Installation Guide

Input & Output Switch
(DIO-52-ZBS)

NookBox

Smart Home Security

Input & Output Switch
(DIO-52-ZBS)

DIO-50 is a ZigBee Input and Output Switch. The switch has built-in Digital Input and Digital Output terminals which can be connected to sensor, switch, or devices to form Normal Open (N.O.) or Normal Close loop. When the Input terminal is triggered, the Switch will transmit signal via ZigBee network to inform the ZigBee network panel/coordinator; the Switch can also receive command signal via ZigBee network to turn on/off the Output terminal to control connected device.

The Switch utilizes ZigBee technology for wireless signal transmission. ZigBee is a wireless communication protocol that is reliable, has low power consumption and has high transmission efficiency. Based on the IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and coordinated for data exchange and signal transmission.

The Switch serves as an end device in the ZigBee network. It can be included in the ZigBee network to transmit or receive signal, but cannot permit any other ZigBee device to join the network through the Switch.

Parts Identification

1. Function Button / LED Indicator

Function Button

- Press once to send a supervision signal.
- Press and hold for 10 seconds until the LED flash once, then release to reset the Switch.

LED Indication

The LED indicator lights up in the following conditions:

- Flashes once:
When the user presses and holds the function button for 10 seconds, the LED will flash once to indicate that the button can be released for the Switch to join the ZigBee network.

- Flashes twice quickly:
The Switch has successfully joined a ZigBee network.

- Flashes once every 20 minutes:
The Switch has lost connection to its current ZigBee network.

2. Front Cover Hook

Press the hook to release front cover.

3. Output Jumper (JP2)

To set Normally Closed or Normally Open through Output jumper 2:
-Normally Closed (N.C): the jumper link is parked on both PIN1 and PIN2.
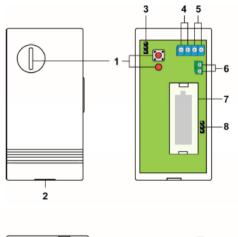-Normally Open (N.O): the jumper link is parked on both PIN2 and PIN3.
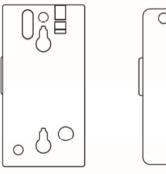
4. Ouput Terminal

Use Jumper 2 to set Normal Open (N.O.) or Normal Close (N.C.) for the device/switch connected to the terminal.

5. Input Terminal

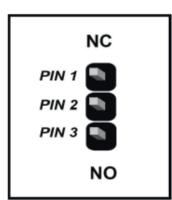Use Jumper 3 to set Normal Open (N.O.) or Normal Close (N.C.) for the device/switch connected to the terminal.

6. Power Terminal
7. Battery Compartment
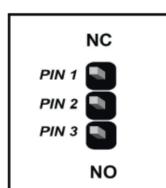## 8. Input Jumper (JP3)
9. Mounting Bracket

Features

Output Terminal:

The output terminal is controlled by the Control Panel; when the Switch receives on/off signal, it will turn on or off the output terminal accordingly. When jumper2 is set to N.C., sending an open/close signal from the Control Panel will open/close the loop. When jumper2 is set to N.O., sending an open/close signal from the Control Panel will close/open the loop.

Input Terminal:

When the device is triggered, the Switch will transmit a "close" signal back to the Control Panel whether jumper 3 is set to N.O or N.C.

<NOTE>

When the Input Jumper (JP3) needs to be changed from Normally Close (N.C.) to Normally Open (N.O.), it is not required to remove the battery or power down first.

Power Terminal:

The Switch uses two-wired 12DC adapter to power on when connected to the Power Terminal. When Power Terminal and battery are both in use, the Switch will only power through AC Adapter.

Battery and Low Battery Detection:

The Switch uses one CR2 3V Lithium battery as its power source. The Switch features Low Battery Detection function. When the battery voltage is low, the Switch will transmit Low Battery signal to the Control Panel to notify the user. When changing battery, after removing the old battery, press the Function Button twice to fully discharge before inserting new battery

Supervision:

The Switch will transmit a supervision signal to report its condition regularly according to user setting. The factory default interval is 30 minutes. The user can also press the Function Button once to transmit a supervision signal manually.

