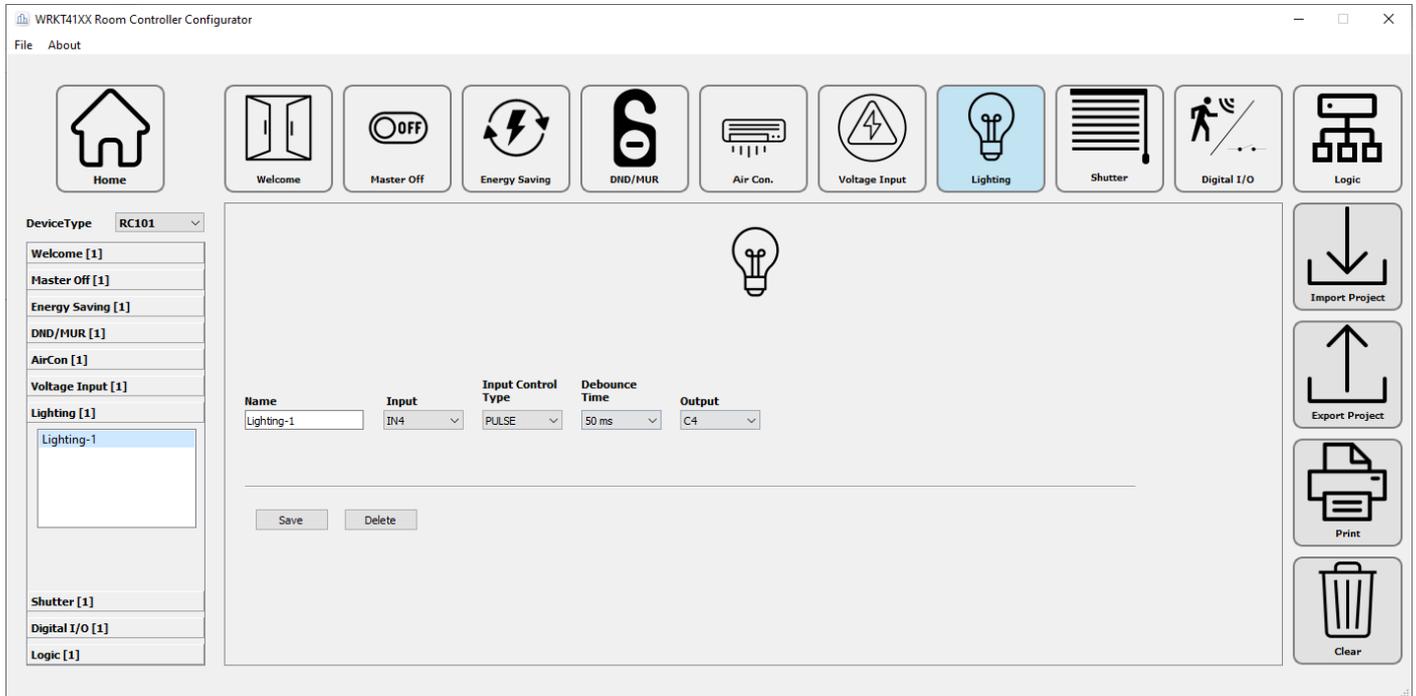


Figure 18 Room Controller Configurator Lighting Page

### 6.7.1 Lighting Parameters

Name	Values	Description
Function name		The user can give the Lighting function a name for documentation purposes. This parameter value has no effect on the function work.
Input	IN1 IN2 IN3, IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Input.

Input Control Type	ON/OFF PULSE	<p>This parameter defines the control type of the input.</p> <p>“ON/OFF” control type has 2 state. In one state the input is active and in the other state the input is passive.</p> <p>With the “PULSE” control type, when pressed once, it turns passive if the input is active and active if it is passive.</p>
Debounce time	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
Output	C1 C2 C3 C4 C5 C6 C7 C8	<p>The user can use one of the general purpose outputs. Selected output becomes active when input is detected.</p>

## 6.8 Shutter Page

This function manages the working type of the Shutter (AC).

