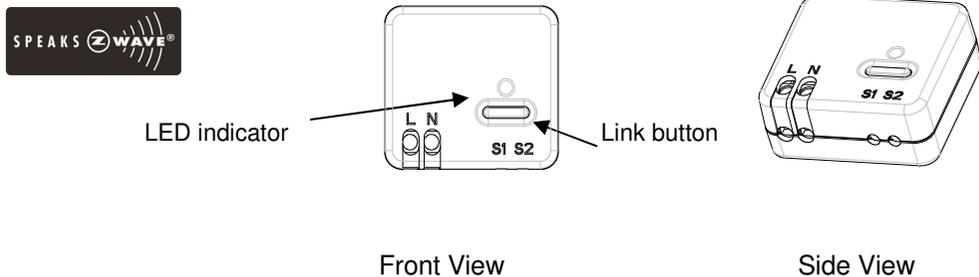


# HAC01 IN-WALL REMOTE MODULE

This in-wall remote module is a transceiver which is a Z-Wave™ enabled device and is fully compatible with any Z-Wave™ enabled network. Mini size design let the module can easily put into the wall box and still have enough space to install the traditional wall switch. There are many application for the module , one application is connect the 2 wire of manual switch input to most of the wall switch sell in the market , while the connected wall switch been switched ON or OFF , the module will send the correspond signal to the associated devices like Z-Wave switch module HAN01 or any Z-Wave ON/OFF or dimmer module . Another application is connect this module to any traditional wire sensor which has NC/NO manual switch input output, and this will easily convert those wire sensors into wireless Z-wave sensors. With the external antenna let this module have excellent communicate RF range, and this will let the module not only send signal to the associated device by itself easily but also act as a good routing node in the z-wave mesh network.

## Adding to Z-Wave™ Network

In the front casing, there is a link button with LED indicator which is used to carry out inclusion, exclusion, reset or association.



When first power is applied, the 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 Z-Wave enabled devices. Please get familiar with the terms below before starting the operations.

Function	Description
Inclusion	Add a Z-Wave enabled device to the existed Z-Wave network.

Exclusion	Delete a Z-Wave enabled device from the connected network.
Association	After inclusion, you have to define the relationship between devices. Through association, device can be assigned as master or slave, and specify which slave is going to be controlled by which master.
Reset	Restore the device to factory default.

## Auto Inclusion

The function of auto inclusion will be executed as long as the Module does not have node ID when the first power is applied.

After node ID has been linked, auto inclusion will run automatically after the execution of exclusion/reset is successful.

**Note:** Auto inclusion lasts for 4 minute or until the execution of inclusion is completed during which the node information of explorer frame 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 link button on the Module.

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 include/exclude/associate devices.

Function	Description	LED Indication
No node ID	After power is applied, if the module does not record a node ID provided by controller.	2-second on, 2-second off
Inclusion	1. Have Z-Wave remote module entered inclusion mode.	When press on the link button one time, LED blinks for 0.5 sec. and then off
	2. Pressing link button three times within 1.5 seconds will enter inclusion mode.	
Exclusion	1. Have Z-Wave remote module entered exclusion mode.	When press on the link button one time, LED blinks for 0.5 sec. and then off
	2. Pressing link button three times within 1.5 seconds will enter exclusion mode.	
	Node ID has been excluded successfully.	2-second on, 2-second off

Reset	1. Pressing link button three times within 1.5 seconds .	When press on the link button one time, LED blinks for 0.5 sec. and then off
	2. Within 1 second, press link button and hold on until LED is off.	
	3. Home ID and node ID will be cleared and reset to factory default.	2-second on, 2-second off
Association	Have Z-Wave remote module entered association mode first.	When press on the link button one time, LED blinks for 0.5 sec. and then off
	Pressing link button three times within 1.5 seconds will enter association mode	

## LED Indication

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

State Type	LED Indication
Normal	Under normal operation with node ID, when manual switch input from open (NO) to short(NC) or from short(NC) to open(NO), the LED would blink for 0.5 second and then go off.
No node ID	Under normal operation but without allocated node ID, the LED flashes on and off alternately at 2-second intervals.

## Programming

### 1. Z-Wave's Grouping Feature (Association Command Class Ver 1)

The remote module supports association with maximum 5 node for Grouping 1. Grouping 1 supports BASIC\_SET  
When the manual switch input is from NC to NO or from NO to NC, HAC01 would send Basic Set Command to the nodes in Grouping 1 to On or Off the controlled device.

