

# Meye Security LTD

## User manual

**Bluetooth wireless technology** is a short-range radio technology. Bluetooth wireless technology makes it possible to transmit signals over short distances between telephones, computers and other devices and thereby simplify communication and synchronization between devices. It is a global standard that eliminates wires and cables between both stationary and mobile devices.

Bluetooth radio uses a fast acknowledgement and frequency-hopping scheme to make the link robust, even in noisy radio environments.

### 1.Scope

The module Bluetooth RF is a version 1.0 Class 1 high power level with integrates RF and Base-Band controller in small package.

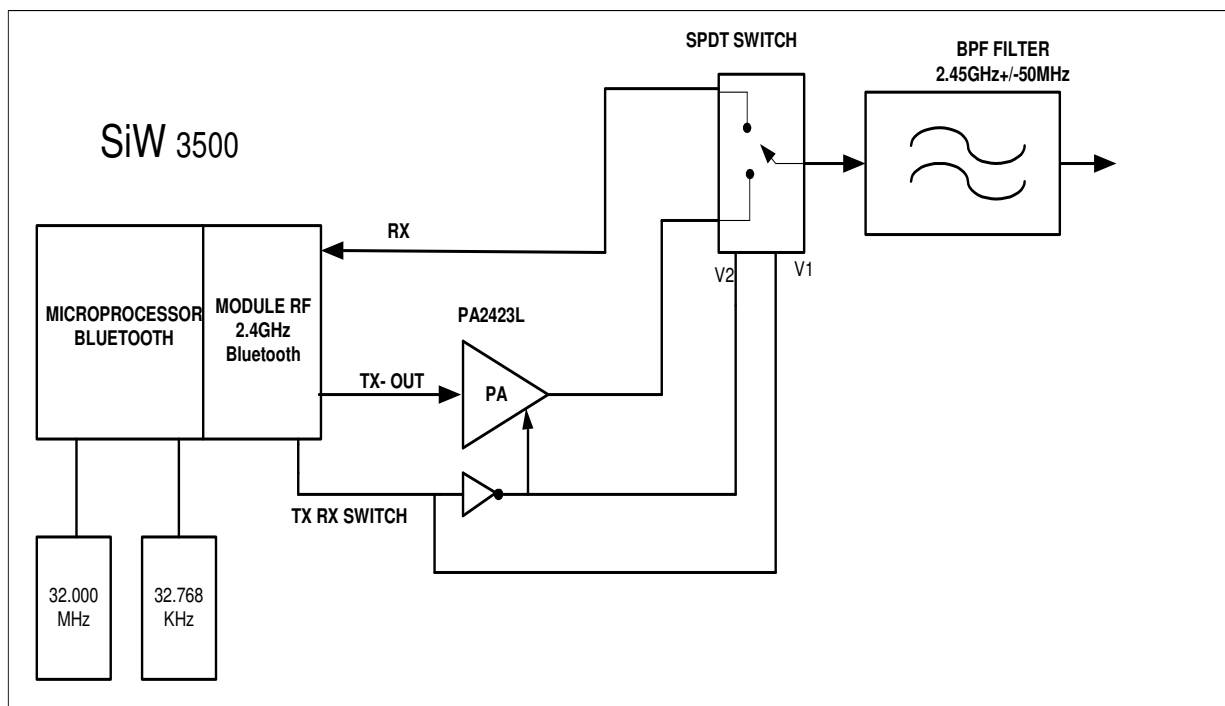
### 2. Definition for type of module.

The architecture in this module is **class 1** with 39 pads to integration in another smart module by MTEYE.

The module Bluetooth it's being supported the HCI communication and power supply from two batteries.

The output signal RF its matching to **50** ohms direct to the mother board antennas This pad it's the only signal RF that its supplier from the RF module Bluetooth.

