

EtherNet/IP® - Network Scanner

PLC500, PLC500ED, PLC500MC
PLC410

Application Note



Application Note

PLC410, PLC500, PLC500ED, PLC500MC

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SUMMARY OF REVISIONS

The information below describes the reviews made in this manual.

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1 INTRODUCTION

This Application Note aims to assist in the use of the **EtherNet/IP®** protocol on WEG PLCs, models PLC410, PLC500, PLC500ED, and PLC500MC. Throughout this document, the PLC500 is used as an example. However, the information presented applies to the other PLC models mentioned above.

This document provides information about the EtherNet/IP protocol, Ethernet interface description, installation recommendations, possible network topologies using the protocol, and a guide to establish EtherNet/IP communication using a PLC500 as a scanner in **CODESYS®**.

For more information about hardware, interfaces, and communication protocols, refer to the User Manual of the respective product, available on the [WEG](#) website. For a more in-depth and detailed description of the operation of the EtherNet/IP network, access the online help at [CODESYS Online Help](#).

**ATTENTION!**

This application note is intended for professionals trained in industrial networks. Installation and configuration of devices must be done according to the manufacturer's manual.

**NOTE!**

This application note is directed to the CODESYS programming tool. It is recommended to use version **CODESYS V3.5 SP19** or higher. It is also recommended to use the latest available version of the Ethernet/IP network configuration libraries.

1.1 TERMS AND DEFINITIONS USED

Adapter: A device that responds to communication requests made by an EtherNet/IP scanner.

CODESYS: The PLC500 programming software. A programming platform that allows the development, configuration, and monitoring of industrial automation solutions and system integration.

DHCP: Stands for “*Dynamic Host Configuration Protocol*.” A network management protocol that automatically assigns IP addresses and other configuration information to devices connected to a network.

Mbps: Megabits per second.

ODVA: A global association that brings together automation companies to promote open and interoperable technologies in industrial automation.

Scanner: A device responsible for managing and controlling communication with other devices within an EtherNet/IP network.

s: second.

1.2 NUMERICAL REPRESENTATION

Decimal numbers are represented using digits without a prefix. Hexadecimal numbers are represented with the prefix ‘0x’.

1.3 ETHERNET/IP DOCUMENTS

It is recommended to consult the documents related to the EtherNet/IP network presented in [Table 1.1](#) on [page 1-2](#).

Table 1.1: Reference Documents.

Document	Version	Source
Volume One - Common Industrial Protocol (CIP) Specification	3.32	ODVA
Volume Two - EtherNet/IP Adaptation of CIP	1.30	ODVA
Media Planning and Installation Manual - EtherNet/IP	PUB00148R0	ODVA
Network Infrastructure for EtherNet/IP: Introduction and Considerations	PUB00035R0	ODVA

1.4 IMPORTANT NOTICE ABOUT CYBERSECURITY AND COMMUNICATIONS

WEG PLCs, models PLC410, PLC500, PLC500ED, and PLC500MC, have the capability to connect and exchange information via networks and communication protocols. Although they have been designed and tested to ensure proper operation with other automation systems using the protocols mentioned in this manual, it is essential for the customer to understand the responsibilities associated with information and cybersecurity when using this equipment.

Therefore, it is the customer's full responsibility to adopt defense-in-depth strategies and implement policies and measures to ensure the security of the system as a whole, including the communications sent and received by the equipment. These measures include, but are not limited to, installing firewalls, antivirus and antimalware programs, data encryption, authentication control, and physical access control for users.

WEG and its affiliates are not responsible for any damages or losses resulting from cybersecurity breaches, including but not limited to unauthorized access, intrusion, data leakage and/or theft, denial of service, or any other form of security violation. The use of this product in conditions for which it was not specifically designed is not recommended and may cause damage to the product, network, or automation system.

In this sense, it is crucial for the customer to understand that external interventions via third-party programs, such as sniffers or programs with similar actions, have the potential to cause interruptions or restrictions in the equipment's functionality.

1.5 TRADEMARKS

EtherNet/IP® is a registered trademark of ODVA, Inc.

All other trademarks are the property of their respective holders.

2 ETHERNET INTERFACE

EtherNet/IP communication is carried out through Ethernet connections, as shown in [Figure 2.1 on page 2-1](#) for the PLC500 and PLC410. Initially, each Ethernet port has the IP address indicated in [Table 2.1 on page 2-1](#), which can be changed at any time through the CODESYS software.

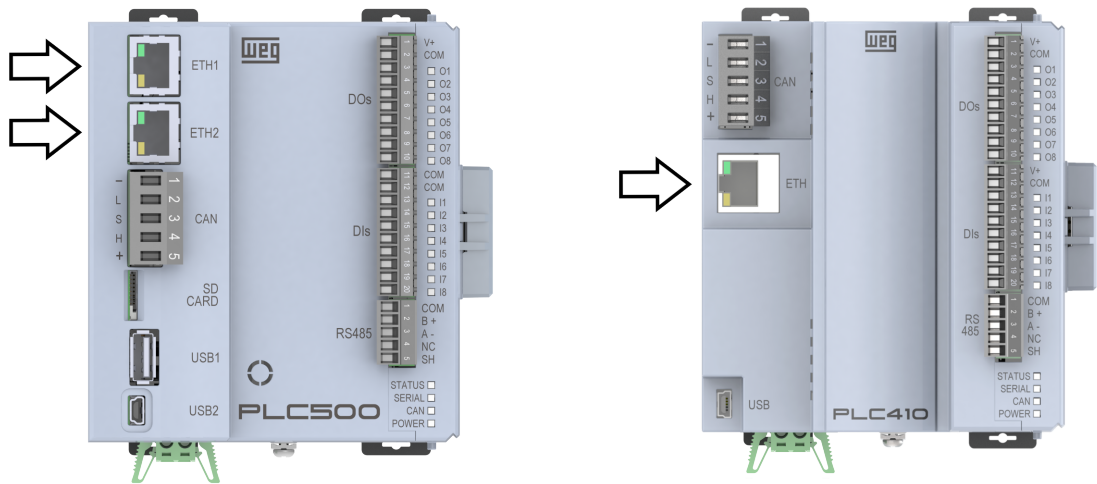


Figure 2.1: Indication of Ethernet connections on PLC500 and PLC410.

Table 2.1: Default IP addresses for Ethernet ports.

Ethernet (PLC410)	Ethernet (PLC500)	Default IP Address
ETH	ETH1	192.168.1.10
-	ETH2	192.168.2.10

The pinout of the connector follows the Ethernet 1000BASE-TX standard. The Ethernet interface of the PLC410 supports speeds of up to 100 Mbps, while the Ethernet interfaces of the PLC500 can reach up to 1000 Mbps.

The PLC500, PLC500ED, and PLC500MC feature two Ethernet interfaces, which can be configured in **Independent** mode, where the interfaces operate with different IPs, or in **Switch** mode, where the interfaces share the same IP address.

The interface is compatible with several communication protocols, including EtherNet/IP, and can be used simultaneously for multiple Ethernet-based protocols. For instructions on how to configure these additional networks, consult the product Application Notes available on the [WEG](#) website.

2.1 INDICATION LEDS

The Ethernet ports feature LEDs to indicate speed and link/activity status, as shown in [Figure 2.2 on page 2-1](#). These LEDs behave as described in [Table 2.2 on page 2-2](#) and [Table 2.3 on page 2-2](#).

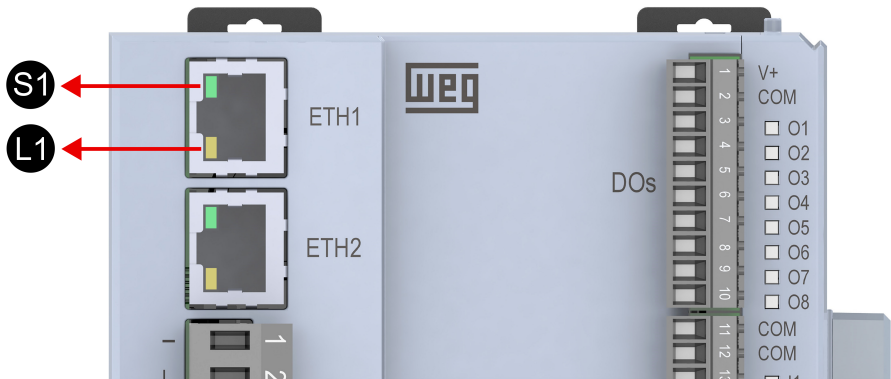


Figure 2.2: Speed and link/activity LEDs of the Ethernet interface of the PLC500.

Table 2.2: LED S1 - Speed.

State	Description
Off	Device off or 10 Mbps link
Green, solid	100 Mbps link

Table 2.3: LED L1 - Link/Activity.

State	Description
Off	Device off or no link
Amber, solid	Link present with no network activity
Amber, blinking	Link present with network activity

2.2 ETHERNET/IP NETWORK INSTALLATION

EtherNet/IP network, like many industrial communication networks, due to being often applied in harsh environments with high exposure to electromagnetic interference, requires certain precautions to ensure a low communication error rate during its operation.



ATTENTION!

It is recommended to use passive components (cables, connectors, switches, hubs) certified for industrial applications.

