CLOUDLEAF

Cloudleaf Data Logger 4.3

Model: S-4.3, SKU: ST12I-G2N

User Guide

Oct 24, 2019

Disclaimer

Cloudleaf, Inc.

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Introduction

The S-4.3 data logger sensor tag [S-4.3 tag] is a key component of the Cloudleaf System. The S-4.3 is a small BLE (Bluetooth Low Energy) and active RFID device that enables the wireless network infrastructure to locate assets. It also has the ability to sense and log environmental conditions at set intervals of time. Gateways can read the log information via BLE wireless protocol. The tag can be attached to a variety of equipment, such as containers, manufacturing equipment and vehicles. This enables tagged items to be accurately located in real-time and in any environment – from indoor locations such as Manufacturing floors and in transit such as cold chain - freezer transportation.

ST12I-J2N

S-4.3 Features

Logging functionality

S-4.3 Tags can log environmental sensors [temperature, humidity and pressure] at set periodic time. For each instance of logging, the logger logs the time along with the sensor data. The data is cleared upon the receipt of "Cloudleaf cloud receiving the data" message.

Motion Sensing

S-4.3 Tags contain on-board motion sensors. The motion sensor can be configured to trigger alerts. It also enables different transmission intervals for tags when they are stationary or in motion – which reduces unnecessary network traffic and conserves battery life.

Shock events can be logged when a threshold of shock (magnitude of acceleration change) has been exceeded. The threshold is configurable.

NIST Traceable Temperature Sensing

S-4.3 has NIST traceable Temperature logging capability. The temperature measurements can be logged at set periodic intervals.

Pressure Sensing

S-4.3 has pressure logging capability. The pressure measurements can be logged at set periodic intervals.

Humidity Sensing

S-4.3 has humidity logging capability. The humidity measurements can be logged at set periodic intervals.

Button

S-4.3 has Button action logging capability. Various button press actions can be defined as events. Such events will be logged whenever they occur.

LED

LED can be programmed to represent the state of the tag based on the needs.

Long Battery Life

A powerful battery provides power for a period of at least 6 months and is based on usage. When a battery is changed, any data not yet uploaded from the logger is lost.

Compatibility and Non-interference

Cloudleaf Tags are based on Bluetooth Low Energy. The use of the unlicensed 2.4GHz frequency band at low power levels avoids interference with other wireless equipment, making Cloudldeaf tags safe for use with such sensitive equipment.

Tag Management

The Cloudleaf Tag can be configured, programmed and activated via a wireless interface. This an be done with Cloudleaf dashboard or Cloudleaf mobile application.

Specifications

Sensor specifications

- Temperature: Accuracy: ±0.25 °C: –40 °C to +125 °C
- Pressure/Altitude:
  - Range: 260 hPa – 1260 hPa
  - ±1.0 hPa
  - ±0.1 hPa excluding tag's constant offset
- Humidity: Accuracy over non-condensing and at 25°C
  - ±3.5%rH for 20%rH to 80%rH
  - ±5%rH for 0%rH to 100%rH
- Accelerometer/shock sensor
  - ±2G, ±4G, ±8G, ±16G

Performance

- Outdoor range: Up to 50m

- Indoor range: Up to 50m

Environmental Specifications

- Temperature: -40°C to +85°C
- Humidity: 5 to 95%RH
- Avoid spilling of water on tag. If water gets into the humidity sensors, the sensor requires 2 days to recover from water saturation.

RECYCLING

This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that this product must be handled pursuant to European directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment.

User has the choice to give his product to a competent recycling organization or to the retailer when he buys a new electrical or electronic equipment.

Electrical

- 3.6 V Primary lithium-thionyl chloride [2 batteries are required]
- Battery life: up to 6 to 12 months and life varies based on usage.

Radio

- Bluetooth Low Energy 4.2 & IEEE 802.15.1 Compliant 2.4GHz Radio.
- Transmission Power up to 0 dBm

Safety

- CE

Certification Radio

- FCC Part 15, sub-part C class B, sub-part B

Safety and Warnings

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

a) Reorient or relocate the receiving antenna. b) Increase the separation between the equipment and receiver. c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected. d) Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: a) This device may not cause harmful interference b) This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

This device complies with the FCC and IC radiation exposure limits established for an uncontrolled environment. The device should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

IC Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and
(2) this device must accept any interference, including interference that may cause undesired operation of the device. Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire lesrisques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayon ée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autoris é e aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
The device must not be co-located or operating in conjunction with any other antenna or transmitter
To comply with FCC’s and Industry Canada’s RF radiation exposure limits for general population/uncontrolled exposure, this device must be installed to provide a separation distance of at least 20cm from all persons.