Door Contact (DC-23-ZW / DC-23-R3-ZW)

Introduction

DC-23ZW series is a Z-Wave Door Contact. It is capable of sending wireless signals to the coordinator in the Z-Wave network upon detection of door/window opening.

The Door Contact is a Z-Wave enabled device and is fully compatible with any Z-Wave enabled network.

Z-Wave is a wireless communication protocol that uses a low-power RF radio. By taking advantage of the Z-Wave mesh network, commands can be transmitted to their destination via intermediary “listening” Z-Wave products.

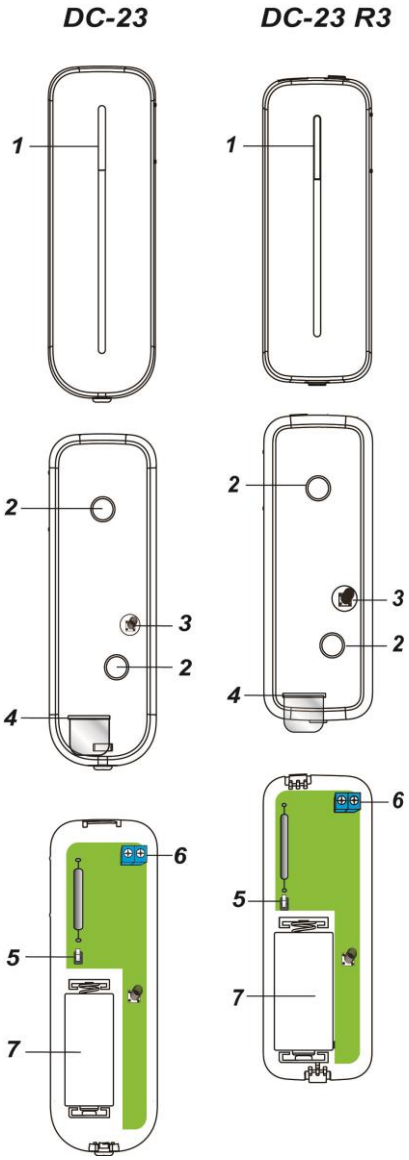
The Door Contact design consists of a cover and base. The cover contains all electronics and the base provides a means for fixing the device. An enclosed PCB tamper switch provides tamper protection against unauthorized device opening and/or removal.

The Door Contact includes the following models:

DC-23ZW: Door Contact cover is secured by a bottom fixing screw.

DC-23-R3-ZW: Door Contact cover is secured by two latches at top and bottom

Parts Identification



1. Function Button aka LED indicator

The Function Button also doubles as the LED Indicator. The function button is used to control the Door Contact. The LED indicator is used to indicate Door Contact status.

LED Indication:

The LED indicator lights up in the following conditions:

- Flashes once:
  The Door Contact is transmitting a signal.
- Flashes twice:

Function Button Usage:

- Press the button once to send a supervision signal.
- Press the button 3 times within 1.5 seconds to transmit a learn code.
- Press and hold the button for 10 seconds to factory reset

2. Mounting Holes

3. Tamper Switch

When Door Contact is mounted, the Tamper switch will be activated when the cover is opened or when the Door Contact is removed from mounted surface.

4. Battery Insulator

5. Reed Jumper Switch (JP1)

- Jumper ON: The Reed Switch is disabled, only the device connected to the Extension Terminal will activate the Door Contact.
- Jumper OFF: The Reed Switch is enabled.

Jumper On
The jumper link is inserted

Jumper Off
if the jumper link is removed or “**parked**” on one pin.

6. Extension Terminal

In addition to the built-in magnet switch, an additional 2-pin dry contact terminal is provided for an extension magnet switch or any device with N.C. (Normally Closed) functionality.

7. Battery Compartment

The Door Contact is powered by one CR123 3V Lithium battery

Features

● *Extension Terminal*

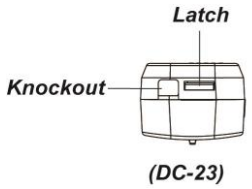
The Door Contact has an extension terminal to provide enhanced flexibility. The extension terminal forms a closed loop with the device connected to it. When the device is triggered the loop is opened, the Door Contact will also be triggered.

The extension terminal and the internal magnetic switch can function together to trigger the Door Contact when either of them is activated, you can also choose to disable the internal magnetic switch through JP1 Jumper setting.

