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Anybus-E300-MBTCP - E300 Communication Module for Modbus TCP

USER MANUAL

HMS
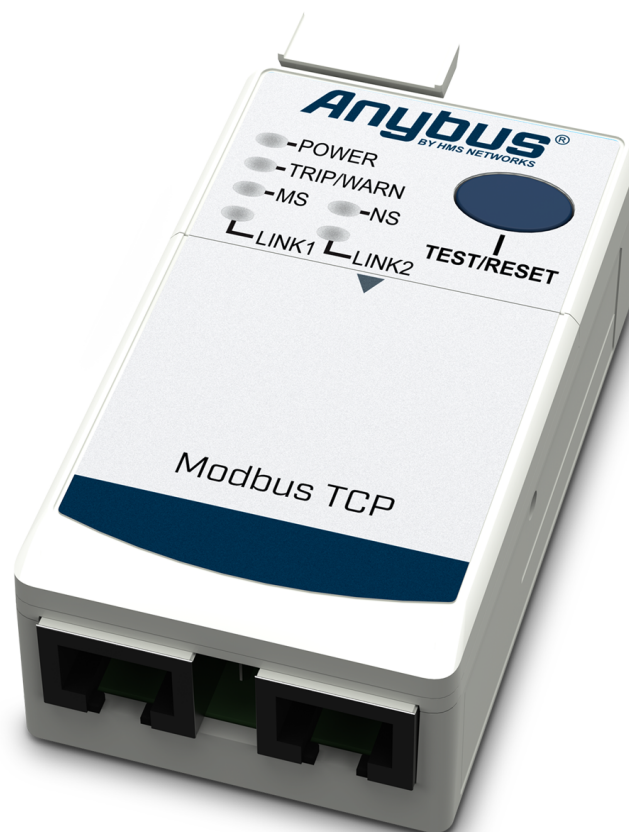
Important User Information

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Table of Contents

1. Preface

1.1. About This Document

This manual describes the installation and configuration of the E300-MBTCP.

For information on how to configure the E300 Electronic Overload Relay, refer to the user manual for the E300 Electronic Overload Relay.

For additional documentation and resources, please visit www.hms-networks.com and www.rockwellautomation.com/support.

1.2. Document Conventions

Lists

Numbered lists indicate tasks that should be carried out in sequence:

1. First do this
2. Then do this

Bulleted lists are used for:

- Tasks that can be carried out in any order
- Itemized information

User Interaction Elements

User interaction elements (buttons etc.) are indicated with bold text.

Program Code and Scripts

```
Program code and script examples
```

Cross-References and Links

Cross-reference within this document: Document Conventions (page 1)

External link (URL): www.hms-networks.com

Safety Symbols

> ⚠️ **DANGER**
> Instructions that must be followed to avoid an imminently hazardous situation which, if not avoided, will result in death or serious injury.

> ⚠️ **WARNING**
> Instructions that must be followed to avoid a potential hazardous situation that, if not avoided, could result in death or serious injury.

> ⚠️ **CAUTION**
> Instruction that must be followed to avoid a potential hazardous situation that, if not avoided, could result in minor or moderate injury.

> ❗ **IMPORTANT**
> Instruction that must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.

Information Symbols

> 🗒️ **NOTE**
> Additional information which may facilitate installation and/or operation.

> 💡 **TIP**
> Helpful advice and suggestions.

1.3. Trademarks

Anybus® is a registered trademark of HMS Networks.

All other trademarks are the property of their respective holders.

2. Safety

2.1. Intended Use

The intended use of this equipment is as a communication interface. The communication module allows an E300 Relay to be integrated into an automation system.

The communication module has two RJ45 connectors that function as a switch.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2.2. General Safety

> ⚠ **WARNING**
> To prevent electrical shock, disconnect from power source before installing or servicing. Follow NFPA 70E requirements. Install in suitable enclosure. Keep free from contaminants.

> ⚠ **WARNING**
> Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance shall be carried out by suitably trained personnel in accordance with applicable code of practice.

> ⚠ **WARNING**
> In case of malfunction or damage, no attempts at repair should be made. The product should be returned to the manufacturer for repair. Do not dismantle the product.

3. Preparation

3.1. Support and Resources

For additional documentation and technical support, please visit www.hms-networks.com and www.rockwellautomation.com/support.

3.2. Recommended Ethernet Cables

1585J-M8TBJM-2	RJ45 Straight Male to RJ45 Straight Male, Teal Robotic TPE, Weld Splatter, Flex Rated, 2 m
1585J-M8TBJM-2	RJ45 Straight Male to RJ45 Straight Male, Teal PVC, 600V Rated, 2 m

Custom lengths available up to 99 meters.

3.3. E300 Communication Module Network Information

Label with Network Information: MAC Id, Serial Number and Firmware Revision.
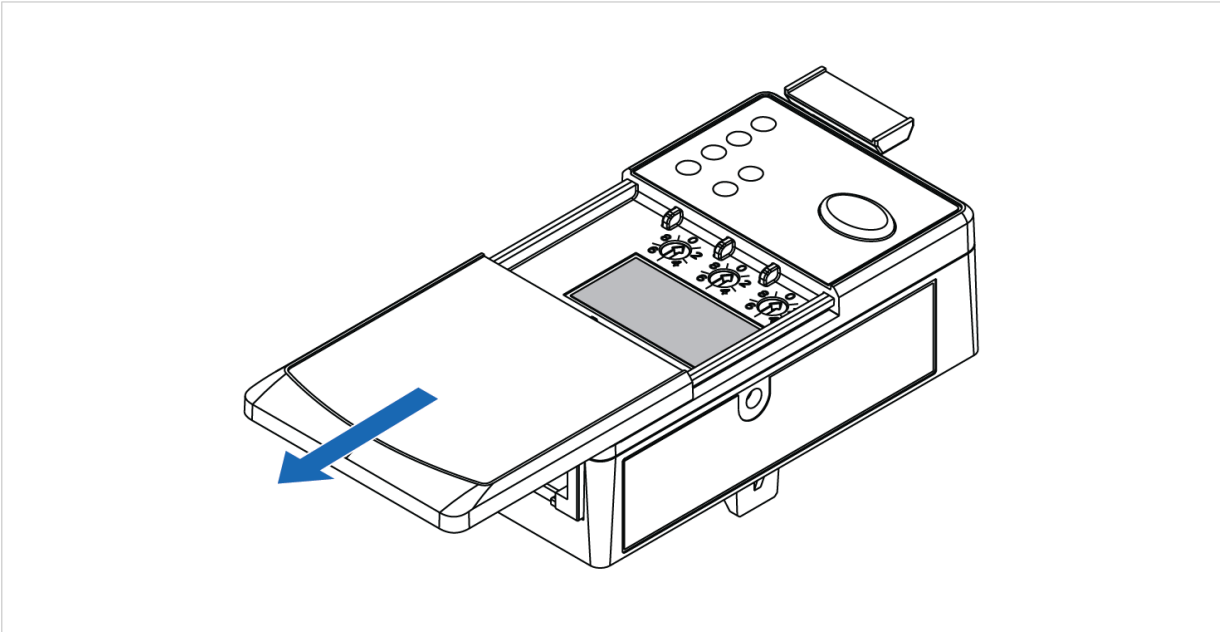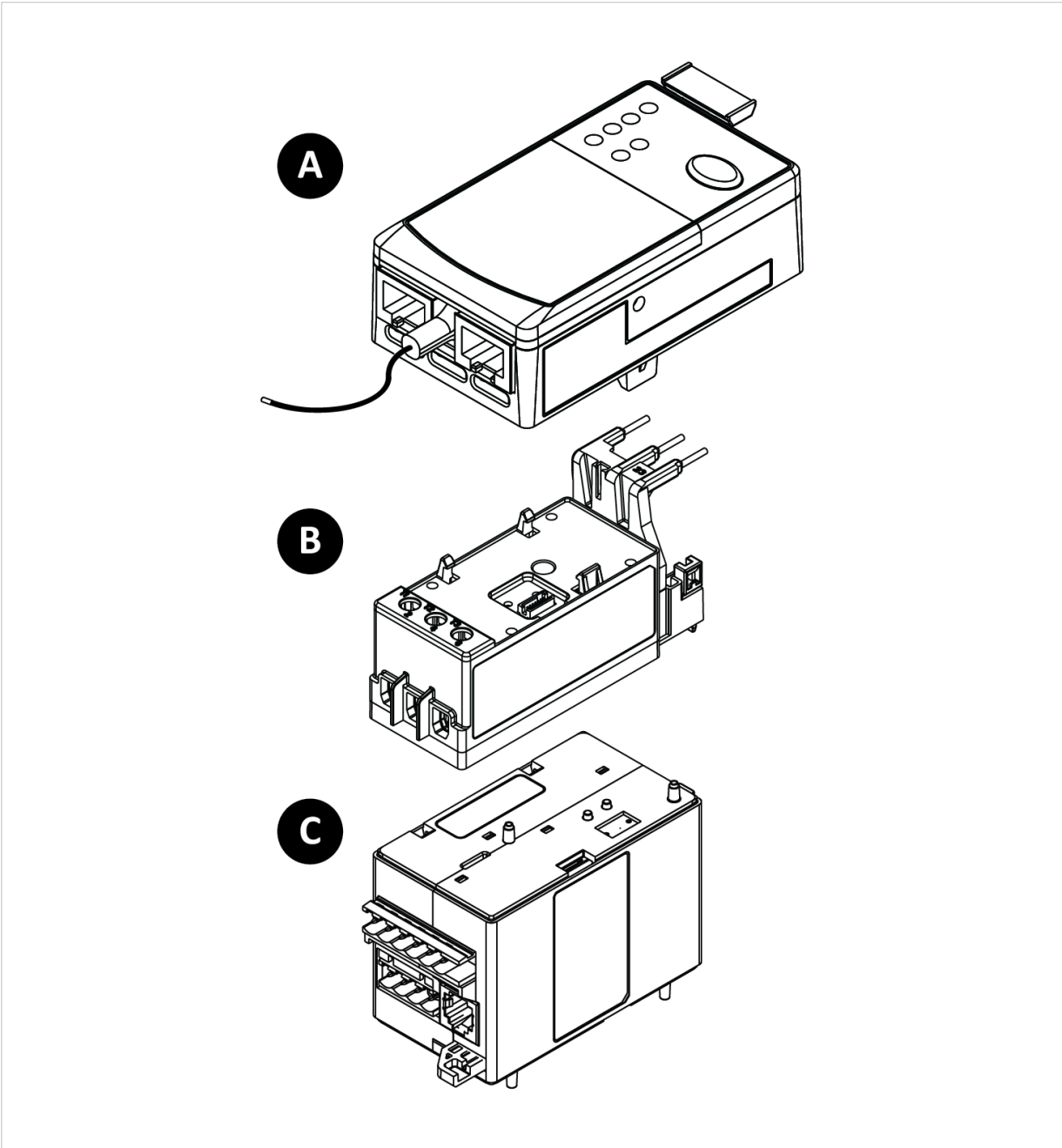
4. Installation

