EBYTE

IOT APPLICATION EXPERT

7x24-hour sales service hotline : 4000-330-990

Phone : 68-028-61399028

Official website : www.ebyte.com www.cdebyte.net

Email : info@cdebyte.com

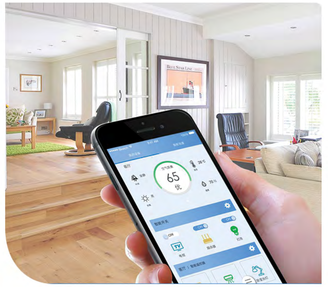
Address : D347, Innovation Center, No,4 Xixin Avenue, High-tech District(west), Chengdu, Sichuan Province

EBYTE

Wireless Module

— Product manual —

Chengdu Ebyte Electronic Technology Co., Ltd



Ebyte is a high-tech company which specializes in wireless communication and provides wireless products, such as LoRa, WiFi, ZigBee, Bluetooth, GPRS,4G-DTU, etc.

With a powerful R&D team, our products have good quality and professional performance so that they can meet the needs of our customers. We have passed ISO9001 quality management system certification and ISO2004 environmental management system certification, and most of the products are certified by CE/FCC/RoHs. We hope to build a good and long-term cooperation with you!

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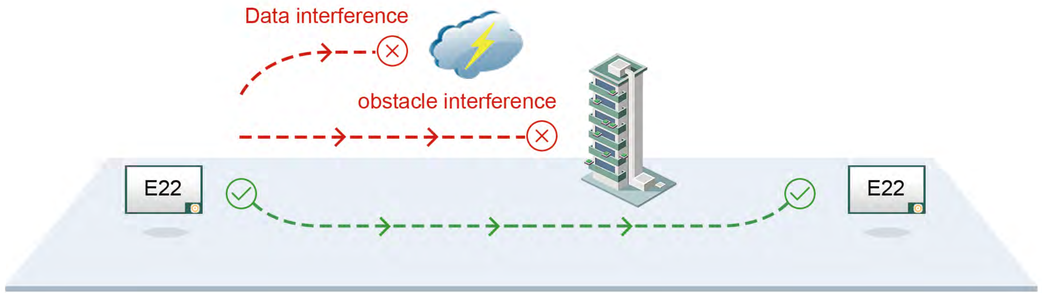
LoRa module

The LoRa spread-spectrum technology enables farther distances to be propagated than other wireless methods under the same power consumption conditions, achieves the unification of low power consumption and long distances, and expands the distance of traditional wireless radio frequency communication by 3-5 times. LoRaWAN is a set of communication protocols and system architecture based on LoRa long-distance communication network design,which is widely used in applications with small data volume, low speed, and long distance transmission.



Anti-jamming,longer transmission distance,and more stable communication

E22 SERIES

- RFIC：SX1262/SX1268
- Frequency：220~930MHz
- Power：22~30dBm
- Distance：5~10km

Adopting the new generation LoRa spread spectrum technology of "SX1262/1268", longer distance, lower power consumption and smaller size. Integrated active temperature compensated crystal oscillator, support for air wake, wireless configuration, carrier monitoring, relay networking, RSSI, deep sleep and other functions, greatly improving the communication success rate of the module in harsh environments.

E32 SERIES

- RFIC：SX1276/SX1278
- Frequency：160~931MHz
- Power：22~30dBm
- Distance：3~8km

Adopting the new generation LoRa spread spectrum technology of "SX1276/1278", FEC forward error correction function, with strong anti-interference ability, long communication distance, low power consumption and other functions, which are widely favored by the industry.

LoRa

E19 SERIES

- RFIC：SX1276/SX1278
- Frequency：410~931MHz
- Power：20~30dBm
- Distance：5~10km

The LoRa spread spectrum technology using "SX1276/1278" has strong anti-interference ability, long communication distance, large FIFO capacity and other functions. It supports multiple modulation modes, such as LoRa™/FSK/GFSK/MSK/GMSK/OOK. It is suitable for various scenarios such as wireless meter reading.

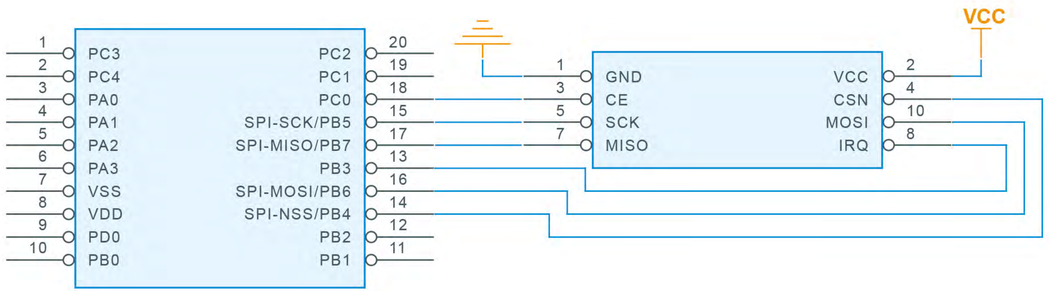
E78 SERIES

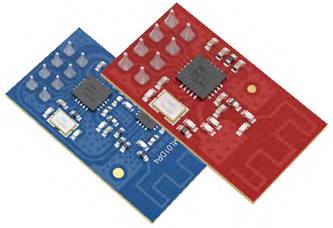
- RFIC：CC1101
- Frequency：387~925MHz
- Power：10~20dBm
- Distance：1~2km

The module using ASR6501 chip of ASR company, ultra-small size, ultra-low power consumption, support LoRaWAN, LinkWAN multiple protocol standards, suitable for a variety of IoT application scenarios.

SPI module

The SPI wireless module is a pure hardware module. Its interface adopts SPI communication method. It needs an external MCU to program the MCU and configure the module's register parameters to complete data communication. Small size and easy integration.





E01 SERIES

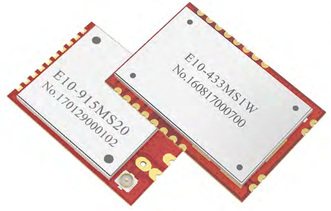
- RFIC：nRF24L01P
- Frequency：2.4GHz
- Power：0~20dBm
- Distance：01~2.5km

Adopt Nordic"nRF24L01P/nRF24L01", integrated industrial-grade high-precision 16MHz crystal, enhanced ShockBurst, fully compatible with all Nordic nRF24L series, nRF24E series, nRF24U series, 125 communication channels, meet multi-point communication, Frequency hopping and other application needs.

