

## OPERATING MANUAL DOOR / WINDOW SENSOR ZC-100

The Sentek Door / Window Sensor is a wireless, battery powered, Z-Wave compatible reed sensor. Each time its two parts, i.e. the sensor's body and a magnet separate, a radio signal is sent. In addition the Sentek Door / Window Sensor supports one DS18B20 temperature sensor and has one potential free input. The Sentek Door / Window Sensor is designed for use with scenes in home automation systems, alarm and surveillance systems and everywhere else where information related to opening / closing of doors, windows, garage gates, etc. is needed.

### Technical data:

Power supply	single ER14335 (1/2AA) 3.6V battery
Inputs	single, potential-free
Supported temperature sensors	single, DS18B20
Operating temperature	0 - 40 °C
Radio protocol	Z-Wave
Radio frequency	868.4 MHz EU; 908.4 MHz US; 921.4 MHz AU/NZ; 869.2 MHz RU;
Range	up to 30m indoors, depending on building materials used and the building structure
Dimensions (L x W x H)	76 x 17 x 19 mm

### Technical information:

- Controlled via any Z-Wave compatible controller.
- Door/window opening detected through Sensor's body and a magnet separation.
- Quick installation - easily mounted on doors, windows, garage gates, roller blinds, using double sided adhesive tape or screws.
- Compatible with DS18B20 temperature sensors.
- When connecting DS18B20 use single wire lead, no longer than 20 meters.
- May be connected to a switch via potential-free IN input.

**HINT**  
Connections should be made specifically according to the diagrams presented in this manual. Incorrect connections may be hazardous or lead to device damage.

### I General Information on the Sentek Sensor:

ZC-100 is a sensor that does not require any additional conductors, it is based on the Z-Wave technology. Sentek offers a wide array of advantages in comparison to other, similar systems. In general, radio-based systems establish a direct connection between the receiver and the transmitter. The radio signal is attenuated by every obstacle along its path (in the household e.g. walls, furniture, etc.). In the worst case the radio system ceases to function.

Sentek is a bidirectional wireless system. This means the signal is not only sent to the receivers, but also the receivers send feedback confirming the reception of the signal. This also confirms the condition of receivers, which allows us to check whether or not a device has actually been switched on. The safety of transmission of the ZC-100 is comparable with a wire-linked bus system. The ZC-100 operates in the free band for data transmission. The frequency depends on the radio regulations in each individual country.

Each Z-Wave network has its own unique network identification number (home ID), which is why two or more independent systems may be installed in a single building without any interference.

Although the Z-Wave technology is fairly new, it has already been accepted as an official standard, just like Wi-Fi. Numerous manufacturers from various fields offer solutions based on Z-Wave technology, compatible with one another. This makes the system fit for the future and allows for further development.

Sentek establishes a dynamic network structure. From the moment of start-up, the location data of respective devices of the Sentek System is updated automatically, in real time, by confirming their condition in the working mesh network.

### II Sensor Installation:

1. Connect Sentek Door/Window Sensor according to the appropriate diagram (if necessary)
2. Place battery inside the Sensor's casing.
3. Include into the Z-Wave network.
4. Install Sentek Door/Window Sensor observing diagram 4,

### EXPLANATION OF CONDUCTOR MARKINGS:

**TMP** - Tamper button. Detects removal, tampering etc. Used also as a service button, to include/exclude the device to/from the Z-Wave network.  
**IN** - Potential-free input.  
**TP** - (TEMP\_POWER) - Power out for DS18B20 temperature sensor.  
**TD** - (TEMP\_DATA) - Signal terminal for DS18B20 temperature sensor,  
**GND** - (GROUND) - Ground terminal.

**NOTE!**  
To ensure the most accurate position detecting always install the magnet in relation to the Sensor's body, as shown in diagram 4.

**NOTE!**  
ZC-100 Door/Window Sensor has two TMP buttons - inside and underside the casing.  
During normal operation both TMP buttons must be secure. Do not use the sensor with opened casing.

**NOTE!**  
TMP button, located on the underside of the device, has two functions:  
1. sets a device into the learn mode (Include to / Exclude from a Z-Wave network),  
2. tamper button. After correct installation (fig. 5 and 6), removing the whole sensor from its location or opening its casing may release the TMP button and trigger an alarm. If the TMP is to serve as a tamper button, association for II-nd association group must be configured (optionally, use the Parameter 13).

