Quick start iDoorSensor U'

Technical specs

Normal operating voltage	2x AAA 1,5V batteries
Frequency range	8.42 MHz
Wireless Range	Up to 30 meters in line of sight

Indicator Light

Magnet

External contact

Tamper switch

Basic Operations

- The iDoorSensor can be placed on any door or window.
- The iDoorSensor can report the status of the door (OPEN/CLOSED).
- The iDoorSensor can measure the temperature.
- The iDoorSensor also has an external contact.

Mounting

1. Use a flat screwdriver at the inlets on the sides to gently unlock the back cover.
2. Use the designated holes on the back cover to mount the iDoorSensor.
3. Place two AAA 1,5V batteries into the device.
4. Place the iDoorSensor onto the back cover, be sure to close it on all sides and that the tamper gets through the back cover of the iDoorSensor (indication mode: Tamper pressed/released).
5. After 3 seconds startup routine begins (indication mode: Ready for learn mode).
6. After 5 more seconds (8 seconds in total) mounting is completed. (indication mode: Mounting successful)
7. iDoorSensor is now ready to use.
8. Remove the back cover of the magnet and repeat step 2 and 4 with the magnet for mounting it.

Include or exclude in Z-Wave network

1. Make sure your Z-Wave controller is in the right operation mode (include or exclude).
2. When the iDoorSensor is mounted, remove it from the back cover as explained in step one of the Mounting instructions.
3. Press and hold the tamper switch for 1 second and release to start the inclusion or exclude process (indication mode: Ready for learn mode).
4. (The product will start NWI automatically after unsuccessful normal inclusion)

Indication mode

The indicator light gives various statuses of the device as follows:

1. Ready for learn mode: indicator light blinks every second.
2. Learn in progress (add):   indicator light 2 times every second.
3. Learn in progress (remove):   indicator light 3 times every second.
4. Learn mode success: indicator light is on for one second.
5. Learn mode failed: indicator light blinks 8 times rapidly.
6. Tamper pressed/released   indicator light blinks 3 times rapidly.
7. Mounting successful   indicator light is on for 1 second.
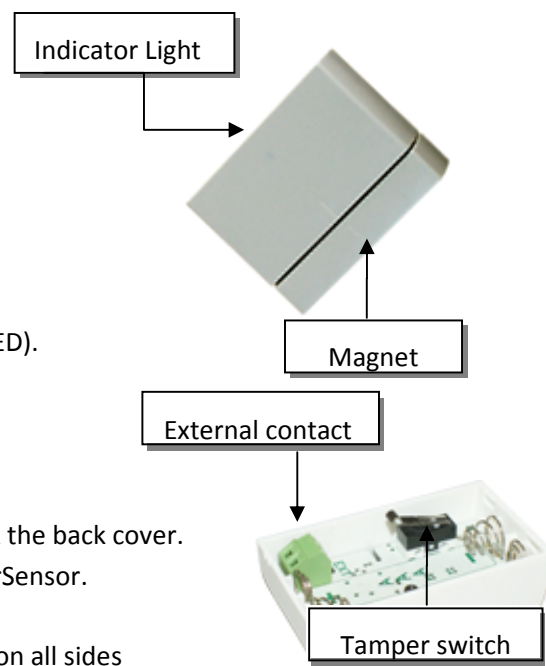
Technical Manual

Caution:
- **This device is using a radio signal that passes through walls, windows and doors. The range is strongly influenced by local conditions such as large metal objects, house wiring, concrete, furniture, refrigerators, microwaves and similar items. On average, the indoor range is approximately 30 meters.**
- **Do not expose this product to excessive heat or moisture.**
- **Prevent long term exposure to direct sunlight.**
- **Do not attempt to repair this product. If the product is damaged or if you are in doubt about the proper operation, take the product back to the place of purchase.**
- **Do not clean the product with any liquid.**

Technical details

Normal operating voltage	2x AAA 1,5V batteries
	From 2,3 to 4,0Vdc
	do not use rechargeable batteries
Frequency range	8.42 MHz
Wireless Range	Up to 30 meters in line of sight
Storage temperature	-5°C to +65°C
Storage humidity	10% to 70%
Operating temperature	0°C to 50°C
Operating humidity:	30% to 80%

Supporting Command Classes:

Basic type: BASIC_TYPE_ROUTING_SLAVE
Generic type: GENERIC_TYPE_SENSOR_BINARY
Specific type: SPECIFIC_TYPE_NOT_USED
Listening: False, Z-Wave Lib: 4.51

class: 0x30 COMMAND_CLASS_SENSOR_BINARY
class: 0x70 COMMAND_CLASS_CONFIGURATION
class: 0x71 COMMAND_CLASS_ALARM
class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC
class: 0x80 COMMAND_CLASS_BATTERY
class: 0x84 COMMAND_CLASS_WAKE_UP
class: 0x85 COMMAND_CLASS_ASSOCIATION
class: 0x86 COMMAND_CLASS_VERSION
class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL
class: 0xEF COMMAND_CLASS_MARK
class: 0x20 COMMAND_CLASS_BASIC
class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL

Not listening Routing SLAVE

This Z-Wave product will be used as routing slave. Slave nodes are nodes in a Z-Wave network that receive commands and perform actions based on the command. This device will always be in sleep mode because it works on batteries. In sleep mode the device is not active listening, the device will wake up according to the wakeup command class.

Include Initiator
The include initiator is used when Primary and Inclusion Controllers include nodes into the network. When both the include initiator have been activated simultaneously the new node will be included to the network (if the node was not included previously).

Exclude Initiator
The exclude initiator is used by Primary Controllers to exclude nodes from the network. When the exclude initiator and a slave initiator are activated simultaneously, it will result in the slave being excluded from the network (and reset to Node ID zero). Even if the slave was not part of the network it will still be reset by this action.

Z-Wave compatibility
Because this is a Z-Wave device, it means it can co-operate with other Z-Wave devices of other manufacturers. It can co-exist in a Z-Wave network existing with product from other manufacturers.

Hops & Retries
The Z-Wave range has a range of up to 30 meters in line of sight. This signal is not limited to the 30 meter range due to routing the Z-Wave message to other nodes in the network. This way the range of the Z-Wave network can be expanded to 150 meters indoors (limit of 4 hops).

class: 0x20 COMMAND_CLASS_BASIC
When a door is opened a basic set frame with the value 255 is sent to the associated nodes.
When a door is closed a basic set frame with the value 0 is sent to the associated nodes. This is the controlling role of the basic command class.

The supporting role of the basic command class is mapped to the sensor binary command class.

class: 0x25 COMMAND_CLASS_SENSOR_BINARY
The Sensor Binary Command Class can be used to check the status of the *DoorSensor* (open or closed).
Where "255" is open, and "0" is closed.

class: 0x86 COMMAND_CLASS_VERSION
This Command Class is used to obtain information about the *DoorSensor*. The Z-Wave library type, the Z-Wave protocol version and the application version will be reported.

class: 0x72 COMMAND_CLASS_MANUFACTURER_SPECIFIC
This will report information about the manufacturer. This product will contain the manufacturer ID of *Wintop*. Manufacturer ID of *Wintop* is 0x97, the ID of this product is 0x82.

class: 0x70 COMMAND_CLASS_CONFIGURATION
Configure parameters:

0. **not used**
1. **Set to default**
   Description: Set all config values to default values (factory settings).

Read more in chapter Configuration Reset.

Size: 1 byte*
Param1:   if 0xFF then set to default
Param2,3,4:   not used

2. External contact
Description: Configure what the external contact sends when trigger
Default: 0x00 (send alarm report)

Size: 1 byte*
Param1:   if 0x00: Send a alarm report with type 2
                        If 0x01 - 0xFF: Send a Basic set frame to all nodes in association group
                                          2.

3. Not used
Description: Is not used but still can be set and requested.
Size: 1 byte*

4. Not used
Description: Is not used but still can be set and requested.
Size: 1 byte*

5. The mode
Description: the operating mode.
Default: 0x01

Size: 1 byte*
Param1:   Mode 1: Normal operating mode.
                        Mode 3: Z-Wave chip is always on to request e.g. version or
                        manufacturer id.
                        If any mode other then 3, that value will be reported after a get but
                        will be handled in SW as mode 1.
Param2,3:   not used.

6. The temperature offset
Description: A offset for the temperature.
Default: 0x00

Size: 2 bytes*
Param1,2:   A signed integer to determine the offset off the temperature.
Param3,4:   not used

* if a size is other then given size the frame is ignored totally so configuration values are **not** changed

class: 0x85 COMMAND_CLASS_ASSOCIATION
The Association Command Class is used to associate other devices with the *DoorSensor*. The devices that are associated can be controlled on application level.

The *DoorSensor* can be associated into a grouping. If so, the *DoorSensor* can control other Z-Wave device (does not have to be a controller).

