User Manual

SLP-501 Module
User Manual

Version 1.1

SLPTECH Co., Ltd
2015-12-24

1. Key Features

Bluetooth Module

SLP-501

RoHS Compliant

- ▶ Bluetooth Specification V4.0 BLE compliant
- ▶ Maximum transmit power : 5.5 dBm ±0.5 dB
- ▶ UART interface with programmable baud rate
- ▶ -92.5dBm Bluetooth low energy receive sensitivity
- ▶ Support for Bluetooth v4.0 specification host stack including ATT, GATT, SMP, L2CAP, GAP
- ▶ <600nA current consumption in dormant mode
- ▶ Dimension: 19.10mmx11.20mmx2.50mm

2. Applications

- ▶ HID : keyboards, mice, touchpads, remote controls
- ▶ Sports and fitness sensors: heart rate, runner speed and cadence, cycle speed and cadence
- ▶ Health sensors : blood pressure, thermometer and glucose meters
- ▶ Mobile accessories: watches, proximity tags, alert tags and camera controls
- ▶ Smart home : heating control and lighting control
- ▶ Automobile, Home electronics
- ▶ Industrial applications, Instrument & Meter
- ▶ Sensors
- ▶ Hand-held devices
- ▶ Transportation systems

3. Module Package Information

3.1 Pinout Diagram

SLP-501 Module pin diagram is shown in the Figure 3.1 below

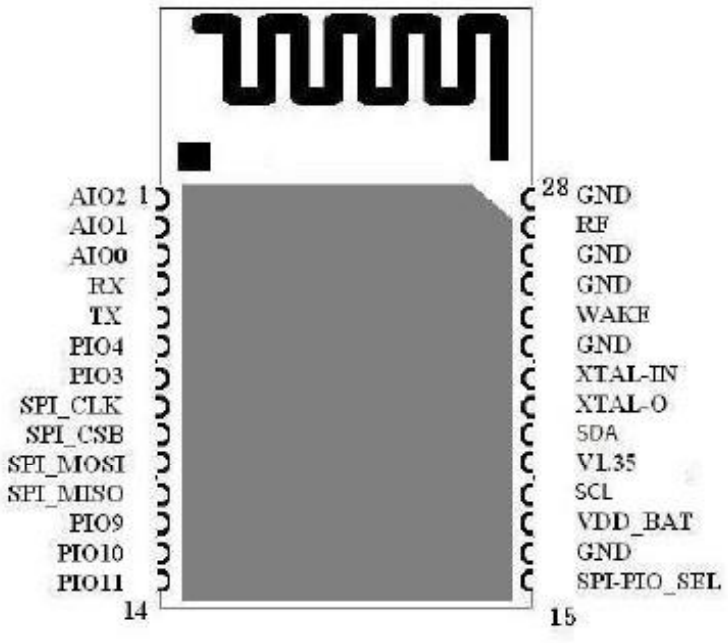


Figure 3.1 : SLP-501 Module Pin Diagram

3.2 Pin Description

The Pin description of SLP-501 is shown in the Table 3.1 below.

No	Pin Name	I/O	Description
1	AIO2	A	A/D convertor
2	AIO1	A	A/D convertor
3	AIO0	A	A/D convertor
4	RX	I	UART data input, active high
5	TX	O	UART data output, active high
6	PIO4	I/O	Programmable I/O
7	PIO3	I/O	Programmable I/O
8	SPI_CLK	-	Debug port
9	SPI_CSB	-	Debug port
10	SPI_MOSI	-	Debug port
11	SPI_MISO	-	Debug port
12	PIO9	I/O	Programmable I/O
13	PIO10	I/O	Programmable I/O
14	PIO11	I/O	Programmable I/O
15	SPI_PIO_SEL	I	SPI Debug and PIO Selection, H means SPI, L means PIO
16	GND	GND	Ground
17	VDD_BAT	VDD	Module supply voltage, 1.8~3.6 VDC
18	SCL	I/O	I^2C clock
19	V1.35V	O	1V35 Output, don't suggest using
20	SDA	I/O	I^2C data input / output
21	XTAL-O	O	32.768KHz Crystal output, no fit if has the crystal on board
22	XTAL-IN	I	32.768KHz Crystal input, no fit if has the crystal on board
23	GND	GND	Ground
24	WAKE	I	It is used to wake up module. Internal 4.7KΩ pull down
25	GND	GND	Ground
26	GND	GND	Ground
27	RF	RF	ANT
28	GND	GND	Ground

Table 3.1 : Pin description

List of abreviations : Analog (A), Input (I), Output (O), Ground (GND).