4.1. E300 Relay Modules

Three modules comprise the E300 Relay.

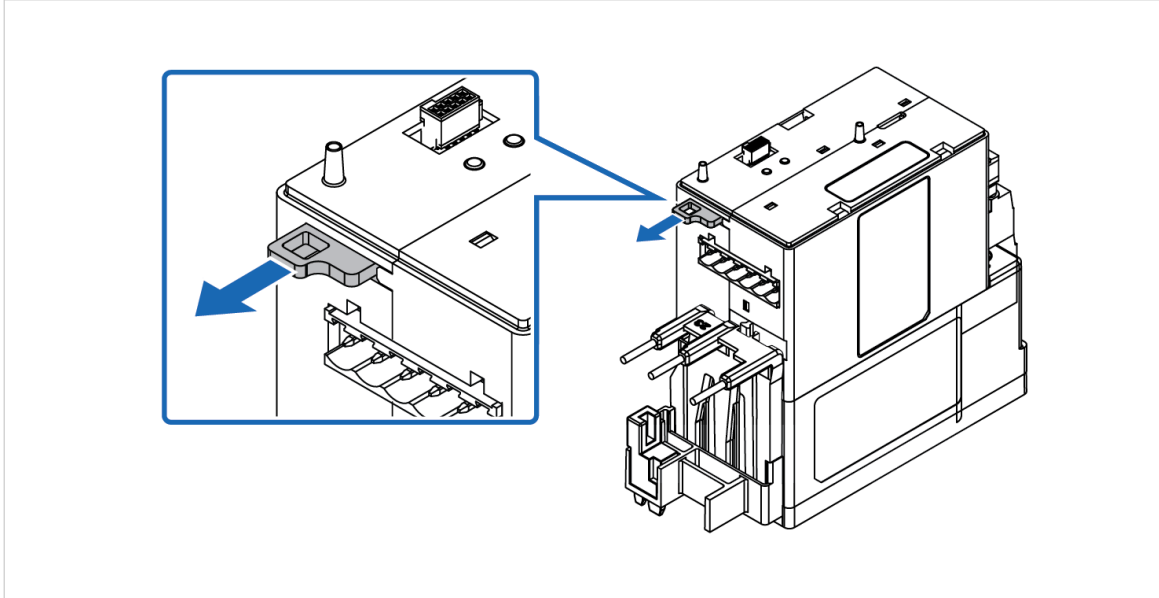All three modules are required to make a functional overload relay.

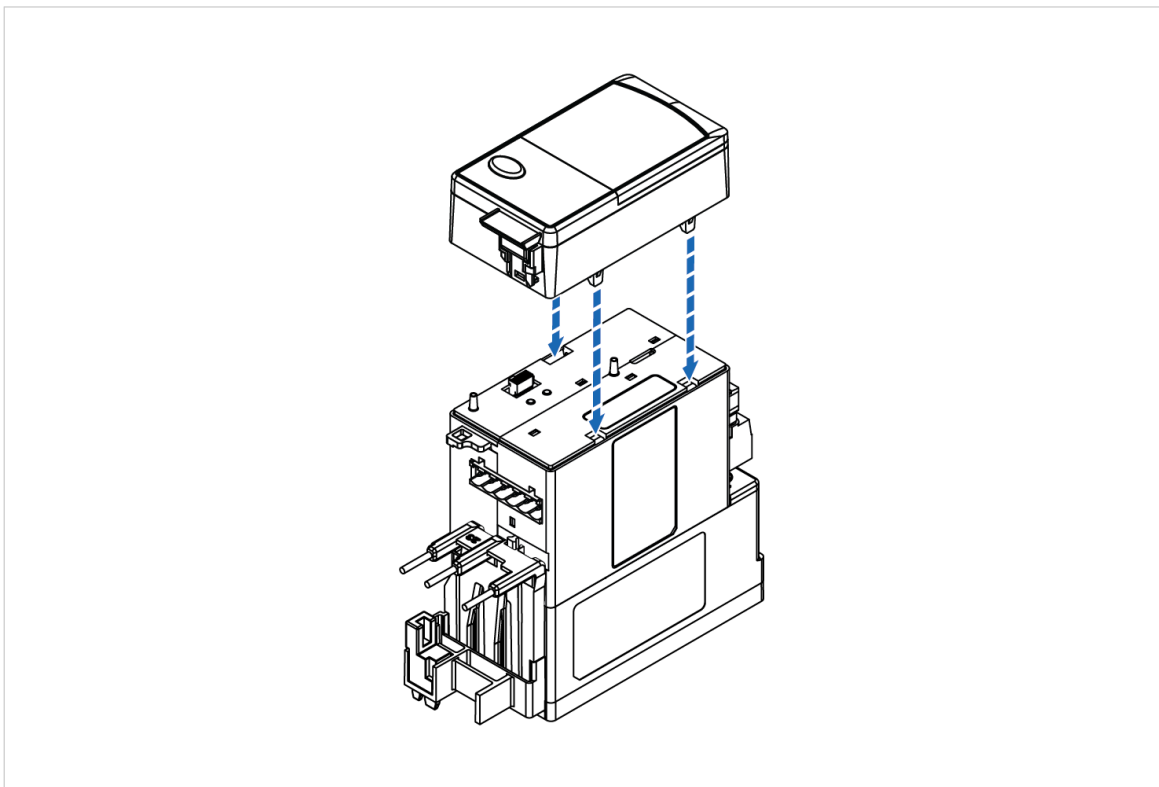| Position	Module
A	E300-MBTCP
B	E300 Relay Control Module
C	E300 Relay Sensing Module