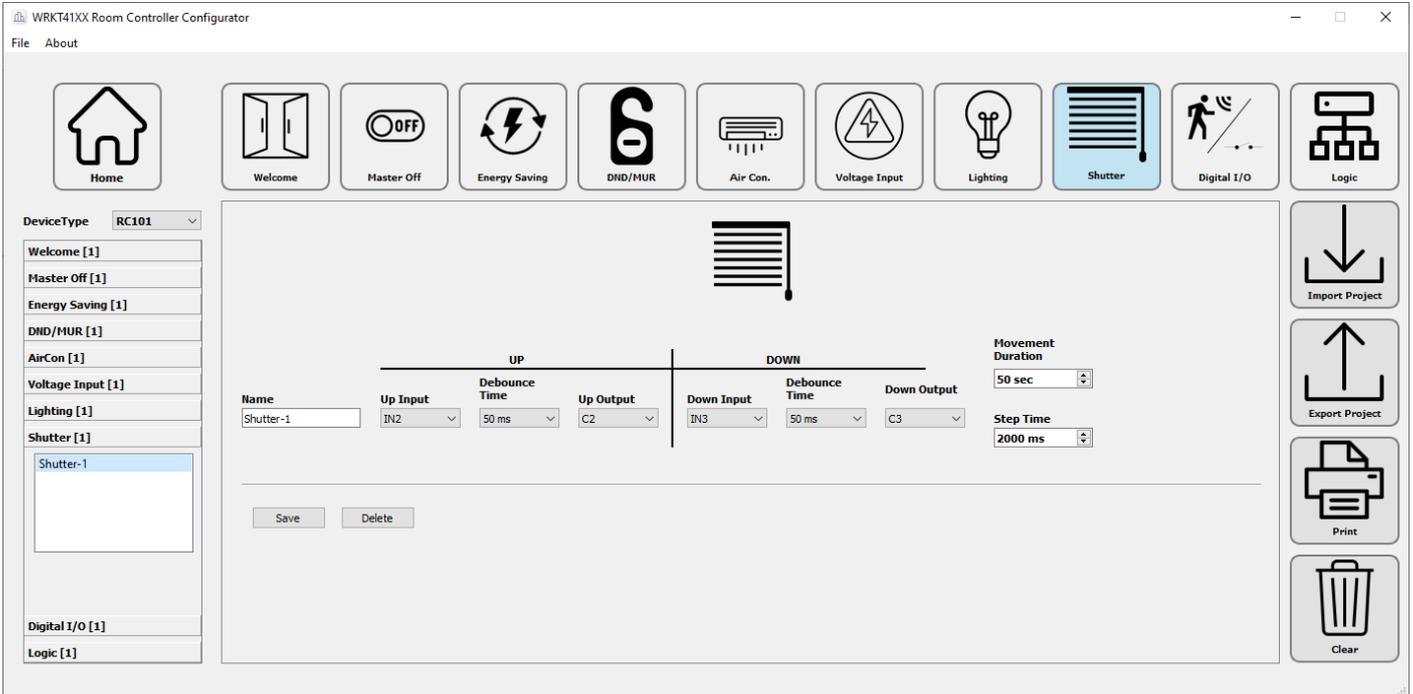


Figure 19 Room Controller Configurator Shutter Page

### 6.8.1 Shutter Parameters

Name	Values	Description
Function name		The user can give the Shutter function a name for documentation purposes. This parameter value has no effect on the function work.
UP Input	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for shutter's up input.

<p>Debounce time (UP)</p>	<p>20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms</p>	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
<p>UP Output</p>	<p>C1 C2 C3 C4 C5 C6 C7 C8</p>	<p>The user can use one of the general purpose outputs for shutter's up output.</p>
<p>DOWN Input</p>	<p>IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13</p>	<p>The user must be select one of the general purpose inputs for shutter's down input.</p>
<p>Debounce time (DOWN)</p>	<p>20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms</p>	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
<p>DOWN Output</p>	<p>C1 C2 C3 C4 C5 C6 C7 C8</p>	<p>The user can use one of the general purpose outputs for shutter's down output.</p>

---

Movement Duration	5 – 99 seconds	This parameter enables the duration the shutter will work after long pressing(More than 1-sec) the up input or down input.
Step Time	300 – 9999 milliseconds	This parameter enables the time the shutter will work after short pressing (Less than 1-sec) the up input or down input.