Notes: Voltage level of input (I), output (O) and input/output (I/O) pins is the same as VDD-BAT

4. General Specifications

The general specifications are show in the Table 5.1 below.

No	Item	Specification
1	Supply voltage	1.8~3.6V ± 0.1V regulated voltage. (Noise < 50mVP-P)
2	supply current	Maximum current (peak) : 16mA @ 3.0V
3	Dormant	<600mA, All function are shut down to wake them up, toggle the WAKE pin.
4	Hibernate	<1.5uA
5	Deep sleep	<5uA, 1ms wake-up time
6	Idle	<0.5mA, <1us wake-up time
7	Frequency range	2400MHz ~ 2483.5MHz (ISM-Band)
8	RX / TX active	~16mA @ 3V peak current
9	Maximum data rate	1M
10	Receiving sensitivity	-92.5dBm
11	Transmission power	5.5 dBm ±0.5 dB
12	Externam interfaces	5 GPIO (all voltage level is 0~Vdd, 3 Analogue input)
13	Operation temperature	-30℃ to +85℃
14	Storage temperature	-40℃ to +150℃
15	Bluetooth specification	Version 4.0 BLE
16	Dimension	19.10 X 11.2 X 2.5mm

Table 4.1: General specifications

5. UART Interface

SLP-501 Universal Asynchronous Receiver Transmitter (UART) interface provides a simple mechanism for communicating with other uart devices.Two signals are used to implement the UART function. When SLP-501 is connected to another uart device, RX and TX transfer data between the two devices. All UART connections are implemented using CMOS technology and have signal levels of 0V and VDD.

UART configuration parameters, such as Baud rate and packet format are set up at factory.

Table 5.1 shows a list of commonly used Baud rates

Parameter	Possible Values
Baud Rate	Minimum:1200 Baud (≤2%Error)
	Maximum:2MBaud (≤1%Error)
Flow Control	None
Parity	None, Odd or Even
Number of Stop Bits	1 or 2
Bits per channel	8

The maximum baud rate is 9600 baud during deep sleep.

Table 5.1 : Possible UART Settings

Standard baud rates supported(bps):1200,2400, 4800,9600,19200,38400,57600,76800,115200, 230400, 460800, 921600, 1382400, 1843200

NOTE : If the module is connected to RS232 interface, voltage level transfer IC must be used.

