

Smart Socket Product Specification

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1. Introduction

1.1 Product Background

With the growing popularity of smart home concepts and rising demands for quality of life, smart sockets have seen increasing market demand as devices enabling remote control and intelligent management of electrical appliances. Traditional sockets only provide basic power supply functions, failing to meet users' needs for smart control of electrical devices. The emergence of smart sockets has revolutionized this landscape, delivering more convenient, secure, and energy-efficient electricity usage experiences.

1.2 Product Overview

The smart socket is an intelligent hardware device based on Bluetooth Mesh (Low Energy Bluetooth Mesh technology), featuring a controllable socket (with built-in chips for switch status control) combined with a BLE Mesh module (originally named BLEMesh(Socket), collectively referred to as Mesh nodes. These nodes require networking with a Gateway, which connects to web interfaces or mobile devices. Users can remotely monitor and control socket operations through apps or web interfaces, enabling functions like energy consumption tracking and scheduled power switching. The Gateway also collects socket data to transmit to energy storage systems, allowing real-time adjustments based on power usage patterns for optimized energy management. Additionally, the smart socket incorporates overload protection mechanisms to ensure electrical safety.

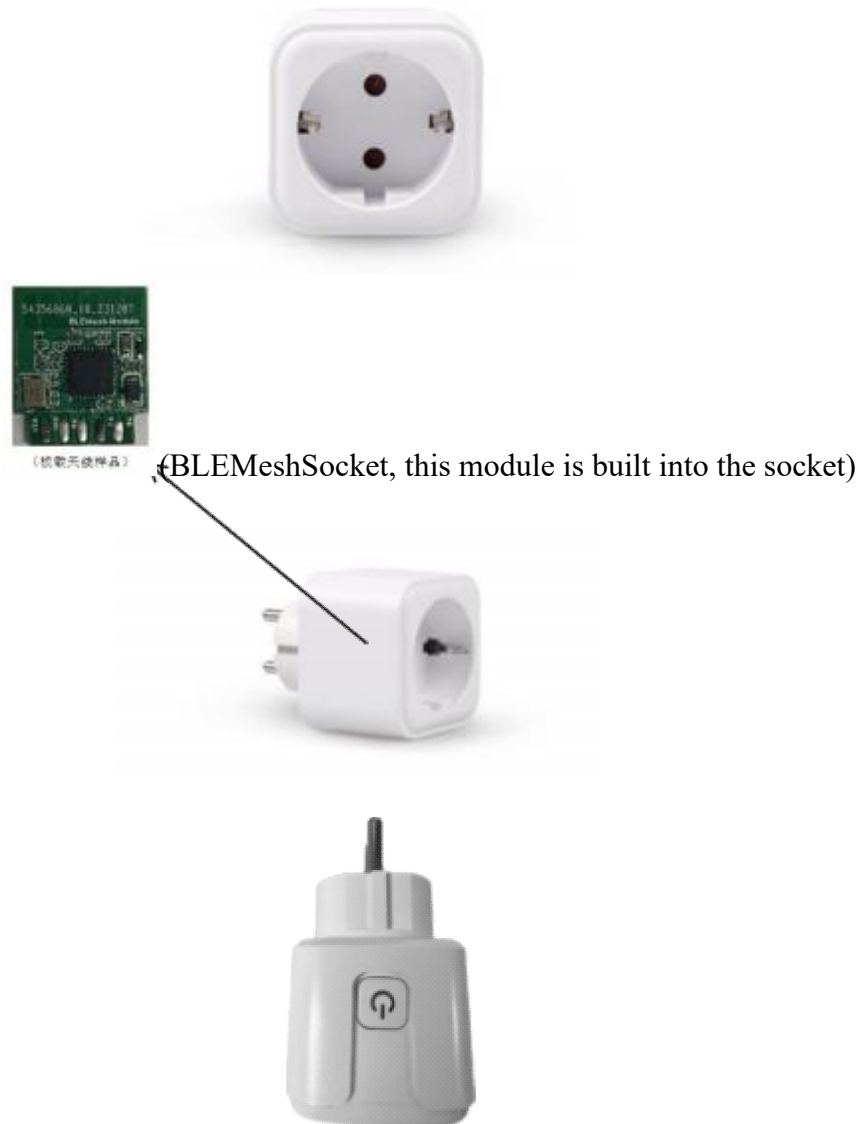
2. Functional Characteristics

- (1) Data transmission for electricity and power consumption facilitates energy tracking;
- (2) Standard BLEMesh architecture for enhanced connectivity efficiency;
- (3) Remote control for electricity safety protection anytime, anywhere (the following outlines the command issuance process and information upload process via mobile or web interfaces);
- (4) Supports overload protection and automatic shutdown functions;
- (5) Multi-to-multi communication topology structure;
- (6) Highly scalable, easy to deploy and use.

3. Product Appearance

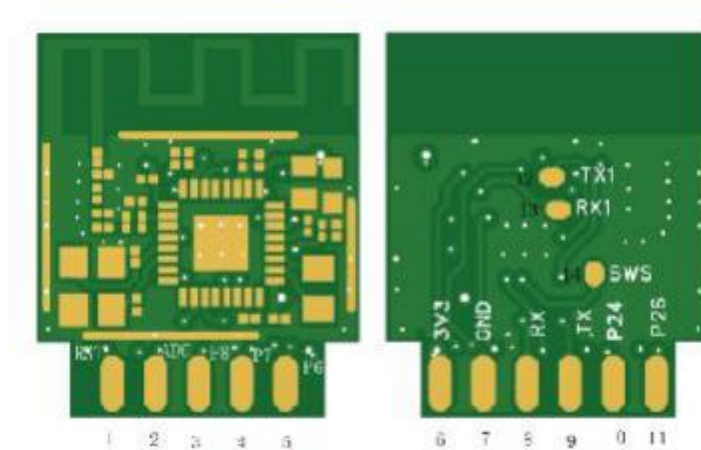
3.1 Socket Dimension Diagram

3.2 Socket Product Diagram



key	function	description