## 6.9 Digital I/O Page

This function manages the working type of the Digital I/O control.

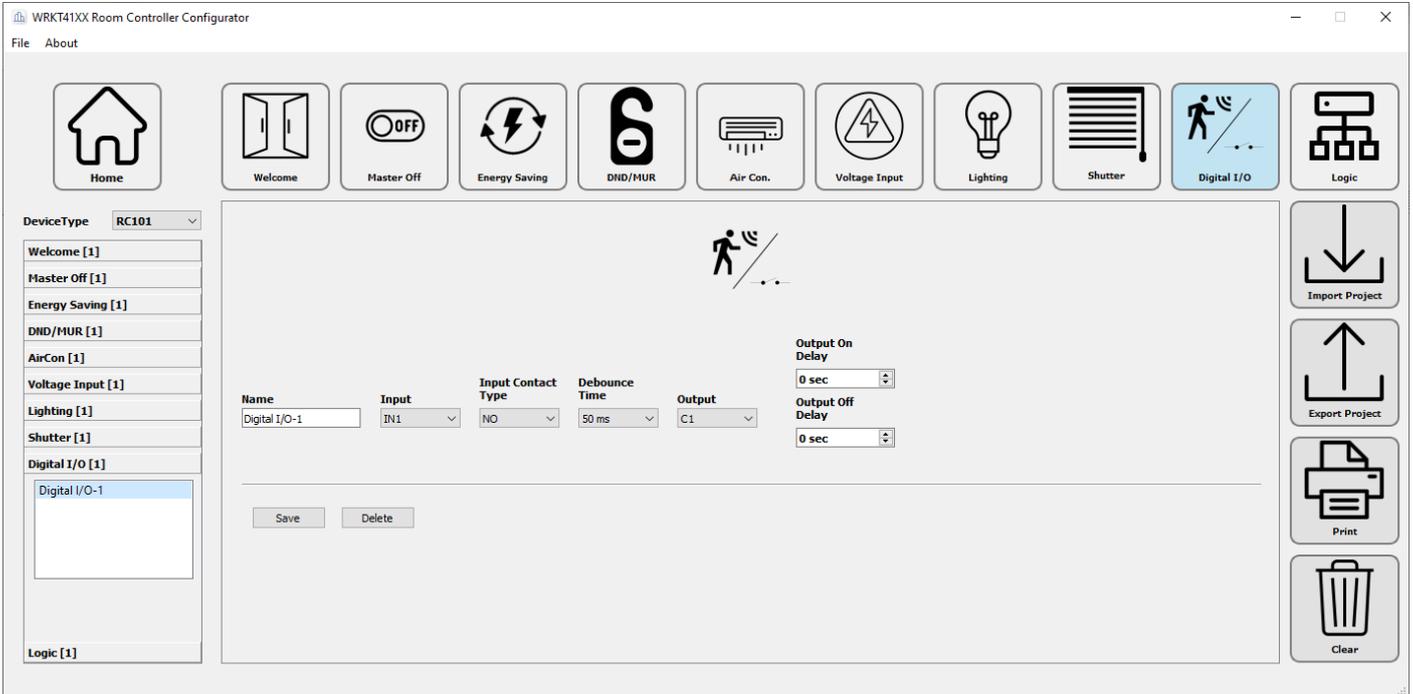


Figure 20 Room Controller Configurator Digital I/O Page

### 6.9.1 Digital I/O Parameters

Name	Values	Description
Function name		The user can give the Digital I/O function a name for documentation purposes.  This parameter value has no effect on the function work.
Input	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for shutter’s down input.
Debounce time	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.

	150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.
Contact Type	NO NC	This parameter defines the contact type of the input. With "NO" contact type, in the normal status contacts are open circuit. System will be active when the contact is short circuit. With "NC" contact type, in the normal status contacts are short circuit. System will be active when the contact are open circuit.
Output	C1 C2 C3 C4 C5 C6 C7 C8	The user can use one of the general purpose outputs. Selected output becomes active when input is detected.
Output On Delay	0 – 999999 seconds	This parameter enables a delay before activation.
Output Off Delay	0 – 999999 seconds	This parameter enables a delay before passivation.

