

## Manuals+

[Q & A](#) | [Deep Search](#) | [Upload](#)

manuals.plus /

> [AFITSEP](#) /

> [AFITSEP CWT-MB317T 32DO\(NPN\) Digital Output Modbus Controller Acquisition Module \(E-485\) User Manual](#)

## AFITSEP CWT-MB317T E-485

# AFITSEP CWT-MB317T 32DO(NPN) Digital Output Modbus Controller User Manual

Model: CWT-MB317T E-485

## 1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the AFITSEP CWT-MB317T 32DO(NPN) Digital Output Modbus Controller Acquisition Module (E-485). This device is designed for industrial applications requiring digital output control and data acquisition via Modbus communication protocols.

## 2. KEY FEATURES

- **Simple and Easy to Use:** Visualized operation, no programming required, one-key start for collection tasks.
- **Stable and Reliable:** Engineered for long-term stable operation in industrial environments.
- **Easy Installation:** Designed for straightforward and secure installation.
- **Versatile Applications:** Provides basic data acquisition functions for simple data recording, portable measurements, and laboratory experiments.
- **Digital Output:** 32-channel NPN transistor output.
- **Isolation:** Optocoupler isolation for enhanced protection.
- **Communication:** Supports RS485 and Ethernet (Modbus TCP/UDP) for flexible integration.

## 3. TECHNICAL SPECIFICATIONS

The following table details the technical specifications of the CWT-MB317T E-485 module:

Category	Parameter	Value
Digital Output	Channels	32 (NPN Transistor Output)
	Isolation	Optocoupler isolation
	Load Voltage	5-30VDC
	Load Current	100mA

Category	Parameter	Value
<b>System Parameters</b>	CPU	32-bit ATMEL ARM, 72MHZ
	Operating System	GCOS, 10ms scheduling mechanism
	Power Supply	7-35VDC @2W, reverse protection, isolation design
	Installation	DIN rail mounting or screw fixing
	Working Environment	-40~85°C, 5%~95%RH (non-condensing)
	Protection	IP20, 1.5m watchdog
<b>Serial Port (RS485 &amp; RS232)</b>	Port Type	1x RS485, 1x RS232
	Protection	DCDC isolation, 2500V lightning protection, ESD overvoltage, overcurrent protection
	Baud Rate	1200~115200 (default 9600)
	Parity	Even, Odd, None
	Start Bit	1 bit
	Data Bits	8 bit
	Stop Bits	1, 2 bits
	Protocol	MODBUS RTU (default: 9600.N.8.1, slave ID 1)
<b>Ethernet Port</b>	Port Type	RJ45
	Communication Protocol	MODBUS TCP, MODBUS UDP
	Communication Rate	1000 times/s
	Bandwidth	10M/100Mbps
	Default IP Address/Port	192.168.1.75 / 502
<b>Physical</b>	Dimensions	0.39 x 0.39 x 0.39 inches (approximate)
	Item Weight	1.1 pounds

For specific model configurations, refer to the table below:

Model	Options	IO Port	Communication Port	Protocol
CWT-MB317T	485	32DO (NPN)	RS485	Modbus RTU
	485-232	32DO (NPN)	RS485+RS232	Modbus RTU
	E	32DO (NPN)	Ethernet	Modbus TCP
	E-485	32DO (NPN)	Ethernet+RS485	Modbus TCP, Modbus RTU
	E-485-232	32DO (NPN)	Ethernet+RS485+RS232	Modbus TCP, Modbus RTU

Figure 3.1: CWT-MB317T Model Options. This table outlines the various configurations available for the CWT-MB317T series, including IO port types, communication interfaces (RS485, RS232, Ethernet), and supported Modbus protocols (RTU, TCP).

## 4. SETUP AND INSTALLATION

---

This section guides you through the physical installation and initial setup of the CWT-MB317T module.

### 4.1 Unpacking and Inspection

Carefully remove the module from its packaging. Inspect the device for any signs of physical damage. If any damage is found, contact your supplier immediately.

### 4.2 Mounting the Module

The CWT-MB317T module supports both DIN rail mounting and screw fixing. Choose the appropriate method for your installation environment.