4.2. Attach E300 Communication Module

Procedure

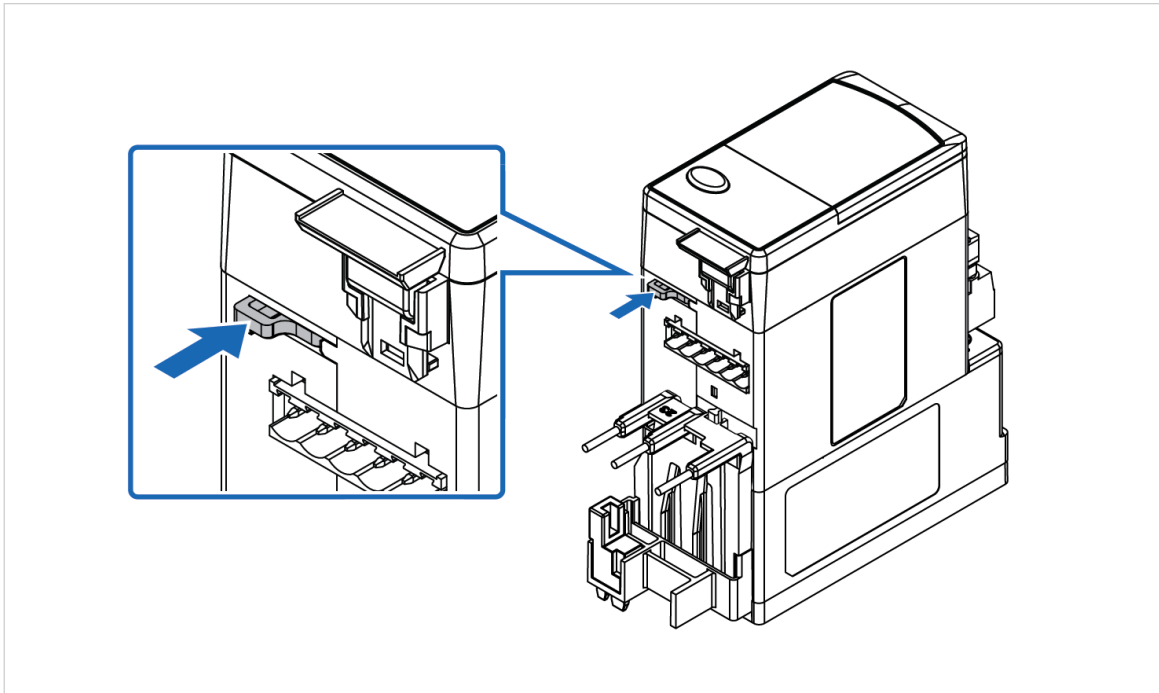To attach the E300 Communication Module to the E300 Relay Control Module:

1.　Pull out the locking tab located on the upper left side of the E300 Relay Control Module.

2.　Attach the E300 Communication Module to the E300 Relay Control Module.

3. To lock the modules, push in the locking tab located on the upper left side of the E300 Relay Control Module.

4.3. Connect to Modbus TCP Network

The E300 Communication Module has two RJ45 ports that act as an Ethernet switch.
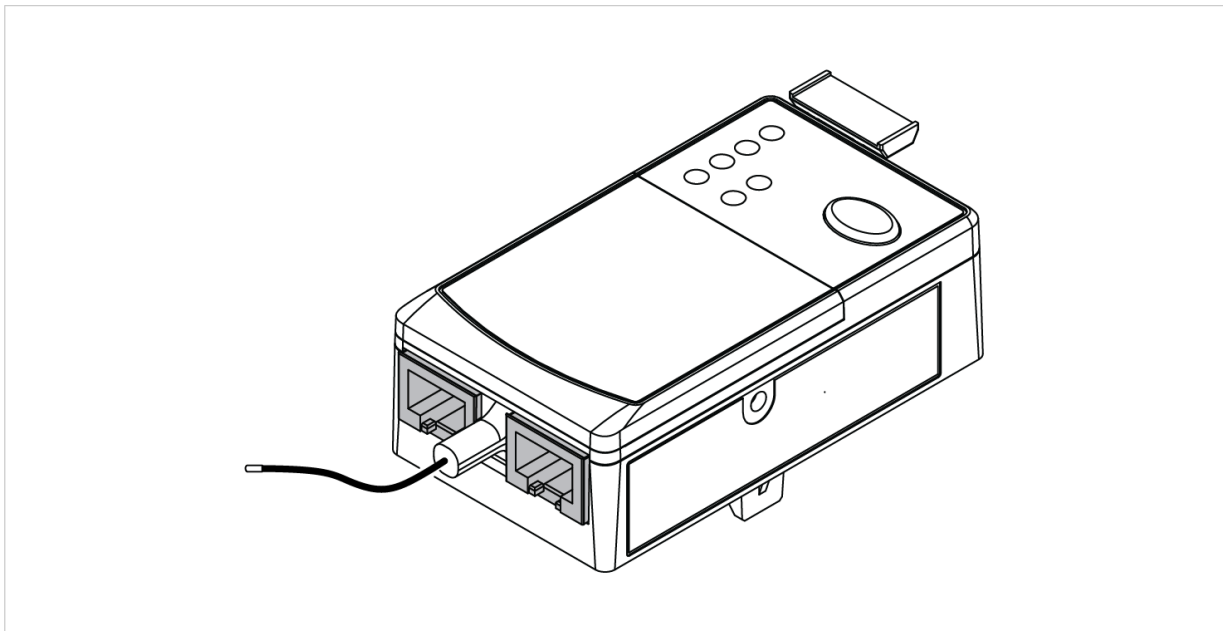
The E300 Communication Module listens for incoming Modbus TCP connections on TCP port 502.

Up to four simultaneous Modbus TCP connections are supported.

4.4. Connect to Ground

Motor protection function: *Ground Fault – zero sequence method (50 N)*.

Connect the Green Wire to Functional Earth (Ground).

4.5. IP Address Setting Via Rotary Switches

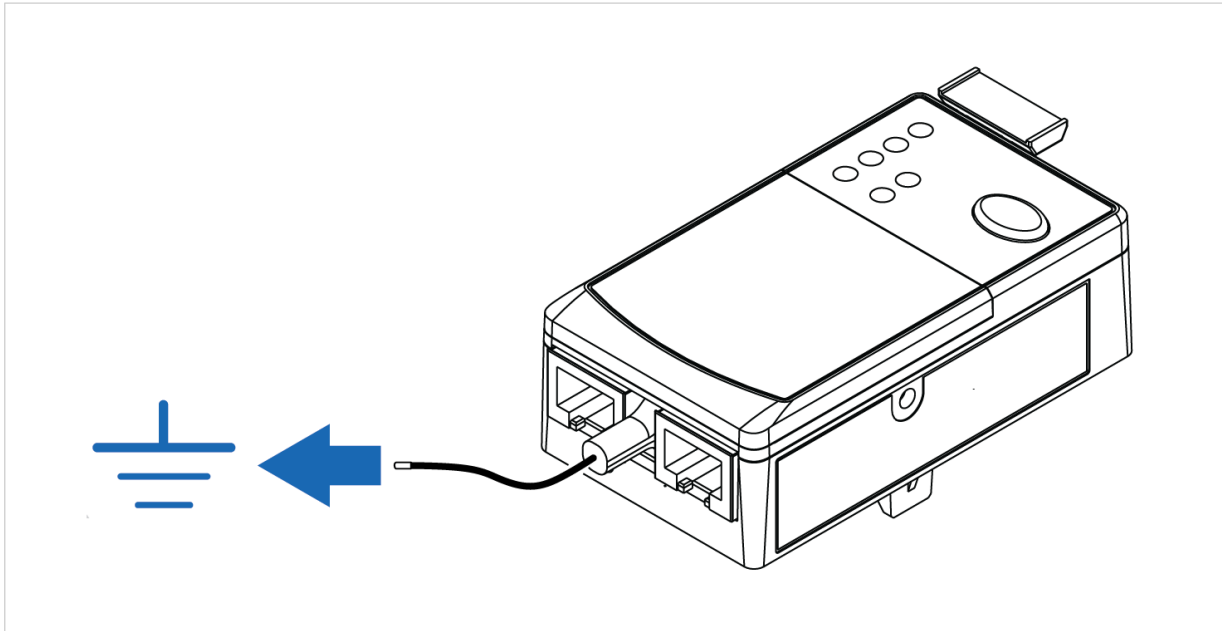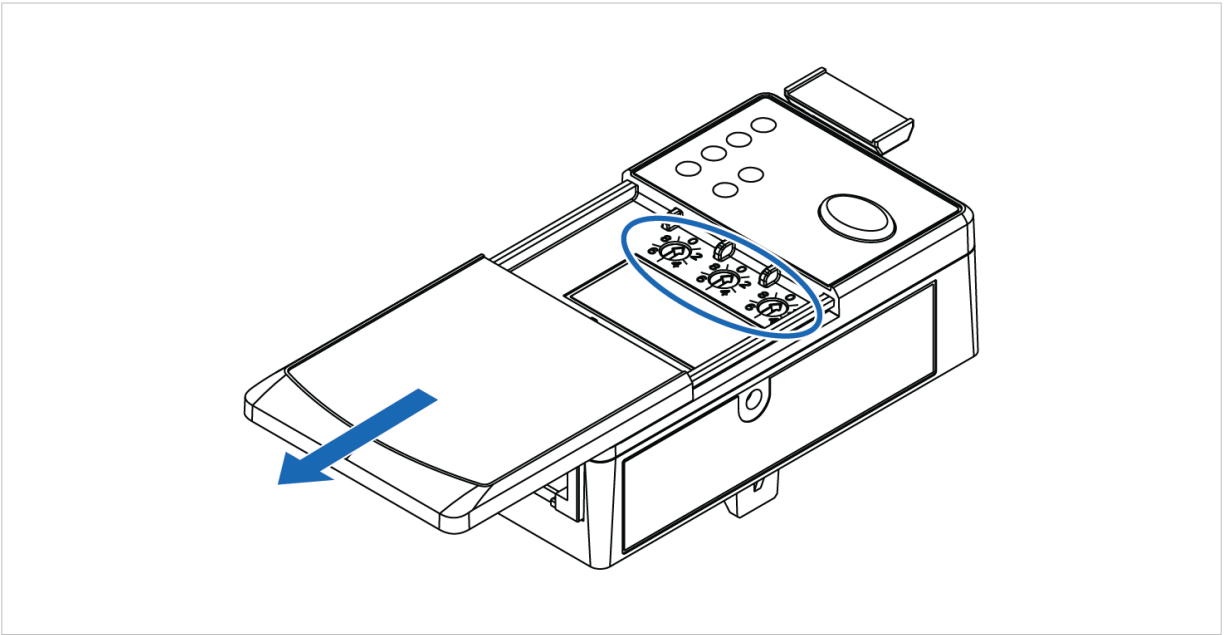Use the three rotary switches to select the last octet for the IP address 192.168.1.xxx.

