



SKYTAG1

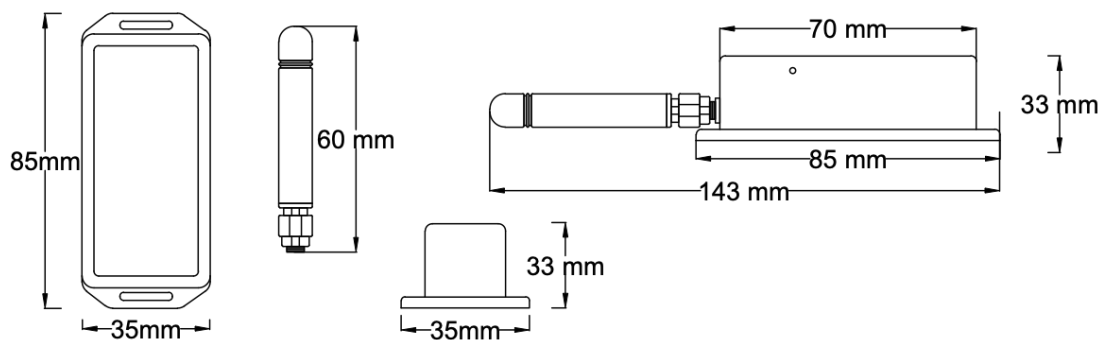
Location Sensor

Skysens SKYTAG2 is a LoRaWAN based tracker device equipped with GPS and GNSS tracking module with motion detection.

- ✓ Equipped with accelerometer.
- ✓ Optional IP54 Casing
- ✓ Excellent long-term stability.
- ✓ LED interface.
- ✓ Easy attachment with accessories.
- ✓ Low power consumption compared with other technologies.
- ✓ Adjustable sensor reading interval from network
- ✓ Ready with end-to-end software application.
- ✓ 2 mode restart pin button.



Application Areas : Tracking applications.



Dimensions	35 x 85 x 33 mm	Available Frequencies	All
Weight	60 gr (apprx)	Temperature Sensitivity	0.5 C between -10 and +85 C
Casing	ABS with RoHS Compliancy	Humidity Sensitivity	1% RH between 20% and 80%
Antenna	+2 or +3 dBi external	Operating Conditions	-40°C to +80°C & 0% RH to 100% RH
Expected Battery Life	Minimum 5 Years with 30 min Interval	Battery	3.6V Lithium AA (Changeable)

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PRODUCT IMAGES, BUTTONS AND PLUG-INS



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PAYLOAD STRUCTURE – Uplink

Info Frame

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Temperature MSB	Temperature LSB	Humidity MSB	Humidity LSB	0x00	0x00
Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
0x00	0x00	Latitude XMSB	Latitude MSB	Latitude LSB	Longitude XMSB
Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17
Longitude MSB	Longitude LSB	GPS Speed MSB	GPS Speed LSB	Battery MSB	Battery LSB
Byte 18					
GPS Error					

Keep Alive Frame

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Temperature MSB	Temperature LSB	Humidity MSB	Humidity LSB	Battery MSB	Battery LSB

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PAYLOAD STRUCTURE – Downlink

Interval Change Downlink

Following message should be sent to the device in order to change message period of the device.

Interval Change Command	
Port	Message
0x0B	0x02T ₀ T ₀ T ₁ T ₁ T ₂ T ₂ T ₃ T ₃

T values at the above table are time values in seconds and hexadecimal form. Must be sent in MSB first form. For example, 0x0200000384 message should be sent to the device in order to set message interval to 900 seconds. (0x384H = 900) These values can take from 1 minute to 6 hours.

Activate/Deactivate Accelerometer Downlink

Following message should be sent to the device in order to change working status of accelerometer in the device.

Interval Change Command	
Port	Message
0x0D	0x0X

X = 1 : Enable Accelerometer

X = 0 : Disable Accelerometer

Reset Downlink

Following message should be sent to the device in order to reset the device.

Reset Command	
Port	Message
0xFA	0x01

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Device Behaviour

The device works with accelerometer after very first message. It gets acceleration data to control if there is any motion happened between last message and current time. If there is no motion happened, device doesn't scan satellites again and sends the last location information to the server. This logic is used for lowering the battery consumption. The device sends the updated location information to the server if any motion detected between last message and current time.

If the accelerometer related location tracking is disabled from network, device scans satellites to detect the current location in every 60 seconds.

The device sends Keep alive data once in an hour by default. This couldn't be changed by user.

The Device could set to the regular message mode which sends location data at any given interval mentioned at downlink section.

Reset Operation

Push the reset button and hold, red LED must light for a while and start blinking. When you see the blinking release the button. The device gets reset by this operation and after every reset operation, the device goes into sleep mode automatically by blinking red and green LEDs once.

Wake Up

To exit sleep mode and take the device to the normal operation mode, push the reset button until you see the red LED light. When you see red light release the button and the device will go into normal operation mode. In the very beginning of the normal operation mode, device starts to scan satellites while blinking red LED. After 55 seconds of scan time, device lights green LED for 2 long times. First green light means that the satellites are found, second green light means LoRa packet has been sent. After scan period if the device can't find satellites, it flashes green LED once and this means that the device couldn't find any satellites and sent the LoRa package to the server.

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OTAA Mode

The device requests OTAA join to the server after the device wakes up and goes into the normal operation mode. OTAA requests are represented by the blinking green LED once per request. When the device successfully joins to OTAA mode green LED lights for a while.

Communication

The device indicates uplink communication by blinking green LED once and downlink communication by blinking red LED once.

ABP

For ABP please contact SKYSENS.

Error Behaviour

The first time device with a hardware problem is energized, it flashes the red led at the intervals of five hundred milliseconds, to indicate there is a hardware problem.