Open the Door Contact's cover:

For DC-23 model:

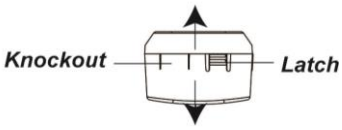
1. Open the Door Contact's cover by using a screwdriver to loosen the cover fixing screw at the buttom of the Door Contact's cover. (See picture on the right from upper view angle).
2. The upper end of the front case has a thinner plastic knockout. Break through the knockout to create a hole for the wiring connection to the extension terminal.
3. Connect the device to the extension terminal



(DC-23)

For DC-23-R3 model:

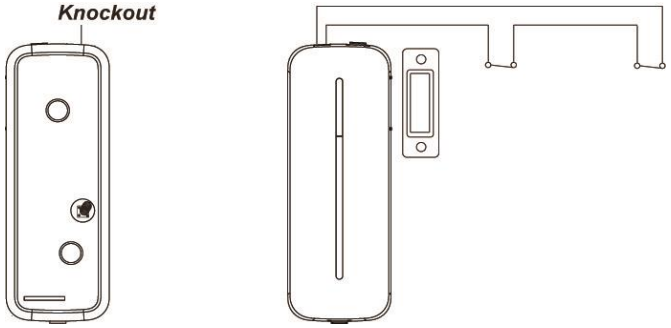
4. Use your thumb to press on the Latch, while pressing it, pull out the cover from the base of the Door Contact (see picture on the right from upper view angle).
5. The upper end of the front case has a thinner plastic knockout. Break through the knockout to create a hole for the wiring connection to the extension terminal.
6. Connect the device to the extension terminal



(DC-23-R3)

The Extension terminal may be useful for the following situation.

- If the Door Contact cannot be mounted on the door frame, you can connect an additional extension magnet switch to the extension terminal to mount the Door Contact remotely.
- Any dry contact device with N.C. (Normal Close) loop can be connected to the Extension Terminal making the Door Contact serve as an Universal Transmitter.
- Multiple dry contact device can be wired together with Door Contact, as show in diagram below.



The extension terminal and internal magnetic switch can function together to trigger the Door Contact when either of them is activated, you can also choose to disable the internal magnetic switch through JP1 Jumper setting. If both extension terminal and internal magnetic switch is in use and any of them is triggered (opened). The Door Contact will only send Door Contact close (restore) signal when both of them are closed.

● *Battery and Low Battery Detection*

The Door Contact uses one CR123 3V Lithium battery as its power source. The battery is pre-installed with a battery insulator inserted. To activate the battery, simply pull out the battery insulator.

The Door Contact report its battery percentage to the Control Panel respectively at 100%, 75%, 50%, 25% and 0% battery dead. If battery voltage is low (25%), a Low Battery signal will be sent to the Control Panel to notify the user.

The Door Contact feature Low Battery Detection function. When the battery voltage is low, the Door Contact will transmit Low Battery signal to notify the user.

When changing battery, after removing the old battery, press the Tamper Switch twice to fully discharge before inserting new battery.

● *Tamper Protection*

The Door Contact is protected by a tamper switch which is compressed against the mounting surface when the Door Contact is mounted. Whenever the Door Contact cover is opened, or removed from mounted surface, the tamper switch will be activated and the Door Contact will send a tamper open signal to remind the user of the condition.

- ***Wake Up***

This function uses the Z-Wave Wake Up Command Class. The Wake Up Command Class allows the battery-powered Door Contact to notify the Control Panel/Gateway that it is awake and ready to receive any queued commands. The wake up interval time period is programmed automatically according to Control Panel's setting when The Door Contact is included. The recommended setting of the interval time is between 30 to 60 minutes.

- ***Adding Device (Inclusion)***

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

1. Pull out the battery insulator; this will connect the battery to power on the Door Contact.
2. Put the Z-Wave Gateway or Control Panel into **Inclusion mode** (Please refer to the Z-Wave Gateway or Control Panel manual).
3. Press the Function button 3 times within 1.5 seconds.
4. Refer to the operation manual of the Z-Wave Gateway or Control Panel to complete adding process.
5. If the Door Contact has already been added (**included**) into another Z-Wave Gateway/Control Panel, or if the Door Contact is unable to be added into the current Z-Wave Gateway/Control Panel, please exclude it first (see **Removing Device**) before attempting to **include** it into the current Z-Wave Gateway/Control Panel.

- ***Removing Device (Exclusion)***

The Door Contact must be removed from existing Z-Wave network before being included into another. There are two methods available to exclude a device.

Exclusion Mode

1. Put the Z-Wave gateway or control panel into **Exclusion mode** (please refer to the Z-Wave gateway or control panel manual).
2. Within 1.5 seconds, press the Function Button 3 times and the Door Contact will be removed from the Z-Wave network.

Factory Reset

(Only use factory reset when network Control Panel/Gateway is missing or inoperable).

3. Press and hold the Function Button of the Door Contact for 10 seconds to factory reset.

<NOTE>

☞ Factory resetting the Door Contact will restore it to factory default settings (excluded from the Z-Wave network). The Z-Wave gateway or control panel will still keep its Z-Wave settings. Please refer to the gateway or control panel manual on how to remove the Door Contact's Z-Wave settings.

- ***Range Test***

To test whether the device is able to communicate with the Z-Wave Gateway or Control Panel:

- Put the Gateway / Control Panel into range test mode (Walk Test).
- Press the Function Button on the device
- The Gateway / Panel should display if the device is within the operation range (please refer to the operation manual of the Gateway / Panel).