## 6.10 Logic Page

This function manages the working type of the Logical operations.

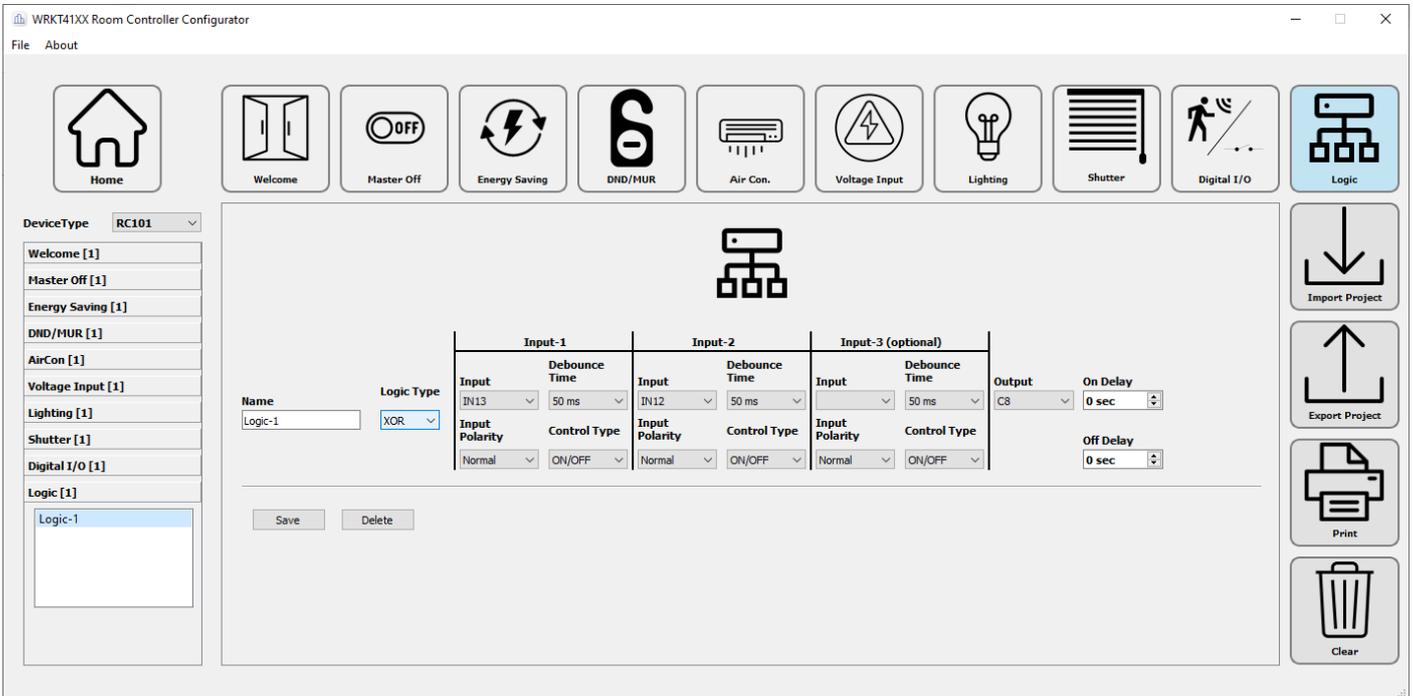


Figure 21 Room Controller Configurator Logic Page

### 6.10.1 Logic Parameters

Name	Values	Description
Function name		<p>The user can give the Logic function a name for documentation purposes.</p> <p>This parameter value has no effect on the function work.</p>
Logic Type	<p>AND</p> <p>OR</p> <p>XOR</p> <p>NAND</p> <p>NOR</p> <p>NXOR</p>	<p>This parameter defines the type of the logic gate.</p> <p>AND: activates its output only if all its inputs are Active.</p> <p>OR: activates its output if one or more of its inputs are active.</p> <p>XOR: activates its output when the number of active inputs is odd.</p> <p>NAND: activates its output if any of the inputs are passive.</p> <p>NOR: passives its output only if all its inputs are active.</p> <p>NXOR: activates its output when the number of active inputs is even.</p>

