# SKYSENS

SKYCLD1
Cold Chain Monitoring Device

Skysens SKYCLD1 is a LoRaWAN based, easy to use and cost-effective cold chain monitoring device which can measure temperature (internal and external) and humidity of the environment.

- 12 bits thermometer between -55ºC and +125ºC.
- Precise humidity and temperature measurement.
- 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.
- Up to 10 years of battery life.
- Optional IP65 casing.

Application Areas : Restaurants, warehouses, supply chains, hospitals, industries, production lines , etc.
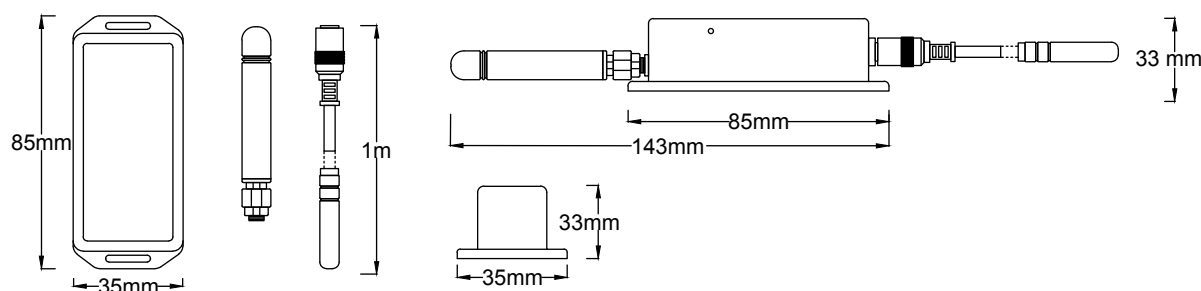
Dimensions	35 x 85 x 33 mm	Available Frequencies	All
Weight	120 gr (apprx)	Temperature Sensitivity	0.5 C between -10 and +85 C
Casing	ABS with RoHS Compliancy	Humidity Sensitivity	1% RH between 20% and 80%
Antenna	+1,5 dBi or +3 dBi external	Operating Conditions	-40ºC to +80ºC & 0% RH to 100% RH
Expected Battery Life	Minimum 5 Years with 30 min Interval	Battery	3.6V Lithium AA

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PRODUCT IMAGES, BUTTONS AND PLUG-INS

Antenna Input

Antenna

Reset Button

Air Hole

Led Indicator

Reset Needle

Temperature
Probe Plug-in

Temperature
Probe

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PAYLOAD STRUCTURE – Uplink

Sample Payload: 0x00FC01DD0105000000000000000000000E1000

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5
Temperature MSB	Temperature LSB	Humidity MSB	Humidity LSB	Probe Temp MSB	Probe Temp LSB

Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

Byte 12	Byte 13	Byte 14	Byte 15	Byte 16	Byte 17
Reserved	Reserved	Reserved	Reserved	Battery MSB	Battery LSB

Byte 18
Reserved

- Note: Temperature and humidity information are given multiplied by 10 form. Divide them by 10 to find temperature and humidity information. Example (H00FC = 252, 252/10 = 25.2 ºC)

- Battery information is given in mV form.

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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	$0x02T_0T_0T_1T_1T_2T_2T_3T_3$

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.

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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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 by blinking red and greed 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 by blinking LEDs in a sequence of green-red-green.
It is also possible to wake the device up by inserting the probe jack. After the probe is inserted the sequence above happens in the same order.

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.