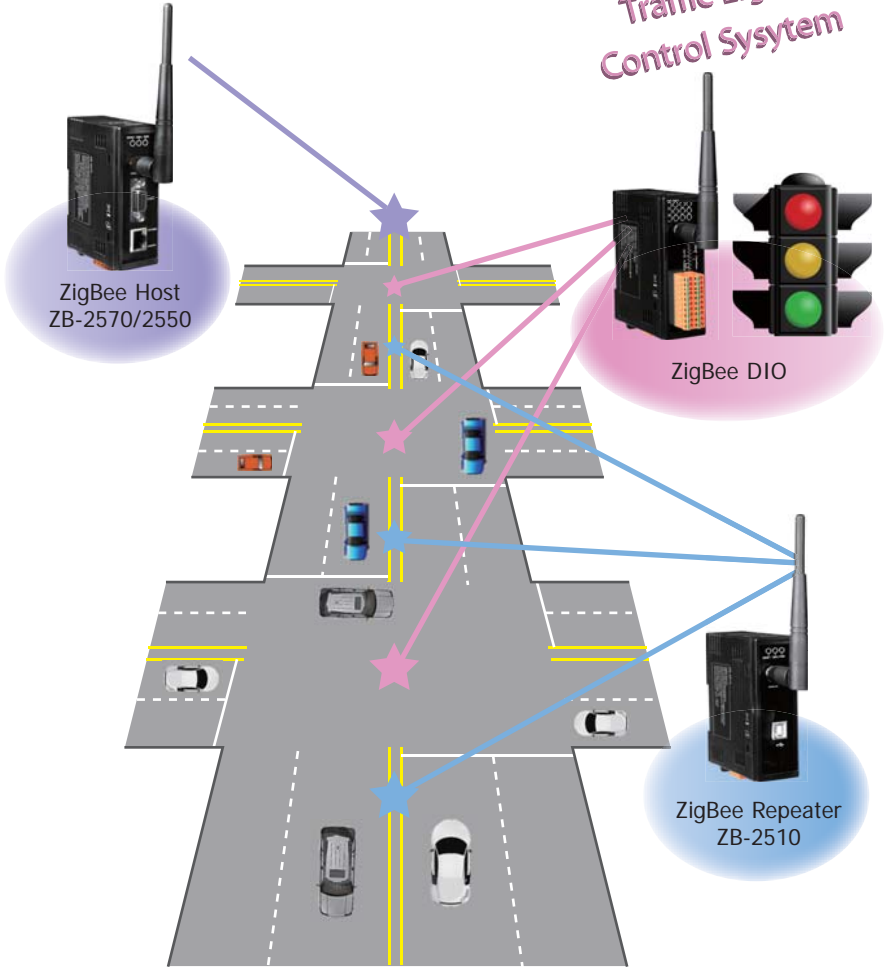


5.3. ZigBee Wireless Products



ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). ZigBee operates in the ISM radio bands and its focus is to define a general-purpose, inexpensive, self-organizing, mesh network that can be used for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation, home automation, and domotics, etc.

● ZigBee Module Specifications

RF Channels	16
Receive Sensitivity	-102 dBm
Transmit Power	12 dBm
Network Topology Support	Star, Mesh and cluster tree
Certification	TUV (ZCP)
Antenna	2.4 GHz, 3 dBi Omni-directional antenna

● Selection Guide



Ethernet/Serial to ZigBee Converters

Model Name	Interface			Transmission Range Up to 700 m (LOS)	Support High Gain Antenna	Page
	RS-232	RS-485	Ethernet			
ZB-2550	Yes	Yes	-	-	-	5-3-3
ZB-2551	Yes	Yes	-	-	-	5-3-3
ZB-2570	Yes	Yes	Yes	-	-	5-3-5
ZB-2571	Yes	Yes	Yes	-	-	5-3-5
ZB-2550P	Yes	Yes	-	Yes	Yes	5-3-3
ZB-2551P	Yes	Yes	-	Yes	Yes	5-3-3
ZB-2570P	Yes	Yes	Yes	Yes	Yes	5-3-5
ZB-2571P	Yes	Yes	Yes	Yes	Yes	5-3-5



ZigBee Repeater

Model Name	USB Configuration Interface	Repeater Function	Transmission Range Up to 700 m (LOS)	Support High Gain Antenna	Page
ZB-2510	Yes	Yes	-	-	5-3-7
ZB-2510P	Yes	Yes	Yes	Yes	5-3-7



ZB-2550 **ZB-2550P**
ZB-2551 **ZB-2551P**

RS-485/RS-232 to ZigBee Converter

Introduction

The ZB-2550 and the ZB-2551 are small-sized wireless ZigBee converters based on the IEEE 802.15.4 standard. They allow RS-485/RS-232 interfaces to be converted to a ZigBee wireless network.