Node Address	Function
001 - 254	Set IP Address to 192.168.1.xxx
255 - 887 889 - 999	Configure the E300 Communication Module to "Use configured settings", values from non volatile storage.
888	Reset to factory defaults
000	Configure the E300 Communication Module to "Use configured settings", values from non volatile storage. Enter Administration mode

A power cycle is required for the changes to take effect.

Node address setting example

When the left dial is set to **1**, the middle dial is set to **2**, and the right dial is set to **3**, the resulting IP address is: 192.168.1.**123**.
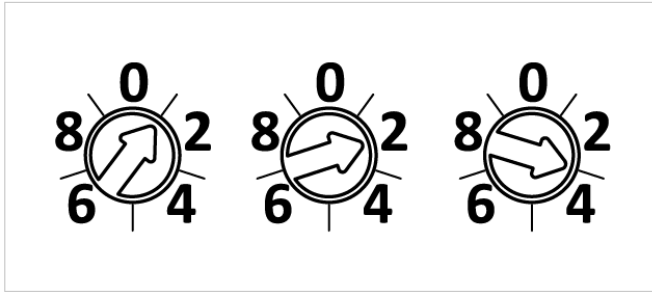
Using a value greater than 255

When the rotary switches are set to a value greater than 255 (excluding 888):

Configure the E300 Communication Module to Use configured settings, values from non volatile storage.

Alternative IP Address Setting Methods

You can also set the IP address via the BOOTP/DHCP Utility or via a web browser and MAC scanner, refer to IP Address Setting Via BOOTP/DHCP Utility (page 11) and IP Address Setting Via Web Browser and MAC Scanner (page 13).

5. Configuration

5.1. IP Address Setting

5.1.1. IP Address Setting Via BOOTP/DHCP Utility

Before You Begin

By default, the E300 Communication Module is DHCP Enabled.

MAC ID

You find the hardware MAC ID printed underneath the E300 Communication Module sliding front cover. The MAC ID has a format similar to: 00-0b-db-14-55-35.

Refer to E300 Communication Module Network Information (page 4).

Procedure

To assign network parameters via the BOOTP/DHCP utility:

1. Start the BOOTP/DHCP software.
2. Choose **Tool > Network Settings**.
3. In the Network Settings window, enter:

   - Subnet Mask
   - Gateway address
   - Primary and Secondary DNS
   - Domain name.
4. Click **OK**.
   - The Request History panel opens. The hardware addresses of modules issuing BOOTP or DHCP requests are listed.

5.   Double-click the MAC address of the module to be configured.
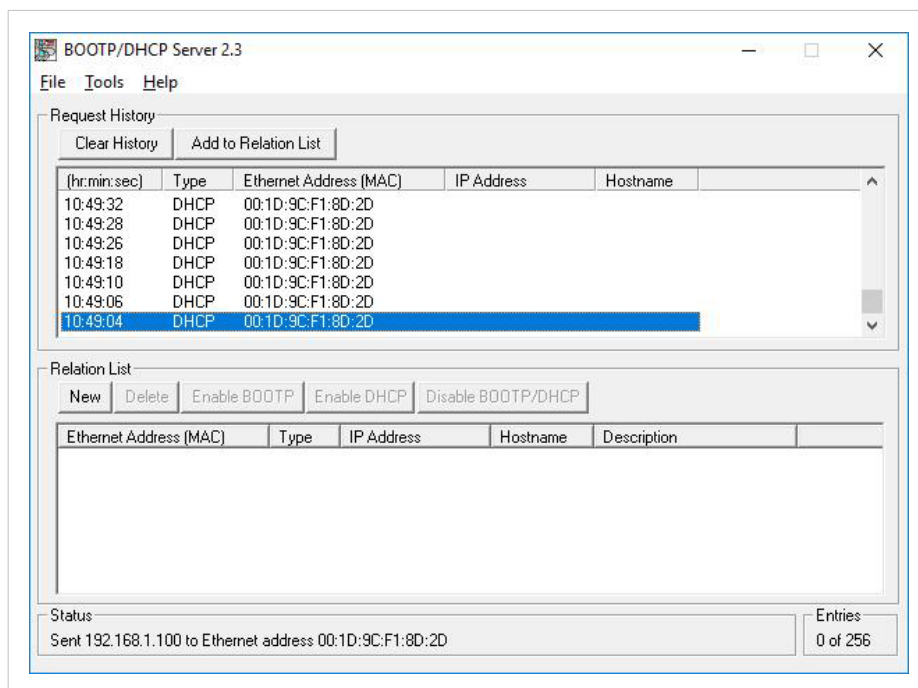
• The New Entry window with the module Ethernet Address (MAC) opens.
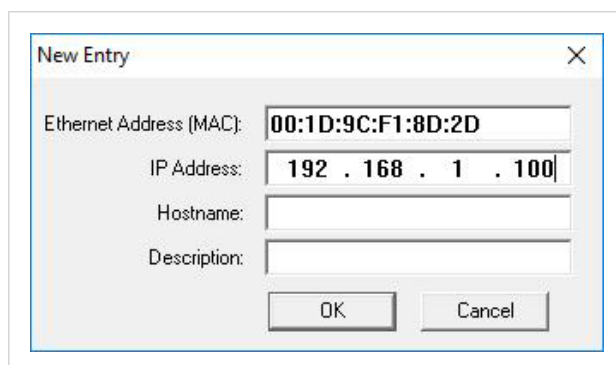
6.   Enter the IP address, host name, and a module description.

7.   Click **OK**.

8.   Power cycle the E300 Communication Module.

9.   To permanently assign this configuration to the module:
      Select the module in the **Relation List** panel and click **Disable BOOTP/DHCP**.

Result

The E300 Communication Module now use the assigned configuration and does not issue a DHCP request.