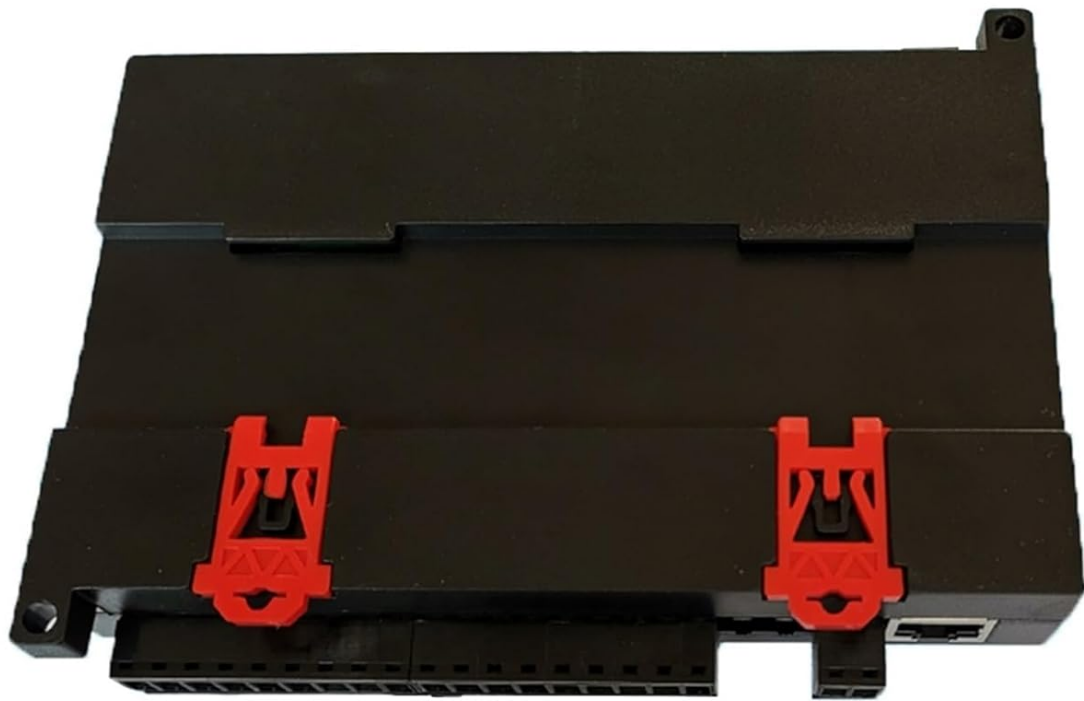


Figure 4.1: Module Bottom View with Mounting Clips. This image displays the underside of the CWT-MB317T module, highlighting the red clips used for secure DIN rail mounting.

1. **DIN Rail Mounting:** Align the module's clips with the DIN rail and press firmly until it clicks into place.
2. **Screw Fixing:** Use appropriate screws to secure the module to a flat surface through the designated mounting holes.

### 4.3 Power Connection

Connect a 7-35VDC power supply to the module's power input terminals. Ensure correct polarity. The module features power supply reverse protection.



# CWT-MB317T

Option:E-485

32DO (NPN)

Ethernet+RS485

Figure 4.2: Power Input and Digital Outputs. This image shows the top of the CWT-MB317T module, indicating the 7-30VDC power input terminals and the 32 digital output channels with their respective status indicators.

## 4.4 Communication Connections (E-485 Model)

The E-485 model supports both RS485 and Ethernet communication.



Figure 4.3: Communication Ports. This image displays the side of the CWT-MB317T module, clearly showing the RS485, RS232, and Ethernet (RJ45) communication ports.

- **RS485 Connection:** Connect your RS485 communication cable to the A+ and B- terminals. Ensure proper wiring for differential signaling.
- **Ethernet Connection:** Connect a standard RJ45 Ethernet cable to the Ethernet port for Modbus TCP/UDP communication.

#### 4.5 Digital Output Wiring

Connect your load devices to the 32 digital output channels (DO0-DO31). These are NPN transistor outputs, meaning they switch the negative side of the load. Ensure the load voltage is within 5-30VDC and load current does not exceed 100mA per channel.

## 5. OPERATION

The CWT-MB317T module operates using Modbus RTU over RS485 and Modbus TCP/UDP over Ethernet. The default settings are:

- **RS485:** Baud Rate 9600, No Parity, 8 Data Bits, 1 Stop Bit (9600.N.8.1), Slave ID 1.
- **Ethernet:** IP Address 192.168.1.75, Port 502.

## 5.1 Modbus Communication

To control the digital outputs or acquire status, send Modbus commands to the module using the specified protocol (RTU or TCP/UDP) and address. Refer to the Modbus protocol specification for detailed command structures.

## 5.2 Visual Indicators

The module includes LED indicators for power, communication status (RUN, 485, NET), and individual digital output status (DO0-DO31). These indicators provide visual feedback on the module's operation.

# 6. MAINTENANCE

---

The CWT-MB317T module is designed for reliable operation with minimal maintenance. However, periodic checks are recommended:

- **Cleaning:** Keep the module free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquid cleaners.
- **Connection Checks:** Periodically inspect all wiring connections for tightness and integrity.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges.

# 7. TROUBLESHOOTING

---

If you encounter issues with the CWT-MB317T module, consider the following:

- **No Power:** Check the power supply voltage and polarity. Ensure the power LED is illuminated.
- **Communication Failure:**
  - Verify RS485/Ethernet cable connections.
  - Check Modbus parameters (baud rate, parity, slave ID, IP address, port) match your master device settings.
  - Ensure the communication LEDs (485, NET) are active.
- **Digital Output Not Responding:**
  - Verify the load device is correctly wired and functioning.
  - Check the load voltage and current are within specifications.
  - Confirm the correct Modbus command is being sent to the specific output channel.
  - Observe the individual DO LEDs for status indication.

If problems persist, consult the manufacturer's support resources or contact technical support.

# 8. WARRANTY AND SUPPORT

---

This product comes with a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or contact AFITSEP customer support. Technical support is available to assist with any operational or technical queries.