The recommended characteristics for the cable used in the installation are:

- Ethernet standard cable, 1000Base-TX, CAT 5e or higher.
- Shielded cable.
- Maximum length of 100 meters for connection between devices.

An adequate connection to the grounding system is essential to reduce electromagnetic interference issues in industrial environments. It is important to avoid connecting the cable to multiple grounding points, especially where there are grounds with different voltage potentials. Additionally, it is recommended that signal and communication cables be installed in dedicated routes, keeping them away from power cables.

For detailed information on the proper installation of an EtherNet/IP network, it is recommended to consult the ODVA documents in [Table 1.1 on page 1-2](#).



DANGER!

Defective grounding installations can lead to death and malfunction of the EtherNet/IP network.

2.3 ETHERNET/IP NETWORK TOPOLOGIES

The network topologies in an EtherNet/IP system supported by the PLC500 may vary depending on the project requirements and the installation architecture. Notable topologies include the star topology, where a central switch connects all devices, as shown in [Figure 2.3 on page 2-3](#); the daisy-chain topology, which allows devices to be connected in sequence, as seen in [Figure 2.4 on page 2-3](#); and the combination of both topologies, as exemplified in [Figure 2.5 on page 2-3](#).

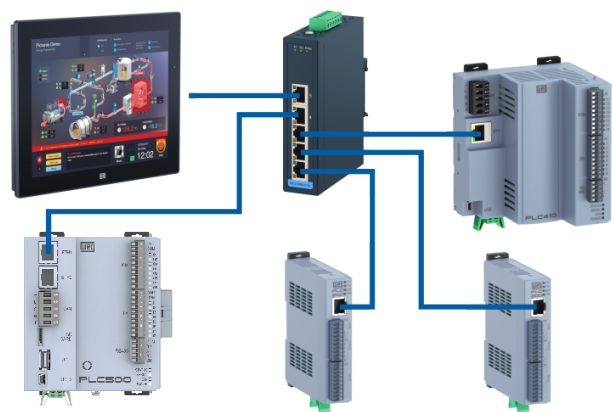


Figure 2.3: EtherNet/IP Star Topology.



Figure 2.4: EtherNet/IP Daisy-Chain Topology.



Figure 2.5: EtherNet/IP Star and Daisy-Chain Topology.

3 PROJECT IN CODESYS

This chapter presents the steps to create a project and add the EtherNet/IP scanner device to the CODESYS network.

3.1 CREATING THE PROJECT

In the CODESYS software, create a new project using the Standard project template, choose the directory and the application name. Then, select the PLC500 device and the desired programming language, as shown in Figure 3.1 on page 3-1.

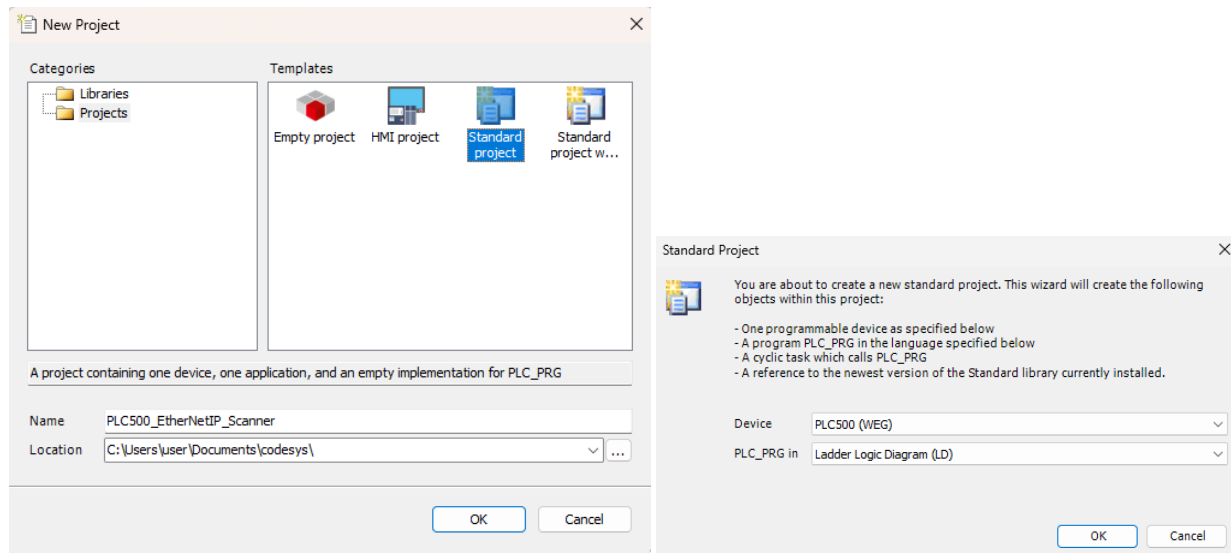


Figure 3.1: Project setup in CODESYS.



NOTE!

If the PLC410, PLC500, PLC500ED, or PLC500MC device is not yet available in the CODESYS options, you must download and install the configuration file. Check the **Product Manual** available on the [WEG](#) website for the necessary steps and configurations.

With the PLC500 device selected, this will result in the project tree, as shown in Figure 3.2 on page 3-1.

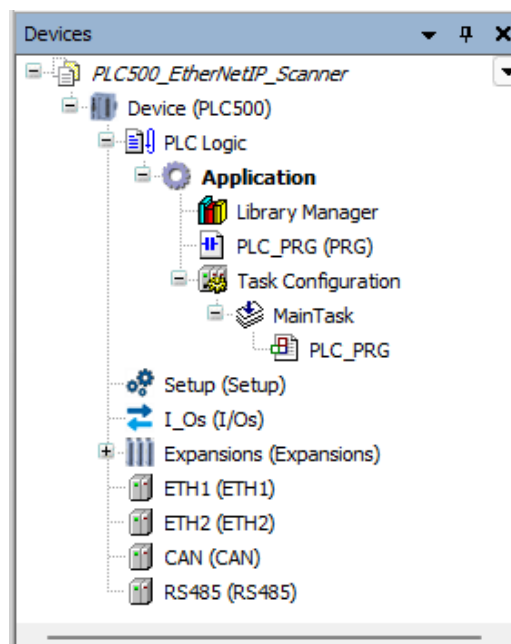


Figure 3.2: Initial project tree of the PLC500.

3.2 ADDING THE SCANNER DEVICE

In the desired Ethernet interface, right-click and select **Add Device**. A new window will open. Expand the **EtherNet/IP** and **EtherNet/IP Scanner** icons using the **+** symbol until the **EtherNet/IP Scanner** device appears, as shown in [Figure 3.3 on page 3-2](#). With the device selected, click on **Add Device**.

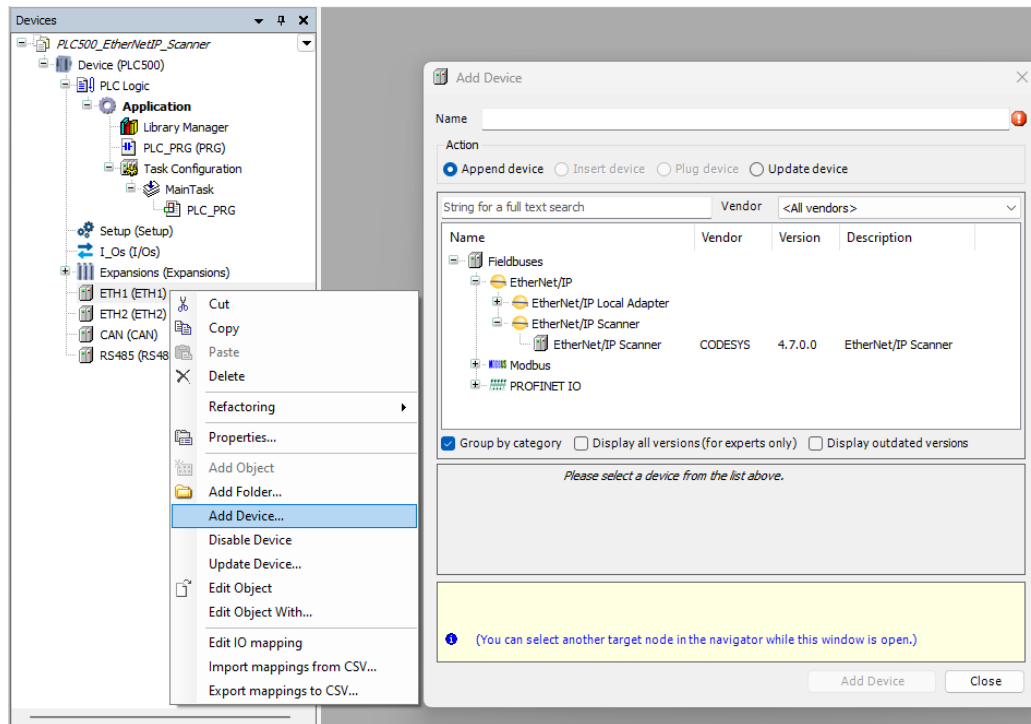


Figure 3.3: Adding EtherNet/IP Scanner device.

The device will be incorporated into the project tree just below the selected Ethernet interface, and the **ENIPScannerIOTask** and **ENIPScannerServiceTask** tasks will be automatically added, as illustrated in [Figure 3.4 on page 3-2](#).