E07 SERIES

- RFIC：CC1101
- Frequency：387~925MHz
- Power：10~20dBm
- Distance：1~2km

Adopt American TI "CC1101" chip, integrate industrial-grade high-precision 26MHz crystal oscillator, support multiple modulation modes (OOK \ ASK \ GFSK \ 2-FSK \ 4-FSK and MSK), with independent 64-byte RX FIFO and TX FIFO , RSSI, LQI and other functions.



E10 SERIES

- RFIC：SI4463
- Frequency：425~925MHz
- Power：20~30dBm
- Distance：2~6km

Adopt" SI4463 / SI4438 ", integrated industrial-grade high-precision 26MHz crystal oscillator, with 64/128 bytes of transmit and receive data registers (FIFO), support (G) FSK, 4 (G) FSK, (G) MSK, OOK and more.

E19 SERIES

- RFIC：SX1276/SX1278
- Frequency：160~931MHz
- Power：22~30dBm
- Distance：3~8km

Adopt LoRa spread spectrum technology of "SX1276/1278", with strong anti-interference ability, long communication distance, large FIFO capacity, etc. Support multiple modulation modes LoRa ™ / FSK / GFSK / MSK / GMSK / OOK, suitable for wireless meter reading and many other scenarios. "

E23 SERIES

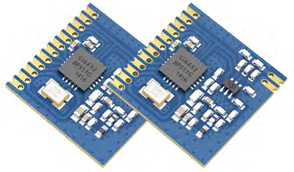
- RFIC：SX1212
- Frequency：410~438MHz
- Power：13dBm
- Distance：0.8km

Adopt SX1212, integrated transceiver and receiver as one, industrial-grade high-precision low-temperature drift active crystal, all imported components, lead-free process, stable performance. Ultra-low receiving current, ultra-small size, support 0.78k-150kbps data Transmission rate, independent 64-byte RX / TX FIFO.

E31 SERIES

- RFIC：AX5243
- Frequency：400~525MHz
- Power：17dBm
- Distance：2km

Adopt AX5243, narrow-band and multi-channel, have multiple modulation methods such as FSK / MSK / GFSK, etc., and have very low power consumption mode. Small size SMD module, adopting industrial grade high precision low temperature drift active crystal, to ensure the accuracy of wireless frequency, industrial characteristics and stability. "



E27 SERIES

- RFIC：SI4432
- Frequency：425~525MHz
- Power：20dBm
- Distance：1.6km

Adopt SI4432 chip, supports frequency hopping, uses industrial-grade high-precision low-temperature drift active crystal oscillator. Internal integrated automatic wake-up timer, low battery power detector, 64-byte transmit / receive, automatic packet processing, integration Temperature sensor, analog-to-digital converter, power-on reset, etc.

E106 SERIES

- RFIC：SX1301
- Frequency：433~510MHz
- Power：27dBm
- Distance：5km

A cost-effective LoRa gateway module based on SX1301, standard LoRaWan gateway, PCI-e interface and 52 pins, small size and easy for integration. It communicates with the host through an SPI interface and provides 10 programmable parallel demodulation paths.

E22 SERIES

- RFIC：SX1262/SX1268
- Frequency：220~930MHz
- Power：22~30dBm
- Distance：7~14km

It adopts the new generation LoRa spread spectrum technology of "SX1262/1268". Compared with SX1278, it has longer distance and lower power consumption. It is compatibility with the same series of transceivers, relay networking and large FIFO Functions and so on, which greatly improves the communication success rate of the module in harsh environments.

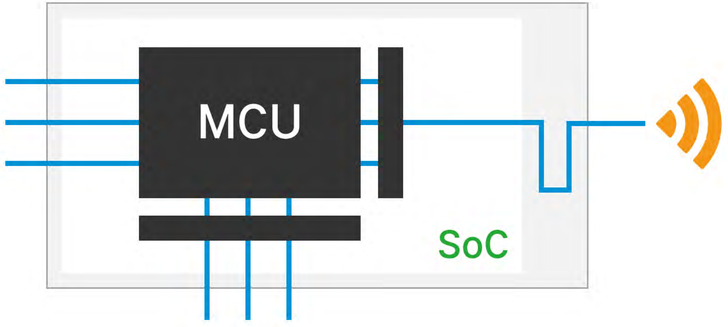
E28 SERIES

- RFIC：SX1280
- Frequency：2.4GHz
- Power：20/27dBm
- Distance：6km

It adopts SX1280 of Semtech, integrates 52MHz industrial grade high precision low temperature drift active crystal and is compatible with BLE protocol. It supports multiple modulation modes (GFSK Mode, FLRC Mode, LoRa Mode), ranging, Time-of-Flight function, with excellent anti-blocking characteristics.

SoC module

The LoRa spread-spectrum technology enables farther distances to be propagated than other wireless methods under the same power consumption conditions, achieves the unification of low power consumption and long distances, and expands the distance of traditional wireless radio frequency communication by 3-5 times. LoRaWAN is a set of communication protocols and system architecture based on LoRa long-distance communication network design,which is widely used in applications with small data volume, low speed, and long distance transmission.



Bluetooth

E72 SERIES

- RFIC: CC2640/2650
- Frequency: 2.4GHz
- Power: 2~5dBm
- Distance: 200~500m

The BLE4.2 Bluetooth module based on CC2640, built-in high-performance and low-power Cortex-M3 and Cortex-M0 dual-core processors, integrated 24MHz industrial-grade high-precision low-temperature drift active crystal.

ZigBee

E72 SERIES

- RFIC: CC2640/2650
- Frequency: 2.4GHz
- Power: 5~23dBm
- Distance: 0.5~1.5km

Adopt CC2630 from TI, built-in high-performance and low-power Cortex-M3 and Cortex-M0 dual-core processors, integrated 24MHz industrial high-precision low-temperature drift active crystal, built-in ZigBee, 6LoWPAN protocol stack, built-in 32.768 kHz clock crystal oscillator.

E73 SERIES

- RFIC: nRF52810/32/40/51822
- Frequency: 2.4GHz
- Power: 4dBm
- Distance: 100~500m

The Bluetooth module based on the IC from Nordic, supports BLE4.2 and BLE5.0, which contains high-performance ARM CORTEX, and a built-in 32.768kHz clock crystal oscillator.

E75 SERIES

- RFIC: JN5168/5169
- Frequency: 2.4GHz
- Power: 20dBm
- Distance: 1km

Adopting JN5168 / JN5169 from NXP, built-in 32-bit high-performance low-power processor, supports FastZigBee, ZNET, JenNet-IP, ZigBee-PRO, RF4CE and other protocols.