Input 1	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Logic Input.
Debounce time (for Input 1)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>
Input 1 Polarity	Normal Inverted	It is used to invert the input activation status.
Input 1 Control Type	ON/OFF PULSE	<p>This parameter defines the control type of the input.</p> <p>“ON/OFF” control type has 2 state. In one state the input is active and in the other state the input is passive.</p> <p>With the “PULSE” control type, when pressed once, it turns passive if the input is active and active if it is passive.</p>
Input 2	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Logic Input.
Debounce time (for Input 2)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms	<p>When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.</p> <p>With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.</p>

	750 ms 1000 ms 2000 ms 3000 ms	
Input 2 Polarity	Normal Inverted	It is used to invert the input activation status.
Input 2 Control Type	ON/OFF PULSE	This parameter defines the control type of the input.  “ON/OFF” control type has 2 state. In one state the input is active and in the other state the input is passive.  With the “PULSE” control type, when pressed once, it turns passive if the input is active and active if it is passive.
Input 3	IN1 IN2 IN3 IN4 IN5 IN6 IN7 IN8 IN9 IN10 IN11 IN12 IN13	The user must be select one of the general purpose inputs for Logic Input.
Debounce time (for Input 3)	20 ms 30 ms 40 ms 50 ms 75 ms 100 ms 150 ms 250 ms 500 ms 750 ms 1000 ms 2000 ms 3000 ms	When a mechanical switch is switched it bounces between in-contact and not in-contact states for several milliseconds. Without a debounce filter the device will recognize this behavior as multiple switching events not a single one.  With this parameter, the user can define the debounce time of the debounce filter that is used to prevent the bouncing effect. An input signal will be taken into account only if it persists on the terminal for more than the debounce time without interruption.
Input 3 Polarity	Normal Inverted	It is used to invert the input activation status.
Input 3 Control Type	ON/OFF PULSE	This parameter defines the control type of the input.  “ON/OFF” control type has 2 state. In one state the input is active and in the other state the input is passive.  With the “PULSE” control type, when pressed once, it turns passive if the input is active and active if it is passive.

---

Output	C1 C2 C3 C4 C5 C6 C7 C8	The user can use one of the general purpose outputs. Selected output becomes active when logic operation is true.
On Delay	0 – 999999 seconds	This parameter enables a delay before activation.
Off Delay	0 – 999999 seconds	This parameter enables a delay before passivation.

## 6.11 File Operations

The File Operation icons can be performed are marked as shown in Figure 21.