5.1.2. IP Address Setting Via Web Browser and MAC Scanner

Before You Begin
You can assign network parameters via a standard web browser or Media Access Control (MAC) scanner software.
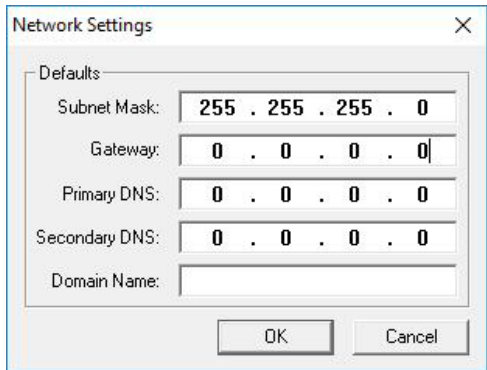
You find the Modbus TCP hardware MAC ID printed underneath the E300 Communication Module sliding front cover.

The MAC ID has a format similar to: 00-0b-db-14-55-35

Refer to E300 Communication Module Network Information (page 4).

Procedure
To assign an IP address:

1. Connect the E300 Communication Module to the same local area network (LAN) as your computer.
2. Start the MAC scanner software.
3. Select the appropriate subnet to scan for available MAC addresses.
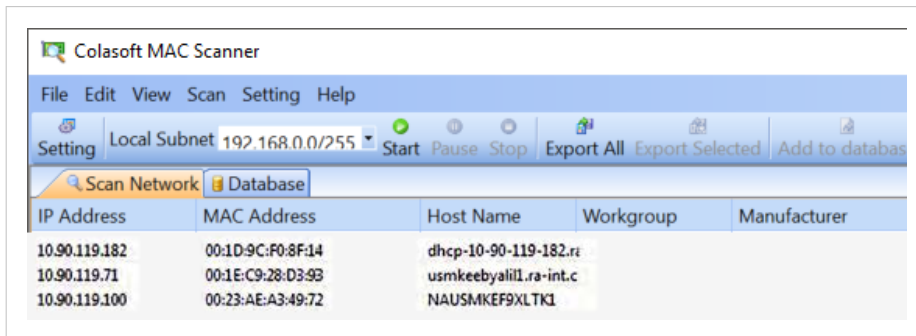
4. To scan the Subnet for all available MAC addresses, click **Start**.
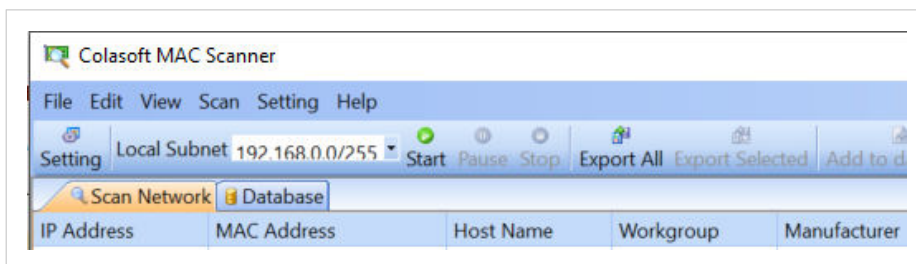
5. Identify the IP address assigned to the MAC ID of the E300 Communication Module.
    The IP address has a format that is similar to: 192.168.0.100

5.2. Access the Web Server Administration Mode

Administration Mode is the maintenance mode for the E300 Relay that allows you to configure parameters, modify security policies, enable web servers, perform firmware updates, and issue commands.

Before You Begin

> ⚠️ **IMPORTANT**
>
> Before installing the E300 Communication Module on a network, change the E300 Communication Module Web Server default user name and password.

To enter the E300 Communication Module web server and when you attempt to change the settings in the web server, you are prompted to enter user name and password.

The user name and password is case sensitive.

- Default user name: Administrator
- Default password: The E300 Communication Module Serial Number
  You find the E300 Communication Module Serial Number printed underneath the E300 Communication Module sliding front cover.
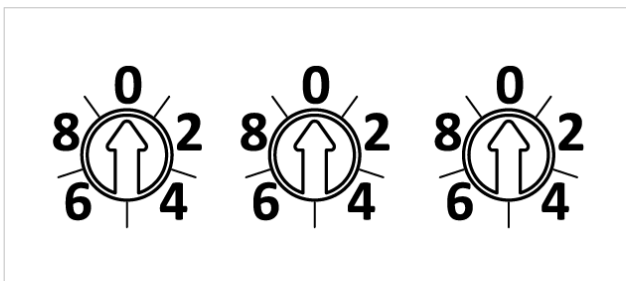 Refer to E300 Communication Module Network Information (page 4).

To change the username and password , refer to Web Server Password Configuration (page 23).

Procedure

To enter the E300 Communication Module web server **Administration Mode**:

1. To access the rotary switches, open the front cover of the E300 Communication Module.
2. Set the rotary switches to 000.

3. Power cycle the E300 Relay.
   The E300 Communication Module goes online with the IP address used at the time of the previous startup.

4. Open a web browser.
5. Click to select the **Address bar** and enter the IP address.
6. Press **Enter**.

7.   If the E300 Communication Module have the factory default configuration:
     Refer to E300 Communication Module Network Information (page 4).
     Enter **Old password**, which is the default password.
     Then enter **New password** and **Confirm new password**.
     To confirm the password change, click **Apply Changes**.

Anybus-E300-MBTCP 4In3Out240VAC IGPt5to30Amp

First run password configuration

The password has to be changed from the default. Please type in a new password.

Old password	
New password	
Confirm new password	
Password strength	

Apply Changes

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8.   The E300 Communication Module web server **Home** page opens.

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Anybus-E300-MBTCP 4In3Out240VAC IPt5to30Amp

Expand   Minimize
- Home
- Parameters
- Diagnostics
- Administrative Settings

Home

Device Name	Anybus-E300-MBTCP 4In3Out240VAC IPt5to30Amp
Device Description	
Device Location	
Ethernet Address (MAC)	00:1D:9C:F1:96:F6
IP Address	192.168.1.12

Product Revisions:

Anybus-E300-MBTCP	7.005 Build 1
ECM-EIT Application	1.001 Build 1
ECM-EIT Boot Code	2.002 Build 2
ECM-EIT FPGA	3.004 Build 1
ECM-EIT File System	1.000 Build 1
193-EIO Application	7.005 Build 71
193-EIO Boot	3.001 Build 58
193-ESM Sensing Module	2.003 Build 1
193-EIO EDS File	7.002 Build 1
193-DLX Program Files	2.001 Build 1
193-EIO Language Files	2.003 Build 1

Serial Number	60070966
Status	
Uptime	0 days, 0h:1m:13s

Resources
Visit Anybus.com for additional information

Contacts

Seconds Between Refresh: [15] Disable Refresh with 0.

5.3. Permanently Enable the Web Server

When the E300 Communication Module web server is enabled, you can view and configure the E300 Relay parameters.

Before You Begin

As a security precaution, the E300 Communication Module web server control is disabled by default.

To temporarily enable the web server control or to make it permanently available, you must enter the E300 Communication Module web server Administration Mode.

Refer to Access the Web Server Administration Mode (page 14).

Procedure

To permanently enable the E300 Communication Module web server:

1.   In the left sidebar menu, click **Administrative Settings**.
2.   Click **Network Configuration** tab.
3.   You are prompted for a user name and password.
      Enter user name and password.
4.   Select **Enable** the Web Server Control.
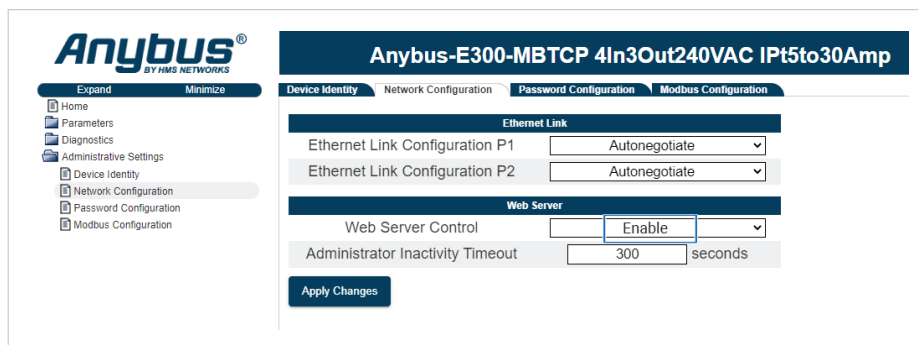
5.   Click **Apply Changes**.

Result

Now the web server is permanently enabled and can be accessed without first setting the rotary switches to 0.0.0.

To change the username and password , refer to Web Server Password Configuration (page 23).

5.4. Configuration Parameters

In the E300 Communication Module web server you can configure the E300 Relay parameters.

For detailed information about viewing and configuring the parameters via the web server, refer to the E300 Electronic Overload Relay user manual.