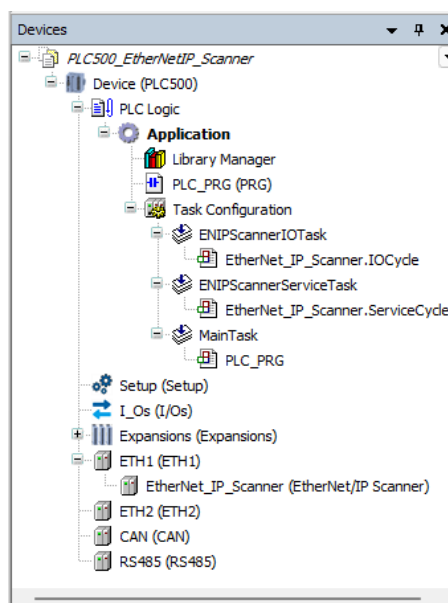


Figure 3.4: EtherNet/IP Scanner device added to the project tree.

**NOTE!**

Optionally, you can use the **WEG ETH IP** or **CODESYS Ethernet** interfaces. These can be added in **Device** → **Add Device** → **Fielbuses** → **Ethernet Adapter**, as shown in [Figure 3.5 on page 3-3](#).

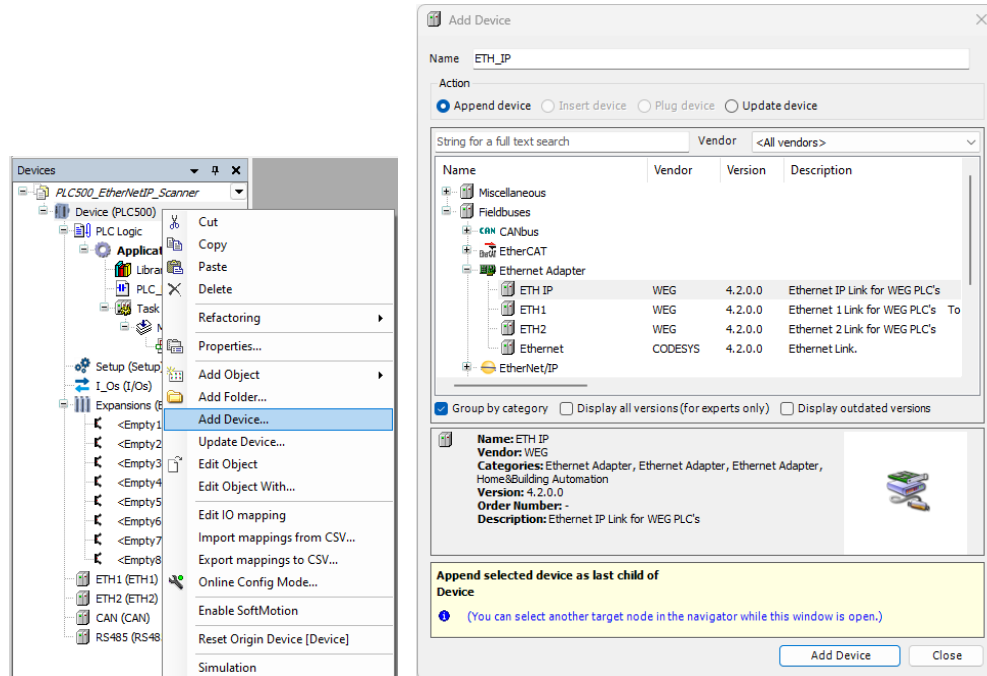


Figure 3.5: Adding generic Ethernet interfaces to the PLC500.

3.3 ADDING ADAPTER DEVICE USING EDS FILE

Right-click on the **EtherNet/IP Scanner** and select **Add Device**. A new window will open. Devices that already have their EDS installed in CODESYS will be displayed. Select the desired device with its corresponding firmware version and click on **Add Device**, as shown in [Figure 3.6 on page 3-3](#).

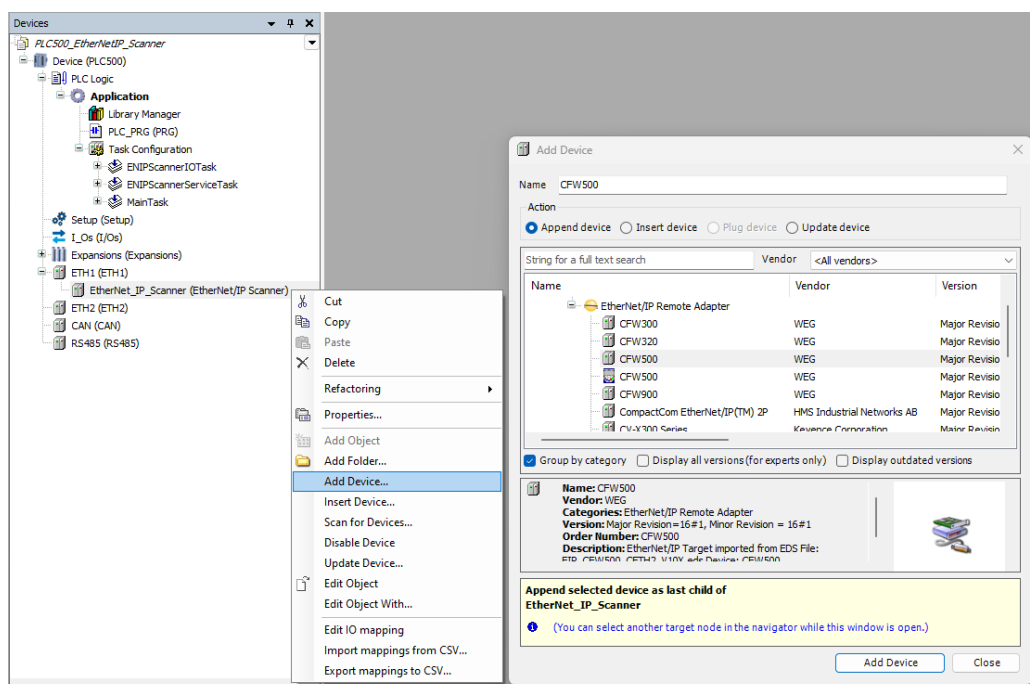


Figure 3.6: Adding EtherNet/IP Adapter device using the repository.

PROJECT IN CODESYS

If the device is not found in the previous window, you must obtain its EDS file from the manufacturer and import it into CODESYS. Next, the EDS file for the PLC200 will be installed as an example, which is available on the product page on the [WEG](#) website. The EDS file should be installed in **Tools** → **Device Repository**, as shown in [Figure 3.7 on page 3-4](#).

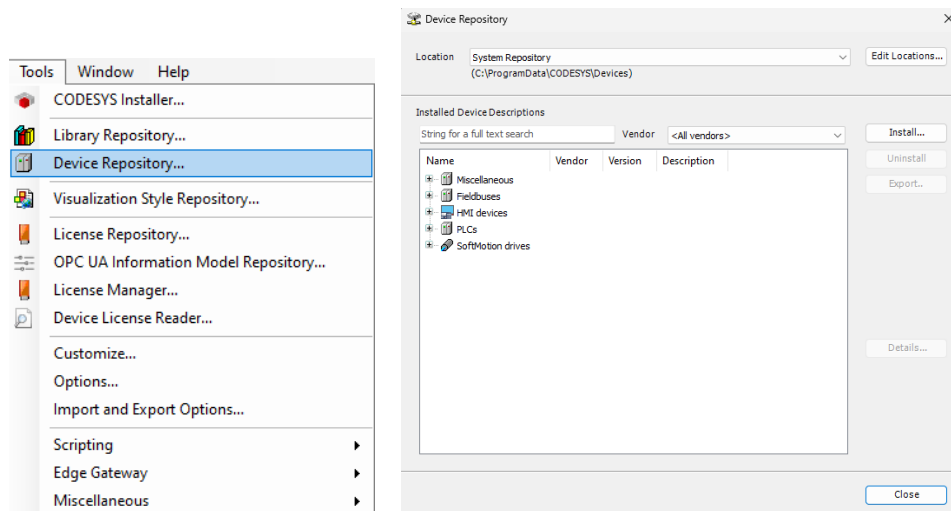


Figure 3.7: Installing a new device in the Device Repository in CODESYS.

Click **Install...** and select the EDS file, as shown in [Figure 3.8 on page 3-4](#). After selecting the EDS, the **Device Repository** window will display a message that the device has been installed, and its icon will appear in the device list.