6. Application

6.1 Application Block diagram

Figure 6.1 shows application informations about SLP-501

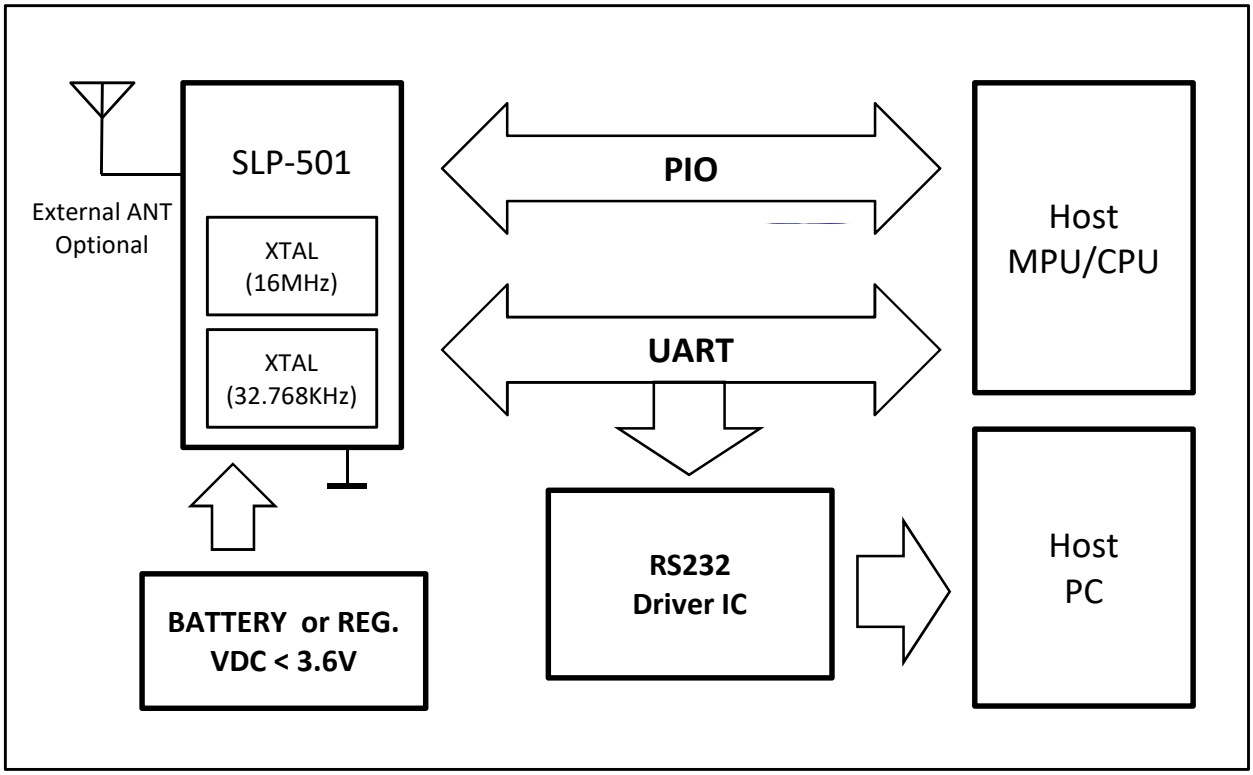
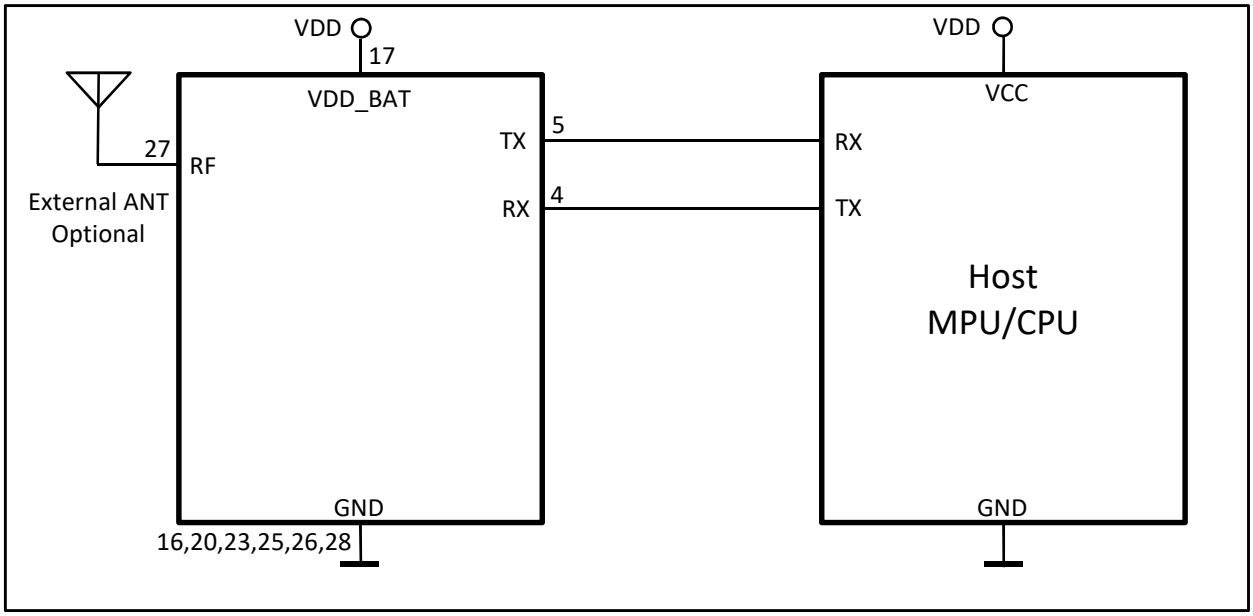