5.5. View Parameters

Procedure

View Parameters:

1. In the left sidebar menu, click **Parameters**.
2. Select a parameter group to view.
   The example shows the Current Monitoring parameters.

3. To increase the update rate of the data being viewed, enter a faster update time in the **Seconds between refresh** box.

5.6. Edit Parameters

Before You Begin

Before you can start to edit the parameters, ensure that there is no active communication on the Modbus TCP network where the E300 Relay is connected.

Procedure

Edit Parameters:

1. In the left sidebar menu, click **Parameters**.
2. Select a parameter group to configure.
3. Click **Edit**.
   The parameter group value options appears.

   The example shows the Overload Setup parameters.

4. To adjust the values:
   - To adjust a fixed value, select a value from the drop-down menu.
   - In the input fields, enter numerical values.
     Use only decimal or selectable as hex and bin.
5. When you have completed the parameter values configuration, click **Apply**.
   The E300 Communication Module downloads the new parameter values to the device.

6. To confirm the parameter values change, click **OK** in the confirmation window.

5.7. Ethernet Network Configuration

Setting	Value	Description
Ethernet Interface Configuration	Default: Dynamic (DHCP) Static	For Dynamic DHCP: The assigned IP configuration is shown. The setting cannot be changed. For Static: The IP configuration can be changed.
Network Configuration	Currently used settings	The currently used settings, set from Dynamic (DHCP) or Static configuration, are shown here.
Default Domain Name	There is no default Domain Name.	The Domain Name field is not used.
Host Name	There is no default Host Name.	You can label the E300 Communication Module.
Ethernet Link Configuration P1 Ethernet Link Configuration P2	Default: Autonegotiate 100FDX 100HDX 10FDX 10HDX	Speed and duplex settings on the two Ethernet ports.
Web Server Control	Disabled or Enabled Default: Disabled	The web server is always accessible when the rotary switches are set to 000. When the Web Server Control is set to enabled, the web server is accessible regardless of the rotary switches settings.
Administrator Inactivity Timeout	0 to 9999 seconds Default: 300 seconds	If there is no activity within the time set, the user is automatically logged out.

5.8. Modbus TCP Timeout and Word Order Configuration

Setting	Value	Description
Modbus TCP Timeout	Default value: 120 seconds 0 to 65535 seconds	If there is no Modbus communication sent over the established Modbus TCP connection, the connection is considered inactive. Configure after how long time a Modbus TCP connection shall timeout, if the connection is inactive. Timeout 0 disables the connection timeout.
Modbus TCP Word Order	Default value: Little endian Litte endian or Big endian	Configure the word order. The **Big endian** format places the most significant byte of the data at the byte with the lowest memory address. This is only applicable for parameters that span over more than one 16-bit registers. The **Little endian** format places the least significant byte of the data at the byte with the lowest memory address.

6. Verify Operation

6.1. LED Guide

E300 Communication Module LED Indicators
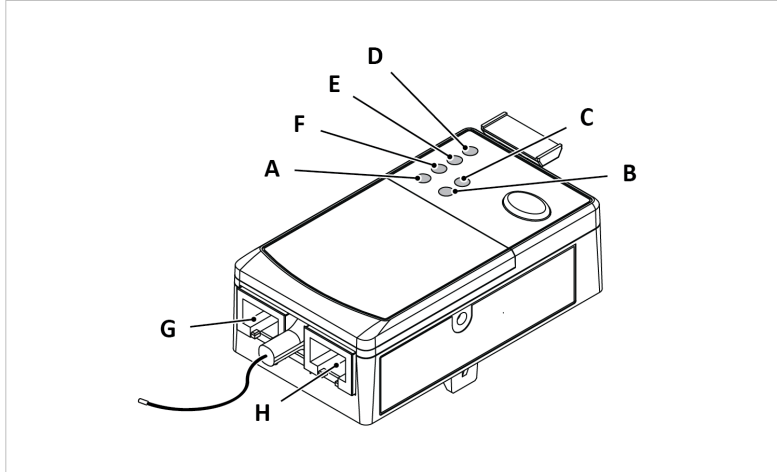
	A	B	C	E	F
Indicator State	**Link 1 Status**	**Link 2 Status**	**Network Status**	**TRIP/WARN**	**Module Status**
Off	No link established.	No link established.	No power, no IP address	N/A	No power
Green	Link established at 100 Mbps.	Link established at 100 Mbps.	Connected	N/A	Modbus TCP controlling connection established
Green, flashing	Transmit or receive activity present at 100 Mbps.	Transmit or receive activity present at 100 Mbps.	No connections	N/A	Standby
Green/Red, flashing	N/A	N/A	N/A	N/A	Upgrading/Downloading new firmware
Yellow	Link established at 10 Mbps.	Link established at 10 Mbps.	N/A	N/A	N/A
Yellow, flashing	Transmit or receive activity present at 10 Mbps.	Transmit or receive activity present at 10 Mbps.	N/A	Warning	N/A
Red, flashing	N/A	N/A	N/A	Fault	Minor fault
Red	N/A	N/A	Duplicate IP	N/A	Major fault
Displaying Green/Red	N/A	N/A	Self-test	N/A	Self-test
Orange	N/A	N/A	FATAL error	N/A	FATAL error
Repeating one Orange Blink	N/A	N/A	N/A	N/A	FW CRC Error
Repeating two Orange Blinks	N/A	N/A	N/A	N/A	Upgrade operation failed

- **LED A**: Indicates status for RJ45 Port **G**
- **LED B**: Indicates status for RJ45 Port **H**
- **LED D, Power**: For information about the Power LED indicator, refer to the E300 Electronic Overload Relay user manual.

7. Maintenance

7.1. Web Server Password Configuration

To change the E300 Communication Module web server password, enter **Administrative Settings > Password Configuration**.

7.2. Web Server System Password Reset

It is possible to restore the user name and system password to the factory default value.

Before You Begin

> ⓘ **IMPORTANT**
> When you reset the E300 Communication Module web server password, all other E300 Relay settings and configuration parameters are reset to the factory default values.

Procedure

To reset the system password:

1. Turn the rotary dials on the E300 Communication Module to **8-8-8**.
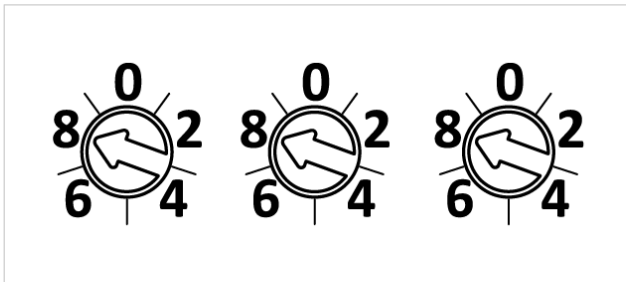
2. Power cycle the E300 Communication Module.
3. Wait while the system password is reset:
    • When the reset is completed, the Module Status LED starts flashing red.
4. When the LED goes out again:
    •   and restart the E300 Communication Module.

Result

The system password and all other E300 Relay configurations are reset to the factory default value.

8. Troubleshooting

In E300 Communication Module web server **Diagnostics** you can overview the metering and diagnostic information the E300 Electronic Overload Relay generates.

For detailed information about diagnostics and troubleshooting help, refer to the user manual for the E300 Electronic Overload Relay.

8.1. Diagnostics Overview

In E300 Communication Module web server **Diagnostics Overview** you can overview the central processing unit (CPU) usage, web server errors and connection status as well as Modbus connection statistics.