E76 SERIES

- RFIC：EFR32
- Frequency：420~931MHz
- Power：20dBm
- Distance：2.5km

Using EFR32 produced by Silicon Labs, integrated 32-bit ARM microcontroller and high-performance wireless transceiver, integrated 40MHz industrial-grade high-precision low-temperature drift active crystal, passed the FCC, CE, CCC and other related domestic and foreign certifications meet export demand.

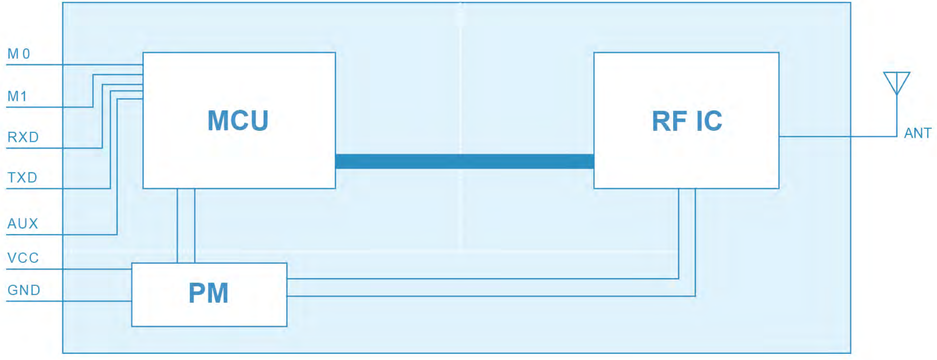
E78 SERIES

- RFIC：ASR6501/6505
- Frequency：410~925MHz
- Power：22dBm
- Distance：7km

Using ASR6501 chip of ASR company, built-in 32-bit Cortex-M0 processor, ultra-small size, ultra-low power consumption, active temperature-compensated crystal, support LoRaWAN, LinkWAN multiple protocol standards, suitable for a variety of IoT application scenarios.

UARTmodule

The wireless UART module is embedded with a high-speed MCU and a high-performance radio frequency chip, and provides a standard UART interface with TTL-level.The modules support a variety of serial baud rates and verification methods. The module's external interface uses transparent data transmission methods, which can used to standard or non-standard user protocols, and achieve wireless communication between the module and the customer's microcontroller.R&D engineers can reduce the development difficulty and shorten the development cycle.



E22 SERIES

- RFIC：SX1262/SX1268
- Frequency：220~930MHz
- Power：22~30dBm
- Distance：7~14km

Using the new generation of LoRa based on SX1262/1268, which has a longer distance, lower power consumption, smaller size and supports air wake, wireless configuration, carrier monitoring, relay networking, RSSI, deep sleep, etc., greatly improves the communication success rate of the module in harsh environments.

E30 SERIES

- RFIC：SI4438
- Frequency：148~880MHz
- Power：10~20dBm
- Distance：2km

Using SI4438/4464, it supports air wake, low power consumption, hardware FEC forward error correction algorithm and other functions. The coding efficiency is high, stable and reliable.

E31 SERIES

- RFIC：AX5243
- Frequency：225~525MHz
- Power：17dBm
- Distance：2km

Adopt AX5243 from AXSEM in Switzerland, which has the functions of wake-up in the air, low power consumption, narrow-band transmission (ultra-narrow-band GFSK modulation), hardware FEC forward error correction algorithm and other functions, and has higher coding efficiency.

E32 SERIES

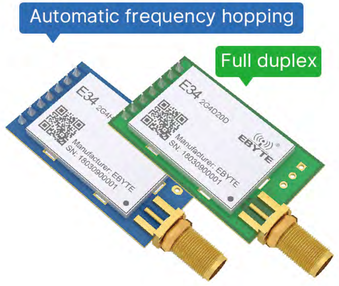
- RFIC：SX1276/SX1278
- Frequency：160~931MHz
- Power：10~30dBm
- Distance：3~8km

It adopts SX1276/1278 of LoRa, and integrated active temperature-compensated crystal oscillator. It has strong anti-interference ability, long communication distance, and low power consumption.

E33 SERIES

- RFIC: SX1212
- Frequency: 425~440MHz
- Power: 13dBm
- Distance: 800m

Using SEMTECH's SX1212, it has ultra-low power consumption, single-point wake-up, ultra-narrowband GFSK modulation, fixed-point transmission, and other functions.



E34 SERIES

- RFIC: nRF24L01+
- Frequency: 2.4GHz
- Power: 10~27dBm
- Distance: 5km

Using nRF24L01+ from Nordic, H series has functions such as automatic frequency hopping, fixed frequency communication, automatic packet loss and retransmission functions. The transmission speed is fast, the delay is small, and the communication anti-jamming ability is greatly improved. The D series has full-duplex characteristics at 57600 baud rate (two-way simultaneous transmission and receving), ultra-narrowband GFSK modulation, and low power consumption.

E62 SERIES

- RFIC: -
- Frequency: 425~450MHz
- Power: 10~30dBm
- Distance: 3km

With time division full duplex (TDD), frequency hopping spread spectrum (FHSS), FEC forward error correction and other functions, greatly improving the anti-interference ability of communication modules.

E78 SERIES

- RFIC: ASR6501/6505
- Frequency: 410~925MHz
- Power: 22dBm
- Distance: 7km

Adopting ASR6501 chip from ASR company, ultra-small size, ultra-low power consumption, support LoRaWAN, LinkWAN multiple protocol, suitable for a variety of IoT application scenarios.

UART

UART

E70 SERIES

- RFIC：CC1310
- Frequency：425~922MHz
- Power：14~30dBm
- Distance：1.5~6km

With time division full duplex (TDD), frequency hopping spread spectrum (FHSS), FEC forward error correction and other functions, greatly improving the anti-interference ability of communication modules.

Star network

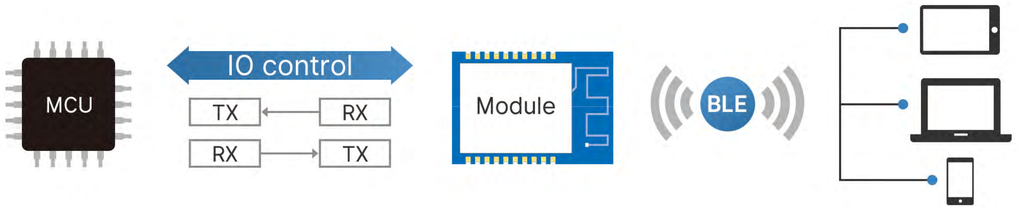
E70 SERIES

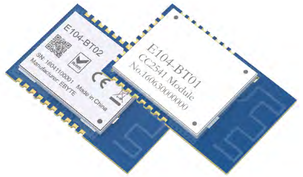
- RFIC：-
- Frequency：433/868MHz
- Power：14~30dBm
- Distance：2.5~6.5km

Star networking module, connect to multi-node concurrency, with CSMA/CA, AES128 data encryption, DSSS spread spectrum technology, low power consumption and other functions.