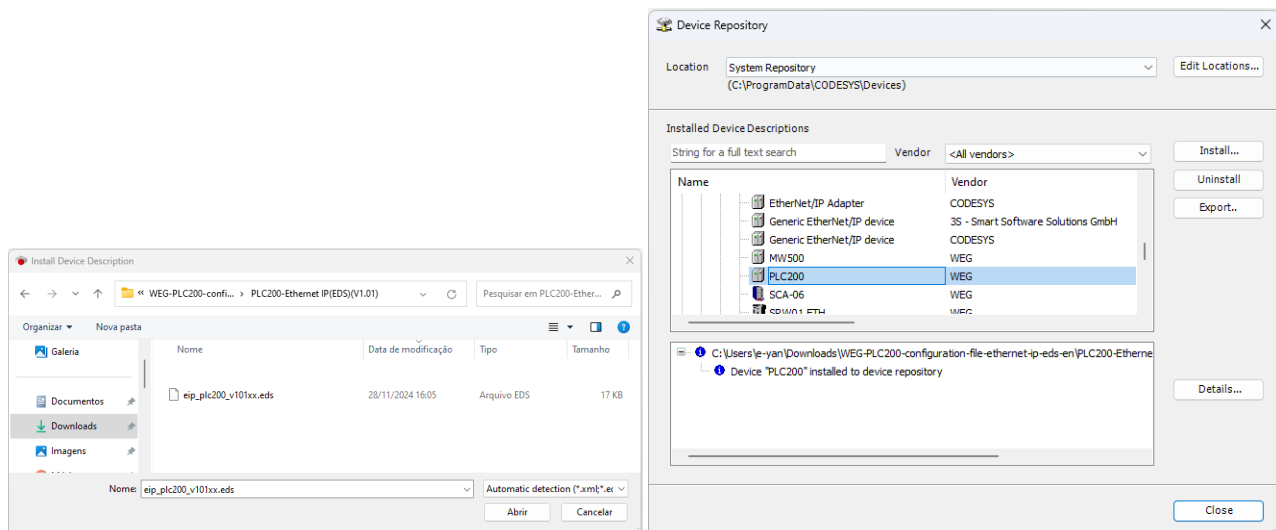


Figure 3.8: Selecting the EDS file and successful installation of the device.



NOTE!

The PLC410, PLC500, PLC500ED, and PLC500MC models, when used as EtherNet/IP adapters, have the ability to export and install their EDS file directly into CODESYS with the user-defined settings. For more information, consult the Application Note available on the product page on the [WEG](#) website.

3.4 ADDING ADAPTER DEVICE USING NETWORK SCAN

Another way to add an EtherNet/IP adapter device in CODESYS is through network scanning. For this, the device's EDS file must be installed in CODESYS. Right-click on the **EtherNet/IP Scanner** and select **Scan for Devices...**, and the devices already configured as EtherNet/IP adapters and within the same IP address range will appear, as shown in the example in [Figure 3.9 on page 3-5](#).

**NOTE!**

The **Scan for Devices** option only works if the device is already configured as an EtherNet/IP scanner. Otherwise, you will need to download the program to configure it.

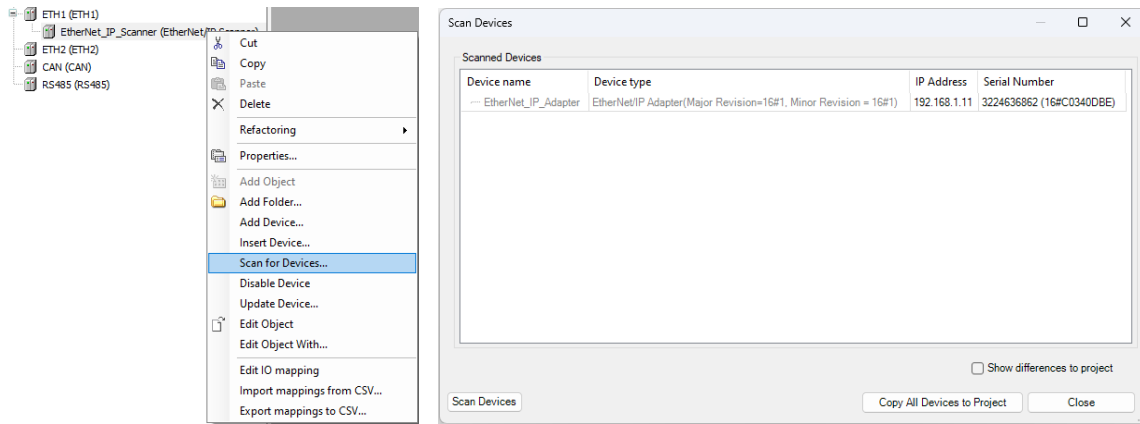


Figure 3.9: EtherNet/IP adapter devices detected through network scanning.

**NOTE!**

If it is necessary to change the IP address of the PLC500's Ethernet interface to ensure compatibility with the IP addresses of the adapter devices, consult [Section 4.1 CONFIGURING THE ETHERNET INTERFACE](#) on page 4-1 for more information.

To individually add the detected devices, select and click on **Copy to project**, or you can copy all detected devices to the project using **Copy All Devices to Project**.

**NOTE!**

If the EDS file for the detected device is not installed, it will not be possible to add it to the project. Obtain the EDS file from the manufacturer and follow the installation steps outlined previously.

At this point, the selected Ethernet interface should have the items shown in [Figure 3.10 on page 3-5](#).

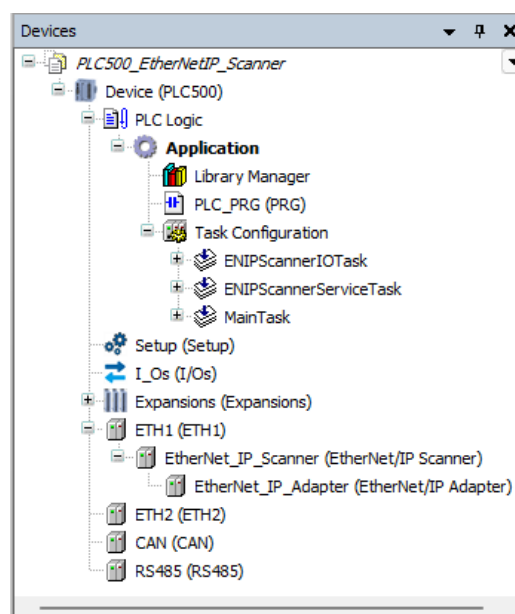


Figure 3.10: Items added for EtherNet/IP communication.

4 ETHERNET/IP SCANNER CONFIGURATION

This chapter presents the steps for configuring an EtherNet/IP network with the PLC500 acting as a scanner in CODESYS.

4.1 CONFIGURING THE ETHERNET INTERFACE

The configuration of the PLC500's Ethernet interfaces can be done through the **Setup** tab in CODESYS, as indicated in [Figure 4.1 on page 4-1](#).

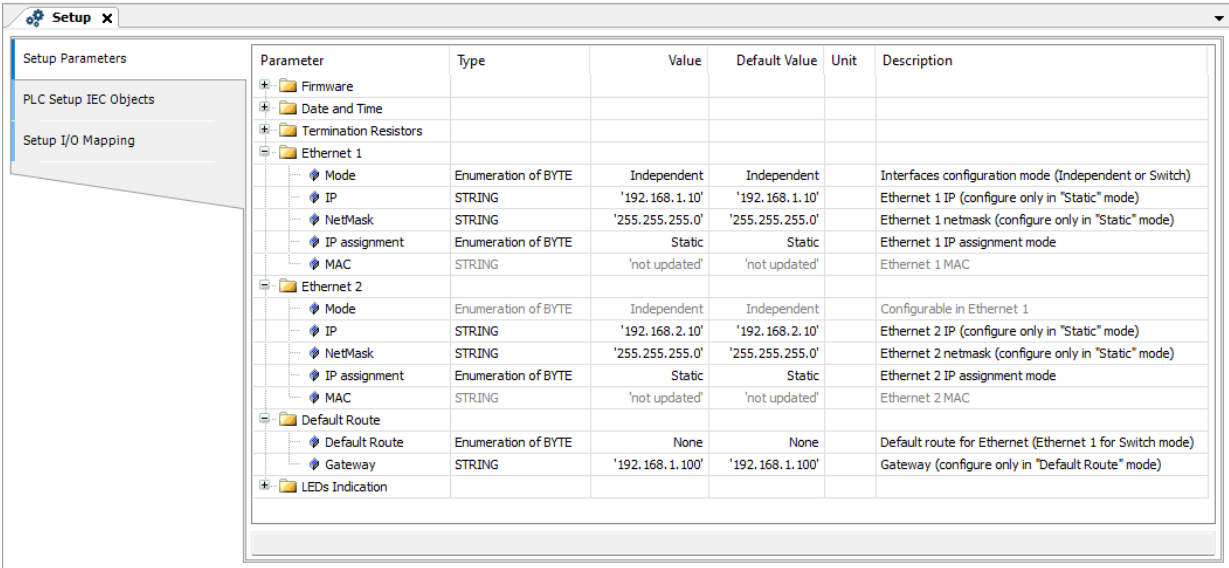


Figure 4.1: Network interface configuration for the PLC500.

To automatically obtain the IP address of an interface on the network, modify the **IP assignment** field to **DHCP**. By selecting this option, the interface will request an IP address from an available DHCP server on the network, which will assign a valid IP and other configurations such as subnet mask and default gateway.



ATTENTION!

When Ethernet ports are configured in **Independent** mode, they must operate in **distinct networks**. Do not use the address range **192.168.234.xxx** as it is reserved for accessing the PLC500 through the USB2 interface. **Incorrectly configuring these ports may result in losing access to the PLC**, making it inaccessible via Ethernet until the configurations are corrected.

4.2 SWITCH MODE

The PLC500 can operate in **Switch** mode, where a new network interface called **br1** is created to virtually link Ethernet interfaces 1 and 2, allowing both to share the same IP address configured on Ethernet 1. The user can change the operation mode of the interfaces from **Independent** to **Switch** in the **Mode** parameter of Ethernet interface 1, as demonstrated in [Figure 4.2 on page 4-2](#).