### 3.BLOCK DIAGRAM



**Figure1: block diagram**

## **4. SPECIFICATION**

### **4.1 OPERATING RATING**

SUPPLY VOLTAGE = 3.6 V MAX [supply from mother board]  
INTERNAL REGULATION = 1.85 VDD  
TEMPERATURE RANGE = -35c TO 75c

### **4.2 ABSOLUTE RATING**

SUPPLY VOLTAGE = 3.63 V MAX [supply from mother board]  
1.8 V MINIMUM  
TEMPERATURE RANGE = -55c TO 125c  
RF INPUT SIGNAL (TO RX MODE) = +5dBm

## **5. GENERAL PARAMETER**

<b><u>NO</u></b>	<b><u>ITEMS</u></b>	<b><u>SPECIFICATION</u></b>
<b>1</b>	DEEP SLEEP CURRENT CONSUMPTION	24 $\mu$ A
<b>2</b>	CARRIER FREQUENCY	2.402 MHz to 2.480MHz
<b>3</b>	Modulation method	GFSK ,1 Mbps , 0.5BT GAUSSIAN
<b>4</b>	Maximum Data Rate	732 Kbit/sec
<b>5</b>	Output power	+18 dBm max
<b>6</b>	RF input/output impedance	50 $\Omega$
<b>7</b>	Base band crystal OSC	32.000 MHz
<b>8</b>	Host interface	UART
<b>9</b>	Hopping Frequency	2402to 2480 MHz f= 2402+k MHz . k=0, 1, 2, 3 ....78
<b>10</b>	Receiver Sensitivity	-80dBm
<b>11</b>	Current at max output power	82 mA

## 6. INTERFACE DESCRIPTION

### 6.1 UART Interface.

This reference design includes an interface compliant With the HCI UART Transport Layer (Part H4) and 3-Wire UART Transport Layer (Part H5).

The firmware auto-detects between H4 and H5 UART, providing a simple mechanism For communicating with other digital devices using the RS-232 standard.

### 6.2 Hardware Signals.

Four signals are used to implement the UART interface, With two optional signals Available for Enhanced power management features. UART\_RXD and UART\_TXD transfer Data between the host and SiW3500. UART\_CTS and UART\_RTS can be used to implement RS-232 hardware flow control. EXT\_WAKE and HOST\_WAKEUP are used to Controls sleep functions of the SiW3500 and host, Respectively. All UART connections are implemented using CMOS technology with Signal levels of 0 V and VDD\_P.

The RS-232 port on a standard PC is also a UART interface. These RS-232 ports use different voltage levels to represent "high" (3 V) and "low" (-3 V). To interface the SiW3500 UART port to a PC's serial port or other RS-232 device, it is necessary to Use an RS-232 transceiver to translate between the I/O levels available from the SiW3500 and the RS-232 levels available from a PC or other such device.

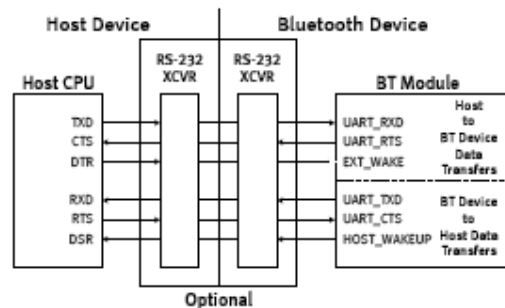


Figure 2: UART Interface

**Note:** In order to communicate with the UART at high data rates (Typically above 115 Kbaud) using a standard PC, A high-speed serial port adapter card is typically required for the PC

