



**成都亿佰特电子科技有限公司**  
Chengdu Ebyte Electronic Technology Co.,Ltd.

## E18-MS1-IPX Datasheet V1.0

### 1. Introduction



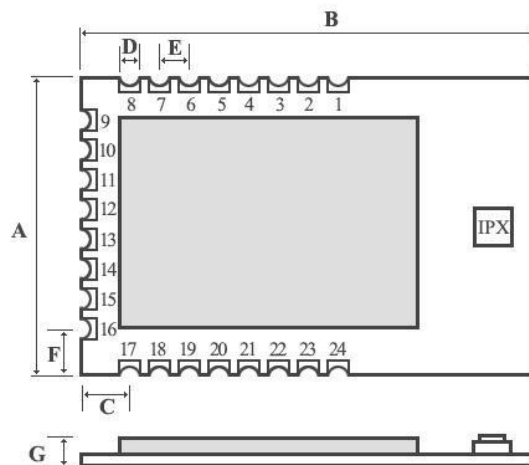
E18-MS1-IPX is a small-size wireless transceiver module, operates at 2.4 GHz and SMD type(Pin spacing is:1.27mm). Module comes with IPEX RF interface and stable batch production. Also, this module is suitable for various applications (especially for smart home) E18-MS1-IPX is based on original imported RF chip CC2530 from TI in America. The IC chip is integrated with 8051 microcontroller and wireless transceiver inside, which is applicable to Zigbee design and 2.4GHz IEEE 802.15.4 protocol. All the IO ports are led out by the module, which means that multi-aspect development is realizable.

E18-MS1-IPX is merely a hardware platform with no procedures when producing. Therefore, secondary development is necessary.

### 2. Electrical parameter

#### E18-MS1-IPX

No.	Parameter item	Parameter details	Description
1	RF IC	CC2530	TI
2	Size	20.8 * 14.1mm	(Without antenna)
3	Weight	1.2g	(Without antenna)
4	Frequency	2405 ~ 2480MHz	2.4GHz IEEE 802.15.4 protocol;
5	PCB technology	4 layers	SMT, ENIG,Lead-free
6	Connector	3 * 8 * 1.27mm	SMD
7	Supply Voltage	2.0 ~ 3.6V DC	Notes: the voltage higher than 3.6V is forbidden
8	Communication level	0.7VCC ~ 5V	VCC refers to the supply voltage
9	Operation Range	200m	Test condition: Clear and open area, 4dBm , antenna gain: 5dBi ,height: 2m , Air date rate: 250kbps
10	Power	4dBm	About 2.5mW
11	Air data rate	250kbps	-
12	Sleep current	1.2uA	MCU in sleep , wireless closed , VCC=3.3V
13	Transmitting current	28mA@4dBm	Power supply capacity must be greater than 300mA
14	Receiving current	27mA	Receives an average current
15	Communication interface	I/O	See details in Pin definition
16	Transmitting length	1~103 bytes	For one package
17	Receiving length	1~103 bytes	For one package
18	RSSI support	Available	Please see more details in IC Datasheet
19	Antenna type	IPEX	IPEX antenna pedestal
20	Operating temperature	-40 ~ +85℃	Industrial-grade
21	Operating humidity	10% ~ 90%	Relative humidity, without condensation
22	Storage temperature	-40 ~ +125℃	Industrial-grade
23	Sensitivity	-97dBm@250kbps	More details please see IC Datasheet

