

Operating Manual

zDoor



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Safety information

Read the operating instructions before setup the device.

Connection, mounting, and setting may only be performed by trained persons.

Not a safety component in accordance with the EU Machinery Directive.

When commissioning, protect the device from moisture and contamination.

These operating instructions contain information required during the life cycle of the sensor.

Correct use

zDoor is a LoRaWAN™ compliant device, designed to use in door and/or window open sensing applications. The device suitable for indoor and outdoor use as well.

Specifications

Frequency Band:	867,1 – 868,8MHz ISM (SKU-EU) 902.000 MHz to 928.000 MHz (US)	Number of Channels:	Configurable 8 channels (SKU-EU)
Battery Specs:	2.6Ah 3.6V battery	Transmit Power:	+14 dBm (25 mW) (EU) up to +18.5 dBm high efficiency PA (US)
Receive Sensitivity:	-141 dBm (EU) -146 dBm (US)	Antenna:	Built-in
Operating Temperature:	-25°C ~ 50°C	Protection Requirements:	IP65
Dimensions:	L:64 x W:58 x H:35mm (Weight: 100g)		

Battery lifetime:

The device can send about 75 000 messages with a 2700mAh Li-SOCI2 battery.

Please note this value is theoretical and is calculated considering the current consumption of 1 uplink message.

Disassembly and disposal

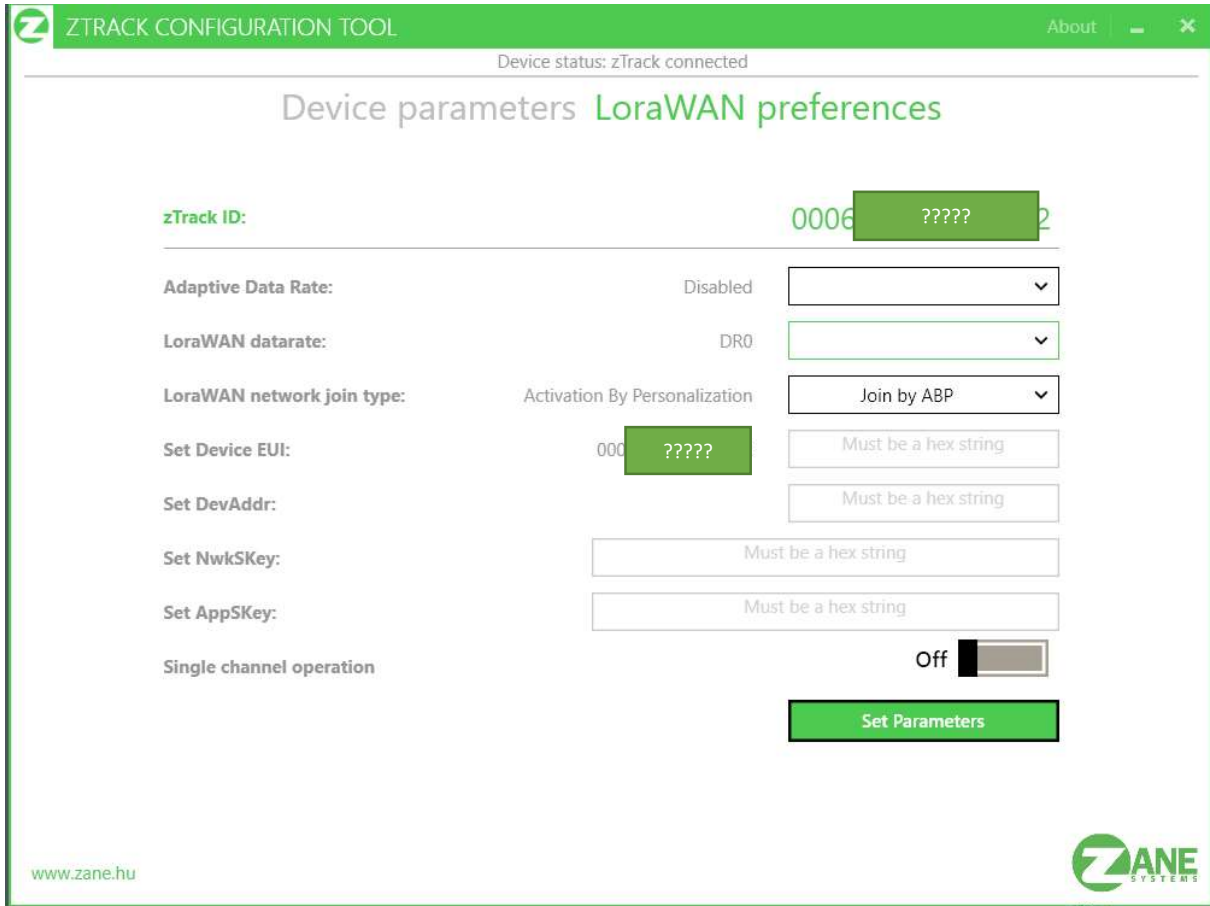
The sensor must be disposed of according to the applicable country-specific regulations. Efforts should be made during the disposal process to recycle the constituent materials (particularly precious metals). The sensors contain a lithium battery, which must be disposed of separately.

