



# TEKZIPARK SPECIFICATIONS

## Abstract

This document details the specifications related to the payload format, and other attributes of the device.

## TEKZIPARK Terms of Usage

The device is designed to be used for detecting parking space occupancy states. This product is not intended for incorporation into finished appliances that are made commercially available as single functional units to end users.

This product uses the WISOL Sigfox module which is SIGFOX verified.

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



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# 1. Device Specifications

LPWAN	Sigfox
Operating Zones	RCZ1 - Europe, Oman, Iran, South Africa, Tunisia, UAE RCZ2 - USA/Mexico/Brazil RCZ3 - Japan RCZ4 - Australia/New Zealand/South East Asia/Rest of South America
Power	Built-in Lithium batteries (3.6V), expected lifetime of 10 years*
Antenna	Internal included
Detection	Magnetometer
Mounting	Surface
Protection	IP68**
Operating temperature	-20 to +65 °C
Body	Polycarbonate
Firmware Update	Over the air upgrade of firmware using built in BLE capability
BLE Version	4.0
CPU	ARM® Cortex®-M4 32-bit processor with FPU, 64 MHz
Beacon Scanner	Ability to scan BLE beacons enabling recording of vehicle identity.
Battery Life	10 years
Dimensions	270mm diameter, 45mm height

\*Under estimated number of transmissions per day @ 44.

\*\* Under correct installation conditions



## 2. Payload Format

		Data Byte								
		Bit								
		7	6	5	4	3	2	1	0	
Byte1	Description	<i>Occupancy Status</i>		<i>Deflection</i>		<i>Battery Status</i>		<i>Unused</i>		<i>Payload Type</i>
	Interpretation	0 - Vacant 1 - Occupied		0 - Deflection below threshold 1 - Deflection above threshold		0 - Low Battery 1 - Good battery				0000 - Parking Status change 0001 - Keep Alive Frame 0010 - Reset Frame 0011 - Keep Alive transient 0100 - 1111 - Unused
		Temperature Byte								
		Bit								
		7	6	5	4	3	2	1	0	
Byte2	Description	<i>Temperature</i>								
	Interpretation	Integer value of temperature in signed form								
		Deflection value								
		Bit								
		7	6	5	4	3	2	1	0	
Byte3	Description	<i>Deflection value</i>								
	Interpretation	Integer value of magnetic deflection from initial state								

### Example

2018-08-13 00:04:00	202400 ASCII: S.				20 ; 24 ; 00 – Vacant, Deflection below threshold, Good battery, Parking status change; 36degC; Nil deflection from initial magnetic field.
2018-08-13 00:02:00	62217e ASCII: bl~				62 ; 21 ; 7e – Vacant, Deflection above threshold, Good battery, Reset; 33degC; Deflection of 125 from initial magnetic field.

## 3. Add-On bytes for BLE vehicle identification

When the parking sensor is also used to detect vehicle identity, the device will have BLE scanning enabled to scan the advertising packet from the BLE beacon device in the vehicle. When the parking status changes state from *Vacant* to *Occupied*, the device will scan for available beacon advertisements above a specific (customizable) RSSI value. The scanning will be done for 3 seconds and the advertisement with the highest RSSI will be chosen to be transmitted on the next Sigfox transmission. This transmission will consist of additional 3 bytes in addition to the above payload packet from section 2. The format of the payload will be as follows,

Byte1	Same as from section 2							
Byte2	Same as from section 2							
Byte3	Same as from section 2							
Byte4	<b>Beacon RSSI Byte</b>							
	Bit							
	7	6	5	4	3	2	1	0
	Description	<i>Beacon RSSI</i>						
Interpretation	Integer value of beacon advertisement RSSI in signed form.							
Byte5	<b>Beacon ID Byte 1</b>							
	Bit							
	7	6	5	4	3	2	1	0
	Description	<i>Beacon ID byte1</i>						
Interpretation	Byte1 of the 2-byte beacon ID information.							
Byte6	<b>Beacon ID Byte 2</b>							
	Bit							
	7	6	5	4	3	2	1	0
	Description	<i>Beacon ID byte2</i>						
Interpretation	Byte2 of the 2-byte beacon ID information.							

**Based on specific customer requirements, additional bytes up to a maximum of 12 bytes per payload can be included in the payload to capture additional parametric information.**