

Edge Lite

User Manual v1.9



by Softhard.io Limited

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Manufacturer of Edge Lite: NewChamp Technologies Ltd..

Edge Lite Manual v1.5

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Change Log

Date	Author	Version	Description
2018-11-27	Inky Lung	v1.0	Initial draft
2019-3-15	Inky Lung	v1.1	Add mounting instruction, battery replacement info.
2019-3-20	Inky Lung	v1.2	Change battery pack description
2019-3-29	Inky Lung	V1.3	Add installation location
2019-04-02	Inky Lung	V1.4	Modified battery model name
2019-06-12	Kenny Lai	V1.5	Add Sigfox support
2019-08-15	Inky Lung	V1.6	Add Models Update technical data
2019-09-09	Inky Lung	V1.7	Add SigFox certification
2019-12-24	Inky Lung	V1.8	Add NB-IoT B12
2020-01-16	Inky Lung	V1.9	Changes for NB-IoT model Add FCC warning
2020-04-17	Inky Lung	V1.9.1	Reduce Power Level Shrink the channel

1. Introduction

The Softhard.io Edge Series devices allow you to deploy Internet of Things networks in an easy and scalable way, ensuring minimum maintenance costs. The device consists of a robust waterproof enclosure with specific external sockets to connect different types of sensors. It has been specially designed to be scalable, easy to deploy and maintain. Besides, it equips with built in M2M modules such as LoRa, NB-IoT or Sigfox interfaces. It sends temperature, humidity, g-sensor data via the M2M bridge.

1.1 Features

- Robust waterproof IP65 enclosure
- Add or change a sensor probe in seconds
- Powered with internal 18650 Li-ion batteries
- Radios available: NB-IoT Band 3 (~1800MHz), Band 8 (~900MHz), B12 (700MHz, channel, 23178 test)
- Output power B12 is: 14~15 dBm
- Built-in sensors: 3-axes accelerometer, temperature and humidity sensor, battery level
- External interface: digital input, digital output and I2C
- MicroSD connector
- SPI flash
- Buzzer
- Status LEDs
- GPS receiver (Optional)
- BLE receiver (Optional)
- Size: 133mm x 68mm x 50mm

1.2 Models

Model	P/N
Edge Lite with NB-IoT	SHIO-EL-NB
Edge Lite with LoRaWAN	SHIO-EL-LO
Edge Lite with SigFox	SHIO-EL-SF

Note: LoRaWan, GPS and BLE are optional features and all related components are not installed by default.

2. General view

Edge Lite is a NB-IoT device for measuring temperature, humidity, movement. With flexibility of adding external sensors like PIR, ultrasonic, IR, dry contact detection, it provides an easiest way for user to collect different types of data. Edge Lite has built in with 2 pieces 18650 size Lithium battery which the device can sustain to work for a year (depends on data transmission interval).

2.1 Technical Data

Core	Main processor	ARM Cortex-M0 processor, running at frequencies of up to 50 MHz.
	Memory	64 kB on-chip flash programming memory. 256 byte page erase function. 8 kB SRAM. MicroSD connector and SPI flash
Peripherals	Dimensions	140(W) x 50(H) x 70(D) mm
	Weight	0.3 g
	Housing	ABS
	Input voltage	3.7V 6400mAh Li-ion battery (Built in)
	Power consumption	160 mA typical
	Sensors	Temp., humidity and 3 axis accelerometer
	Indicators	3 colored LEDs
	Operation temp.	-25°C ... +65°C
	GPS	M8U GPS receiver module (Optional)
	NB-IoT	A9500 NB-IoT module
Connections		Power Digital input/output GPS antenna (Optional) 868MHz/915MHz LoRa / NB-IoT / Sigfox antenna (Optional)
Approvals	CE marking	According to directive 89/336/EEC (EMC directive)
	IP65	Test for compliance with degree of protection index IP65 against IEC 60529: 1989 Edition 2.2 + A1: 1999 + A2: 2013-08
	RoHS	RoHS Directive (2011/65/EU)
	IEC 62133	IEC 62133:2012
	OFCA	HKTA 1057 Issue 1 (May 2011) ISO/IEC 17067:2013

3. Installation Instructions

To power on the Edge Lite, user is required to unscrew the 4 screws as indicated in the following photo.