8.2. Protection Trip Status
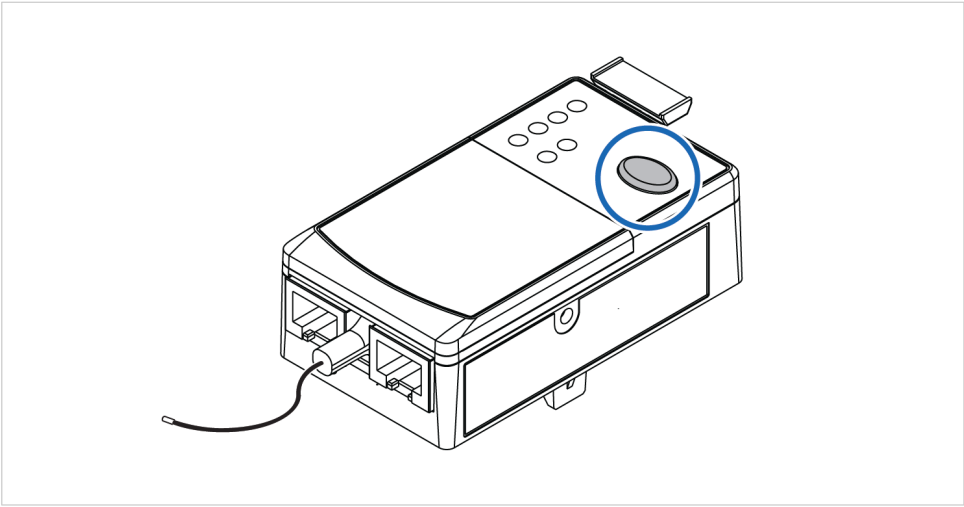
Procedure

To **Test** the E300 Relay:

1. Ensure that the E300 Relay is *untripped*.
2. To open the trip relay contact, press the **Test/Reset** button for 2 seconds and then release it.

View **Trip Status**:

3. View the trip and warning status on the E300 Communication Module web server **Projection Trip Status** page.
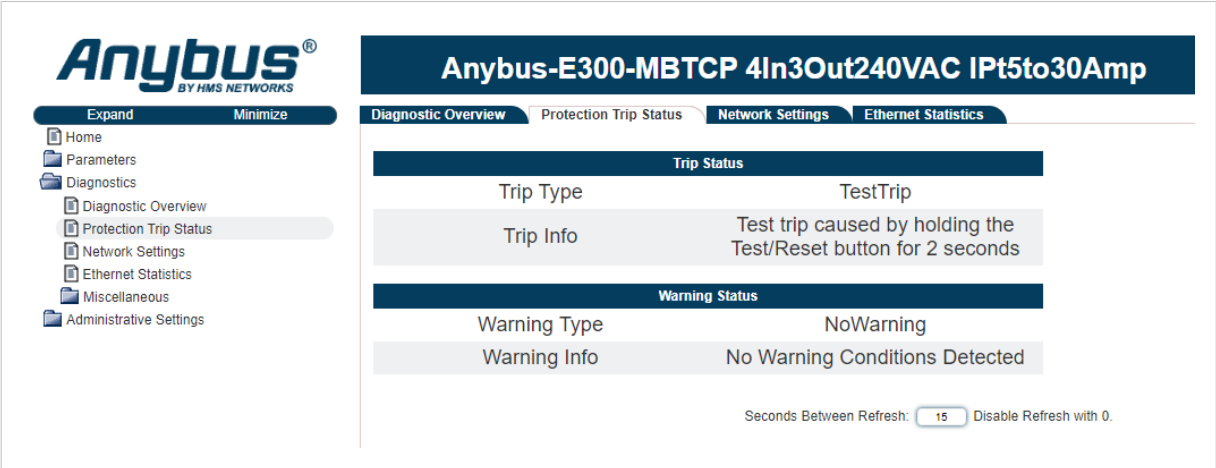
Figure 1.

To **Reset** the test:

4. To close the trip relay contact, press and immediately release the **Test/Reset** button.

8.3. Network Settings

On the **Network Settings** page you can view the Network Interface, Ethernet Interface and Ethernet port configuration.

8.4. Ethernet Statistics

On the **Ethernet Statistics** page you can view statistics for the Ethernet ports.

9. Technical Data

For complete technical specifications and regulatory compliance information, please visit
www.hms-networks.com.

9.1. Technical Specifications

Article identification	028810-B
Communication connector	RJ45 x 2
Power consumption	Typical: 220 mA @ 5 VDC
Storage temperature	-40 to +85 °C
Operating temperature open	-20 to +55 °C
Operating temperature enclosed	-20 to +40 °C
Humidity	EN 600068-2-78: Damp heat, +40°C, 92% humidity for 56 days
	EN 60068-2-30: Damp heat, +25°C – +40°C, 93% RH, 21 cycles
Cooling method	Natural convection
Vibration	IEC 68-2-6: 5 G operating, 5 G non-operating
Shock	IEC 68-2-27: 30 G
Protection class	IP20
Product weight	85 g
Dimensions	32 x 44,8 x 89,3 mm (W x H x D)

10. Reference Guides

10.1. Modbus Data Model

Coils	Single bit	Read-Write	Data can be alterable by the application program.
Input Registers	16-bit word	Read-Only	Data can be provided by the I/O system
Holding Registers	16-bit word	Read-Write	Data can be alterable by the application program.

Reference: MODBUS Application Protocol Specification V1.1b3, April 26 2012

For more information refer to the Modbus organisation website.

10.2. Modbus Commands

Nr	Command	Area	Function Code	Description
1	Read Coils	Coils	0x01	Read from 1 to 2000 contiguous status of coils in a remote device.
3	Read Holding Registers	Holding registers	0x03	Read the contents of a contiguous block of holding registers in a remote device.
4	Read Input Registers	Input registers	0x04	Read from 1 to 125 contiguous input registers in a remote device.
5	Write Single Coil	Coils	0x05	Write a single output to ON or OFF in a remote device.
6	Write Single Register	Holding registers	0x06	Write a single holding register in a remote device.
15	Write Multiple Coils	Coils	0x0F	In a sequence of coils, force each coil to either ON or OFF in a remote device.
16	Write Multiple Registers	Holding registers	0x10	Write a block of contiguous registers in a remote device.
23	Read/Write Multiple Registers	Holding registers	0x17	Performs a combination of one read operation and one write operation. The write operation is performed before the read.

Reference: MODBUS Application Protocol Specification V1.1b3, April 26 2012

For more information refer to the Modbus organisation website.

10.3. Controlling Connection

Only one Modbus TCP connection at a time is allowed to control the outputs of the device.

Once an established connection writes to a register that controls the output, the Modbus TCP connection will be flagged as the *controlling connection*.

No other Modbus TCP connection can control the outputs until the *controlling connection* is either closed or timed out.

For information about which coils and holding registers that control the outputs, refer to the Controls output column in Coils (page 30) and Holding Registers (page 33).

10.4. Coils

Modbus Register (Dec)	Modbus address (Hex)	Access rights	Parameter name	Controls output
00001	0000	RW	Network Trip Reset	No
00002	0001	RW	OutputPt00	Yes
00003	0002	RW	OutputPt01	Yes
00004	0003	RW	OutputPt02	Yes
00005	0004	RW	OutDigMod1Pt00	Yes
00006	0005	RW	OutDigMod1Pt01	Yes
00007	0006	RW	OutDigMod2Pt00	Yes
00008	0007	RW	OutDigMod2Pt01	Yes
00009	0008	RW	OutDigMod3Pt00	Yes
00010	0009	RW	OutDigMod3Pt01	Yes
00011	000A	RW	OutDigMod4Pt00	Yes
00012	000B	RW	OutDigMod4Pt01	Yes
00013	000C	RW	OutPt00PrFltAct	Yes
00014	000D	RW	OutPt00PrFltVal	Yes
00015	000E	RW	OutPt00ComFltAct	Yes
00016	000F	RW	OutPt00ComFltVal	Yes
00017	0010	RW	OutPt00ComIdlAct	Yes
00018	0011	RW	OutPt00ComIdlVal	Yes
00019	0012	RW	OutPt01PrFltAct	Yes
00020	0013	RW	OutPt01PrFltVal	Yes
00021	0014	RW	OutPt01ComFltAct	Yes
00022	0015	RW	OutPt01ComFltVal	Yes
00023	0016	RW	OutPt01ComIdlAct	Yes
00024	0017	RW	OutPt01ComIdlVal	Yes
00025	0018	RW	OutPt02PrFltAct	Yes
00026	0019	RW	OutPt02PrFltVal	Yes
00027	001A	RW	OutPt02ComFltAct	Yes
00028	001B	RW	OutPt02ComFltVal	Yes
00029	001C	RW	OutPt02ComIdlAct	Yes
00030	001D	RW	OutPt02ComIdlVal	Yes
00031	001E	RW	OutDig1PrFltAct	Yes
00032	001F	RW	OutDig1PrFltVal	Yes
00033	0020	RW	OutDig1ComFltAct	Yes
00034	0021	RW	OutDig1ComFltVal	Yes
00035	0022	RW	OutDig1ComIdlAct	Yes
00036	0023	RW	OutDig1ComIdlVal	Yes
00037	0024	RW	OutDig2PrFltAct	Yes
00038	0025	RW	OutDig2PrFltVal	Yes
00039	0026	RW	OutDig2ComFltAct	Yes
00040	0027	RW	OutDig2ComFltVal	Yes
00041	0028	RW	OutDig2ComIdlAct	Yes
00042	0029	RW	OutDig2ComIdlVal	Yes
00043	002A	RW	OutDig3PrFltAct	Yes
00044	002B	RW	OutDig3PrFltVal	Yes
00045	002C	RW	OutDig3ComFltAct	Yes
00046	002D	RW	OutDig3ComFltVal	Yes
00047	002E	RW	OutDig3ComIdlAct	Yes