### USING IN INPUT:

The ZC-100 Door/Window Sensor has a one, potential-free IN input. IN input status may be modified through the Sensor itself or by sending GND signal to IN (diagram 3). If the Door/Window Sensor will be used only as a binary sensor, do not install the magnet.

### USING DS18B20 TEMPERATURE SENSOR:

The DS18B20 temperature sensor may be installed anywhere where very precise temperature readouts are necessary. If adequately protected, the DS18B20 sensor may be installed in humid conditions, under water, sealed in concrete or placed under the floor.

### ANTENNA ARRANGEMENT INSTRUCTIONS:

**i** The antenna should be placed above the battery. Never cut, shorten or bend the antenna. Its length is ideally to the band at which the system functions.

**i** Metal surfaces in close vicinity (e.g. metal switch boxes, metal door trims) may impair the reception capability!

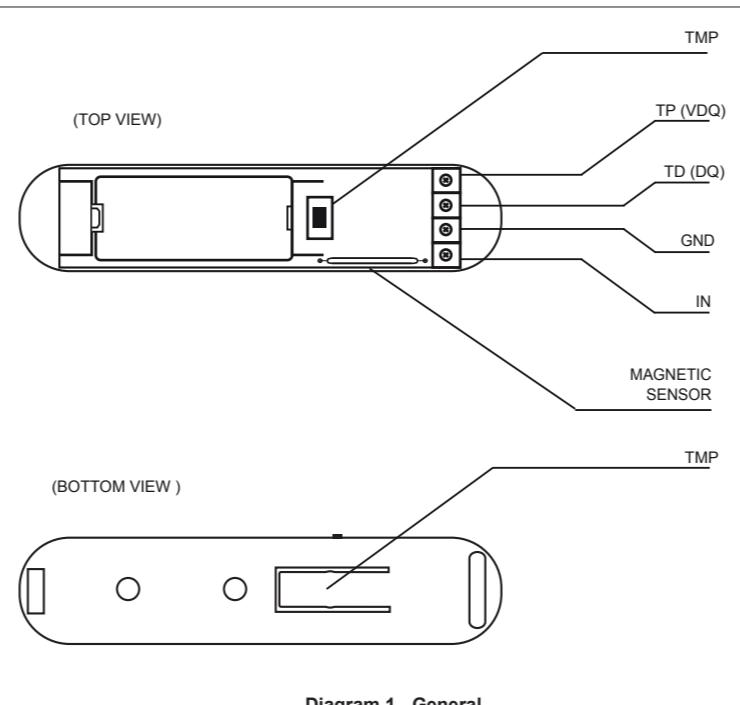


Diagram 1 - General

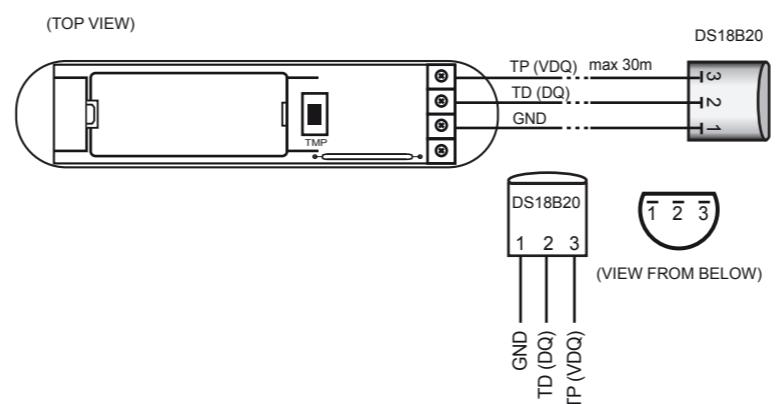


Diagram 2 - Connection to DS18B20 sensor

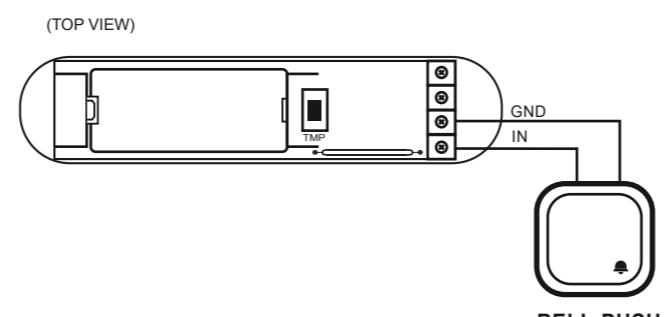


Diagram 3 - Example connection - momentary switch

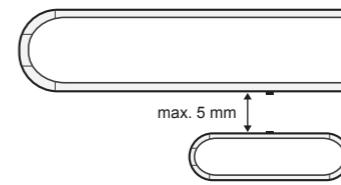


Diagram 4 - Correct positioning of the Sensor and the magnet

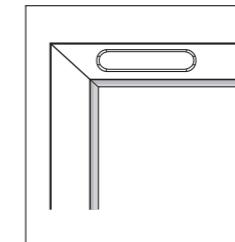


Diagram 5 - Correct sensor installation

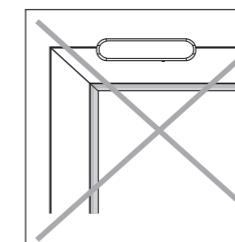


Diagram 6 - Incorrect sensor installation

### GLOSSARY OF TERMS:

- INCLUSION** - the device sends out a Node Info frame, which makes it possible to add it to Z-Wave network.
- EXCLUSION** - remove the device from Z-Wave network.
- ASSOCIATION** - controlling other devices included in Z-Wave network.

### III Sensor Start-up

#### 1. Installation of the Door/Window Sensor

**STEP 1**  
Install the device observing the Figure 4 for correct positioning of the Sensor and the magnet. Close the Sensor's casing.

[Inclusion/Exclusion] of the ZC-100 Door/Window Sensor [to/from] the Z-Wave network.

**STEP 2**  
The ZC-100 must be in range of the Z-Wave controller, because the procedure of inclusion to the Z-Wave network requires direct communication with the controller.

**STEP 3**  
Locate TMP button, which allows for proper inclusion of device.

**STEP 4**  
Set the Z-Wave controller to the inclusion or exclusion mode

**STEP 5**  
The ZC-100 Door/Window Sensor is added to (or deleted from) the Z-Wave network by quickly pressing the TMP button three times (the button is located on the underside of the device, inside its casing).

**STEP 6**  
Correct inclusion of the device to the network will be signalled by the Z-Wave controller.

**BATTERY USE:**  
The ZC-100 Door/Window Sensor's battery life is up to 2 years, on default settings.

