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MerryIoT Light S1

User Manual



Revision History

Revision	Date	Description	Author
.001	Oct. 21, 2022	First release	



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Chapter 1 – Introduction

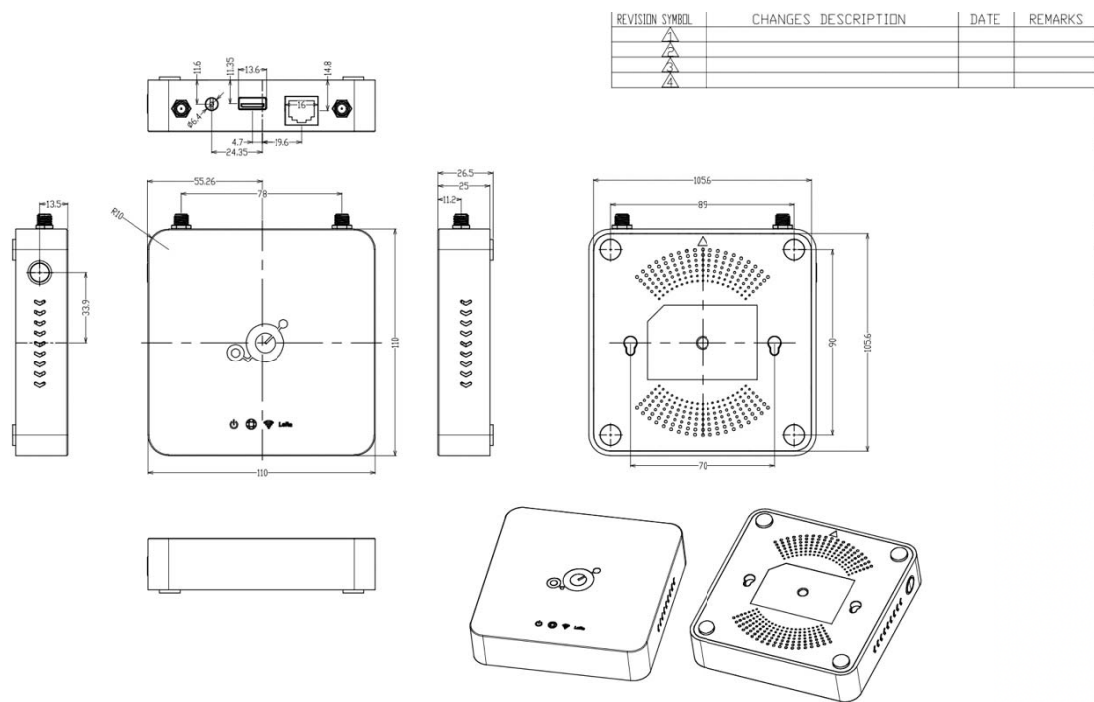
Purpose and Scope

MerryIoT Lisght S1 is designed for edge computing applications in IoT, Smart Manufacturing, Automation, Blockchain and etc, to support high performance, high reliability and high throughput for the heavy data processing demand.

MerryIoT Lisght S1 is targeting at AIoT applications with quad A55 cores, G52 GPU hardware, based on Linux distribution. IoT solution providers can easily integrate advanced and stable functions for their application-centric development on their own IoT projects.

Product Design

The dimension of L0001 Helium Hotspot Miner V1 is with the dimension of 140 x 110 x 24 mm, and with one LAN port, one USB port, One TF card and 12V1A power input, four LED indicators, and one reset button.



Product Features

- Up to 8 concurrent channels for Ltransmission
- Built-in 2.4G 802.11b/g/n Wireless LAN, and Bluetooth 5.2
- Various Internet connection: Ethernet, WiFi
- Ethernet/WiFi Configuration through APP



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- Support BROWAN OTA
- External antennas for WiFi connection

Definitions, Acronyms and Abbreviations

Item	Description
ABP	Activation by Personalization
OTAA	Over-The-Air Activation
TBD	To Be Defined



Chapter 2 – Hardware Details

LED Indicators

LED sequence: Power(System), Internet, WiFi, BT.