Bluetooth module

Our Bluetooth products mainly include BLE series, BLE MESH series, classic Bluetooth series, audio Bluetooth series, dual-mode Bluetooth series, BLE 5.0 series, etc,.



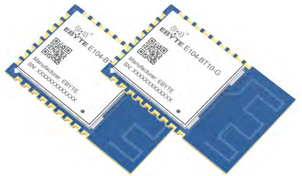


BLE

E104 BT0X SERIES

- RFIC：CC2541
- Frequency：2.4GHz
- Power：0dBm
- Distance：50m

Adopt CC2541/DA14580/TSLR8266, support Bluetooth 4.0/42, with data indication, iBeacon broadcast, broadcast sniffing, air configuration, automatic connection, adjustable Bluetooth packet length and other functions. The module integrates the transparent transmission function and the master-slave function into one, and all the IO ports are led out, which is suitable for secondary development.



BLE MESH

E104 BT1X SERIES

- RFIC：TLSR8269
- Frequency：2.4GHz
- Power：GFSK
- Distance：50m

The Bluetooth mesh self-organizing network module that complies with the sig mesh V1.0 standard. The single network theory can accommodate a maximum of 32767 node devices. After the device is connected to the network, it automatically remembers the network information. The mobile APP can connect to the network with any node to achieve remote control of the mesh network.

CLASSIC BLUETOOTH

E104 BT2X SERIES

- RFIC：RTL8760ATT
- Frequency：2.4GHz
- Power：6dBm
- Distance：50m

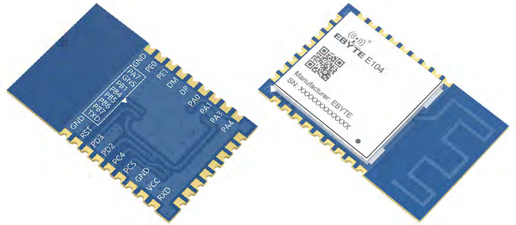
The module complying with Bluetooth Specification V2.1 BR/EDR Bluetooth protocol, based on RTL8760ATT. The module integrates transparent transmission function, BR/EDR master-slave, supports AT command, high-speed continuous transmission, GPIO input/output control And other functions.

AUDIO BLUETOOTH

E104 BT3X SERIES

- RFIC：CSRA64215
- Frequency：2.4GHz
- Power：V4.2+EDR
- Distance：60m

Using CSRA64215, the sixth-generation CVC voice enhancement technology achieves noise reduction and echo cancellation. The driver-free mode provides high-quality sound quality and compatibility for the module, and supports high-quality sound effects such as APTX, APTXLL, ACC. Bluetooth V4.2 + EDR standard specifications, support TWS, automatic reconnection, MIC input, battery power display and other functions.

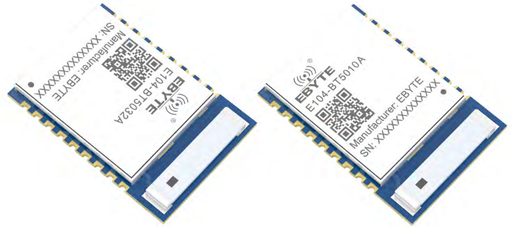


DUAL-MODE BLUETOOTH SERIES

E104 BT4X SERIES

- RFIC：BK3430
- Frequency：2.4GHz
- Power：SPP/BLE
- Distance：50m

Low-cost dual-mode Bluetooth module using BK3430, supports SPP and BLE communication, equipped with PCB antenna, supports 9600bps-115200bps baud rate, ultra-small size, supports AT command configuration method, supports serial flow control , Set query name, query MAC, query pairing code and Bluetooth disconnection function.



BLUETOOTH 5.0

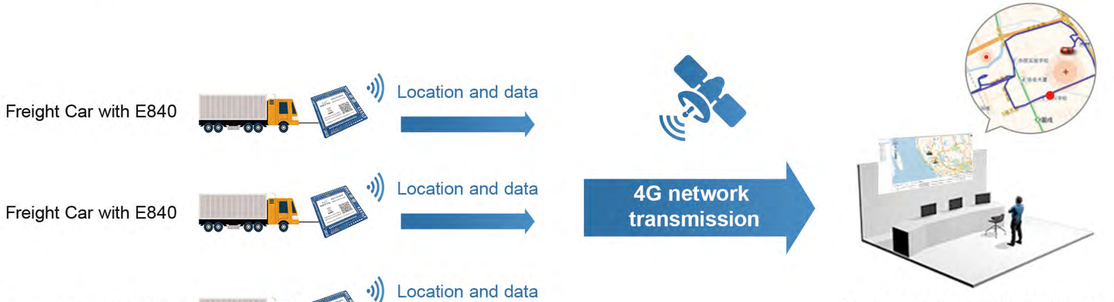
E104 BT5X SERIES

- RFIC：nRF52810/32
- Frequency：2.4GHz
- Power：SPP/BLE
- Distance：50m

Using nRF52810/52832, supports Bluetooth master, slave and observer modes, supports low-power broadcast, IBeacon and ordinary broadcast switch, data transmission, air configuration, serial port wake-up, sniffing function, high-speed continuous transmission functions.

4G/GPRS/NB-IoT/Ethernet

GPRS/4G/NB-IoT products is a kind of wireless data transmission terminal for the IoT. It utilizes the public operator network to achieve two-way transparent transmission of serial data to the network or remote server without Ethernet. Widely used in air quality monitoring, remote monitoring of oil fields, smart agriculture, industrial Internet of Things and other fields.



4G

E840 SERIES

- Transmission type: 4G
- Interface type: UART
- Power: 23~33dBm
- Operator: all Netcom

Supports TCP and UDP network protocols, supports heartbeat packet/registration packet functions, supports SMS sending and receiving, remote query/configuration of device parameters, simultaneous sending and receiving of multiple socket links, and GPS satellite positioning , High-speed data transmission and other functions.

GPRS

E840 SERIES

- Transmission type: 2G/GPR
- Interface type: UART
- Power: 30~33dBm
- Operator: all Netcom

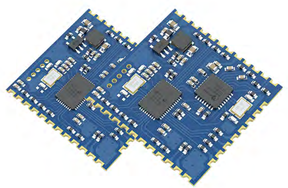
Supports TCP and UDP network protocols, supports heartbeat packet/registration packet functions, and supports functions such as short message sending and receiving, and simultaneous sending and receiving of multiple socket links.