Modbus Register (Dec)	Modbus address (Hex)	Access rights	Parameter name	Controls output
00048	002F	RW	OutDig3ComIdlVal	Yes
00049	0030	RW	OutDig4PrFltAct	Yes
00050	0031	RW	OutDig4PrFltVal	Yes
00051	0032	RW	OutDig4ComFltAct	Yes
00052	0033	RW	OutDig4ComFltVal	Yes
00053	0034	RW	OutDig4ComIdlAct	Yes
00054	0035	RW	OutDig4ComIdlVal	Yes

10.5. Input Registers

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
30001	0000	R	%TCU
30002	0001	R	Time to Trip
30003	0002	R	Time to Reset
30004	0003	R	Current Trip Status
30005	0004	R	Voltage Trip Status
30006	0005	R	PTC Trip Input / Control Trip
30007	0006	R	Current Warning Status
30008	0007	R	Voltage Warning Status
30009	0008	R	Input Status 0
30010	0009	R	Input Status 1
30011	000A	R	Device Status 0
30012	000B	R	Device Status 1
30005	0004	R	Voltage Trip Status
30006	0005	R	PTC Trip Input / Control Trip
30007	0006	R	Current Warning Status
30008	0007	R	Voltage Warning Status
30009	0008	R	Input Status 0
30010	0009	R	Input Status 1
30011	000A	R	Device Status 0
30012	000B	R	Device Status 1
30013	000C	R	Phase A current
30014	000D	R	
30015	000E	R	Phase B current
30016	000F	R	
30017	0010	R	Phase C current
30018	0011	R	
30019	0012	R	Average % FLA
30020	0013	R	Ground Current
30021	0014	R	Phase A-B voltage
30022	0015	R	Phase B-C voltage
30023	0016	R	Phase C-A voltage
30024	0017	R	Frequency
30025	0018	R	Real Power (P)
30026	0019	R	
30027	001A	R	Reactive Power (Q)
30028	001B	R	
30029	001C	R	Apparent Power (S)
30030	001D	R	
30031	001E	R	Last Fault Code

10.6. Holding Registers

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
40001	0000	RW	Config Preset
40002	0001	RW	Clear command
40003	0002	RW	FLA Setting
40004	0003	RW	FLA Setting
40005	0004	RW	Current Trip Enable
40006	0005	RW	Voltage Trip Enable
40007	0006	RW	Control Trip Enable
40008	0007	RW	CurrentWarning Enable
40009	0008	RW	Voltage Warning Enable
40010	0009	RW	Control Warning Enable
40011	000A	RW	Operating Mode
40012	000B	RW	Input Pt00 assignment
40013	000C	RW	Input Pt01 assignment
40014	000D	RW	Input Pt02 assignment
40015	000E	RW	Input Pt03 assignment
40016	000F	RW	Input Pt04 assignment
40017	0010	RW	Input Pt05 assignment
40018	0011	RW	Output Pt00assignment
40019	0012	RW	Output Pt01 assignment
40020	0013	RW	Output Pt02 assignment
40021	0014	RW	Ground Fault Type
40022	0015	RW	Ground Fault InhibitTime
40023	0016	RW	Ground FaultTrip Delay
40024	0017	RW	Ground Fault Trip Level
40025	0018	RW	Ground Fault Warning Delay
40026	0019	RW	Ground Fault Warning Level
40027	001A	RW	Ground Fault Filter
40028	001B	RW	Ground Fault Max Inhibit
40029	001C	RW	Jam Inhibit Time
40030	001D	RW	Jam Trip Delay
40031	001E	RW	Jam Trip Level
40032	001F	RW	Jam Warning Level
40033	0020	RW	Current Transformer Primary
40034	0021	RW	Current Transformer Secondary
40035	0022	RW	Data Link 0
40036	0023	RW	Data Link 1
40037	0024	RW	Data Link 2
40038	0025	RW	Data Link 3
40039	0026	RW	Data Link 4
40040	0027	RW	Data Link 5
40041	0028	RW	Data Link 6
40042	0029	RW	Data Link 7
40043	002A	RW	Potential Transformer Primary
40044	002B	RW	Potential Transformer Secondary
40045	002C	RW	Undervoltage Inhibit Time
40046	002D	RW	Undervoltage Trip Delay
40047	002E	RW	Undervoltage Trip Level

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
40048	002F	RW	Undervoltage Warning Level
40049	0030	RW	Overvoltage Inhibit Time
40050	0031	RW	Overvoltage Trip Delay
40051	0032	RW	Overrvoltage Trip Level
40052	0033	RW	Overvoltage Warning Level

Table 1. Default Consumed Assembly

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name	Controls output
42001	07D0	Reserved	No	Yes
42002	07D1	RW	Network Start 1 (0.LogicDefinedPt00Data) Network Start 2 (0.LogicDefinedPT01Data) Trip Reset Emergency Start Remote Trip Reserved HMILED 1 Green HMILED 2 Green HMILED 3 Green HMILED 3 Red HMILED 4 Red Reserved	Yes
42003	07D2	RW	DLXPtDeviceIn	Yes
42004	07D3	RW	DLXAnDeviceIn	Yes

Table 2. All Diagnostics Produced Assembly

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
44001	0FA0	N/A	Reserved for Logix
44002	0FA1	N/A	Reserved for Logix
44003	0FA2	R	Device Status 0
44004	0FA3	R	Device Status 1
44005	0FA4	R	Input Status 0
44006	0FA5	R	Input Status 1
44007	0FA6	R	Output Status
44008	0FA7	R	Op Station Status
44009	0FA8	R	Trip Sts Current
44010	0FA9	R	Warn Sts Current
44011	0FAA	R	Trip Sts Voltage
44012	0FAB	R	Warn Sts Voltage
44013	0FAC	R	Trip Sts Power
44014	0FAD	R	Warn Sts Power
44015	0FAE	R	Trip Sts Control
44016	0FAF	R	Warn Sts Control
44017	0FB0	R	Trip Sts Analog
44018	0FB1	R	Warn Sts Analog
44019	0FB2	R	Reserved
44020	0FB3	R	Reserved
44021	0FB4	R	Therm Utilized Pct / Current Im balance
44022	0FB5	R	Avg Percent FLA
44023	0FB6	R	Average Current

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
44024	0FB7	R	Average Current
44025	0FB8	R	L1 Current
44026	0FB9	R	L1 Current
44027	0FBA	R	L2 Current
44028	0FBB	R	L2 Current
44029	0FBC	R	L3 Current
4430	0FBD	R	L3 Current

Table 3. Modbus Configuration

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
46001	1770	RW	Modbus Connection Timeout (s) Default: 120
46002	1771	RW	Word order 0=little endian (default) 1=big endian

Table 4. Network Interface Configuration

Modbus register (Dec)	Modbus address (Hex)	Access rights	Parameter name
When the network interface configuration registers are read, the configured values will be returned. The configuration is stored, if evaluated as valid, once the Save Configuration register is written. The saved configuration will be used after next restart.			
46003	1772	RW	IP Address Most Significant Octet
46004	1773	RW	IP Address 2nd Most Significant Octet
46005	1774	RW	IP Address 3rd Most Significant Octet
46006	1775	RW	IP Address Least Significant Octet
46007	1776	RW	Subnet Mask Most Significant Octet
46008	1777	RW	Subnet Mask 2nd Most Significant Octet
46009	1778	RW	Subnet Mask 3rd Most Significant Octet
46010	1779	RW	Subnet Mask Least Significant Octet
46011	177A	RW	Gateway Address Most Significant Octet
46012	177B	RW	Gateway Address 2nd Most Significant Octet
46013	177C	RW	Gateway Address 3rd Most Significant Octet
46014	177D	RW	Gateway Address Least Significant Octet
46015	177E	RW	Ethernet Interface Configuration 0=DHCP (default) 1=static
46016	177F	RW	Save configuration Save network interface configuration to non volatile storage (NVS) Always returns 0 when read.