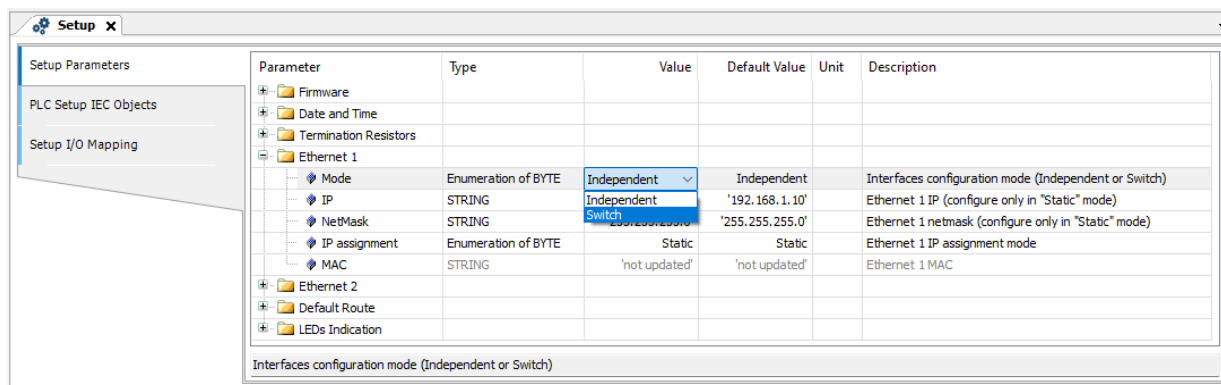


Figure 4.2: Switch mode configuration for Ethernet interfaces.



NOTE!

When switching to **Switch** mode, it is recommended to restart the product, as this action is necessary to ensure proper operation of some communication protocols.

4.3 NETWORK CONFIGURATION

Each device in an Ethernet network requires an IP address and a subnet mask. The network must be configured with valid addresses for each scanner and adapter device, ensuring that the addresses are unique and within the allowed IPv4 address range. Otherwise, connectivity issues may occur.

By double-clicking on the Ethernet interface with the EtherNet/IP Scanner, a window will open, as shown in Figure 4.3 on page 4-2. The **Browse** box is used to select the Ethernet port. Below this box, you can change the device's IP, subnet mask, and gateway.



NOTE!

To use the **Browse** box, the PLC500 must be correctly connected and identified on the computer. Otherwise, a network communication error will be generated.

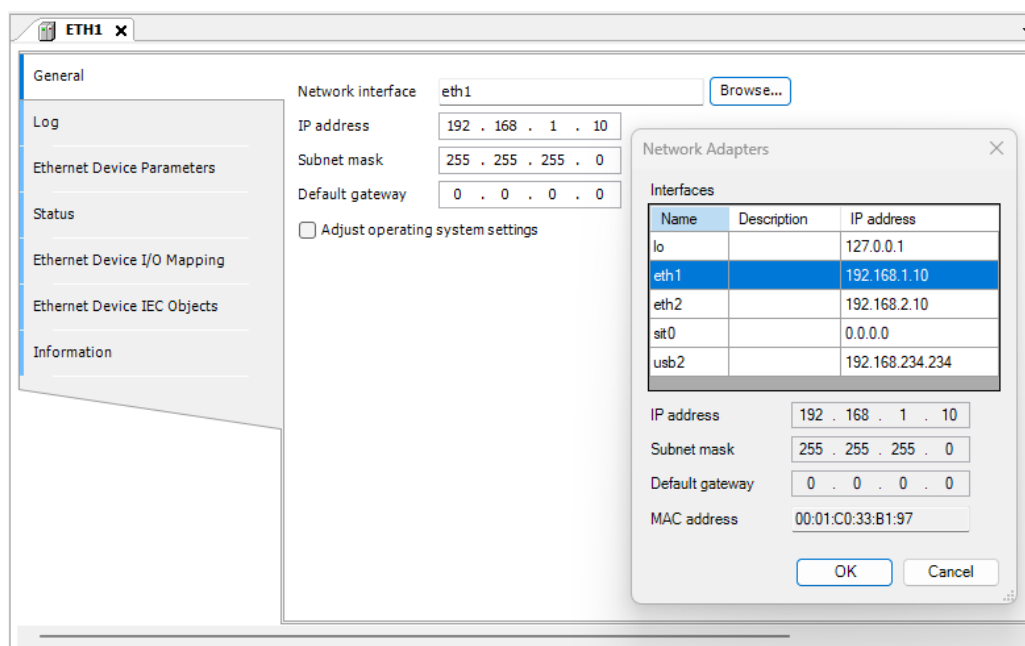


Figure 4.3: Network configuration for the PLC500 using ETH1 in independent mode.



NOTE!

In the **Network interface** field, enter the name of the interface that will be used by the EtherNet/IP scanner. If this field remains empty, communication will not function properly.

If the PLC500 is configured in **Switch** mode, the **br1** interface must be used for EtherNet/IP communication, as shown in [Figure 4.4 on page 4-3](#). If the interface is not yet configured in this mode, it will not appear in the **Browse** option, and you will need to manually enter it. Ensure that the IP address is the same as the one configured on Ethernet port 1 in the **Setup** of the PLC500.



NOTE!

The **br1** interface will appear after the program is downloaded to the PLC500 configured in **Switch** mode. Again, it is important to ensure that the product is restarted when this is the first time the Ethernet interface is being configured in this mode.

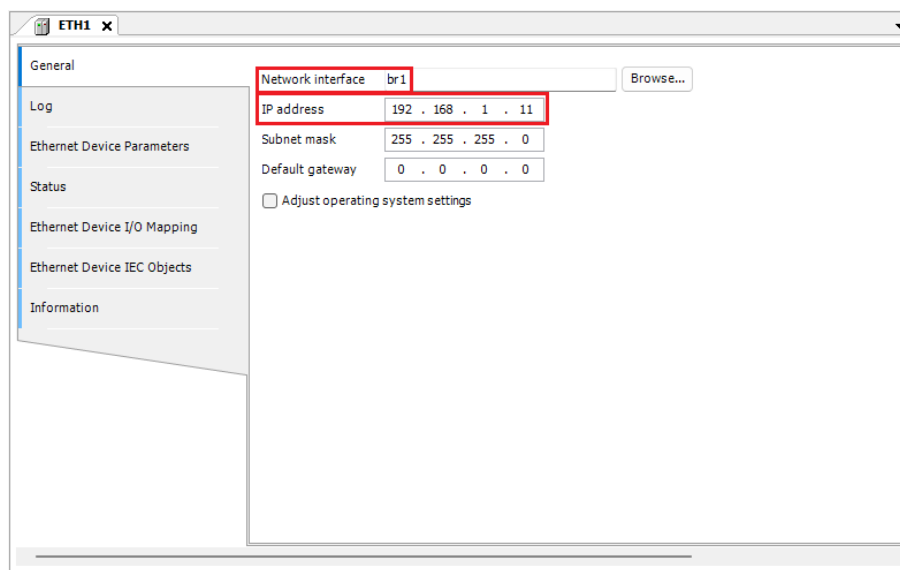


Figure 4.4: Network configuration for the PLC500 in switch mode.

If the **ETH1** or **ETH2** interface is used to configure the EtherNet/IP scanner network, the **IPAddress** parameter in the **EtherNet/IP Scanner Parameters** should be modified to the IP address configured for the interface, as shown in [Figure 4.5 on page 4-3](#).

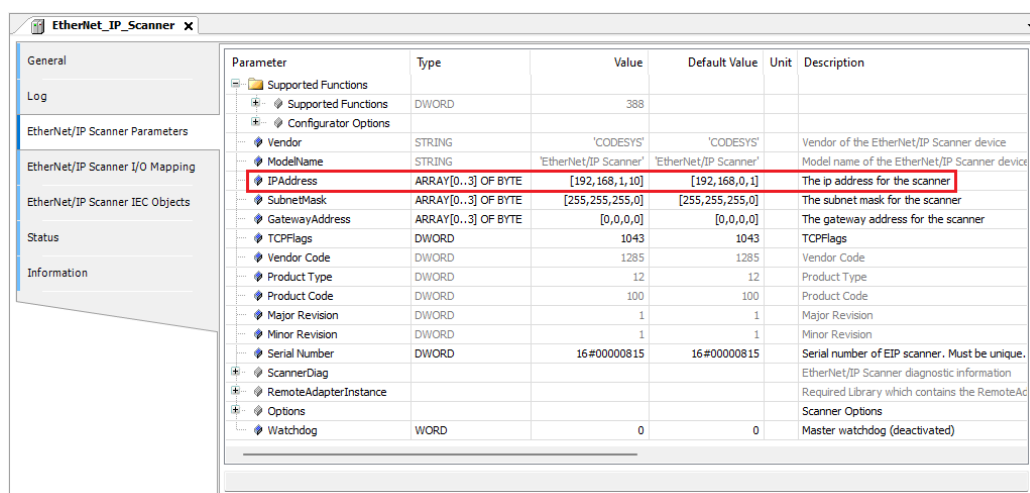


Figure 4.5: Changing the IP address in the EtherNet/IP scanner device parameters.