Only one ZB-2550 (Host) is allowed in a ZigBee network and is used to initialize and manage the data transmission routes. The ZB-2551 (Slave) ZigBee router is responsible for transmitting/receiving data from its child/parent router or the host. ICP DAS ZigBee products are designed for low data rates. The main benefit of ICP DAS ZigBee products is that they can be used to define a general-purpose, self-organizing mesh network, which can be highly advantageous for industrial control.

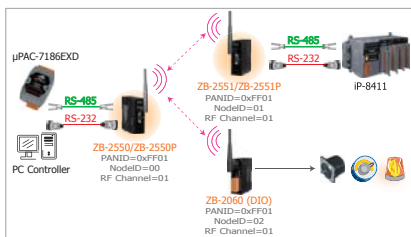
The typical transmission range of the ICP DAS ZigBee ZB-2550/ZB-2551 converter is 100 m, and the ZB-2550P/ZB-2551P is 700 m.

Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2550/ZB-2551)
- Wireless Transmission Range up to 700 m (ZB-2550P/ZB-2551P)
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable



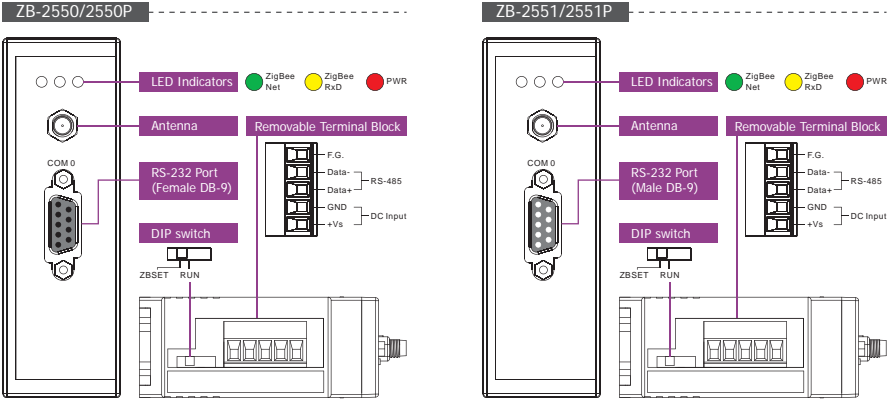
Applications



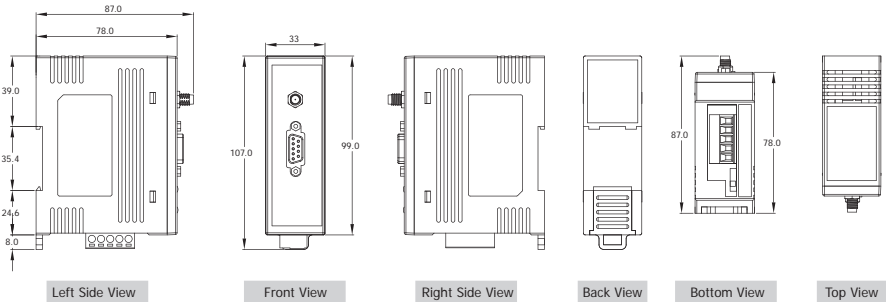
Specifications

Models	ZB-2550	ZB-2550P	ZB-2551	ZB-2551P
Wireless				
RF Channels	16			
Receive Sensitivity	-102 dBm			
Transmit Power	12 dBm	18 ~ 24 dBm, adjustable	12 dBm	18 ~ 24 dBm, adjustable
Network Topology Support	Star, Mesh and Cluster tree			
Certification	TUV (ZCP)			
Antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna
Transmission Range	100 m	700 m	100 m	700 m
General				
CPU	8-bit microcontroller			
EEPROM	16 KB (8 blocks, each block has 256 bytes); Data retention > 40 years; 1,000,000 erase/write cycles			
Module Type	Host		Slave	
Communication Interface				
COM 0	RS-232 (Tx,D, Rx,D and GND); D-Sub 9 Female Non-isolated RS-485 (D+, D-, internal Self-Tuner ASIC); Non-isolated		RS-232 (Tx,D, Rx,D and GND); D-Sub 9 Male Non-isolated	
COM 0 Settings				
Baud Rate	1200 ~ 115200 bps			
Data Bit	8			
Parity Check	Even, Odd, None			
Stop Bit	1			
LED Indicators				
ZigBee Net State	Green			
ZigBee Rx/D	Yellow			
Power	Red			
Power				
Protection	Power reverse polarity protection			
EMS Protection	ESD, Surge, EFT			
Required Supply Voltage	+10 V _{DC} ~ +30 V _{DC}			
Power Consumption	0.5 W	2.0 W (max.)	0.5 W	2.0 W (max.)
Connection	5-Pin 5.08 mm Removable Terminal Block			
Mechanical				
Casing	Plastic			
Flammability	UL 94V-0 materials			
Dimensions (W x L x H)	33 mm x 78 mm x 107 mm			
Installation	DIN-Rail			
Environment				
Operating Temperature	-25 °C ~ +75 °C			
Storage Temperature	-40 °C ~ +80 °C			
Relative Humidity	5 ~ 95% RH, non-condensing			