NB-IoT

E840 SERIES

- Transmission type：NB-IoT
- Interface type：TTL
- Power：23dBm
- Antenna type：IPX

Industrial quality, low cost, low power consumption, strong link, and high coverage.



ETHERNET

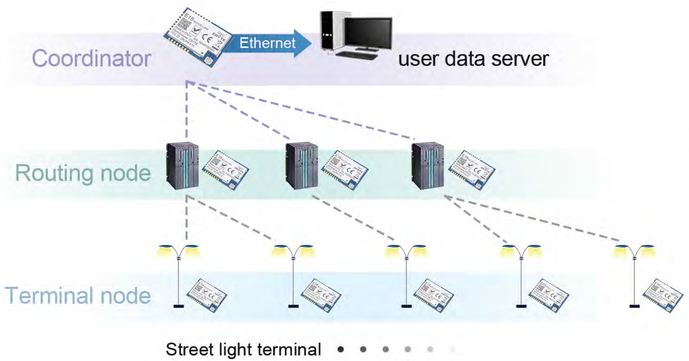
E810

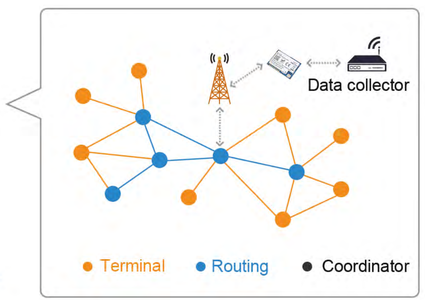
- Interface signal：Ethernet
- Interface type：UART
- network port：RJ45
- Serial port：1200~921600bps

Serial port to Ethernet module supporting TCP/IP network protocol, equipped with M3 series 32-bit processor, built-in operating system, support for adaptive network speed (up to 100M full duplex), TCP Server, TPC Client, UDP Server , UDP Client four working modes, support two SOCKET work, web page configuration.

ZigBee module

ZigBee is suitable for wireless communication with short transmission range and low data transmission rate. It can also be used in a small range of wireless communication-based control and automation fields, eliminating the need for cables between computer equipments and digital equipments, enabling wireless networking of multiple different digital equipment, enabling mutual communication, or connection, or access to the Internet. ZigBee module has low power consumption, low cost, low speed, short distance, short delay, high Capacity, high security, etc.





E72 SERIES

- RFIC：CC2630
- Frequency：2.4GHz
- Power：5~23dBm
- Distance：0.5~1.5km

Small size ZigBee and 6LoWPAN module with CC2630/CC2640, built-in 24MHz industrial-grade high-precision low-temperature drift active crystal, embedded 32-bit ARM Cortex- M3 high-performance processor, convenient for customers to do secondary development.

PCB Antenna

E18 SERIES

- RFIC：CC2530
- Frequency：2.4GHz
- Power：20dBm
- Distance：800m

The original imported RF chip from the TI, integrated 8051 microcontroller and wireless transceiver inside, built-in ZigBee protocol stack, support ADC, PWM, GPIO and other peripheral direct drive, support UART transparent transmission, easy to use , With the function of ad hoc networking.

IPX Antenna

E18 SERIES

- RFIC：CC2530
- Frequency：2.4GHz
- Power：20dBm
- Distance：1km

Using the original imported chip from TI, the chip integrates 8051 MCU and wireless transceiver, built-in ZigBee protocol stack, supports ADC, PWM, GPIO and other peripheral direct drive, supports UART transparent transmission.

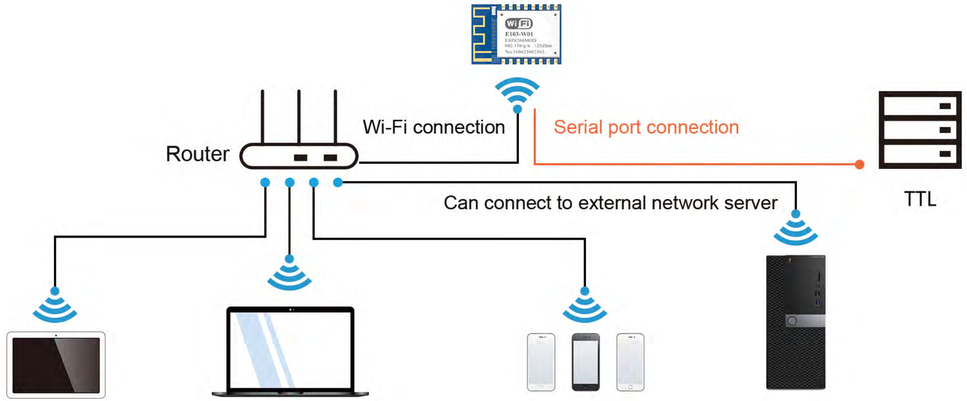
E180 SERIES

- RFIC：EFR32/TLSR8269
- Frequency：2.4GHz
- Power：20dBm
- Distance：1km

It adopts EFR32MG1B/TLSR8269, conforms to ZigBee 3.0 standard network mechanism, and can support ZHA, ZLL and other network protocols. Supports a variety of network topologies such as point-to-point, star network, and MESH networking.

Wi-Fi module

A new generation serial-to-Wi-Fi module with small size and low power consumption. It adopts UART interface, built-in IEEE802.11 protocol stack and TCP/IP protocol stack, which can realize the conversion between user serial port data and wireless network.



W01

E103 SERIES

- RFIC：ESP8266EX
- Frequency：2.4GHz
- Power：20dBm
- Distance：100m

Based on ESP8266EX, integrates the transparent transmission function, ready to use, supports serial AT command, server AT command, supporting AirKiss.

W02

E103 SERIES

- RFIC：CC3200
- Frequency：2.4GHz
- Power：20dBm
- Distance：300m

Developed based on CC3200.It is widely used in wearable devices, home automation, home intelligent security, personal health care, smart appliances, accessories and remote controls, automobiles, lighting, industrial Internet and other fields.

