

## EBYTE E18-DTU(Z20-485)

# EBYTE E18-DTU(Z20-485) Zigbee3.0 Wireless Data Transmission Station User Manual

Model: E18-DTU(Z20-485)

## 1. INTRODUCTION

The EBYTE E18-DTU(Z20-485) is a robust wireless data transceiver designed for reliable data transmission using Zigbee3.0 technology. It supports transparent and protocol-based data transmission, making it suitable for various industrial and smart applications. This device offers advantages such as low cost, easy installation, strong diffraction capability, flexible network structures, and extended coverage, particularly in environments with scattered points and complex geographical conditions.

Key features include:

- Advanced functionality with multi-level transmitting power.
- Wide operating temperature range of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  for industrial environments.
- Durable aluminum alloy shell for heat dissipation and electromagnetic compatibility.
- Multiple protection functions: power supply reverse connection, over-connection, and antenna surge protection.
- Configurable parameters via software, including power, frequency, and address ID.

## 2. SETUP AND INSTALLATION

Follow these steps for proper installation of your E18-DTU(Z20-485) data transmission station.

### 2.1 Physical Installation

The E18-DTU(Z20-485) features a compact aluminum alloy shell designed for easy installation and effective heat dissipation. Ensure the device is mounted in a location that allows for optimal signal transmission and access to its interfaces.

### 2.2 Interface Connections

Refer to the diagram below for connecting the power supply, RS485 interface, and antenna.



**Figure 1:** E18-DTU(Z20-485) Data Transceiver showing dimensions (66mm x 68mm) and terminal block connections for VCC, GND, AGND, RS485-B, and RS485-A.

- **Power Supply:** Connect VCC (positive) and GND (ground) to a stable power source. The device includes power supply reverse connection protection.
- **RS485 Interface:** Connect your RS485 communication lines to RS485-A and RS485-B terminals.
- **Antenna:** Attach the provided antenna to the ANT connector. Ensure it is securely fastened. The device features antenna surge protection.

# Application Scenario



## Industrial Manufacturing

Short-distance industrial field replaces signal cables, reduces wiring, and is easy to manage.



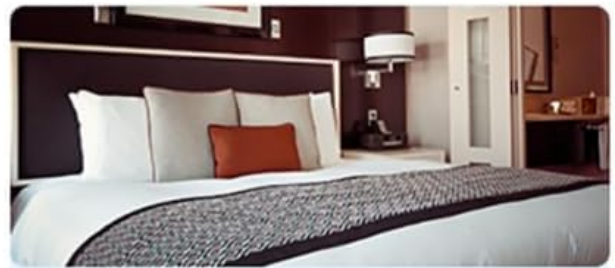
## Smart Home

Physical layer technology solutions for home Internet of Things.



## Smart Farm

Accurately monitor the details of each operation area.



## Hotel Management

Supports a large number of access points,

**Figure 2:** E18-DTU(Z20-485) highlighting its industrial design, including the RS485 interface, working indicator lights (PWR, TXD, RXD, LINK, RUN), smart button, and antenna interface.

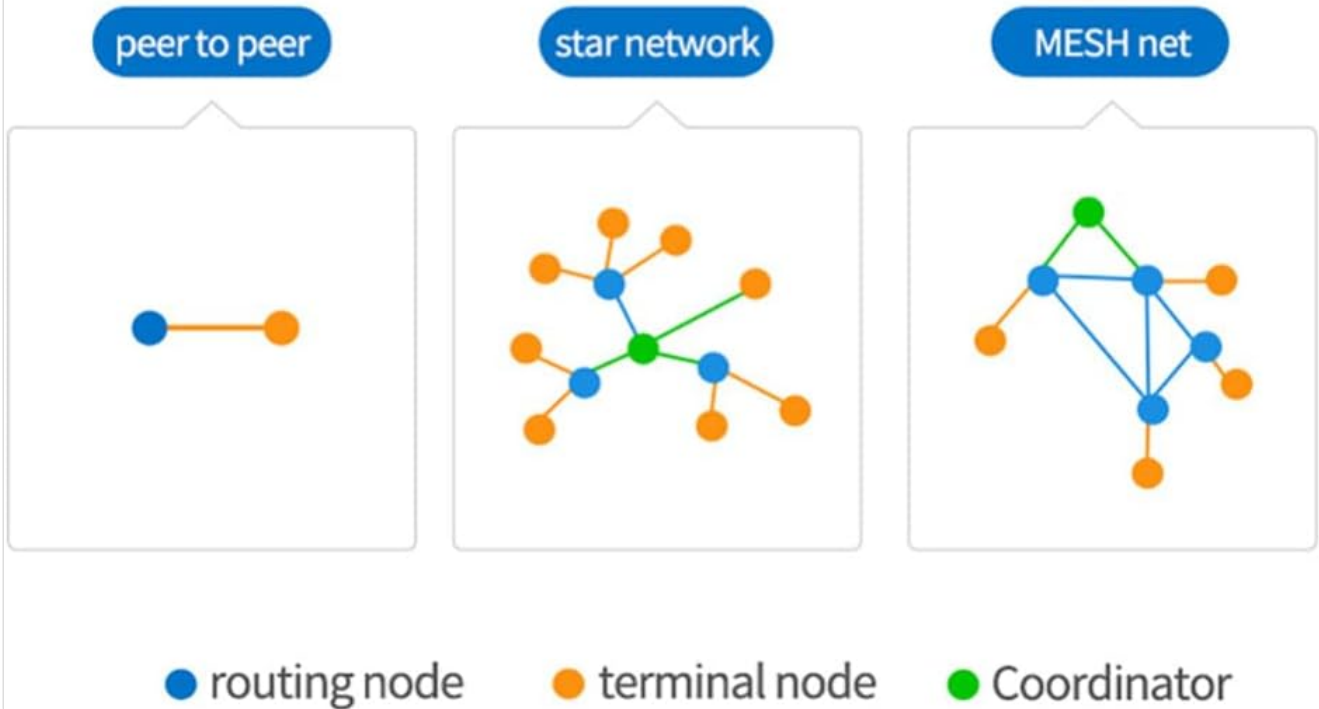
## 3. OPERATING INSTRUCTIONS

The E18-DTU(Z20-485) utilizes Zigbee3.0 for wireless data transmission, supporting various network configurations and functionalities.