Current battery level is displayed in the Z-Wave controller's configuration interface. If a battery icon turns red, it means the battery needs replacement. In order not to trigger an alarm when replacing the battery, II-nd association group must be deleted and the Sensor's configuration must be changed to default, prior to the battery change.

**NOTE!**  
Door/Window Sensor is equipped with a built-in LED. LED blinks each time Door/Window Sensor changes its state. LED blinking 5 times = correct inclusion and exclusion.

**NOTE!**  
Every time any changes are made to the configuration of TP and TD lines (1-wire), i.e. when DS18B20 sensor is connected/disconnected, it is necessary to execute the procedure of exclusion and repeated inclusion of the sensor module to the Z-Wave network. The system will enter into the learning mode only after connected DS18B20 sensor has been detected (about 10 s).

**NOTE!**  
Do not connect sensors other than DS18B20 to the 1-wire line (TP and TD terminals).

**NOTE!**  
It is prohibited to connect the TP and TD lines to devices not compatible with the 1-wire protocol.

#### 2. Resetting the ZC-100 Door/Window Sensor

There is one way to reset the ZC-100 Door/Window Sensor. The procedure cleans its EPROM memory, including the main controller and Z-Wave network data.

To reset the Sentek Door/Window Sensor please follow below instructions:

- 1) Pressed the TMP button more than 5 seconds.
- 2) Led start blinking.
- 3) Release the TMP button.
- 4) Reset is performed.

**NOTE!**  
Use reset procedure only in the event that network primary controller is missing or otherwise inoperable.

**NOTE!**  
Resetting the device memory doesn't remove it from the Z-Wave network's main controller memory. To be able to re-include the device into the Z-Wave network please exclude it first. Exclusion may be performed either before or after the reset procedure.

#### 3. Controlling the ZC-100 Door/Window Sensor with Z-Wave network Controller

The Door/Window Sensor is a multifunctional device. This means it is equipped with an independent input circuit and a 1-wire bus allowing it to be connected to a DS18B20 temperature sensor. As a result, each device is represented by an independent icon in the Z-Wave System.



Fig. 1 - Door / Window Sensor icon in the Home Center controller



Fig. 2 - DS18B20 temperature sensor icon in the Home Center controller

Sensor used without a DS18B20 sensor, or used with a switch connected to IN input, will be represented by single icon. After the DS18B20 temperature sensor has been connected, temperature sensor icon will be displayed.