Four Green, One White

Solid LED is for static status, blanking means system is upgrading or active devices linked to the corresponding port

	Solid On	Blinking	Off
Power System(Blue)	Power ON	Booting/OTA	Power Off
Internet(Blue)	Internet available	Check Internet	RFU
Wireless(Blue)	Wireless connected to root AP	RFU	Wireless NOT connected to root AP

Table 1 LED Behaviors



Figure 1 – IO Ports

I/O Ports

Port	Count	Description
RJ45	1	WAN port of the device
Reset	1	Reset to default (5 seconds to reset settings to factory default)
USB	1	Power input via USB adaptor(5VDC/2A)
Push Bottom	1	Enable Bluetooth

Figure 2 – IO Ports



Back Label

The marking information is located at the bottom of apparatus.

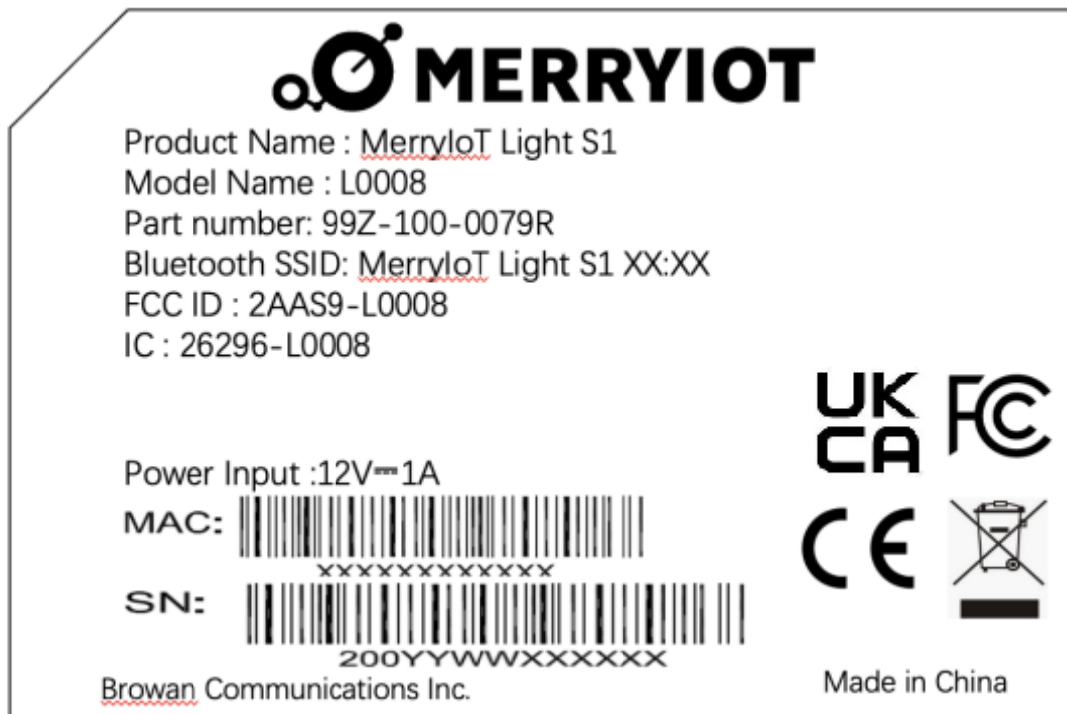
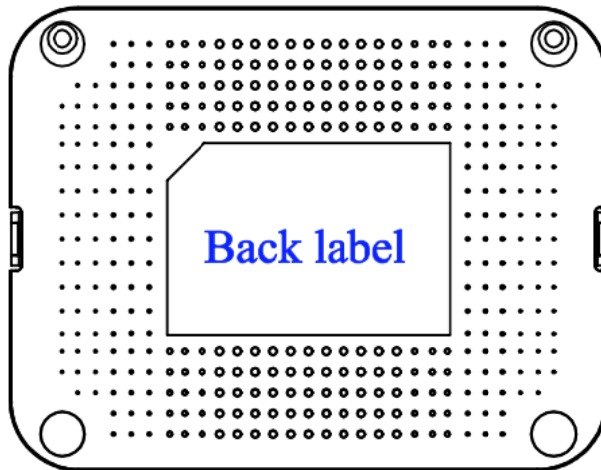