Basic Set Command :

Manual switch input at NC	Command Class Basic, Basic Set, Value = 0xFF(255)
Manual switch input at NO	Command Class Basic, Basic Set, Value = 0x00(0)

## 2. Z-Wave's Configuration

### 2-1. Basic Set Level

The Basic Set Command is sent with value to have the receiving device recognize the value for controlled level, for example, if the Basic Set Command sent to dimmer with value, the dimmer would activate the luminance according to the value,

0 : Off

1 – 99 : On (Binary Switch Device)

Dim Level (Multilevel Switch Device)

Configuration Command

Function	Parameter Number	Size	Range	Default
Basic Set Level	1	1	0 ~ 99	99

### 2-2. Amount Of Delay (seconds)

This is applied to determine the delay time setting to send the Basic Set Off command when the manual switch input at NO (open).

Example :

0 : immediately Off

1 – 127 : delay 1 ~ 127 second to Off

Configuration command

Function	Parameter Number	Size	Range	Default
Amount of delay	2	1	0 ~ 127	1

### 3. Supported Command Classes In Brief :

COMMAND\_CLASS\_SWITCH\_BINARY  
COMMAND\_CLASS\_BASIC  
COMMAND\_CLASS\_CONFIGURATION  
COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC  
COMMAND\_CLASS\_VERSION  
COMMAND\_CLASS\_ASSOCIATION\_V1

## Choosing a Suitable Location

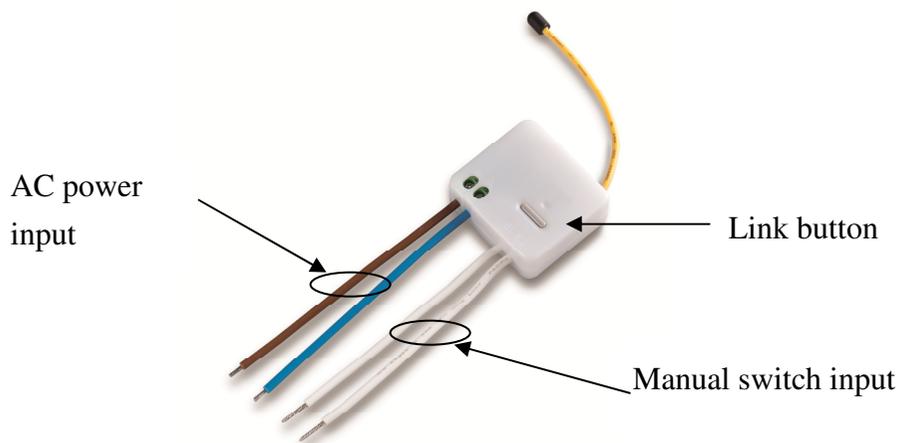
1. Do not locate the Module facing direct sunlight, humid or dusty place.

- AC input : AC220~240V/50Hz Europe Australia AC100~120V/60Hz US
- The suitable ambient temperature for the Module is 0°C~40°C.
- Do not locate the Module where exists combustibles 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

**Note:** Please note that it is a must to call for a licensed electrician for installation.

Install this Module into a wall box of which wiring connection is shown hereunder:



HAC01 can be installed into the in-wall power box, the power cord have to be connected to the main AC power, the manual switch input cable is wired to normal NO (open) / NC (close) button or switch. When the wiring connection is completed, please follow the previous instruction to operate the Inclusion and Association process to finish HAC01's connection and network setting with controlled device (ex. HAN01).

## Troubleshooting

Symptom	Cause of Failure	Recommendation
The Module not working and LED off	1. Improper wiring connection	1. Check power connections 2. Don't open up the Module and

	2. The Module break down	send it for repair.
The Module LED illuminating, but cannot control the ON/OFF Switch of the load attached	Check if the load connected to the Module has its own ON/OFF switch	Set the ON/OFF switch of the load connected to ON
The Module LED illuminating, but the Detector cannot control the Module	1. Not carry out association 2. Same frequency interference	1. Carry out association 2. Wait for a while to re-try

## Specification

Power Input	AC 100~240 V/50~60Hz AC220~240V/50Hz Europe Australia AC100~120V/60Hz US
RF Operation Range	Minimum 30 m indoor line of sight
Operating Temperature	0°C ~ 40°C
Frequency Range	868.42 MHz Europe 908.42MHz US 921.42MHz Australia

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



## Model number information

**HAC01-0 US 908.42MHz**  
**HAC01-1 Europe 868.42MHz**  
**HAC01-2 Australia 921.42MHz**

## 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 ones, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.