Appearance



Dimensions (Unit: mm)



Ordering Information

ZB-2550 CR	RS-485/RS-232 to ZigBee Converter (Host) (RoHS)
ZB-2550/S CR	RS-485/RS-232 to ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2551 CR	RS-485/RS-232 to ZigBee Converter (Slave) (RoHS)
ZB-2551/S CR	RS-485/RS-232 to ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2550P CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS)
ZB-2550P/S CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2551P CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS)
ZB-2551P/S CR	RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)

Accessories

Power Supply
ZigBee DIO
ZigBee Repeater
ZigBee Converter



Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2570/ZB-2571)
- Wireless Transmission Range up to 700 m (ZB-2570P/ZB-2571P)
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable



Introduction

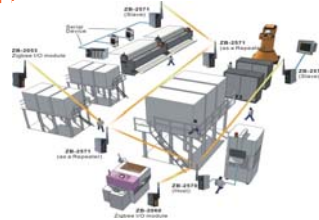
ZigBee Network

The ZB-2570/ZB-2570P is a host ZigBee converter, and the ZB-2571/ZB-2571P is a slave ZigBee converter. Each feature an Ethernet/RS-485/RS-232 interface. Devices that have an Ethernet/RS-485/RS-232 interface are also able to be connected using the ZB-2570/ZB-2570P/ZB-2571/ZB-2571P. By distributing host and slave ZigBee converters in the field, users can easily build a wireless network that can be used for both monitoring and control.

What are the benefits of using ZigBee?

ZigBee is a specification based on the IEEE 802.15.4 standard for wireless personal area networks (WPANs). It is targeted at applications that require secure networking as well as high flexibility for network expansion anytime new nodes are to be added. It is also widely used in the industrial control field, in hospitals, labs and in building automation. Three topologies are defined in the IEEE 802.15.4 standard: Star, Cluster Tree and Mesh. The typical transmission range for the 2570/2571 is 100 m, and the 2570P/2571P is 700 m.

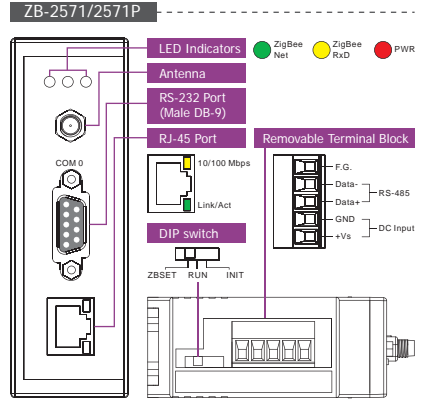
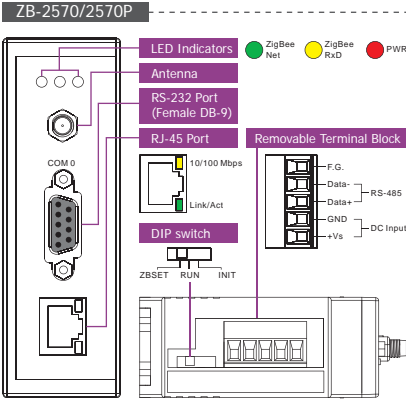
Applications