ETHERNET/IP SCANNER CONFIGURATION

If the **EtherNet/IP Scanner Parameters** option is not available, enable the **Show generic device configuration views** option in **Tools** → **Options** → **Device editor**, as shown in [Figure 4.6 on page 4-4](#).

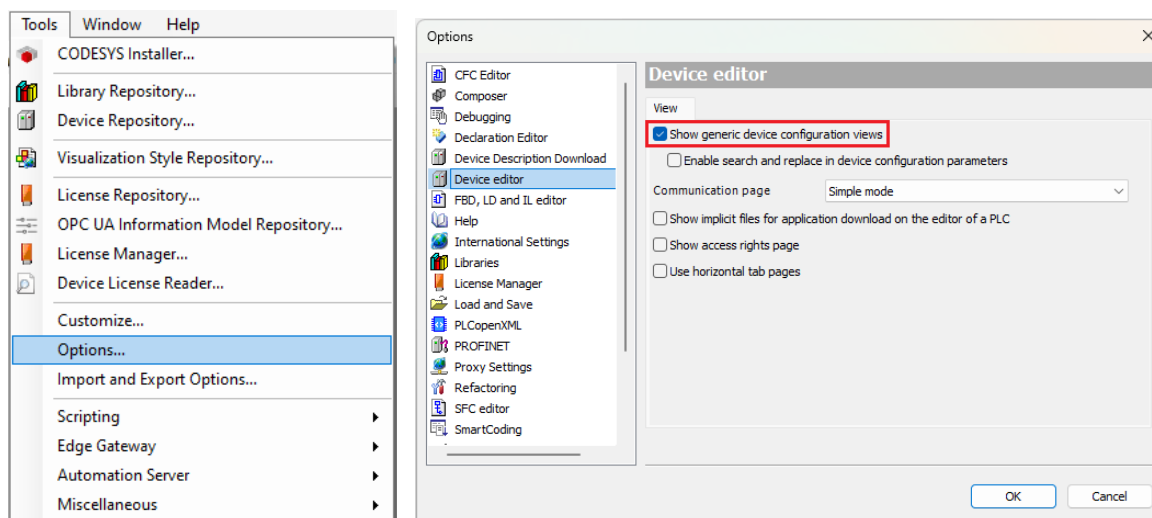


Figure 4.6: Enabling advanced device configuration.

4.4 ADAPTER DEVICE CONFIGURATION

Double-click on the adapter device to open its configuration window. Below **Address Settings**, you can change the IP address of the adapter device; as an example, it is configured as **192.168.1.11**. The **Electronic Keying** information is automatically imported from the device's EDS file.

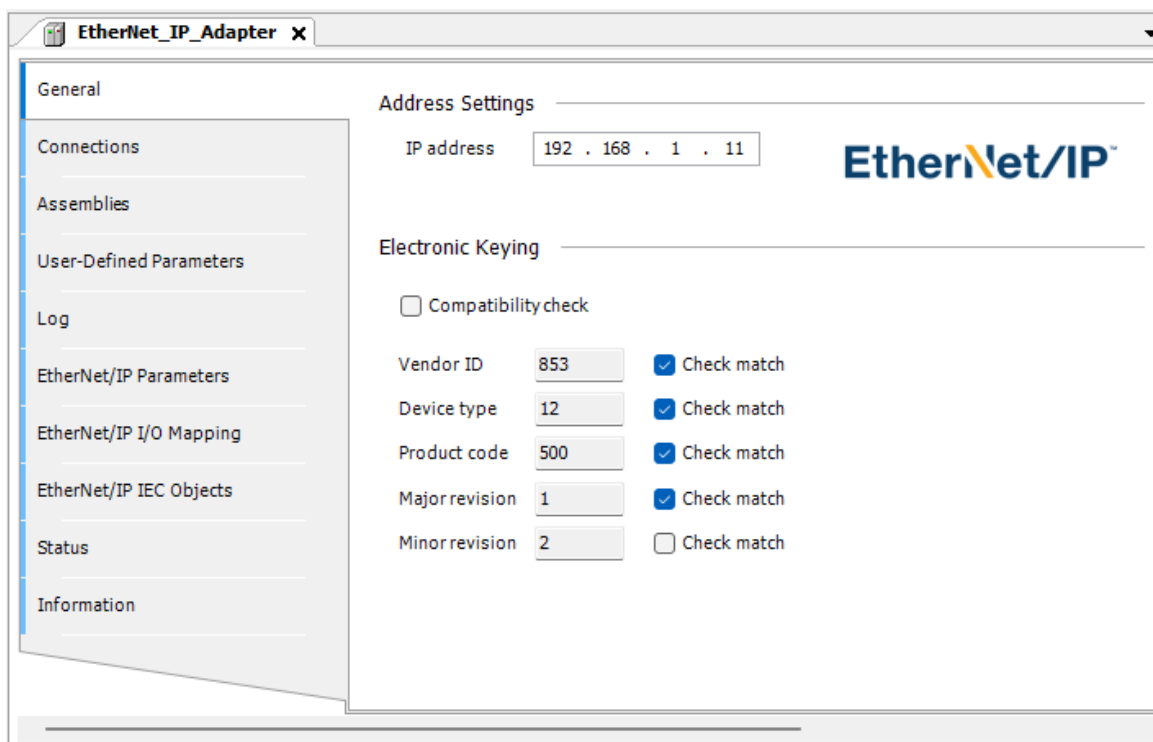


Figure 4.7: EtherNet/IP adapter device configuration window.

In the **Connections** tab, you can view all EtherNet/IP network connections for the adapter device, as shown in [Figure 4.8 on page 4-5](#) for a PLC500 acting as an EtherNet/IP adapter. The connections present in the device's EDS file will be displayed, or they can be added through **Add Connection**.

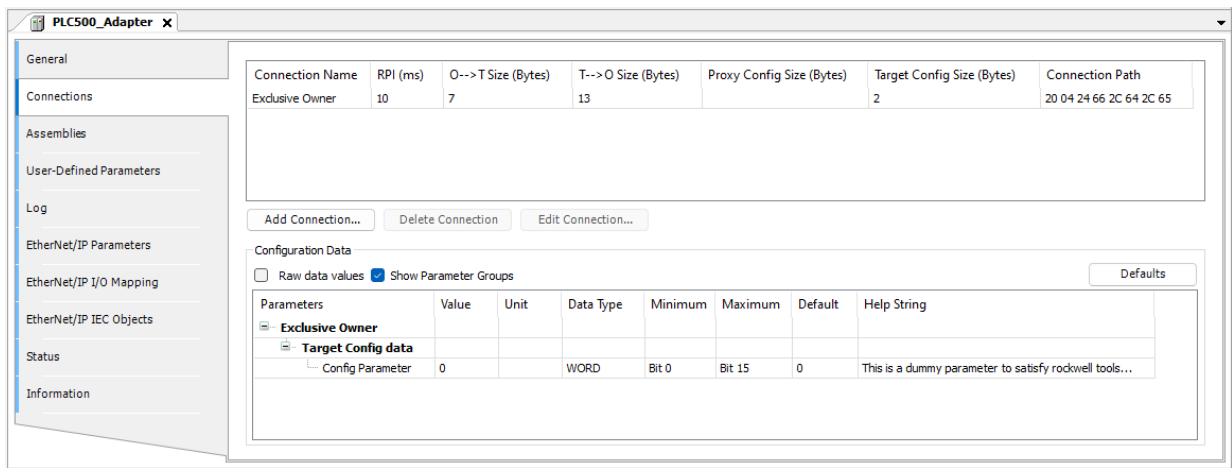


Figure 4.8: PLC500 EtherNet/IP adapter connections.

In the **Assemblies** tab, you can view the data set that the adapter device will exchange with the scanner, as shown in Figure 4.9 on page 4-5 for a PLC500 acting as an EtherNet/IP adapter. You can add, remove, or change the data type in the connections. The updated data in this window will automatically be reflected in the **Connections** tab shown earlier.



NOTE!

If the data set of the adapter device is modified in the scanner settings, either in the **Connections** or **Assemblies** tab, it is necessary to also update the connections and data in the EtherNet/IP adapter device. Please consult the documentation available for the respective product on the manufacturer's website.