**3. Pin definition****E18-MS1-IPX**

Units: mm


	MIN	MAX
A	14.14	14.15
B	20.8	21.0
C	2.26	2.27
D	0.70	0.71
E	1.27	1.27
F	2.62	2.63
G	2.30	2.50

Pin No.	Pin item	Pin direction	Pin application
1	GND		Ground
2	VCC		Power supply 2.0V ~ 3.6V DC
3	P2.2	Input/output	MCU GPIO
4	P2.1	Input/output	MCU GPIO
5	P2.0	Input/output	MCU GPIO
6	P1.7	Input/output	MCU GPIO
7	P1.6	Input/output	MCU GPIO
8	NC		Empty
9	NC		Empty
10	P1.5	Input/output	MCU GPIO
11	P1.4	Input/output	MCU GPIO
12	P1.3	Input/output	MCU GPIO
13	P1.2	Input/output	MCU GPIO
14	P1.1	Input/output	MCU GPIO
15	P1.0	Input/output	MCU GPIO
16	P0.7	Input/output	MCU GPIO
17	P0.6	Input/output	MCU GPIO
18	P0.5	Input/output	MCU GPIO
19	P0.4	Input/output	MCU GPIO
20	P0.3	Input/output	MCU GPIO
21	P0.2	Input/output	MCU GPIO
22	P0.1	Input/output	MCU GPIO
23	P0.0	Input/output	MCU GPIO
24	RESET	Input	Reset
<p>★ Please see more details in &lt; CC2530 Datasheet &gt;, ★</p> <p>★ such as pin definition, software drivers, and communication protocol. ★</p>			

**4. Note****E18-MS1-IPX**

No.	Item	Attention
1	Static electricity	Please try not to touch the electronic components with bare hands.
2	Welding	When welding, soldering iron needs grounding. The producer needs to wear cable electrostatic bracelet which is grounding when mass production.
3	Power supply	Power quality has a great impact on the performance of the module, please make sure the power supply has small ripple and avoid the frequent and large jitter. $\pi$ filter is recommended (Ceramic capacitor // tantalum capacitor + inductance).
4	Ground	Single-point grounding is recommended. 0 ohm resistor or 10mH inductance are recommended.
5	Antenna	How to install antenna has a great impact on the performance of the module, please make sure the antenna is exposed and vertical upward. It will lead to the transmitting distance greatly weakened if the antenna installs in the interior of housing. When the module is installed in the interior of the housing, high-quality antenna extension line can be used to extend the antenna to the outside of the housing.
6	Interference	If there are different modules work in other frequency band in the same product, the user need to plan rationally and take measures to shield, in case the harmonic interference and intermodulation interference exist.
7	Crystal oscillator	Please increase the liner distance between the crystal oscillators as possible, if there are crystal oscillators in the module near the PCB.

**5. USAGE****E18-MS1-IPX**

No.	Keyword	Note
1	Download firmware	<p>Embedded 8051 MCU, Program-download can only use specified downloader CC-Debugger,, UART or any other tools like JTAG, ISP, ICP cannot be used for download.</p> <p>Demo program can be provided for user as reference. User can download the compiled HEX file directly, or modify on the basis of primary code to achieve their needs.</p> 
2	Test board	N/A

**6. Type Choosing****E18-MS1-IPX**

Model	RF IC	Package	Power	Range m	Antenna Type
E18-MD0-PCB	CC2530	SMD	4dBm	150	PCB
E18-MD0-IPX	CC2530	SMD	4dBm	150	IPEX
E18-MD0PA0	CC2530	SMD	20dBm	1000	PCB/IPEX
E18-MS1-PCB	CC2530	SMD	4dBm	200	PCB
E18-MS1-IPX	CC2530	SMD	4dBm	200	IPEX
E18-MS1PA1-PCB	CC2530	SMD	20dBm	1000	PCB
E18-MS1PA1-IPX	CC2530	SMD	20dBm	1000	IPEX

**7. About us****E18-MS1-IPX**

Chengdu Ebyte Electronic Technology Co., Ltd is a high-tech company, focus on wireless transmission. Our company owns a number of independent research & development products and obtain unanimously approved customers. With powerful R&D team, our company can provide customers with perfect After-sales service and technical assistance.



**成都亿佰特电子科技有限公司**  
Chengdu Ebyte Electronic Technology Co.,Ltd.

【Website】 : [www.cdebyte.com](http://www.cdebyte.com)

【Aliexpress】 : <http://www.aliexpress.com/store/2077046>

【Address】 : Innovation Center D347,4# XI-XIN road, High-tech district(West),Chengdu, Sichuan, China

【Contact person】 : chenfang@cdebyte.com Elaine

【Contact person】 : fanjuan@cdebyte.com Maggie

【Technical support】 : support@cdebyte.com