### 3.1 Network Topologies

The device supports flexible network structures, including peer-to-peer, star, and MESH networks, allowing for adaptable deployment in different scenarios.

# Supports various network topologies



**Figure 3:** Illustration of supported network topologies: peer-to-peer (routing node to routing node), star network (coordinator to terminal nodes via routing nodes), and MESH network (interconnected routing, terminal, and coordinator nodes).

## 3.2 Functional Overview

The E18-DTU(Z20-485) offers a range of practical functions configurable via its software interface:

# More practical functions

For function introduction and use, please refer to the official manual



automatic routing



address search



Serial port  
configuration



Network PAN\_ID  
change



module reset



air configuration



reset



One-key restore  
baud rate

**Figure 4:** Overview of practical functions: 1. Automatic routing, 2. Address search, 3. Serial port configuration, 4. Network PAN\_ID change, 5. Module reset, 6. Air configuration, 7. Reset, 8. One-key restore baud rate.

- **Automatic Routing:** Enables the device to automatically find optimal data paths within the network.
- **Address Search:** Facilitates locating specific devices within the Zigbee network.
- **Serial Port Configuration:** Allows adjustment of serial communication parameters.
- **Network PAN\_ID Change:** Configures the Personal Area Network Identifier for network isolation.
- **Module Reset:** Resets the module to its default state.
- **Air Configuration:** Configures over-the-air parameters.
- **Reset:** Initiates a device reset.
- **One-key Restore Baud Rate:** Quickly restores the serial baud rate to a default setting.

## 3.3 Indicator Lights

The device features several LED indicators to show its operational status:

- **PWR:** Power indicator. Lit when the device is powered on.
- **TXD:** Transmit data indicator. Flashes when data is being transmitted.
- **RXD:** Receive data indicator. Flashes when data is being received.
- **LINK:** Network link indicator. Indicates connection status within the Zigbee network.
- **RUN:** Running status indicator. Indicates normal operation.

## 4. MAINTENANCE

The E18-DTU(Z20-485) is designed for industrial use with high reliability and minimal maintenance requirements.

- **Environmental Durability:** The device is built to withstand harsh working environments, operating reliably from -40°C to +85°C.
- **Protective Coating:** The internal components are protected by a conformal coating, complying with eco-friendly standards and offering anti-fungal, anti-humidity, and anti-salt spray properties.

# Stable&Reliable Performance

100% functional testing and aging tests conducted prior to factory shipment. The shell coated with conformal coating and manufacturing process complies with eco-friendly standards, meeting global environmental certifications.



**Anti-  
Fungal**



**Anti-  
Humidity**



**Anti-  
Salt Spray**



**Figure 5:** Stable and reliable performance is ensured through 100% functional testing, aging tests, and a conformal coating that

provides anti-fungal, anti-humidity, and anti-salt spray protection.

Regular cleaning of the exterior with a dry, soft cloth is recommended to prevent dust accumulation. Do not use liquid cleaners or solvents.

## 5. TROUBLESHOOTING

If you encounter issues with your E18-DTU(Z20-485), consider the following troubleshooting steps:

- **No Power:** Check the power supply connections (VCC, GND) and ensure the power source is active. The device has power supply reverse connection protection.
- **No Data Transmission/Reception:**
  - Verify RS485-A and RS485-B connections.
  - Ensure the antenna is properly connected and not obstructed. The device has antenna surge protection.
  - Check the TXD and RXD indicator lights for activity.
  - Confirm network parameters (e.g., PAN\_ID, address) are correctly configured via software.
- **Network Connectivity Issues:** Check the LINK indicator. If it's not active, verify network settings and ensure other devices in the network are operational.
- **Device Malfunction:** Try performing a 'Module Reset' or 'Reset' using the software functions. If a specific baud rate issue is suspected, use the 'One-key Restore Baud Rate' function.
- **Over-connection Protection:** The device includes over-connection protection. If an issue arises, ensure all connections are within specified limits.

For persistent issues, consult the official product documentation or contact technical support.

## 6. SPECIFICATIONS

Feature	Specification
Model	E18-DTU(Z20-485)
Wireless Technology	Zigbee3.0
Interface	RS485
Operating Temperature	-40°C to +85°C
Shell Material	Aluminum Alloy
Dimensions (approx.)	66mm x 68mm
Protection Features	Power supply reverse connection, over-connection, antenna surge protection
Security	Multi-level encryption in Zigbee network
Certifications	Complies with eco-friendly standards, meeting global environmental certifications (e.g., Anti-Fungal, Anti-Humidity, Anti-SaltSpray)

## 7. WARRANTY AND SUPPORT

### 7.1 Warranty Information

Specific warranty terms for the EBYTE E18-DTU(Z20-485) are provided by the manufacturer, EBYTE, or the authorized seller at the time of purchase. Please retain your proof of purchase for warranty claims. For detailed warranty information, refer to the documentation included with your product or contact the seller directly.

### 7.2 Technical Support

For technical assistance, troubleshooting beyond the scope of this manual, or inquiries regarding product functionality, please contact EBYTE customer support or the seller (CDEBYTE) from whom the product was purchased. Contact information can typically be found on the manufacturer's website or your purchase invoice.