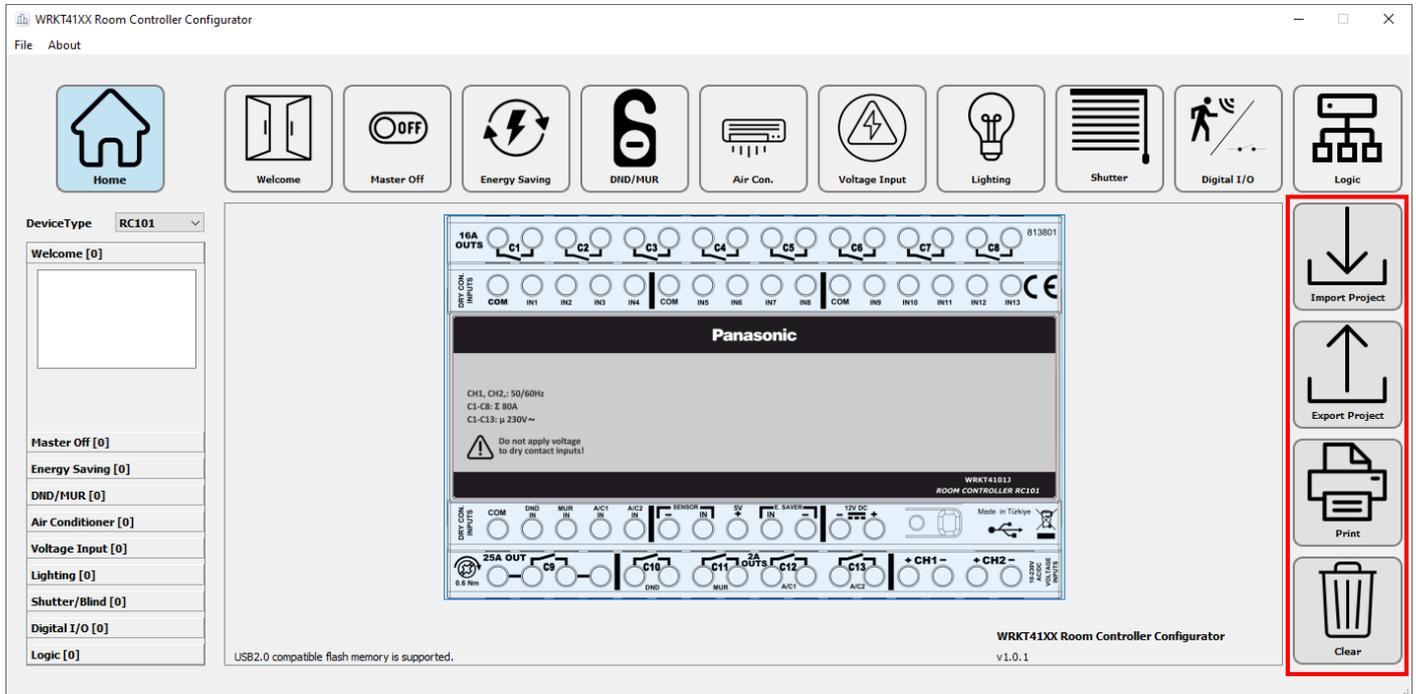


Figure 21 Room Controller Configurator File Operations

### 6.11.1 Import Project

There are “Import Project” icon where can be import previously saved configurations.

Configurations are imported by selecting the previously saved “config.rccfg” file.

It can be saved again by making changes on the functions. Or the desired functions can be deleted.

### 6.11.2 Export Project

There are “Export Project” icon where the functions that have been saved can be exported.

When the project exported, “config.rccfg” and “config.table.pdf” files are created in the specified location. Configurations can be imported into the Room Controller Configurator or uploaded to the device with the file “config.rccfg”.

The summary of the configuration created with the "config.table.pdf" file is taken as pdf.

### **6.11.3 Print**

There are “Print” icon where can be get a print the summary of the saved configuration.

### **6.11.4 Clear**

There are “Clear” icon where can be deleted whole configuration that have been saved and reset to their initial settings.

## 7 Some Examples of Typical Applications

### 7.1 Controlling I/Os

#### 7.1.1 Controlling with Panasonic Card Holder

Room Controller Modules have voltage output port can be used to supply one of the supported energy saving (Card Holder) devices. In this example, Panasonic Card Holder is connected to Room Controller Module and its power is supplied from device as described in “2.7.2 Card Holder Connection” section.

Room Controller Module is programmed to turn on the output C1 when a card is inserted into the card holder. The output C1 is turned off after 1 minute from removing the card from the card holder.

More device functions can be programmed to do some actions when the card is inserted or removed.

Used devices	Panasonic Energy Saver Card Reader SW (Wxxx0582) Room Controller RC100 (WRKT4100J5NC)
Room Controller Configurator Energy Saving parameters	<ul style="list-style-type: none"> <li>• Card Holder: Enable/Disable [✓]</li> <li>• Card Holder Debounce Time: 50ms</li> <li>• Card Holder Control Type: ON/OFF</li> <li>• Card Holder Contact Type: NO</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 60 sec</li> </ul>
Room Controller Configurator Digital I/O parameters	<ul style="list-style-type: none"> <li>• Input: IN1</li> <li>• Input Contact Type: NC</li> <li>• Debounce Time: 50ms</li> <li>• Output: C1</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 0 sec</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

### 7.1.2 Controlling with Presence Algorithm

Room Controller Modules have voltage output port can be used to supply one of the supported Motion Sensors. In this example, Motion Sensor is connected to Room Controller Module and its power is supplied from Room Controller.