#### NOTE!

If a temperature sensor icon is not displayed despite the fact the sensor itself has been connected, or if the temperature readings are incorrect, inspect the connections on the 1-wire bus, in particular the connection between sensor outputs and the line, and the total length of the bus wire which should not exceed 30m.

## IV Association

Association allows the Fibaro Door/Window Sensor to directly control another device in the Z-wave network, e.g. Dimmer, Switch (On-Off), Roller Shutter or trigger scenes (scene control is only possible via the Home Center 2 controller).



**NOTE!**  
Association allows for direct transmission of control commands between devices and takes place without the participation of the main controller. Owing to this mechanism the Door/Window Sensor may communicate with devices even if the main controller is completely destroyed, e.g. in the event of a fire.

The ZC-100 Door/Window Sensor supports four association groups.

**Group I** is assigned to input IN1, TMP button and the magnetic sensor, Sending BASIC\_SET or ALARM command frames.

**Group II** is assigned to the magnetic sensor, Sending BASIC\_SET frames.

**Group III** is assigned to input IN1, TMP button, Sending ALARM command frames.

**Group IV** is assigned to input IN1, TMP button, Sending ALARM command frames.

The ZC-100 Door/Window Sensor allows for control over 5 devices per group, out of which 1 field is reserved for the network controller.

In order to add an association (e.g. use the FIBRO-Home Center

controller) go to device options by clicking this icon:

Select the device options tab. Next specify which devices will be associated, and to which association groups. Sending of configuration commands to associated devices might take up to a few hours, depending on previous devices settings and the number of devices within the network.

## V Configuration

The Door / Window Sensor offers a wide range of advanced settings. The parameters listed below are available in the controller's configuration interface:

### Device parameters:

#### Parameter no. 1

LED enable.

Default setting: 1 – LED enable

Available parameter settings:  
0 - LED disable,  
1 - LED enable.

Parameter value: 1 [byte].

#### Parameter no. 2

Powerdown timeout.

The device will be power-down as soon as there is no activation and the timeout time reached.

Available parameter settings:

Reserved for future

Parameter value: 1 [byte].

#### Parameter no. 3

Temperature sample interval. To keep the lifetime of battery, The temperature sample cycle time can be defined by user.

Available parameter settings:

Reserved for future

Parameter value: 1 [byte].

#### Parameter no. 4

Type of IN input.

Default value: 0 – INPUT\_NO (Normal Open)

Available parameter settings:

0 – INPUT\_NO (Normal Open)

1 – INPUT\_NC (Normal Close)

Parameter value: 1 [byte].

#### Parameter no. 5

Type of control frame transmitted, activated via IN input. The parameter allows you to specify the type of an alarm frame or to force control frames transmission (BASIC\_SET)

Default value: 255 – BASIC\_SET

Available parameter settings:

1 – ALARM\_SMOKE frame

2 – ALARM\_CO frame

3 – ALARM\_CO2 frame

4 – ALARM\_OVERHEAT frame

5 – ALARM\_WATER frame

255 – Control frame BASIC\_SET

Parameter value: 1 [byte].

## VI Door / Window Sensor operation

The ZC-100 Door/Window Sensor may be operated using:

- Any System compatible controller ,)
- Cellular phone (e.g. iPhone or phones from other manufacturers, with the proper control application)
- PC, with the use of an Internet browser,
- Tablets (e.g. iPad)
- Using the TMP button, located inside the housing.

## VII Procedure to be followed in case of interference

### The Device does not react to a programmed transmitter:

- Make sure the maximum range has not been exceeded and there are no obstacles along the signal path containing metal surfaces, e.g. metal cabinets, Ferro concrete ceiling, load bearing walls, etc.
- Make sure the device is not in the learning mode.
- Alternately repeat the programming process.

## VIII Guarantee

1. The Guarantee is provided by Sentek electronic co. ltd. (hereinafter "Manufacturer"), based in No. 448, yinchun RD, NingBo, China.

2. The Manufacturer is responsible for equipment malfunction resulting from physical defects (manufacturing or material) of the Device for 12 months from the date of its purchasing.

3. During the Guarantee period, the Manufacturer shall remove any defects, free of charge, by repairing or replacing (at the sole discretion of the Manufacturer) any defective components of the Device with new or regenerated components, that are free of defects. When the repair impossible, the Manufacturer reserves the right to replace the device with a new or regenerated one, which shall be free of any defects and its condition shall not be worse than the original device owned by the Customer.

