OneScreen MeerkatSafe Reader **Specification**

Model: OneScreenMSR1

Version: V002

Contents

Preface

This specification applies to OneScreenMSR1.

Revision	Date	Author	Description
V001	2021.08.01	Hobart	1. Support repeater feature. 2. Support troubleshooting at WEBUI's side. 3. Support upload file at browser's side. 4. Added option configuration to control whether empty data is uploaded. 5. Add a field `wan_ip` to the configuration information obtained by the remote control command getConfig. 6. Delete the Automatic Reboot and Timing Reboot modules.
V002	2021.12.22	Hobart	1.Update concurrent scan of OneScreenMSR1. 2.Update the frequency band of the WIFI module.

1. Overview

OneScreenMSR1 is a Bluetooth low energy (BLE) to WiFi connectivity gateway without the uses of smartp hones or apps. The OneScreenMSR1 collects the data from iBeacon, Eddystone, BLE sensor and other BLE de vices, and then sends to the local server or remote cloud server by HTTP / MQTT/ TCP protocol over Wi-Fi /Ethernet. The subsequent version OneScreenMSR1 will also implement the connection with BLE devic es. This product is a science fiction with a color lamp ring on the top. It can be fixed by sticker or screw thread.

Outside View
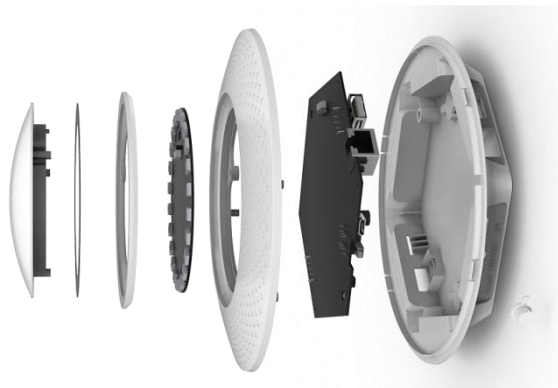
Internal Structure

2. Features

General:

● Supports input with DC 5.0V, 1A, micro-USB. Due to different national standards, this product cannot provide a unified adapter and needs to be purchased by itself
● Supports 10/100 Ethernet with 802.3af PoE
● Supports firmware upgrade Over-the-Air
● Supports HTTP(support SSL/TLS)/MQTT(support SSL/TLS and Proxy)/TCP
● Operating temperature: -25℃ to 65℃

WIFI:

● Wifi module based on the Mediatek's MT7628/MT7688 575MHz 32-bit Application Processor
● 1T1R/2T2R 2.4 GHz with 150/300 Mbps PHY data rate,802.11b/g/n WiFi
● Two USB 2.0 Host Connectors and one TF Card slot
● 128 Mbyte 16-bit DDR2 RAM
● 16 Mbyte SPI NOR Flash
● RGB LED strip as the status indicator
● OpenWrt, Linux distribution for embedded devices.

BLE:

● BLE module based on the Nordic's nRF52832 with ARM® Cortex®-M4 64MHz 32-bit processor
● BLE module have built-in power amplifier chip,make scanning BLE more sensitive
● At least Bluetooth 4.0(Only Bluethooth Low Energy)

3. Typical Application

● iBeacon / Eddystone / other BLE tag receiver
● BLE sensor reader / receiver
● Asset tracking
● Access control management

● Advertisement promotion
● Indoor location and position
● Industrial automation

4. Outside View

OneScreenMSR1

Sign & Slots	Feature Description
ON/OFF	Power On / Off device
Reset	Factory reset or close/open AP or hide/unhide AP
RJ-45	10/100Mbps Ethernet, 802.3af PoE
USB	2pcs external USB2.0 slot
IN	Micro-USB, power input (5.0V DC, 1A)
TF	TF card slot

The meaning of the top LED Strip Lights status is as follows:

Status	Description
Static LED Strip Lights	Indicates that the gateway is staring
Dynamic white light rotation	Indicates that the gateway has been started
Dynamic LED Strip Lights rotation(Configurable)	Indicates that the gateway is not connected to the server can be configured as a single color of red, yellow and white and adjust the brightness
Dynamic breathing lights	Indicates that the gateway is already connected to the server (Note: The gateway is in the dynamic breathing lights by default, it can step into the energy-saving mode on minute after extinction of lights, you also can set up bright mode in the configuration page if rich enough)
LED Strip Lights go out	Indicates that the gateway is not power or in energy-saving mode
Fast green flash(introduced since v2.0.0)	1. Indicates that the U disk has been identified to gateway; 2. It will be displayed when the U disk is inserted for the first time or when the U disk is detected on the boot; 3. If you do not see the green flashing state within 15 seconds after inserting the U disk, it may be due to poor contact, please change another USB port and check whether the USB device is damaged.
Fast yellow flash(introduced since v2.0.0)	1. Indicates that the gateway is reading or writing data to U disk; 2. When the gateway reads and writes data to the U disk, it will display; 3. Do not force the U disk to be unplugged when the yellow flash is displayed. Such behavior may damage the file system of the U disk.

5. Electronic Parameters

General Information	
Color	White
Size	150x150x36mm
Net Weight	180g
Accessory	1x USB cable, mental fixing and screws

Absolute Maximum Rating	
Power supply (Vcc)	Max. 5.5 Volts, DC
Storage temperature	-40℃ to 85℃
Voltage ripple	+/- 2%

Operation Condition (Recommendable)	
Operating temperature	-25℃ to 65℃
Humidity	Max 95%, Non condensing, relative humidity
Power supply (Vcc)	DC 5.0 (+/- 5%)

Current Consumption	
Powered by Micro-USB	290mA (Wi-Fi only)
	330mA (LED strip and Wi-Fi works in the same time)
Powered by PoE	300mA (Wi-Fi only)
	340mA (LED strip and Wi-Fi works in the same time)

Wi-Fi RF Performance	
Wireless	IEEE 802.11b/g/n (single stream)
Network modes	Router, Repeater
Data rate	IEEE 802.11b, 1-11Mbps IEEE 802.11g, 6-54Mbps IEEE 802.11n(2.4GHz), 7.2-72.2 Mbps
Frequency band	$2.412 - 2.462$ GHz
Number of selectable Sub channels	11 channels
Channel Bandwidth	20 MHz/40MHz
Modulation	OFDM, DSSS, DBPSK,DQPSK, CCK , 16 / 64QAM
Maximum receive input level	- 10dBm (with PER < 8%@11 Mbps) - 20dBm (with PER < 10%@54 Mbps) - 20dBm (with PER < 10%@MCS7)
Minimum receive input level	- 87dBm (typ. with PER < 8%@11 Mbps) - 70dBm (typ. with PER < 10%@54 Mbps) - 70dBm (typ. with PER < 10%@MCS7)
Transmit Power	Max power:16.18dBm (typical)@ 802.11b
Carrier Frequency Accuracy	+/- 20ppm (crystal: 16MHz +/-10ppm in 25℃)
Antenna	6dBi flexible FPC antenna
Range	up to 90 meters(in open space)
Security	WPA / WPA2 PSK

BLE RF Performance	
Transmission Power	Ranges from -30 to +4dBm
RF Power Accuracy	+/- 4 dB
Receiver Sensibility	-108 dBm @250kbps, 0.1% BER -93 dBm @1Mbps, 0.1 %BER
Maximum Received Signal Strength at <0.1% PER	0dBm
Frequency Deviation	+/-250 kHz @BLE
Antenna	Flexible FPC antenna
Scanning & concurrently process	300 BLE packets per second
Range	up to 300 meters in open space

FCC Requirement

changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

Note: 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 receiver.
– Connect the equipment into an outlet on a circuit different from that towhich the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.
   To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.