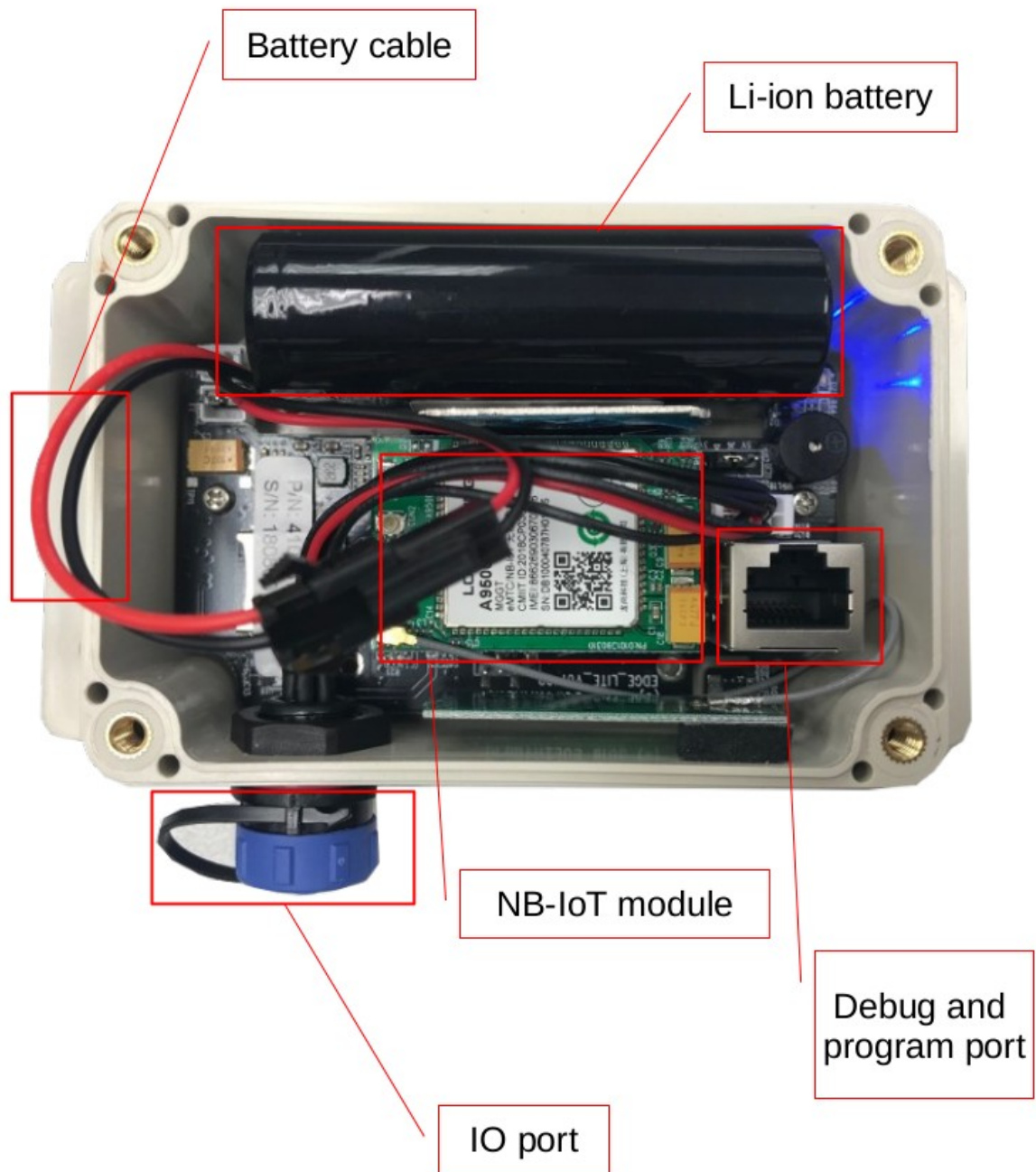
Open the cover, user can see the battery and the board.



Connect the battery cable and power on the device.



Component Description



Mounting Instruction

Edge Lite should be mounted on wall with 4 pieces M4 size screws with locations indicated in the following diagram.



Mounting Location

Edge Lite should be mounted on wall with suggested distance 1.5m from ground. Please notice user should not installed device near people with 30mm as of the RF transmittance effect.

Battery Replacement

Pls use the battery pack provided by Softhard.IO Ltd when the battery pack is completely drained. The correct model is **18650 LG MH1**.

"Use only rechargeable batteries model **18650 LG MH1** supplied by Softhard.IO Ltd.", and statement "CAUTION: Risk of explosion if battery is replaced by incorrect type disposed of used batteries according to the instruction.



4. Operations

LED indications

Here are indications of the LED with different scenarios.

Description	LED Status
Green LED and Red LED Flashing	Checking M2M RF module
Blue LED Flashing	Connecting or Sending Data to Network
Blue LED Fast Flashing	Successfully Joined Network
Red LED Flashing	Event Detected, eg. Dry Contact, G-Sensor

System Default Setting

Device is configured with the following default setup when it is shipped. Data will be sent for every 2 hours and is sent with the format listed in a separated payload document, Edge Series Payload Format v1.27.

Description	
Sleep Time	2 hours
Update Time	600s
Connection Failed Retry	5 Times
# of sends after event triggered	3 Times

Format of data

Data with the data format will be forwarded from our cloud to user's server. Here is an example showing how the device data looks like.

Node ID	Time	Payload	Data	RSSI	SNR	Gateway	Datarate	Port	Freq	LPWAN Type	Level	GiD	UID
3EBEF4	Recv: 2018-11-27 16:41:30 Sent: 2018-11-27 16:41:22	070e470100e80232	[Temp: 23.2°C] [Humidity: 50%] [Battery: 3655mV]	-111.00	14.81	7F1F	-	-	-	SIGFOX	4	G0	U0
8985200012746188389F	Recv: 2018-11-27 16:41:16 Sent: 2018-11-27 16:41:15	070d6e0100f502260d00	[Temp: 24.5°C] [Humidity: 38%] [Battery: 3438mV] [Digital input: 0]	-59	-	866269030112670	-	-	-	NBIOT	5	G66	U25

PART 15 INFORMATION TO THE USER

FCC Class B Warning

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:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by user authority to operate this equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.