Number of groupings: 2

Version 0.21

Maximum supported nodes per group: 5

Group1: if the internal door contact (magnet) is triggered it sends a Z-Wave frame to every node in this group

Group2: if the external door contact is triggered it sends a Z-Wave frame to every node in this group if it is configured (see configuration documentation param 2: external contact).

Class: 0x80 COMMAND_CLASS_BATTERY
This class is used to request and report battery levels for a given device.
When battery level is lower then 20% the Door Sensor will send a battery warning (value 255) after every wake up notification. A battery get will report the actual value even if below 20 %

class: 0x84 COMMAND_CLASS_WAKE_UP
The Wake Up Command Class is used at battery-operated devices. This class allows the *DoorSensor* to wake up occasionally to notify others devices, that the *DoorSensor* is ready to receive commands. After receiving the commands the *DoorSensor* will go into sleep mode again. The wake up interval can be set using the WAKE_UP_INTERVAL_SET command.

The default value is 0x1C20 = 7200 sec = 2 hour
The default node is 0xFF = 255 (broadcast)

It is possible to send a **wake up notification** on user interaction. To do this press and hold the tamper switch for 8 seconds.

When the wake up time is set to 0 a **wake up notification** is never send periodically, only on user interaction.

class: 0x31 COMMAND_CLASS_SENSOR_MULTILEVEL
Sensor_multilevel_get
The Sensor Multilevel Command Class is used to get a report from the Door Sensor. The returned value is the measured temperatue inside the housing with 2 decimals.

class: 0x71 COMMAND_CLASS_ALARM
This command class is used to identify the state of the tamper alarm. The device will send an unsolicited report to the controller if the status is changed, the value 0x00 will indicate that the tamper is placed correctly on the wall. The value 0xFF will indicate a tamper alarm.

There are 2 different alarm types:
2: External door contact
3: Tamper switch

Every other alarm type that is requested will be ignored by application.

Configuration Reset

The Door Sensor Supports a configuration resets function. Configuration reset means

- All configuration values are defaulted.
- Wake up interval is defaulted.
- All association are cleared

This function can be activated by sending a configuration set frame:

CONFIGURATION_SET
Parameter: 0x01
Size: 0x01 (can't be different from 1)
Value: 0xFF (can be any value except for 0x55 or 0xAA)

When the value of configuration value is requested 2 possible values can be returned

CONFIGURATION_REPORT
Parameter: 0x01
Value 0x55:   Device doesn't have all his configuration settings anymore.
                Even when a configuration parameter is changed back to the default value
Value 0xAA: Devices still has all his factory settings.
                This are only configuration parameters, wake up interval can be changed.

Always awake mode

The always awake mode is used to request different values from the device e.g. version and manufacturer specific.

The always awake mode can be activated by:

CONFIGURATION_SET
Parameter: 0x05
Size: 0x01 (can't be different from 1)
Value: 0x03 (mode 3)

The always awake mode can be deactivated by:

CONFIGURATION_SET
Parameter: 0x05
Size: 0x01 (can't be different from 1)
Value: Any value except 3

A second option to deactivate mode 3 is
1. Remove batteries.
2. Wait ca 10 seconds.
3. Replace batteries

Note: in always awake mode the batteries will be drain very fast, we do not recommend to use this mode.

Troubleshooting

Frequently Asked Questions

Q: I can't have my *DoorSensor* included into my Z-Wave network, what am I doing wrong?
A: **1**. Is the controller ready to include any device into the Z-Wave network? If the controller is not in
             Include or exclude mode, the *DoorSensor* will not be included or excluded.
             2. The *DoorSensor* is already included in a Z-Wave network. Exclude the *DoorSensor* and
             Try to include it again.

Q: Why doesn't the *DoorSensor* detect if the door is open or closed?
A: **1**. The *DoorSensor* isn't included in a Z-Wave network. Include it and try it again.
             2. Make sure the Tamper switch is mounted correctly.
             3. The magnet contact is not mounted close enough or on the wrong side of the device.

Q: I have configured a value but when I request it, it is not changed?
A: It is mandatory that the correct size is used while configure a parameter; go to the documentation about
the configuration command class to check if the right size is used during configuration. If the wrong size is used
the frame is ignored totally.

Q: I have configured a new value and when I request it the correct value is returned but the behavior is still the
same?
A: Some configuration parameters have limits of what they can do, go to the documentation about
configuration to check if the value of the configured parameter is out off limit.

FCC statement:

This device complies with Part 15 of the FCC Rules. Its 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.

Note: This product 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 product 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 product 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 or more 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.

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