Quality management certification system

National high-tech enterprise

National patent

National 3C certification

3Ccertification

ISO9001

FCC

CE

ROHS

实用新型专利

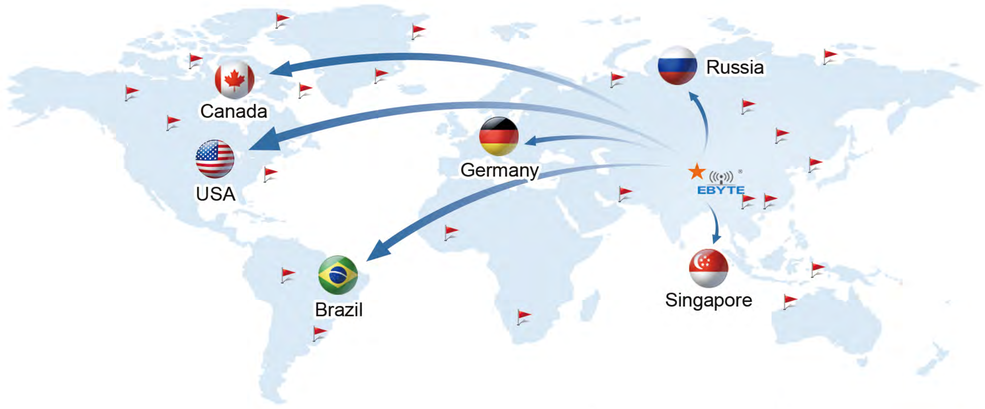
软件著作权

防爆合格证

电台检验报告

型号核准证

Ebyte Exported to many countries and regions around the world



IFA Consumer Electronics

2019 CTA in Singapore

American CES

2018 and 2019 SVIAZ in Moscow

Convergency in India

Hong Kong Autumn Electronics Show

Customization is available

AVIC

Tsinghua University

DJI UAV

Chinese Academy of Sciences

NARI GUODIAN NARI

CETC China Electric Power

China Railway

LEVEL® Liwei Lock Industry

SIEMENS

Goldcard

立创商城 LITRON MALL

GUOTENG GROUP

Product selection • UART

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E22-230T22S	SX1262	220~236	22	5km	0.3~62.5k	Diffraction, suitable for complex environment
E22-230T30S	SX1262	220~236	30	10km	0.3~15.6k	Diffraction, suitable for complex environment
E22-400T22S	SX1268	410~493	22	5km	0.3~62.5k	Stable and reliable,support air wake
E22-900T30S	SX1262	850~930	30	10km	0.3~62.5k	Stable and reliable,support air wake
E28-2G4T12S	SX1280	2400~2500	12.5	3km	1k ~ 2M	Meter reading frequency band,air wake
E30-170T20D	SI4463	148~173.5	20	2km	1k~25k	Meter reading frequency band,air wake
E30-433T20S3	SI4438	425~450.5	20	2km	1k~25k	IoT frequency band,support air wake
E30-780T20S	SI4464	775.1~787.85	10~20	2.5km	1k~25k	EU frequency band,support air wake
E31-230T17D	AX5243	225~237.6	7~17	2km	1.2k~70k	EU frequency band,support air wake
E31-230T27D	AX5243	225~237.6	18~27	5km	1.2k~70k	North American band,support air wake
E31-433T30S	AX5243	425~450.5	30	8.6km	1.2k~70k	North American band,support air wake
E31-433T33D	AX5243	425~450.5	24~33	8km	1.2k~70k	power band, strong penetration diffraction
E32-170T30D	SX1278	160~173.5	21~30	8km	0.3k~9.6k	power band, strong penetration diffraction
E32-400T20S	SX1278	410~525	10~20	3km	0.3k~19.2k	power band, strong penetration diffraction
E32-433T20DC	SX1278	410~441	10~20	3km	0.3k~19.2k	narrow band, low power long distance

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E32-433T20S2T	SX1278	410~441	10~20	3km	0.3k~19.2k	LoRa,long-distance anti-interference
E32-433T30D	SX1278	410~441	30	8km	0.3k~19.2k	LoRa,long-distance anti-interference,FEC
E32-433T30S	SX1278	410~441	21~30	8km	0.3k~19.2k	LoRa,long-distance anti-interference,FEC
E32-868T20D	SX1276	862~893	10~20	3km	0.3k~19.2k	LoRa,long-distance anti-interference,FEC
E32-868T30S	SX1276	862~893	21~30	8km	0.3k~19.2k	LoRa,long-distance anti-interference,TTL output
E32-915T20D	SX1276	900~931	10~20	3km	0.3k~19.2k	LoRa,long-distance anti-interference
E32-915T30S	SX1276	900~931	21~30	8km	0.3k~19.2k	LoRa,long-distance anti-interference,TTL output
E33-433T13D	SX1212	425~440.5	4~13	0.8km	2k~15k	Single point Wake-up,low power consumption
E34-2G4H20D	nRF24L01+	2400~2518	10~20	2.5km	250k~2M	Auto frequency hopping,anti-interference
E34-2G4H27D	nRF24L01+	2400~2518	27	5km	250k~2M	Auto frequency hopping,anti-interference
E34-2G4D20D	nRF24L01+	2400~2518	10~20	2km	Automatic adaptation to baud rate	Full duplex,high-speed continuous transmission
E41-433T20S	-	425~450.5	10~20	2km	2k~15k	Ultra-low power consumption,error correction
E43-433T13S	-	425~441	3~13	0.65km	1.2k~9.6k	Ultra-small size,adjustable transmit power
E43-900T13S3	-	855~931.5	3~13	1.5km	1.2k~9.6k	Ultra-small size,adjustable transmit power
E61-433T17D	-	425~450.5	7~17	1km	1.2k~70k	High-speed continuous transmission,low latency
E61-433T30D	-	425~450.5	21~30	2.5km	1.2k~70k	High-speed continuous transmission,high-speed chip

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E62-433T20D	-	425~450.5	10~20	1km	16k~128k	Full duplex, automatic frequency hopping, anti-interference
E62-433T30D	-	425~450.5	21~30	3km	16k~128k	Full duplex, automatic frequency hopping, anti-interference
E70-433NW14S	-	433	14	2.5km	2.5k~168k	Star network, integrated master/terminal, long distance/high speed
E70-433NW30S	-	433	30	6.5km	2.5k~168k	Star network, integrated master/terminal, long distance/high speed
E70-915NW14S	-	915	14	2.5km	2.5k~168k	Star network, integrated master/terminal, long distance/high speed
E70-915NW30S	-	915	30	6.5km	2.5k~168k	Star network, integrated master/terminal, long distance/high speed
E70-433T14S	CC1310	433	14	1.5km	2.5k~168k	Data encryption/compression function, GFSK modulation, ModBus
E70-433T14S2	CC1310	433	14	1.5km	2.5k~168k	Data encryption/compression function, GFSK modulation, ModBus
E70-868T30S	CC1310	868	30	6km	2.5k~168k	High-speed continuous transmission, non-packet data, ModBus
E70-915T14S	CC1310	915	14	1.5km	2.5k~168k	High-speed continuous transmission, non-packet data, ModBus
E70-915T30S	CC1310	915	30	6km	2.5k~168k	High-speed continuous transmission, non-packet data, ModBus