Room Controller Module is programmed to turn on the output C1 when a presence is detected into the room. The output C1 is turned off after 1 minute from a presence is not detected into the room. It is decided that there is presence in the room as follows:

- If the door is closed;
  - a. if motion is detected\* only one time, presence is detected,
  - b. If motion is not detected, presence is not detected.
- Else if the door is opened;
  - a. If motion is detected, presence is detected,
  - b. Else if motion is not detected, presence is not detected.

More device functions can be programmed to do some actions when the presence is detected or not detected.

Used devices	Motion Sensor** connected to SENSOR Port Room Controller RC100 (WRKT4100J5NC)
Room Controller Configurator Energy Saving parameters	<ul style="list-style-type: none"> <li>• Presence Sensor: Enable/Disable [✓]</li> <li>• Motion Sensor Input: SENSOR IN</li> <li>• Motion Sensor Debounce Time: 50ms</li> <li>• Door Sensor Input: IN9</li> <li>• Door Sensor Debounce Time: 50ms</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 60 sec</li> </ul>
Room Controller Configurator Digital I/O parameters	<ul style="list-style-type: none"> <li>• Input: IN1</li> <li>• Input Contact Type: NC</li> <li>• Debounce Time: 50ms</li> <li>• Output: C1</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 0 sec</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

\* It is also considered as motion detection when any key is pressed in the room.

\*\* Motion sensor working with 5V directly or motion sensor with dry contact output can be connected. Please refer to section 2.7.4

### 7.1.3 Controlling with Panasonic Card Holder + Presence Algorithm

In this example, Energy Saver (Card Holder) and Motion Sensor is connected to Room Controller Module and its power is supplied from Room Controller.

The Digital I/O function is controlled by using combination of card holder and presence detection. When a presence is detected in the room while the card is inserted, the Digital I/O function is controlled. The Digital I/O function is not controlled after 1 minute when there is no presence in the room or the card is ejected.

More device functions can be programmed to do some actions using the Panasonic Card Holder + Presence Algorithm.

Used devices	Panasonic Energy Saver Card Reader SW (Wxxx0582) Motion Sensor* connected to SENSOR Port Room Controller RC100 (WRKT4100J5NC)
Room Controller Configurator Energy Saving parameters	<ul style="list-style-type: none"> <li>• Presence Sensor: Enable/Disable [✓]</li> <li>• Motion Sensor Input: SENSOR IN</li> <li>• Motion Sensor Debounce Time: 50ms</li> <li>• Door Sensor Input: IN9</li> <li>• Door Sensor Debounce Time: 50ms</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 60 sec</li> </ul>
Room Controller Configurator Digital I/O parameters	<ul style="list-style-type: none"> <li>• Input: IN1</li> <li>• Input Contact Type: NC</li> <li>• Debounce Time: 50ms</li> <li>• Output: C1</li> <li>• Power On Delay: 0 sec</li> <li>• Power Off Delay: 0 sec</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

\* Motion sensor working with 5V directly or motion sensor with dry contact output can be connected. Please refer to section 2.7.4

## 7.2 Controlling Blinds with Dry Contact Inputs

In this example, two push buttons are used to move the blinds up and down. One of the button is used for up movement and the other for down movement.

With long press, moves the blind up or down during the movement duration. With short press, moves the blind up or down during the step time. While moving, a short press on any button stops the blind. While moving, a long press on other direction button moves the blinds reverse direction during the movement duration after Time delay at change of direction (500 ms).

Used devices	Room Controller Module RC101 (WRKT4101J5NC) with push buttons connected to IN1 and IN2 and blind connected to C1 and C2
Room Controller Configurator Shutter parameters	<ul style="list-style-type: none"> <li>• Up Input: IN1</li> <li>• Up Input Debounce Time: 50ms</li> <li>• Up Output: C1</li> <li>• Down Input: IN2</li> <li>• Down Debounce Time: 50ms</li> <li>• Down Output: C2</li>   <li>• Movement Duration: 50 sec</li> <li>• Step Time: 2000 ms</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

## 7.3 Controlling Air Condition Function

If sensors are not used in the air conditioner control, it will be On when the room is energized, otherwise Off.