	pilot lamp	The power outlet does not light up by default after being powered on. It remains blue when manually turned on and turns off when turned off.
	switch	Press and hold for 1 second to activate (internal relay switch; if closed, it cannot control power devices connected to sockets). Short press 1S to turn off; Long press 5 seconds to exit networking and turn off the device. Re-network after turning it on again.

4. Mesh Node Pin Definition



pin	Pin name	description
1	RST	Module reset pin, high-level output upon power-on
2	ADC	ADC port, with low-level signal at startup
3	P8	Supports hardware PWM and outputs high level when the module powers on
4	P7	Supports hardware PWM (pulse detection)
5	P6	Supports hardware PWM (pulse detection)
6	VDD3V3	Power supply 3V3
7	GND	Power supply ground
8	RX	Data receiving pin, high-level output upon power-on
9	TX	Data transmission pin, output high level upon power-on
10	P24	support hardware PWM
11	P26	Supports hardware PWM with low-level output during module startup
12	TX1	Debugging print port data transmission
13	RX1	Debugging print port data reception
14	SWS	Module burning script

5. Product Specifications

5.1 Socket Specifications

zone of application	European Standard/German Standard
size	50mm*50mm*64mm (excluding pins)
flame retardancy	UL 94 V0
levels of protection	IP20
source	AC 110~250V/50/60Hz 16A
power	<3680W
Device power consumption	Peak power consumption <2W
Measurement parameter	Forward and reverse active power, forward and reverse active energy
measuring accuracy	3%
memory	2MB
Electrocution prevention	Electrical Shock Protection Door
working temperature	-20°C~+50°C
Working humidity	10%~70%RH (25°C)
above sea level	0-4000m
Storage temperature	-40°C~+90°C
Storage humidity	≤40%RH (25°C)
Bluetooth Standard	BLE5.0
Internal communication interface type (BLE Mesh & jack)	TTL
External communication interface type (BLE Mesh & Gateway)	PDA
Bluetooth transmission range	≤20m
Operating frequency band	2.4GHz
check bit	NONE/ODD/EVEN
data bit	8
stop bit	1
Baud rate	2400bps to 115200bps (default: 9600bps)
Antenna configuration	board-mounted antenna
data rate	1Mbps
firmware version	TBD
work pattern	Transparent transmission mode
Parameter configuration method	CT instruct