Product selection · SPI

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E01-ML01D	nRF24L01+	2.4~2.525	0	0.1km	250k~2M	Small size, design with PCB antenna, DIP
E01-ML01S	nRF24L01+	2.4~2.525	0	0.1km	250k~2M	Small size, design with PCB antenna, SMD

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E01-ML01SP4	nRF24L01+	2.4~2.525	20	2km	250k~2M	DIP,built-in PA and LNA
E01-ML01IPX	nRF24L01+	2.4~2.525	0	0.2km	250k~2M	Ultra-small size SMD module
E01-ML01DP5	nRF24L01+	2.4~2.525	20	2.5km	250k~2M	DIP,built-in PA and LNA
E01-2G4M13S	nRF24L01+	2.4~2.525	13	1.2km	250k~2M	Built-in PCB antenna, built-in PA and LNA
E01-2G4M27D	nRF24L01+	2.4~2.525	27	5km	250k~2M	DIP,built-in PA and LNA
E07-M1101S	CC1101	387~464	10	1km	0.6k~500k	Clear Channel Assessment(CCA),Wake on Wireless(WOR)
E07-433M20S	CC1101	425~450.5	20	2km	0.6k~500k	Small size,SMD,built-in PA and LNA
E07-915MS10	CC1101	900~925.5	10	1.2km	0.6k~500k	SMD,CCA and WOR
E07-M1101D-SMA	CC1101	387~464	10	0.6km	0.6k~500k	DIP,CCA and WOR
E07-M1101D-TH	CC1101	387~464	10	0.5km	0.6k~500k	Design with spring antenna,DIP,CCA and WOR
E10-433MD-SMA	SI4463	425~525	20	2km	0.123k ~ 1M	DIP,Strong anti-interference ability
E10-433MS	SI4463	425~525	20	2km	0.123k ~ 1M	Small size,large receiving range,strong anti-interference ability
E10-433MS1W	SI4463	425~525	30	6km	0.123k ~ 1M	Small size,SMD,built-in PA and LNA
E10-915MS30	SI4463	900~925.5	30	6km	0.123k~1M	Small size,SMD,built-in PA and LNA
E10-433MD3	SI4438	425~525	20	2km	0.123k~1M	Small size,large receiving range,strong anti-interference ability
E19-433M20SC	SX1278	410~441	20	5km	0.018k~37.5k	Small size,large receiving range,strong anti-interference ability

Product model	Chip	Frequency (MHz)	Power (dBm)	Distance	Air rate (bps)	Feature
E19-433M20S2	SX1278	410~441	20	5km	0.018k~37.5k	Ultra-small size,strong anti-interference,long distance
E19-433M30S	SX1278	410~441	30	10km	0.018k~37.5k	Small size,large receiving range,strong anti-interference ability
E19-868M30S	SX1276	862~893	30	10km	0.018k~37.5k	Small size,large receiving range,strong anti-interference ability
E19-915M20S	SX1276	900~931	20	5km	0.018k~37.5k	Ultra-small size,strong anti-interference,long distance
E22-400M22S	SX1268	410~493	22	7km	0.018k~300k	SMD,strong anti-interference performance,long distance
E22-900M22S	SX1262	850~930	22	7km	0.018k~300k	SMD,strong anti-interference performance,long distance
E22-900M30S	SX1262	850~930	30	12km	0.018k~300k	SMD,strong anti-interference performance,long distance
E23-433M13S	SX1212	410~438	13	0.8km	2k~500k	Small size,good adjacent channel,low power consumption
E27-433M20S	SI4432	425~525	20	1.6km	0.123k~256k	Supports frequency hopping,high performance spring antenna
E28-2G4M12S	SX1280	2400~2500	12	3km	0.125M~2M	Compatible with Bluetooth protocol,RSSI,low power consumption
E28-2G4M20S	SX1280	2400~2500	20	6km	0.125M~2M	Compatible with Bluetooth protocol,RSSI,low power consumption
E28-2G4M27S	SX1280	2400~2500	27	8km	125k~2M	Compatible with Bluetooth protocol,RSSI,low power consumption
E31-400M17S	AX5243	400~525	17	2km	0.1K~125K	Wideband,narrowband,air wake,low power consumption
E106-470G27P	SX1301	433~510	25	—	—	Cost-effective,LoRaWan gateway,PCI-e interface
E106-868G27P	SX1301	865~872	25	—	—	Cost-effective,LoRaWan gateway,PCI-e interface
E106-915G27P	SX1301	902~928	25	—	—	Cost-effective,LoRaWan gateway,PCI-e interface

Product selection • SoC

Product model	Chip	Frequency (MHz)	Power(dBm)	Distance	Air rate (bps)	Feature
E72-2G4M05S1A	CC2630	2402~2480	5	0.5km	-	ZigBee,6LoWPAN module,low power consumption
E72-2G4M23S1A	CC2630	2402~2480	23	1.5km	-	ZigBee,6LoWPAN module,low power consumption
E72-2G4M05S1B	CC2640	2402~2480	5	0.5km	-	Small size,BLE4.2,Bluetooth,low power
E72-2G4M02S2B	CC2640	2402~2480	2	0.3km	-	Small size,BLE4.2,Bluetooth,master-slave integration
E73-2G4M04S1A	nRF52810	2379~2496	4	0.1km	-	Small size,SMD,Bluetooth 4.2/5.0
E73-2G4M04S1D	nRF51822	2379~2496	4	0.1km	-	Small size,SMD,Bluetooth 4.2/5.0
E73-2G4M08S1C	nRF52840	2360~2500	8	0.1km	-	Small size,SMD,Bluetooth 4.2/5.0
E75-2G4M10S	JN5169	2405~2480	10	0.5km	-	Low power consumption,high performance,ZigBee module
E75-2G4M20S	JN5168	2405~2480	20	1km	-	ZigBee module,built-in TI's RF range extender
E76-433M20S	EFR32	420~450	20	2.5km	1~100k	Low power consumption,built-in ARM microcontroller
E76-868M20S	EFR32	863~875	20	2.5km	1~100k	Low power consumption,built-in ARM microcontroller
E76-915M20S	EFR32	902~931	20	2.5km	1~100k	Low power consumption,built-in ARM microcontroller
E78-400M22S	Asr6501	410~493	22	7km	0.018~62.5k	LoRa,ultra-small size,ultra-low power consumption,LoRaWAN
E79-400DM2005S	CC1352	431~500/2400	5/20	0.12/1.5km	-	LoRa,ultra-small size,ultra-low power consumption,LoRaWAN