### 7.3.1 Controlling with Balcony Sensor

In this example, balcony sensor is connected to Room Controller Module's one of the inputs reserved for A/C IN channels. These sensor is used to indicate when a window is opened to stop the heating/cooling system. A window sensor closes its contacts when the window is closed and opens them when the window is open.

Room Controller Module is programmed to turns on air conditioner if window is closed. It turns off the air conditioner after AirCon Off Delay (60 sec) if window is opened.

Used devices	Room Controller Module RC101 (WRKT4101J5NC) with window sensor connected to A/C1 IN.
Room Controller Configurator Air Con. parameters	<ul style="list-style-type: none"> <li>• Balcony Sensor: Enable/Disable [✓]</li> <li>• Balcony Sensor Input: AIR C. IN1</li> <li>• Input Contact Type: NO</li> <li>• Debounce Time: 50ms</li>   <li>• Output: AIR CON1</li> <li>• Output Control Type: ON/OFF</li> <li>• Output Contact Type: NO</li>   <li>• AirCon On Delay: 0 sec</li> <li>• AirCon Off Delay: 60 sec</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

### 7.3.2 Controlling with Balcony Sensor + Motion Sensor

In this example, balcony sensor is connected to Room Controller Module's one off the inputs reserved for A/C IN channels and Motion Sensor is connected to Room Controller Module. Motion sensor's power is supplied from Room Controller.

The Air Conditioner is controlled by using combination of balcony sensor and motion sensor. When the Balcony Door is closed and motion is detected in the room, the air conditioner is turned on. When the Balcony Door is opened, the air conditioner is turned off after AirCon Off Delay (60 sec).

Used devices	Room Controller Module RC101 (WRKT4101J5NC) with window sensor connected to A/C1 IN. Motion Sensor* connected to SENSOR Port
Room Controller Configurator Air Con. parameters	<ul style="list-style-type: none"> <li>• Balcony Sensor: Enable/Disable [✓]</li> <li>• Balcony Sensor Input: AIR C. IN1</li> <li>• Input Contact Type: NO</li> <li>• Debounce Time: 50ms</li>   <li>• Motion Sensor: Enable/Disable [✓]</li> <li>• Sensor Input: SENSOR IN</li> <li>• Debounce Time: 50ms</li>   <li>• Output: AIR CON1</li> <li>• Output Control Type: ON/OFF</li> <li>• Output Contact Type: NO</li>   <li>• AirCon On Delay: 0 sec</li> <li>• AirCon Off Delay: 60 sec</li> </ul>
	The unmentioned parameters can be the default or user defined parameters

\* Motion sensor working with 5V directly or motion sensor with dry contact output can be connected. Please refer to section 2.7.4

## 7.4 Controlling Master Off Function with Dry Contact Input

In this example, a push button is used to master off the selected output channels. This push button has a Feedback LED. Feedback LED is connected to general purpose output C8.

Room Controller Module is programmed to turn off all selected output channels (C1, C2) when “Master Off” button is pressed. Then, output is turns on again when the input is detected which associated with the output.

Used devices	Room Controller Module RC101 (WRKT4101J5NC)
Room Controller Configurator Master Off parameters	<ul style="list-style-type: none"> <li>• Master Off Input: IN13</li> <li>• Debounce Time: 50ms</li> <li>• Feedback LED Output: C8</li> <li>• Outputs to be controlled with master off button</li> <li>• Output C1 [✓]</li> <li>• Output C2 [✓]</li> </ul>
Room Controller Configurator Lighting -1 parameters	<ul style="list-style-type: none"> <li>• Input: IN1</li> <li>• Input Control Type: PULSE</li> <li>• Debounce Time: 50ms</li> <li>• Output: C1</li> </ul>
Room Controller Configurator Lighting -2 parameters	<ul style="list-style-type: none"> <li>• Input: IN2</li> <li>• Input Control Type: PULSE</li> <li>• Debounce Time: 50ms</li> <li>• Output: C2</li> </ul>
	The unmentioned parameters can be the default or user defined parameters