

PAU05

Z-Wave Range Extender Repeater



Introduction

The Range Extender Repeater is a Z-Wave™ enabled device (interoperable, two-way RF mesh networking technology) and is fully compatible with any Z-Wave™ enabled network. Every main powered Z-Wave enabled device acts as a signal repeater and multiple devices result in more possible transmission routes which helps eliminate “RF dead-spots” Z-Wave™ enabled devices displaying the Z-Wave™ logo can also be used with it regardless of the manufacturer, and ours can also be used in other manufacturer’s Z-Wave™ enabled networks. The product supports Over The Air(OTA) feature for the products firmware upgrade.

Specifications

Operating Voltage	DC5V/1A (USB Type A)
Operating Temperature	-10°C - 55°C (85% humidity)
Storage Temperature	-20 C - 60°C
RF Range (distance)	Minimum 40M in door and 100M in outdoor, line of sight
Frequency Range	868.40MHz; 869.85MHz (EU) 908.40MHz; 916.00MHz (US) 916.00 MHz (IL), (Israel), (PAU05-IL) 922~927MHz (Japan) 920~924MHz (Taiwan; Korea) 865.20 MHz (IN), 869.00 MHz (RU), 921.40 MHz, 919.80 MHz (ANZ),
RF Power	+5dBm (peak), -10dBm (Average)
Location	indoor use only
FCC ID	RHHPAU05

**** Specifications are subject to change and improvement without notice.**

Troubleshooting

Symptom	Cause of Failure	Recommendation
The device can not join to Z-Wave™ network	The device may in a Z-Wave™ network.	Exclude the device then include again.

For Instruction to [http:// www.philio-tech.com](http://www.philio-tech.com)



Overview



Adding to Z-Wave™ Network

This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

The table below lists an operation summary of basic Z-Wave functions. Please refer to the instructions for your Z-Wave™ Certificated Primary Controller to access the Setup function, and to Add/Remove/associate devices

Function	Description	Annotation
No node ID	The Z-Wave Controller does not allocate a node ID to the Switch.	LED 2-second on, 2-second off (Blue LED)
Add (Inclusion)	1. Put your Z-Wave controller into inclusion mode by following the instructions provided by the controller manufacturer.	
	2. Pressing Include button of PAU05 three times within 2 seconds will enter inclusion mode.	
Remove (Exclusion)	1. Put your Z-Wave controller into exclusion mode by following the instructions provided by the controller manufacturer.	
	2. Pressing Include button of PAU05 three times within 2 seconds will enter exclusion mode.	
	3. Node ID has been excluded.	
Reset	1. Pressing Include button of PAU05 three times within 2 seconds will enter inclusion mode.	Use this procedure only in the event that the primary controller is lost or otherwise inoperable.
	2. Within 1 second, press Include button of PAU05 again for 5 seconds.	
	3. IDs are excluded.	

SmartStart	<p>1.Product has a DSK string, you can key in first five digit to increment smart start process, or you can scan QR code.</p> <p>2.SmartStart enabled products 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.</p> <p>*notice1:The QR code can be found on the device PAU05 or in the box.</p>	
Association	<p>1. The PAU05 is an always listening Z-Wave device, so associations may be added or removed by a controller at any time. Or If your controller requires to have the PAU05 send a 'node information frame' or NIF for associations, then pressing the On/Off button three times within 2 seconds will cause the PAU05 to send its NIF.</p> <p>Note: The device support 1 groups. The group 1 is for receiving the report message etc. A group one support 5 nodes maximum.</p>	
<p>※Adding a node ID allocated by Z-Wave Controller means inclusion. Removing a node ID allocated by Z-Wave Controller means exclusion.</p> <p>※Failed or success in including/excluding the node ID can be viewed from the Z-Wave Controller.</p>		

LED Indication

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

State Type	LED Indication
Normal	When the power is turned on, its LED is always on. (Blue LED)
No node ID	Under normal operation, when the Switch has not been allocated a node ID,

	the blue LED flashes on and off alternately at 2-second intervals. By pressing On/Off button, it will stop flashing temporarily.
Learning	When PAU05 is in learning mode, blue LED flashes on and off alternately and repeatedly at 2 second intervals.

Programming

1.Network health

Press the button once to enter the network health test. According to the test results, the LED light will flash three times. LED color meaning is as follows:

LED color	Description
Green	Network health is good.
Yellow	Network health is acceptable but latency can be observed occasionally.
Red	Network health is insufficient because frames are dropped.

2. Z-Wave's Configuration

Configuration Parameter	Function	Size (Byte)	Value	Unit	Default	Description
1	LED mode (Blue LED)	1	0-1		0	0: LED on 1: LED off

2 LED mode (Blue LED):

Whenever the AC power return from lost, PAU05 will restore the LED mode which could be LED off \ LED on. The default setting is LED on.

3. Firmware update over the air (OTA)

PAU05 is based on 500 series SoC and supports Firmware Update Command Class, it can receives the updated firmware image sent by controller via the Z-wave RF media. It is a helpful and convenient way to improve some function if needed.

Command Classes

The Repeater supports Command Classes including...

Command Class	Version	Required Security Class
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Z-Wave Plus Info	2	None
Version	3	Highest granted Security Class
Manufacturer Specific	2	Highest granted Security Class
Security 2	1	None
Device Reset Locally	1	Highest granted Security Class
Association	2	Highest granted Security Class
Association Group Information	1	Highest granted Security Class
Powerlevel	1	Highest granted Security Class
Configuration	1	Highest granted Security Class
Firmware Update Meta Data	4	Highest granted Security Class
Supervision	1	None
Transport Service	2	None

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Disposal



This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

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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 at least for free of charge.