Figure 3 – Back Label

Package Label

N o.	Item	Description
1	Product BOX	Gift Box
2	Labeling	Model/ MAC/ Serial Number/ Type Approval

Package Content

N o.	Description	Quantity
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1	MerryIoT Lisght S1	1
2	Power adapter (12V/1A)	1
3	Antenna and Base	1

Chapter 3 – System Specification

Hardware Specification

No.	Item	Description
1	CPU	- Rockchip RK3566 - Quad-core Cortex-A55 up to 1.8GHz
2	Memory	- DDR3/4 2GB
3	Storage	- eMMC 8GB
5	W-Fi radio	- 2.4GHz 1Tx/1Rx 802.11 b/g/n - Built-in antenna
6	BLE radio	- 2.4GHz BLE 5.2 - Built-in antenna
7	GPS(Optional)	- L1:1575.42±1.023MHz - External RPSMA antenna with active GPS antenna
8	Crypto chip	- I2C control - Microchip ATECC608A/B in SOIC-8 and UDFN-8
9	LAN interface	- RJ45 10/100Mbps x 1
10	LEDs	- Single colored LED indicator (green) x 4 ■ Power ■ Status ■ System - Wi-Fi
11	Reset	■ Push button (GPIO)
12	SD card	- Built-in
13	Internal console	- Debug UART on board - USB OTG
14	Environment	- Temp. operating -10°C ~ +50°C ambient - Storage -20°C ~ +70°C ambient - Humidity operating 5%RH ~ 95%RH (non-condensed relative humidity) - Altitude operating 0 ~ 3000 Meters
15	IP ratings	- IP42 (plastic enclosure)
16	Size	- 110x110x30 mm
17	Power	- 12V/1A DC jack - Adapter 12V/1A
Note		

Software Specification

3.1 Configuration/Performance/Capability

Req. #	Features	Description	comment
PR-0001	Network Configuration	WiFi or Ethernet switch Configuration	
PR-0002	BLE Name	MerryIoT Hotspot V1_xxxxxx where the last hex are the last 6 uppercase hex of the MAC address.	
PR-0003	OTA	- OTA daily check - Browan OTA - ALi OTA - At the same time update the loading problem	
PR-0004	Gateway Config	- Network setting WiFi - App cannot skip WiFi - Configure Helium on boarding	

3.2 Basic Features

Req. #	Features	Description	comment
PR-1001	BLE Button	Over 6 seconds then trigger BLE provision	
PR-1002	LED	5 LEDS - Power LED - Internet LED - WiFi LED - BT LED - Refer to Table 1 LED Behavior.	
PR-1003	Ethernet	Ethernet connection	
PR-1004	WiFi Station	WiFi Station Mode	
PR-1005	BLE	Configuration through BLE	
PR-1006	Debug port	UART for debug	
PR-1007	OTA	OTA agent	
PR-1008	SW Monitor	Monitor packet forwarder	

		- Monitor Helium Miner - Monitor Gateway Config	
PR-1009	HW Watchdog	Monitor system	

3.3 WAN features

Req. #	Features	Description	comment
PR-2001	Packet Forwarder	Compatible with Semtech Packet Forwarder	
PR-2002	Miner Application	Miner Application	
PR-2003	gateway_mfr	Swarm key provision	
PR-2004	Gateway config	- WiFi Setting - Helium on boarding	

Regulatory Specification

No	Item	Standard
1	FCC/IC	
2	NCC	TBD
3	CE	EN 300 328 V2.2.2(included EN 62311/EN 50665/EN 50385) EN 300 220-2 V3.1.1 EN 301 489-1 V2.2.3 EN 301 489-3 V2.1.1 EN 301 489-17 V3.2.4 EN 55032 / EN 55024 EN 62368-1 LVD
4	RCM	TBD

Reliability Specification

No.	Item	Specification
1	MTBF	300,000 @ 40 °C



Federal Communication Commission Interference 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 of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

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 & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

Operation of this device is restricted to indoor use only



Industry Canada statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference
- (2) This device must accept any interference, including interference that may cause undesired operation of the device

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiation Exposure Statement:

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

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20 cm entre le radiateur et votre corps.