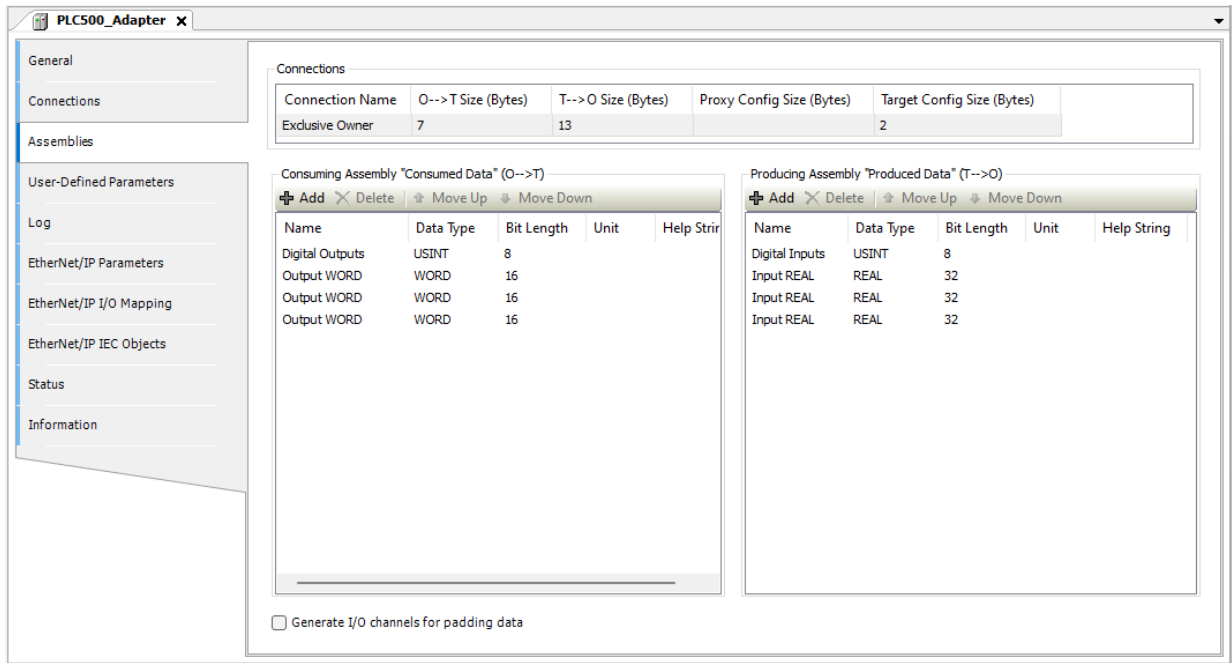


Figure 4.9: PLC500 EtherNet/IP adapter assemblies.

In the **EtherNet/IP I/O Mapping** tab, you can view the data set automatically imported from the adapter device's EDS file, as shown in Figure 4.10 on page 4-6. The variables can be mapped according to the application's needs.

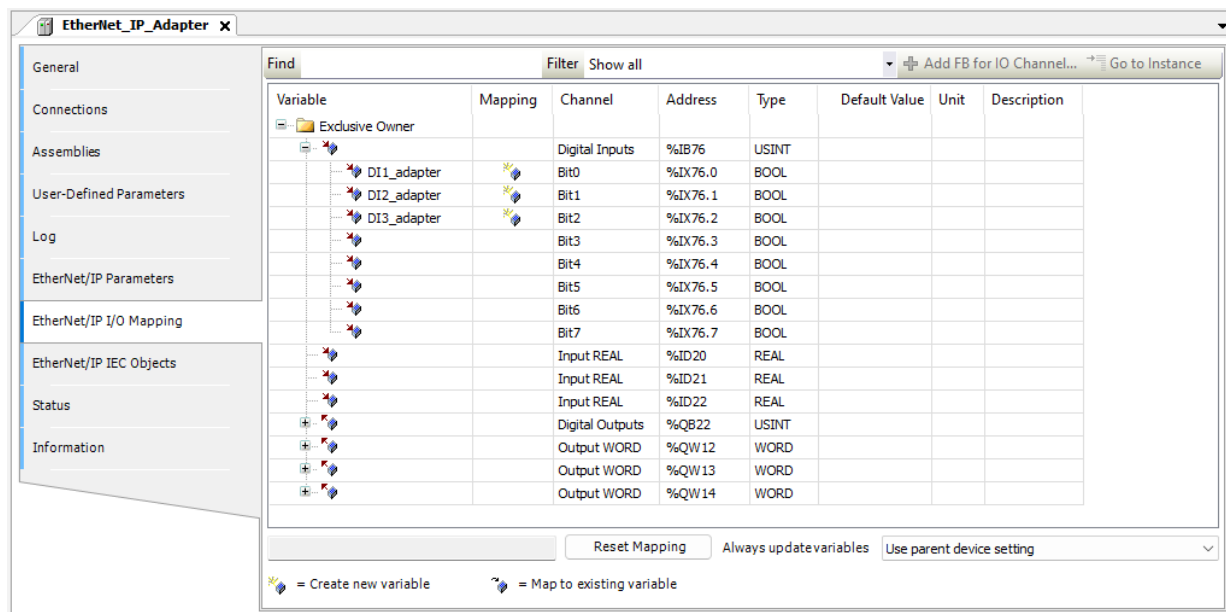


Figure 4.10: Declared and mapped variables for the EtherNet/IP adapter device.

4.5 EXPLICIT ETHERNET/IP COMMUNICATION

The **EtherNetIP Services** library in CODESYS provides function blocks for performing explicit or acyclic communication between a scanner and an EtherNet/IP adapter. Data can be accessed by specifying a class, instances, and attribute. The communication is done using the TCP protocol and can be employed for both monitoring and configuring the device. The following are examples of Structured Text code using the PLC200 as the EtherNet/IP adapter device.



NOTE!

Another EtherNet/IP adapter device can be used for explicit communication. Please refer to the product documentation for information on the objects and services available for this type of communication.

To monitor the EtherNet/IP I/O parameters of the PLC200 acyclically, you can use the **Get_Attribute_Single** function block. The device provides the Assembly class (0x04), attribute 3, and instances 102 (0x66) and 152 (0x98) for output and input data, respectively. Figure 4.11 on page 4-6 shows the declaration of the instances and variables, while Figure 4.12 on page 4-7 displays the Structured Text code for the Explicit_get_ETH_IP_ST application.

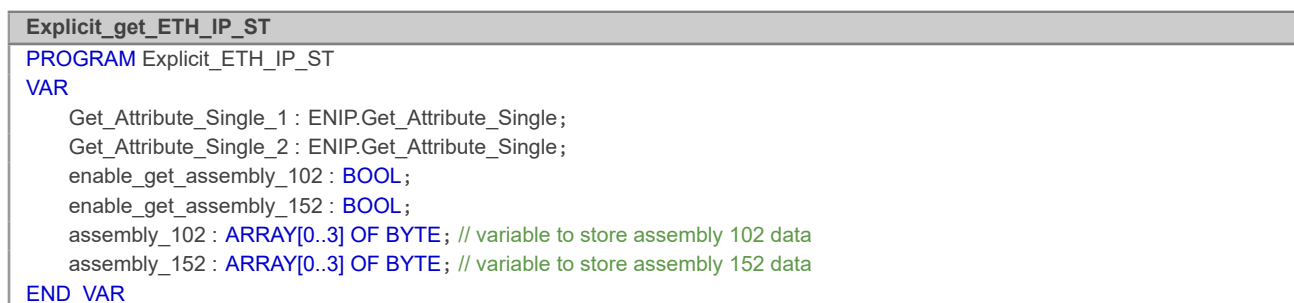


Figure 4.11: Variable declaration for the program Explicit_get_ETH_IP_ST.

Explicit_get_ETH_IP_ST - Structured Text (ST)

```

Get_Attribute_Single_1 (
    xExecute:= enable_get_assembly_102,
    itfEtherNetIPDevice:= PLC200, // name of the EtherNet/IP adapter device in the project tree
    eClass:= 4,
    dwInstance:= 102,
    wAttribute:= 3,
    pData:= ADR(assembly_102),
    udiDataSize:= SIZEOF(assembly_102),
    xDone=> ,
    xBusy=> ,
    xError=> ,
    eError=> ,
    udiReceivedDataSize=> );

Get_Attribute_Single_2 (
    xExecute:= enable_get_assembly_152,
    itfEtherNetIPDevice:= PLC200,
    eClass:= 4,
    dwInstance:= 152,
    wAttribute:= 3,
    pData:= ADR(assembly_152),
    udiDataSize:= SIZEOF(assembly_152),
    xDone=> ,
    xBusy=> ,
    xError=> ,
    eError=> ,
    udiReceivedDataSize=> );

```

Figure 4.12: Explicit_get_ETH_IP_ST program in Structured Text.**NOTE!**

Get_Attribute_Single retrieves all data from the I/Os specified in the instance. Therefore, the variable designated to store this data must have a size compatible with the data configured in the EtherNet/IP adapter device.

For writing configuration parameters, the **Set_Attribute_Single** function block can be used. Specifically for the PLC200, all of its parameters are mapped from class 100 (0x64). Depending on the instances and attributes chosen, both read and write access can be performed.

In the following example, the configuration of a digital output for controlling a stepper motor and a digital input for pulse counting from a quadrature encoder is presented. [Figure 4.13 on page 4-7](#) shows the declaration of the instances and variables, while [Figure 4.14 on page 4-8](#) displays the Structured Text code for the Explicit_set_ETH_IP_ST application.

Explicit_set_ETH_IP_ST

```

PROGRAM Explicit_set_ETH_IP_ST
VAR
    Set_Attribute_Single_1 : ENIP.Set_Attribute_Single;
    Set_Attribute_Single_2 : ENIP.Set_Attribute_Single;
    enable_config : BOOL;
    Set_PLC200_Step_Motor_Mode : UINT := 1;
    Set_PLC200_DI1_DI2_Counter : UINT := 1;
END_VAR

```

Figure 4.13: Variable declaration for the program Explicit_set_ETH_IP_ST.