How to configure the sensor

Operation

Operational parameters can be set by [downlink messages](#).

LoRaWAN preferences



The screenshot shows the 'ZTRACK CONFIGURATION TOOL' window with the title 'Device parameters LoraWAN preferences'. The device status is 'zTrack connected'. The configuration fields are as follows:

- zTrack ID:** 0006 [redacted] 2
- Adaptive Data Rate:** Disabled (dropdown menu)
- LoraWAN datarate:** DR0 (dropdown menu)
- LoraWAN network join type:** Activation By Personalization (dropdown menu: Join by ABP)
- Set Device EUI:** 000 [redacted] (text input: Must be a hex string)
- Set DevAddr:** (text input: Must be a hex string)
- Set NwkSKey:** (text input: Must be a hex string)
- Set AppSKey:** (text input: Must be a hex string)
- Single channel operation:** Off (checkbox)

A green 'Set Parameters' button is located at the bottom right of the configuration area.

LoraWan preferences	Value	Description
Adaptive Data Rate	Enabled/Disabled	Adaptive Data Rate (ADR) is a mechanism for optimizing data rates, airtime and energy consumption in the network. It is suggested to leave disabled for proper operation
LoraWAN datarate	DR0 ... DR6	
LoraWAN network join type	Join by ABP, join by OTAA	Activation by Personalization (ABP suggested), Over the Air Activation
Set Device EUI	Hex string	See label zDoor
Set DevAddr	Hex string	Device Address Key from integration
Set NwkSKey	Hex string	Network Session Key from integration
Set AppSKey	Hex string	App Session Key from integration
Single channel operation	1/0	

LoRaWAN™ downlink messages

Message	Port	Payload	Description
Set keepalive time	100	xxxxxx	BCD value (003600 -> 1 hour) Time interval between keepalive messages in seconds (range 60 - 43200, insert in place of x, leading zeros included)
Reset device	110	xx	xx can be anything Resets the device's controller
Enter fw upgrade mode*	111	xx	xx can be anything Sends the device into firmware upgrade mode

Integration to TTN Network

Requirements

- Create account at THE THINGS NETWORK
www.thethingsnetwork.org
- Check if there's a gateway near you
- Login at TTN console
add application
register device

DEVICE OVERVIEW

Application ID [REDACTED]

Device ID ztrack_tube

Activation Method ABP

Device EUI <> [REDACTED] [copy]

Application EUI <> [REDACTED] [copy]

Device Address <> [REDACTED] [copy]

Network Session Key <> [REDACTED] [copy]

App Session Key <> [REDACTED] [copy]

Status ● 50 minutes ago

Frames up 3698 [reset frame counters](#)

Frames down 0

TTN console register device

- Register your zDoor under TTN console → Application → Devices → “register device”
- Setup device under TTN console → Application → Devices → “Device Settings

TTN device	Label at Config Tool	TTN
Application ID		Name of TTN application
Device ID		This is the unique identifier for the device in this app. The device ID will be immutable. only lowercase alphanumeric characters, nonconsecutive - and _ and it cannot start or end with a - or a _
Activation Method	LoRaWAN Network Join Type	Choose activation method under device settings
Device EUI	Set Device EUI	8 bytes written on the label of zDoor
Application EUI		8 bytes Generated by TTN
Device Address	Set DevAddr	Assigned by network server
Network Session Key	Set NwkSKey	16 bytes Network session key will be generated
App Session Key	Set AppSKey	16 bytes App session key will be generated

After device registration, go back to zTrack Configuration Tool → “LoRaWAN preferences” and fill the form with the hex strings of yours TTN registration.

After this step, you can receive data from your device.

Payload specification

Message	Port	Payload	Description
Keepalive	207	01bb	bb: battery level in percentage
Open event occurred	213	01bb	bb: battery level in percentage
Close event occurred	213	00bb	bb: battery level in percentage

zTrack Configuration tool for firmware upgrade

Requirements

- USB type A cable with micro USB
- Contact Zane sales to get proper firmware file for the zDoor
- zTrack Configuration Tool software
 - Download the zTrack Configuration Tool from www.zane.hu
 - compressed file: setup_zTrack_Configuration_Tool_1031.rar
 - Unpack file and after unzip the bootloader: en.stsw-stm32080.zip
 - Run setup_zTrack_Configuration_Tool.exe
 - Install: DfuSe_Demo_V3.0.5_Setup.exe
- Connect zDoor to zTrack Configuration Tool and click “Perform device firmware upgrade”
- Windows is installing correct USB driver
- If zDoor is not detected complete the following steps
 - Run the device manager of Windows and find the USB device "DFU in FS Mode"
 - Right click on the device and select "Uninstall device"
 - When the Uninstall Device window appears check the "Delete the driver software for this device" and click "Uninstall"
 - Disconnect the device
- Connect the device to the PC again
- Choose the firmware file and upload it