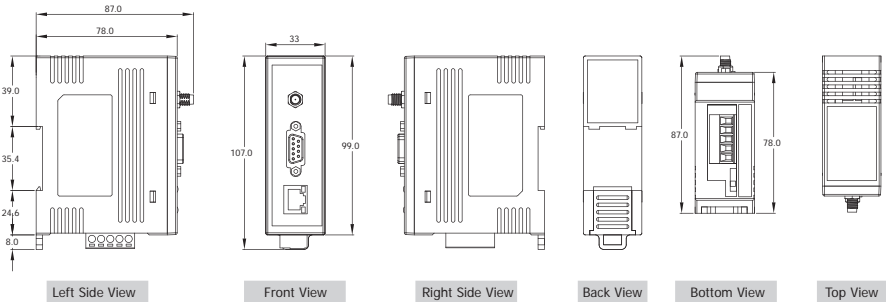
Specifications

Models	ZB-2570	ZB-2570P	ZB-2571	ZB-2571P
Wireless				
RF Channels	16			
Receive Sensitivity	-102 dBm			
Transmit Power	12 dBm		12 dBm	
Network Topology Support	Star, Mesh and Cluster tree		18 ~ 24 dBm, adjustable	
Certification	TUV (ZCP)			
Antenna	2.4 GHz-3 dBi	2.4 GHz-5 dBi	2.4 GHz-3 dBi	2.4 GHz-5 dBi
Transmission Range	100 m	700 m	100 m	700 m
General				
CPU	80186, 80 MHz or compatible			
SRAM	512 KB			
Flash Memory	512 KB; Erase unit is one sector (64 KB); 100,000 erase/write cycles			
EEPROM	16 KB (8 blocks, each block contains 256 bytes); Data retention > 40 years; 1,000,000 erase/write cycles			
Module Type	Host		Slave	
Communication Interface				
COM 0	RS-232 (Tx,D, Rx,D and GND); D-Sub 9 Female Non-isolated		RS-232 (Tx,D, Rx,D and GND); D-Sub 9 Male Non-isolated	
Ethernet	RS-485 (D+, D-, internal Self-Turner ASIC); Non-isolated			
COM 0 Settings	10/100 Base-TX (Auto-negotiating, auto MDI/MDI-X, LED indicators)			
Baud Rate	1200~115200 bps			
Data Bit	7, 8			
Parity	Even, Odd, None			
Stop Bit	1			
LED Indicators				
ZigBee Net State	Green			
ZigBee Rx/D	Yellow			
Power	Red			
Power				
Protection	Power reverse polarity protection			
EMS Protection	ESD, Surge, EFT			
Required Supply Voltage	+10 V _{DC} ~ +30 V _{DC}			
Power Consumption	2.5 W	4 W (max.)	2.5 W	4 W (max.)
Connection	5-Pin 5.08 mm Removable Terminal Block			
Mechanical				
Casing	Plastic			
Flammability	UL 94V-0 materials			
Dimensions (W x L x H)	33 mm x 78 mm x 107 mm			
Installation	DIN-Rail			
Environment				
Operating Temperature	-25 °C ~ +75 °C			
Storage Temperature	-40 °C ~ +80 °C			
Relative Humidity	5 ~ 95% RH, non-condensing			

Appearance



Dimensions (Unit: mm)



Ordering Information

ZB-2570 CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Host) (RoHS)
ZB-2570/S CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2571 CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Slave) (RoHS)
ZB-2571/S CR	Ethernet/RS-485/RS-232 to ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2570P CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS)
ZB-2570P/S CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Host) (RoHS) + GPSU06U-6 (Power Supply)
ZB-2571P CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS)
ZB-2571P/S CR	Ethernet/RS-485/RS-232 to High Power Amplifier ZigBee Converter (Slave) (RoHS) + GPSU06U-6 (Power Supply)

Accessories

Power Supply
ZigBee DIO
ZigBee Repeater
ZigBee Converter



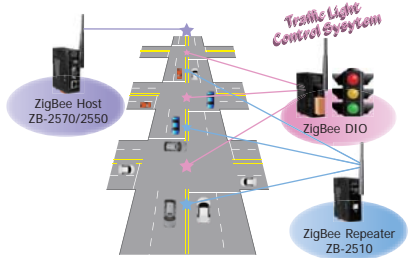
Features

- ISM 2.4 GHz Operating Frequency
- Fully Compliant with 2.4 G IEEE802.15.4/ZigBee Specifications
- Wireless Transmission Range up to 100 m (ZB-2510)
- Wireless Transmission Range up to 700 m (ZB-2510P)
- USB Setting Interface
- GUI Configuration Software (Windows Version)
- DIN-Rail Mountable

Introduction

The ZB-2510 and ZB-2510P are two ZigBee-based repeater modules included in the ICP DAS product line. The main difference between these two products is the transmission range. The ZB-2510 supports an extended transmission range of up to 100 meters, whereas the ZB-2510P can transmit to a maximum of 700 meters. Both modules are able to operate in broadcast and user-defined route modes. When the repeater is set to broadcast mode, the transmission route is constructed by the ZigBee Host. The repeater will forward any data that it receives using broadcast mode. The advantage of this mode is that the repeater can be deployed in a "haphazard" manner without any concern about positioning. However, the main flaw of this mode is that if there are too many broadcast data packets in a ZigBee network, it will cause the network to crash. In contrast, when the repeater is set to user-defined route mode, it will only forward data using the user-configured route. The benefit of this mode is that the data loading of the ZigBee network will be reduced, but the user must plan the data transmission route for the entire ZigBee network before setting up the application. If a mistake is made on even one repeater point, the entire ZigBee network will be invalid.