- ***Z-Wave Sleep Mode***

- The Door Contact will enter Z-Wave Sleep mode (to conserve power) after waking up for a short period of time (~10 seconds). While in Z-wave sleep mode, Z-Wave gateways or control panels are unable to send commands to the Door Contact.
- To program the Door Contact using the Z-Wave Gateway/Control Panel, please send command(s) to the Door Contact within the wake-up period.

Installation

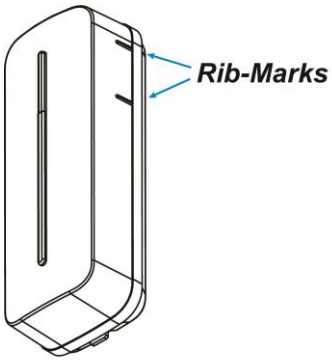
- ***Installation Guideline***

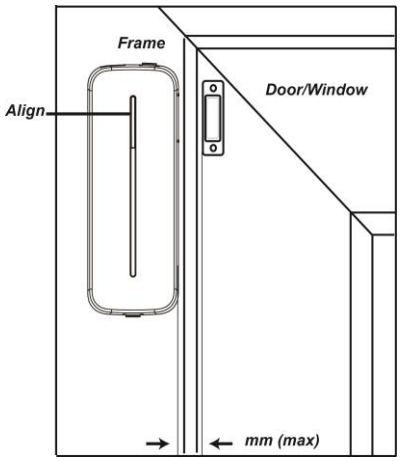
- The Door Contact should be installed on the door/window frame, and the magnet on the door/window
- Distance between Door Contact and magnet should be no more than 15mm when the door is closed.
- Avoid mounting the Door Contact on metallic surface. If mounting on metallic surface, make sure to test whether the Door Contact can be triggered when the door is opened.
- Mount the Door Contact as high as possible.

- ***Mounting the Door Contact***

1. Find a suitable location close to your door/window to install the Door Contact.
2. The Door Contact has 2 rib-marks on one side (refer to figure), marking the internal magnet switch location. The door contact should be installed either upright or inverted to ensure that the rib-marked side faces the magnet.
3. To mount the Door Contact:
   a) Use the 2 Door Contact mounting holes as a template for appropriate hole positioning.
   b) Use the provided wall plugs for plaster/brick installation.
   c) Screw the Door Contact into the provided wall plugs.
4. Fit the magnet on the door using the small piece of double sided adhesive tape or with provided screws.

The magnet must align with the rib-mark side of the device as shown below. Installation is now complete.





Z-Wave Information

Device Type: Sensor - Notification
Role Type: Reporting Sleeping Slave (RSS)
Maximum number of devices in group 1: 1
Maximum number of devices in group 2: 5
Maximum number of devices in group 3: 5
Maximum number of devices in group 4: 5

Command Class Support/Control

Mandatory CC Support:
Association CC, v2 or newer (security 2)
Association Group Information CC (security 2)
Supervision CC (security 2)
Battery CC (security 2)
Device Reset Locally CC (security 2)
Manufacturer Specific CC (security 2)
Notification CC (security 2)
Powerlevel CC (security 2)
Version CC, v2 or newer (security 2)
Wake UP CC (security 2)
Z-Wave Plus Info CC
Transport Service CC, V2
Security 2 CC
Firmware Update MD CC (security 2)

- ***Z-Wave's Groups (Association Command Class Version 2)***

The Door Contact can be set to send reports to associated Z-Wave devices. It supports 3 association groups.

Group 1 for "LifeLine": (maximum node:1)
Notification CC,V4 (COMMAND_CLASS_NOTIFICATION)
Battery CC (COMMAND_CLASS_BATTERY)
Device Reset Locally CC

- Low Battery Report
  1. When low battery voltage is detected, the Door Contact will transmit Battery command to all nodes in Group 1.
  2. When the Door Contact on low battery has its battery replaced, it will transmit Battery restore command to all nodes in Group 1
- Factory Reset
  1. When the Door Contact is reset to factory default, it will send Device Reset Locally to all nodes in Group 1.

Group 2 for "Basic Set": (maximum node:5)
Basic CC, v2 (COMMAND_CLASS_BASIC)
It will transmit Door Report command FF when open and 00 when close.

Group 3 for "Notification Report": (maximum node:5)
Notification CC,V4 (COMMAND_CLASS_NOTIFICATION)

- Trigger Report (Intrusion detected)
  1. When the Door Contact is open or external device is triggered, it will transmit Notification command (Notification Type: 0x06, Event 0x16) to all nodes in Group1 and 3.
- Restore Report (door/window closing/external device restoring)
  2. When the door/window is closing or external device restoring, it will transmit Notification command (Notification Type:0x06, Event 0x17) to all nodes in Group1 and 3.

Group 4 for "Tamper Report".(maximum node:5)

- Tamper Triggered Report

1. When the Tamper is removed and triggered, it will transmit Notification command (Notification Type:0x07, Event:0x03) to all nodes in Group 1 and 3.
2. When the Tamper is restored, it will transmit Notification command (Notification Type:0x07, Event 0x00 with one parameter 0x03) to all nodes in Group 1 and 3.