Figure 6.1 SLP-501 Application Block Diagram

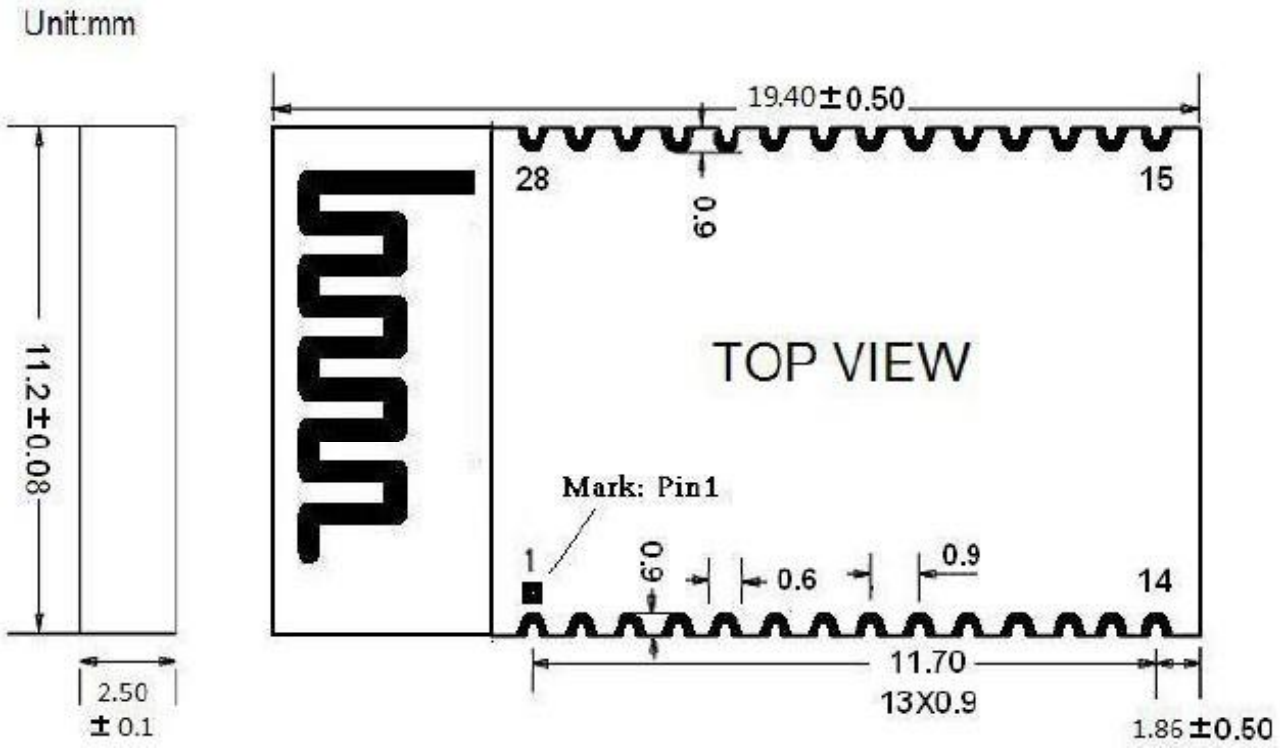
6.2 Schematics



6.3 LED STATUS

TBD

7. Dimension



8. Ordering Information

Model	Interface	Baudrate	Configurations
SLP-501		Optional	

9. Contact Information

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10. Document References

11. Document History

Revision	Data	Change Reason
V1.1	2015/12/24	Dimension is changed.

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FCC statement

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.

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

※This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

A minimum separation distance of 20 ㎝ must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

LABELING REQUIREMENTS:

The Original Equipment Manufacturer (OEM) must ensure that FCC labelling requirements are met. This includes a clearly visible label on the outside of the OEM enclosure specifying the appropriate SLPTECH Co., Ltd. FCC identifier for this product as well as the FCC Notice above. The FCC identifier is FCC ID: 2ALHISLP-501.

In any case the end product must be labeled exterior with "Contains FCC ID: 2ALHISLP-501"

SLP-501
Application Information