Applications

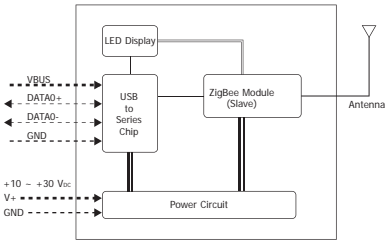


Specifications

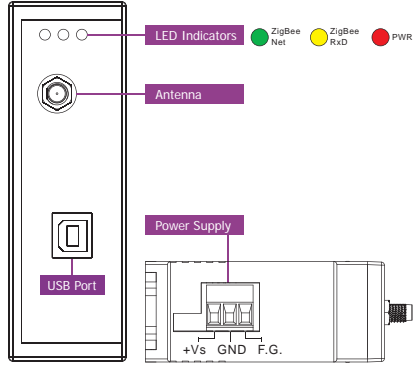
Models	ZB-2510	ZB-2510P
Wireless		
RF Channels	16	
Receive Sensitivity	-102 dBm	
Transmit Power	12 dBm	18 ~ 24 dBm, adjustable
Network Topology Support	Star, Mesh and Cluster tree	
Certification	TUV (ZCP)	
Antenna	2.4 GHz-3 dBi Omni-Directional antenna	2.4 GHz-5 dBi Omni-Directional antenna
Transmission Range	100 m	700 m
Setting Interface		
USB	Type B	
Include Cable	CA-USB18 (1.8 M Cable) x 1; USB Type A connector (Type A to Type B cable provided)	
Compatibility	USB 1.1 and 2.0 standard	
Driver Supported	Windows 98/ME/2000/XP/Linux/Vista	
COM 0 Settings		
Data Bit	8	
Parity	Even, Odd, None	
Stop Bit	1	
LED Indicators		
ZigBee Net State	Green	
ZigBee Rx/D	Yellow	
Power	Red	
Power		
Protection	Power reverse polarity protection	
EMS Protection	ESD, Surge, EFT	
Required Supply Voltage	+10 V _{DC} ~ +30 V _{DC}	
Power Consumption	1.5 W	3 W
Connection	3-Pin 5.08 mm Removable Terminal Block	
Mechanical		
Casing	Plastic	
Flammability	UL 94V-0 materials	
Dimensions (W x L x H)	33 mm x 87 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Relative Humidity	5 ~ 95% RH, non-condensing	

Internal I/O Structure

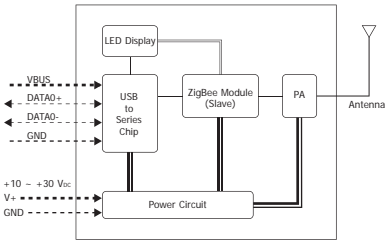
ZB-2510



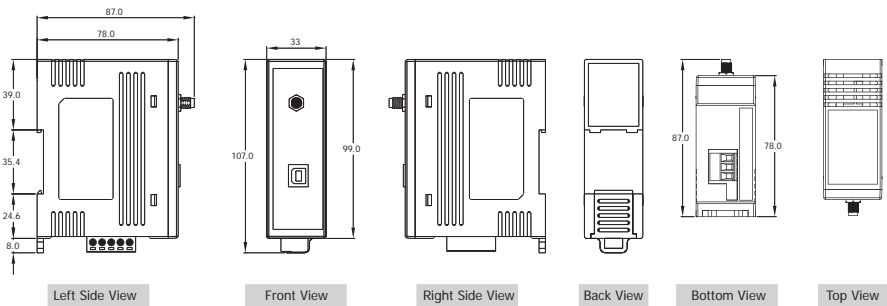
Appearance



ZB-2510P



Dimensions (Unit: mm)



Ordering Information

ZB-2510 CR	ZigBee Repeater (RoHS)
ZB-2510P CR	High Power Amplifier ZigBee Repeater (RoHS)

Accessories

Power Supply
ZigBee Repeater
ZigBee Converter