Product selection · Wi-Fi

Product model	Protocols	Interface type	Distance	Feature
E103-W01	UART I/O	UART I/O	100m	Transmparent transmission,Airkiss,AT command
E103-W01-IPX	UART I/O	UART I/O	100m	Transmparent transmission,Airkiss,IPX antenna
E103-W02	UART I/O	UART I/O	300m	Ultra-low power consumption,3M high-speed,AT
ESP32-WROVER	BLE 4.2 802.11 b/g/n	UART I/O	300m	Low power consumption,Bluetooth+Wi-Fi
ESP-WROOM-02D	802.11 b/g/n	UART/HSPI/I2C/I2S/Infrared remote control/PIO/PWM	300m	Low power consumption,TCP/IP network protocol stack
ESP-WROOM-32	BLE 4.2 802.11 b/g/n/e/i	UART I/O	300m	Low power consumption,Bluetooth+WiFi,low Cost

Product selection · Bluetooth

Product model	Frequency (MHz)	Distance	Interface type	Protocols	Power(dBm)	Feature
E104-BT01	2379~2496	50m	UART/IO	BLE4.0	0	Ultra-low power consumption,applicable BLE protocol
E104-BT02	2379~2496	100m	UART	BLE4.2	0	Lowest power consumption,master-slave integration
E104-BT05	2400~2483	70m	UART	BLE4.2	8	Low power consumption,transparent transmission,air configuration
E104-2G4U04A	2402~2480	60m	USB	BLE4.0	4	Bluetooth SoC solution,USB interface,low power consumption
E104-BT10(G/N)	2400~2483	50m	UART	Sig mesh	8	SigMesh network,fast network access,multiple nodes

Product model	Frequency (MHz)	Distance	Interface type	Protocols	Power(dBm)	Feature
E104-BT20	2402~2480	50m	UART	V2.1 BR/EDR	3dBm	Transparent transmission,master-slave integration,SSP and PIN pairing
E104-BT30	2402~2480	/	UART	/	/	Audio Bluetooth
E104-BT40	2402~2480	/	UART	/	/	Low cost Bluetooth
E104-BT5010A	2402~2480	55m	UART	BLE5.0	3.8dBm	Master-slave integration,adjustable package length,aerial configuration
E104-BT51	2402~2481	/	UART	/	/	/
E104-BT5032A	2402~2480	60m	UART	BLE5.0	3.8dBm	Master-slave integration,low power consumption,Ibeacon and broadcasting
E72-2G4M05S1B	2400	500m	I/O	BLE4.2	-	Small size,BLE4.2,M3/M0 dual-core processor
E72-2G4M02S2B	2400	300m	UART	BLE4.2	-	BLE4.2,M3/M0 dual-core processor,master/slave mode
E73-2G4M04S1A	2400	100m	I/O	BLE4.2	-	Small size,built-in M4 core,Bluetooth 4.2 and Bluetooth 5.0 protocol stack
E73-2G4M04S1B	2400	100m	I/O	BLE4.2/5.0	-	Small size,built-in M4 core,Bluetooth 4.2 and Bluetooth 5.0 protocol stack
E73-2G4M04S1D	2400	100m	I/O	BLE4.2	-	Built-in M0 core and Bluetooth 4.2,256KB FLASH,16KB RAM
E73-2G4M08S1C	2400	100m	I/O	BLE4.2/5.0	-	Low power consumption,built-in M4 processor,1024KB FLASH

Product selection • ZigBee

Product model	Chip	Frequency(GHz)	Power(dBm)	Distance	Feature
E18-2G4Z27SI	CC2530	2.4	27	2.5km	ZigBee to serial port,integrated microcontroller,built-in PA + LNA
E18-MS1-PCB	CC2530	2.4	4	0.2km	Integrated 51 single-chip microcomputer and wireless transceiver,built-in RF expander
E18-MS1-IPX	CC2530	2.4	4	0.24km	SMD,integrated 8051 microcontroller and wireless transceiver
E18-MS1PA1-PCB	CC2530	2.4	20	0.8km	Integrated 51 single-chip microcomputer and wireless transceiver,built-in RF expander
E18-MS1PA1-IPX	CC2530	2.4	20	1km	Small size,low power consumption,integrated 51 microcontroller and wireless transceiver
E18-2G4U04B	CC2531	2.4	4	0.2km	USB interface,integrated microcontroller and transceiver,integrated PA+LNA
E72-2G4M05S1A	CC2630	2.4	5	0.5km	Small size,6LoWPAN wireless communication protocol,built-in M3/M0 dual-core processor
E72-2G4M23S1A	CC2630	2.4	23	1.5km	Small size,built-in RF extender CC2592,PA and LNA, dual-core processor
E75-2G4M10S	JN5169	2.4	10	0.5km	Low power consumption,support ZNET,JenNet-IP,ZigBee-PRO,RF4CE
E75-2G4M20S	JN5168	2.4	20	1km	32-bit high-performance low-power processor,built-in RF extender CC2592,built-in PA/NA
E180-ZG120A	EFR32	2.4	20	1km	ZigBee 3.0,more than 100 nodes,role of coordinator,router, etc.,support ZLL protocol
E180-ZG120B	EFR32	2.4	20	1km	ZigBee 3.0,more than 100 nodes,role of coordinator,router, etc.,support ZLL protocol
E180-Z6907A	EFR32	2.4	7	0.13km	Based on TLSR8269,low cost,only used as a terminal node,support ZigBee3.0

Product selection • 2G/4G/NB

Product model	Chip	Frequency	Network	Power(dBm)	Feature
E840-TTL-GPRS03	GPRS	UART	Support quad-band,AT instruction set	30~33dBm	Support quad-band,cloud transparent transmission,full duplex
E840-TTL-4G02	4G	UART	TCP/UDP	23~33dBm	TCP/UDP,cloud transparent transmission,support AT command
E840-TTL-4G02E	4G	RS232/RS485	Overseas European 4G band	23~33dBm	Support up to 921600bps,AT command,high-speed transmission
E840-TTL-4G03	4G	UART	GPS satellite positioning	23~33dBm	GPS satellite positioning,cloud transparent transmission,full duplex
E840-TTL-4G04	4G	UART	GPS satellite positioning	23~33dBm	TCP/UDP,support cloud transparent transmission,full duplex
E840-TTL-4G05	4G	UART	GPS satellite positioning,TCP/UDP	23~33dBm	Cloud transparent transmission,AT command, support active GPS