ZigBee Network Setup

ZigBee Device Guideline:

ZigBee is a wireless communication protocol that is reliable, has low power consumption and has high transmission efficiency. Based on the IEEE802.15.4 standard, ZigBee allows a large amount of devices to be included in a network and are coordinated for data exchange and signal transmission.

Joining the ZigBee Network:

As a ZigBee device, the Switch needs to join a ZigBee network to transmit signal when it is triggered. Please follow the steps below to add the Switch into the ZigBee network.

1. Use the two-wired 12DC adapter or insert battery to power on the Switch.

2. After powering up, press and hold the Function button for 10 seconds, then release it to join the network. Please make sure the permit-join feature on the router or coordinator of your ZigBee network is enabled.

3. If the Switch successfully joins a ZigBee network, the LED Indicator will flash twice to confirm.

4. After joining the ZigBee network, the Switch will be registered in the network automatically. Please check the ZigBee coordinator, system control panel or CIE (Control and Indicating Equipment) to confirm if joining and registration is successful.

5. After joining the ZigBee network, if the Switch loses connection to current ZigBee network, the LED will flash every 20 minutes to indicate. Please check your ZigBee network condition and Switch signal range to correct the situation.

Factory Reset:

If you want to remove the Switch from current network and join a new network, you need to use the Factory Reset function to clear the Switch for its stored setting and information first before it can join another network. To perform Factory Reset:

1. Press and hold the function button for 10 seconds then release.
2. The Switch has been reset to factory default setting with all its previous network information removed. It will now actively search for available ZigBee network again and join the network automatically.
3. If the Switch successfully joins a ZigBee network, the LED Indicator will flash twice to indicate.

Installation

The Switch can be installed on a flat surface. You can choose to mount the switch with or without bracket using screws or double-sided adhesive tape.

Without Bracket:

1. Remove the front cover. Use the mounting holes on the back cover as template to mark mounting location.
2. Screw the back cover onto marked location, drill holes and install wall plugs if required.
3. Replace the front cover.

With Bracket:

1. Use the mounting holes on the mounting bracket as template to mark mounting location.
2. Screw the mounting bracket onto marked location, drill holes and install wall plugs if required.
3. Hook the switch onto the hooks on the bracket and slide upward to secure.

Appendix

- ## *Cluster ID*

Device ID: DIO50 : 0x03F8	
Endpoint:0x01	
Server Side	**Client Side**
Mandatory	
Basic (0x0000)	Basic (0x0000)
Identify(0x0003)	
Groups(0x0004)	
Scenes(0x0005)	
On/Off(0x0006)	
IAS Zone(0x0500)	
Optional	
None	*None*

- ## *Attribute of Basic Cluster Information*

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*ZCLVersion*	Unsigned 8-bit integer	0x00 –0xff	Read only	0x01	M
0x0001	ApplicationVersion	Unsigned 8-bit integer	0x00 –0xff	Read only	0x00	O
0x0003	*HWVersion*	Unsigned 8-bit integer	0x00 –0xff	Read only	0	O
0x0004	*ManufacturerName*	Character String	0 – 32 bytes	Read only	Climax Technology	O
0x0005	*ModelIdentifier*	Character String	0 – 32 bytes	Read only	(Model Number)	O
0x0006	*DateCode*	Character String	0 – 16 bytes	Read only		O
0x0007	*PowerSource*	8-bit	0x00 –0xff	Read only		M
0x0010	*LocationDescription*	Character String	0 – 32 bytes	Read / Write		O
0x0011	*PhysicalEnvironment*	8-bit	0x00 –0xff	Read / Write	0x00	O
0x0012	*DeviceEnabled*	Boolean	0x00 –0x01	Read / Write	0x01	M

- ## *Attribute of Identify Cluster Information*

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*IdentifyTime*	Unsigned 16-bit integer	0x00 – 0xffff	Read / Write	0x0000	M

- ## *Attributes of the Groups cluster Information*

Identifier	Name	Type	Range	Access	Default	Mandatory / Optional
0x0000	*NameSupport*	8-bit bitmap	x0000000	Read only	-	M

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