



Air quality sensor
SZ-AIR-HTQ01
User manual



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General information

Air quality sensor SZ-AIR-HTQ01 is a multifunctional sensor that measures the following parameters: temperature, relative humidity, CO2 and tVOC. The sensor supports the Z-Wave Plus™ v2 protocol, which means support for encryption and firmware updates «Over The Air» (OTA update). The device can operate in any Z-Wave™ network with other Z-Wave certified devices from other manufacturers. All mains operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network. The device uses Z-Wave series 700 chip.



Connecting to a Z-Wave network

The device can be connected to a Z-Wave network in two methods:

1. Using service button

First, switch the controller to the device search and adding mode. Then power the device. After this, the device must be switched to the adding mode by pressing the service button for three times. Now you can enter first five digits of the Device Specific Key (DSK) in controller, after which the device will be added to a Z-Wave network. The DSK is printed on a sticker inside of the device packaging.

2. Using SmartStart technology

The device supports SmartStart feature and can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. The sticker with a QR code is placed on on stickers on the back side of the device and inside of the device packaging. The figure below shows the example of the sticker:



Service button operation

The device has a service button on the back side. This button allows to add, remove, reset the device to the factory settings, use SmartStart feature and to add/remove the associations. The description of available functions are listed in the following table.

Function	Description
Add	<ul style="list-style-type: none"> • Switch the controller to the device adding mode; • Press the service button 3 times within 1.5 seconds to enter the adding mode; • After successful adding, the device will receive settings from the controller. It will take about 1 minute.
Remove	<ul style="list-style-type: none"> • Switch the controller to the device remove mode; • Press the service button 3 times within 1.5 seconds to enter the adding mode. The device is removed from Z-Wave network.
Reset	<p>CAUTION: Use this procedure only if the central controller is lost or unusable.</p> <ul style="list-style-type: none"> • Press the service button 6 times in 1.5 seconds, the red LED should light up; • In 3 seconds the red LED will go out; • The device erases its network ID (removes from Z-Wave network) and resets all settings to the factory defaults.
SmartStart	<ul style="list-style-type: none"> • SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code presented on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.
Association	<ul style="list-style-type: none"> • SZ-AIR HTQ01 always listen Z-Wave devices, so associations may be added or removed by a controller at any time. <p>Note: the device supports up to 8 groups. Each group can contain up to 5 nodes. The group 1 is lifeline group for general messages (reset locally, indicator, notification and sensor multilevel). The group 2 is used for the temperature reports. The group 3 is used for the humidity reports. The group 4 is used for the CO2 reports. The group 5 is used for the tVOC reports. The group 6 is used for the heat alarms. The group 7 is used for the CO2 alarms. The group 8 is used for the home health alarms.</p>

The result of adding or removing a device to/from Z-Wave network will be visible in the central controller interface.

Readings transmission

Readings are transmitted to the controller via Multilevel Sensor Command Class. Threshold excess messages (temperature, CO2, tVOC) are sent using the Notification Command Class.

Protected network

The device supports encryption. When the device added to the protected network, it will automatically switch to the protected mode (with encryption).

Supported Z-Wave command classes

Class name	Version	Required security class
Z-Wave Plus Info	2	—
Association	2	The highest security class
Multichannel Association	3	The highest security class
Association Group Information	3	The highest security class
Transport Service	2	—
Version	3	The highest security class
Manufacturer Specific	2	The highest security class
Device Reset Locally	1	The highest security class
Indicator	3	The highest security class
Powerlevel	1	The highest security class
Security	1	—
Security 2	1	—
Notification	8	The highest security class
Supervision	1	—
Firmware Update Meta Data	5	The highest security class
Sensor Multilevel	11	The highest security class
Configuration	4	The highest security class

Supported device configurations

CAUTION: all configuration data is sent in two-byte format.

#	Name	Default value	Range
1	Minimum temperature value	+18°C	from +1°C to +18°C
2	Maximum temperature value	+27 °C	from +27°C to +80°C
3	Maximum CO2 level value	750 ppm	from 400 ppm to 3000 ppm
4	Minimum tVOC level value	65 ppb	from 0 ppb to 99 ppb
5	Average tVOC level value	550 ppb	from 100 ppb to 1000 ppb
6	Maximum tVOC level value	5000 ppb	from 1001 ppb to 5000 ppb
7	Enable/disable air quality indication	0	enable indication — 1, disable indication — 0
12	Interval between readings sending	300 seconds (5 minutes)	from 60 seconds to 10800 seconds (from 1 minute to 3 hours)
13	Temperature value change at which the sending occurs	1 °C	from 1 °C to 10 °C
14	Humidity value change at which the sending occurs	5 %	from 1 % to 10 %
15	CO2 value change at which the sending occurs	50 ppm	from 10 ppm to 1000 ppm
16	tVOC value change at which the sending occurs	100 ppb	from 10 ppb to 1000 ppb

Notification message sending

Event type	Supported events	Event/state parameters
Heat Alarm (4)	State idle (0)	—
	Overheat detected (2)	
	Under heat detected (6)	
CO2 Alarm (3)	State idle (0)	—
	Carbon dioxide detected (2)	
Home Health (13)	State idle (0)	Pollution level = - 1: Clean - 2: Slightly polluted - 3: Moderately polluted - 4: Highly polluted
	Volatile Organic Compound level (6)	

Specifications

Power supply	5V DC via USB
Signal frequency	869 MHz
Controller reception range	100 m (direct visibility)
Protection level	IP20
Dimensions	Ø70 mm, h = 31 mm
Operating temperature range	From +5 to +40°C
Relative humidity at +40°C	95% max. (without condensing)
Maximum radio signal power	+14 dBm



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