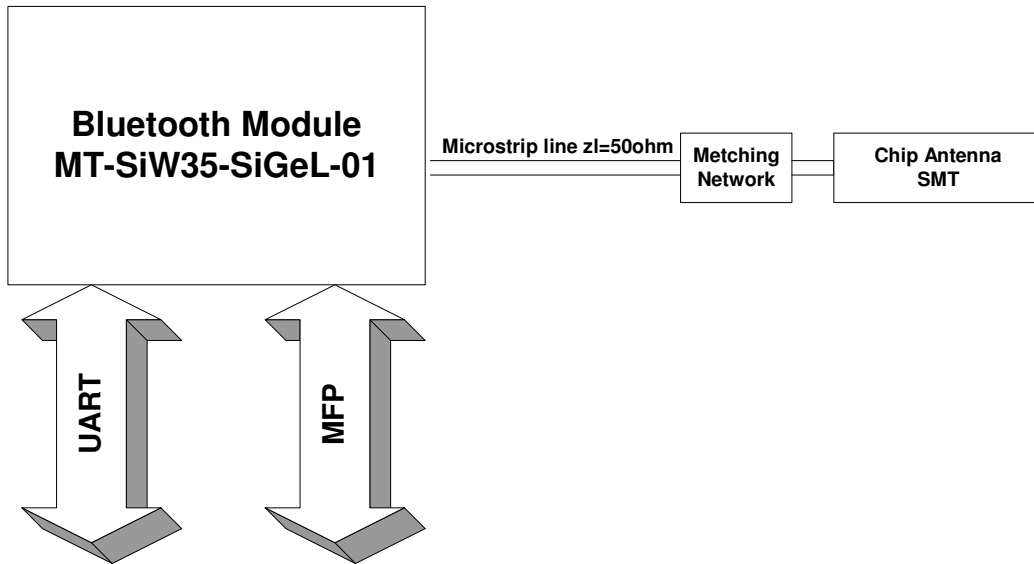
## 7. Module Bluetooth Pads

Number pad	Symbol	I/O	Description
1	D_GND	GND	GND
2	AUX_UART_TXD	Output.	Auxiliary UART serial port output.
3	PCM_CLK	CMOS bi-directional	PCM synchronous data clock
4	PCM_SYNC	CMOS bi-directional	PCM synchronization data strobe
5	PCM_IN	CMOS bi-directional	PCM data output from SiW3500.
6	PCM_OUT	CMOS bi-directional	PCM data input to SiW3500.
7	EXT_WAKE	CMOS input	Wake up signal from host.
8	UART_RTS	CMOS output	UART flow control ready to send.
9	UART_CTS	CMOS input	UART flow control clear to send.
10	UART_TXD	CMOS output	UART transmit data.
11	UART_RXD	CMOS input	UART receive data.
12	D_GND	GND	GND
13	VANLG	IN	V_ANA 3.6
14	ADC_IN	Analog	Analog to digital converter input
15	VANLG	Power	Positive supply to internal analog voltage regulator.
16	MFP_0	CMOS bi-directional	Multi-function I/O port.
17	VCC_OUT	Power	Regulated output from internal analog voltage regulator.
18	MFP_1	CMOS bi-directional	Multi-function I/O port.
19	VDIG	IN	V_DIG 3.6
20	MFP_2	CMOS bi-directional	Multi-function I/O port.
21	VDD_C	OUT	VDD 1.8 V
22	MFP_3	CMOS bi-directional	Multi-function I/O port.

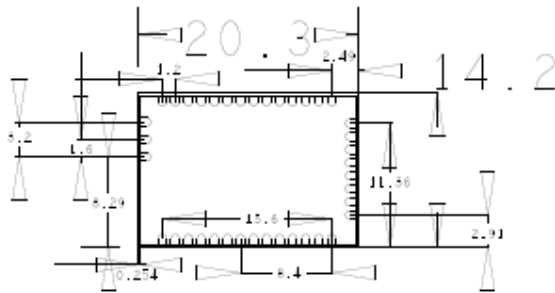
**7. Module Bluetooth Pads [ con]**

23	VDD_P	OUT	VDD 1.8 to External memory
24	MFP_4	CMOS bi-directional	Multi-function I/O port.
25	A_GND	GND	Ground connections
26	TX_RX_OUTPUT	OUT	RF SIGNAL
27	A_GND	GND	GND
28	VDD_ALT	OUT	VDD 1.8 to External UART
29	MFP_5	CMOS bi-directional	Multi-function I/O port.
30	MFP_6	CMOS bi-directional	Multi-function I/O port.
31	TX_RX_SWITCH	OUT	TX/RX SWITCH
32	PWR_REG1_EN	CMOS bi-directional	CLOCK_REQ_OUT control line for external TCXO
33	D_GND	GND	Ground connections
34	D_GND	GND	Ground connections
35	RESET	IN	System level reset
36	SCL	CMOS output	I <sup>2</sup> C CLOCK
37	SDA	CMOS bi-directional	I <sup>2</sup> C DATA
38	WP	CMOS output	Write enable for external memory
39	CLK_32MHz	Analog	System clock crystal

**8. Sample for PCB placement**



**9. Dimension**



**10."FCC 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 or more of the following measures:

- a) Reorient or relocate the receiving antenna.
- b) Increase the separation between the equipment and receiver.
- c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- d) Consult the dealer or an experienced radio/TV technician.

This device complies with Part 15 of the FCC Rules.  
Operation is subject to the following two conditions:

- a) This device may not cause harmful interference
- b) This device must accept any interference received, including interference that may cause undesired operation.

**11.FCC Warning**

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

**Instructions concerning human exposure to radio frequency electromagnetic fields.**

To comply with FCC Section 1.307 (b)(1) for human exposure to radio frequency

electromagnetic fields, implement the following instruction: A distance of at least 30 cm between the equipment and all persons should be maintained during operation of the equipment."