4. In special cases, when the device cannot be replaced with the device of the same type (e.g. the device is no longer available in the commercial offer), the Manufacturer may replace it with a different device having technical parameters similar to the faulty one. Such activity shall be considered as fulfilling the obligations of the Manufacturer. The Manufacturer shall not refund money paid for the device.

5. The holder of a valid guarantee shall submit a guarantee claim through the guarantee service. Remember: before you submit a guarantee claim, contact our technical support using telephone or e-mail. More than 50% of operational problems is resolved remotely, saving time and money spent to initiating guarantee procedure. If remote support is insufficient, the Customer shall fill the guarantee claim form (using our website - www.fibargroup.com) in order to obtain claim authorization.

When the guarantee claim form is submitted correctly, the Customer shall receive the claim confirmation with an unique number (Return Merchandise Authorization -RMA). The claim may also be submitted by telephone. In this case, the call is recorded and the Customer shall be informed about it by a consultant before submitting the claim. Immediately after submitting the claim, the consultant shall provide the Customer with the claim number (RMA-number).

7. When the guarantee claim form is submitted correctly, a representative of the Technical Customer Service (hereinafter as "TCS") shall contact the Customer.

8. Defects revealed within the guarantee period shall be removed not later than 20 days from the date of delivering the Device to TCS. The guarantee period shall be extended by the time in which the Device was kept by TCS.

9. The faulty device shall be provided by the Customer with complete standard equipment and documents proving its purchase.

10. Parts replaced under the guarantee are the property of the Manufacturer. The guarantee for all parts replaced in the guarantee process shall be equal to the guarantee period of the original device. The guarantee period of the replaced part shall not be extended.

11. Costs of delivering the faulty device shall be borne by the Customer. For unjustified service calls, the Service may charge the Customer with travel expenses and handling costs related to the case.

12. TCS shall not accept a complaint claim only when:

- the Device was misused or the manual was not observed,
- the Device was provided by the Customer incomplete, without accessories or nameplate,
- it was determined that the fault was caused by other reasons than a material or manufacturing defect of the Device
- the guarantee document is not valid there is no proof of purchase,

13. The Manufacturer shall not be liable for damages to property caused by defective device. The Manufacturer shall not be liable for indirect, incidental, special, consequential or punitive damages, or for any damages, including, inter alia, loss of profits, savings, data, loss of benefits, claims by third parties and any property damage or personal injuries arising from or related to the use of the Device.

14. The guarantee shall not cover:

- mechanical damages (cracks, fractures, cuts, abrasions, physical deformations) caused by impact, falling or dropping the device or other object, improper use or not observing the operating manual);
- damages resulting from external causes, e.g.: flood, storm, fire, lightning, natural disasters, earthquakes, war, civil disturbance, force majeure, unforeseen accidents, theft, water damage, liquid leakage, battery spill, weather conditions, sunlight, sand, moisture, high or low temperature, air pollution;
- damages caused by malfunctioning software, attack of a computer virus, or by failure to update the software as recommended by the Manufacturer;
- damages resulting from: surges in the power and/or telecommunication network, improper connection to the grid in a manner inconsistent with the operating manual, or from connecting other devices not recommended by the Manufacturer.
- damages caused by operating or storing the device in extremely adverse conditions, i.e. high humidity, dust, too low (freezing) or too high ambient temperature. Detailed permissible conditions for operating the Device are defined in the operating manual;
- damages caused by using accessories not recommended by the Manufacturer
- damages caused by faulty electrical installation of the Customer, including the use of incorrect fuses;
- damages caused by Customer's failure to provide maintenance and servicing activities defined in the operating manual;
- damages resulting from the use of spurious spare parts or accessories improper for given model, repairing and introducing alterations by unauthorized persons;
- defects caused by operating faulty Device or accessories.

15. The scope of the guarantee repairs shall not include periodic maintenance and inspections, in particular cleaning, adjustments, operational checks, correction of errors or parameter programming and other activities that should be performed by the user (Buyer). The guarantee shall not cover natural wear and tear of the Device and its components listed in the operating manual and in technical documentation as such elements have a defined operational life.

16. If a defect is not covered by the guarantee, the Manufacturer reserves the right to remove such defect at its sole discretion, repairing the damaged or destroyed parts or providing components necessary for repair or replacement.

17. This guarantee shall not exclude, limit or suspend the Customer rights when the provided product is inconsistent with the purchase agreement.

**This Device may be used with all devices certified with Z-Wave+ certificate and should be compatible with such devices produced by other manufacturers.**

## Sentek

In case of any technical questions contact customer service center.

[www.sentek.cc](http://www.sentek.cc)