Explicit_set_ETH_IP_ST - Structured Text (ST)

```
Set_Attribute_Single_1 (  
    xExecute:= enable_config,  
    itfEtherNetIPDevice:= PLC200,  
    eClass:= 100, // Class 100 (64h) (Vendor Specific)  
    dwInstance:= 10,  
    wAttribute:= 118,  
    pData:= ADR(Set_PLC200_Step_Motor_Mode),  
    udiDataSize:= SIZEOF(Set_PLC200_Step_Motor_Mode),  
    xDone=> Set_Attribute_Single_2.xExecute, // execute the second configuration after completing the first one  
    xBusy=> ,  
    xError=> ,  
    eError=> ,  
    udiReceivedDataSize=> );  
  
Set_Attribute_Single_2 ( // configures parameter 940 of the PLC200, see the Ethernet manual for the product  
    xExecute:= ,  
    itfEtherNetIPDevice:= PLC200,  
    eClass:= 100,  
    dwInstance:= 10,  
    wAttribute:= 140,  
    pData:= ADR(Set_PLC200_DI1_DI2_Counter),  
    udiDataSize:= SIZEOF(Set_PLC200_DI1_DI2_Counter),  
    xDone=> ,  
    xBusy=> ,  
    xError=> ,  
    eError=> ,  
    udiReceivedDataSize=> );
```

Figure 4.14: Explicit_set_ETH_IP_ST program in Structured Text.



NOTE!

For more information on how to access the PLC200 objects and parameters with explicit EtherNet/IP communication, refer to the documentation available on the product page on the [WEG](#) website. It is also recommended to consult the **EtherNet/IP Services** library documentation in the online help at [CODESYS Online Help](#).

5 MONITORING

In this chapter, some methods for monitoring the EtherNet/IP network variables and diagnosing communication errors in CODESYS are presented.

5.1 MONITORING VARIABLES

Variables declared in the network can be monitored through two methods. The first possibility is to add them to the CODESYS program and monitor the variable values online. The second method only requires enabling **Always Update Variables** in the footer of the **EtherNet/IP Module I/O Mapping** tab, as indicated by the red arrow in [Figure 5.1 on page 5-1](#).

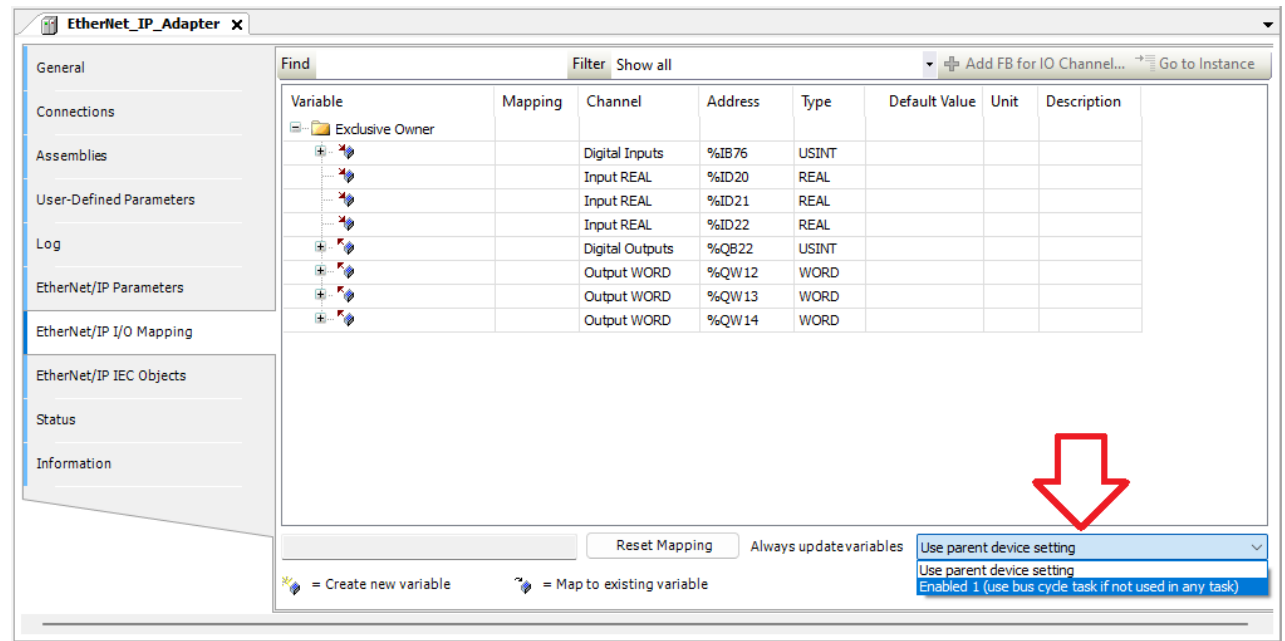


Figure 5.1: Option to always update EtherNet/IP variable values with bus cycle task.

[Figure 5.2 on page 5-1](#) shows the CODESYS variable monitoring screen for the EtherNet/IP adapter through online monitoring.

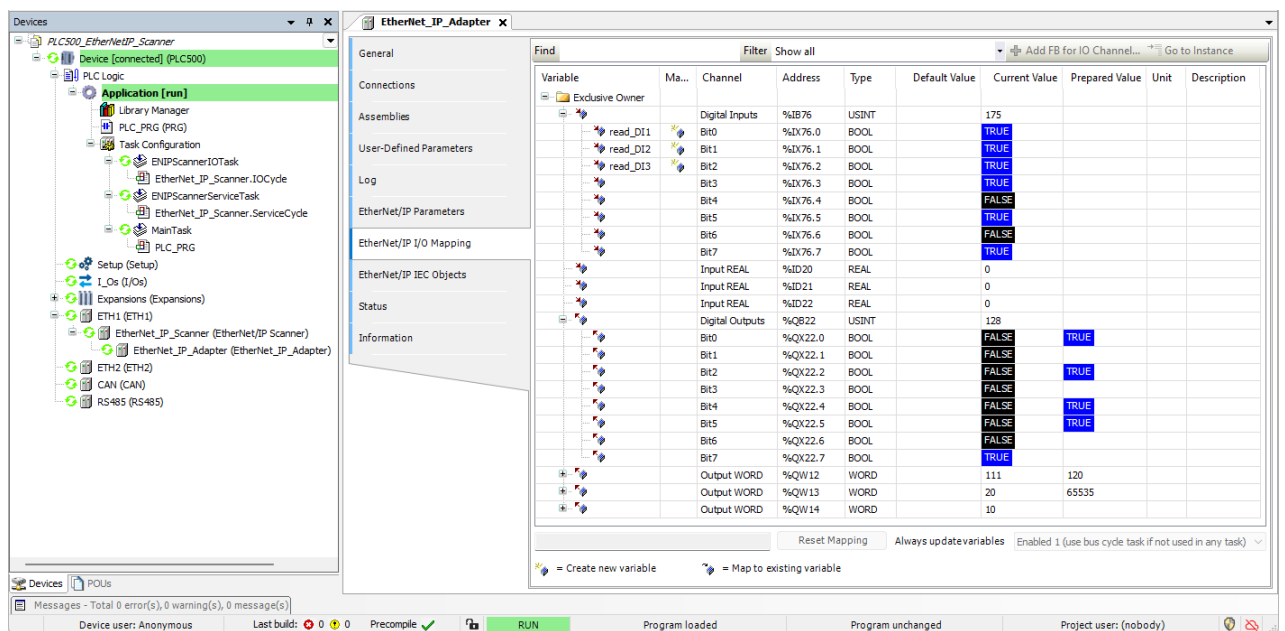


Figure 5.2: Monitoring EtherNet/IP variables in online mode in CODESYS.

5.2 COMMUNICATION ERRORS

Monitoring the network status can be done in **Devices**, indicating the status of each communication stage and reporting the status (**Status**). If connection issues are encountered, as shown in [Figure 5.3 on page 5-2](#), check if the cables are properly connected, verify the LED status of the Ethernet port used on the PLC, and then review the configurations.

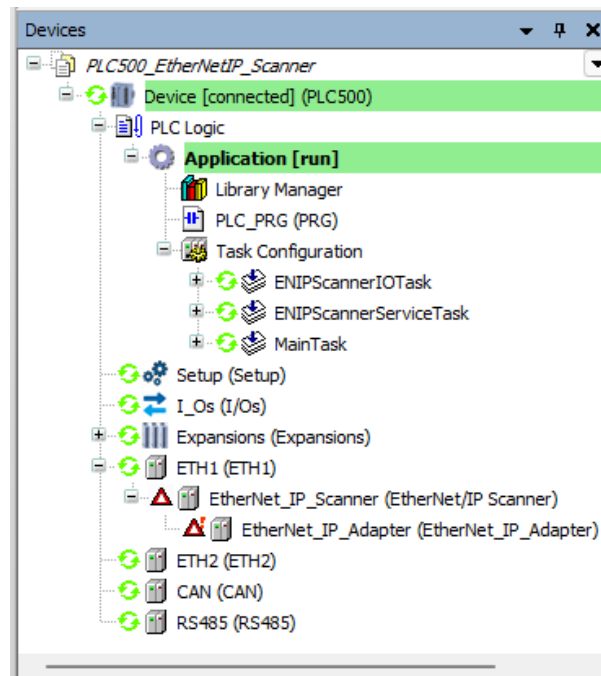


Figure 5.3: Indication of communication failure.

In online mode, access the **Status** tab of the **EtherNet_IP_Scanner** as shown in [Figure 5.4 on page 5-2](#). Here, CODESYS will inform you of the issue it is encountering to establish communication. In this case, the cable was not properly connected to the adapter device.

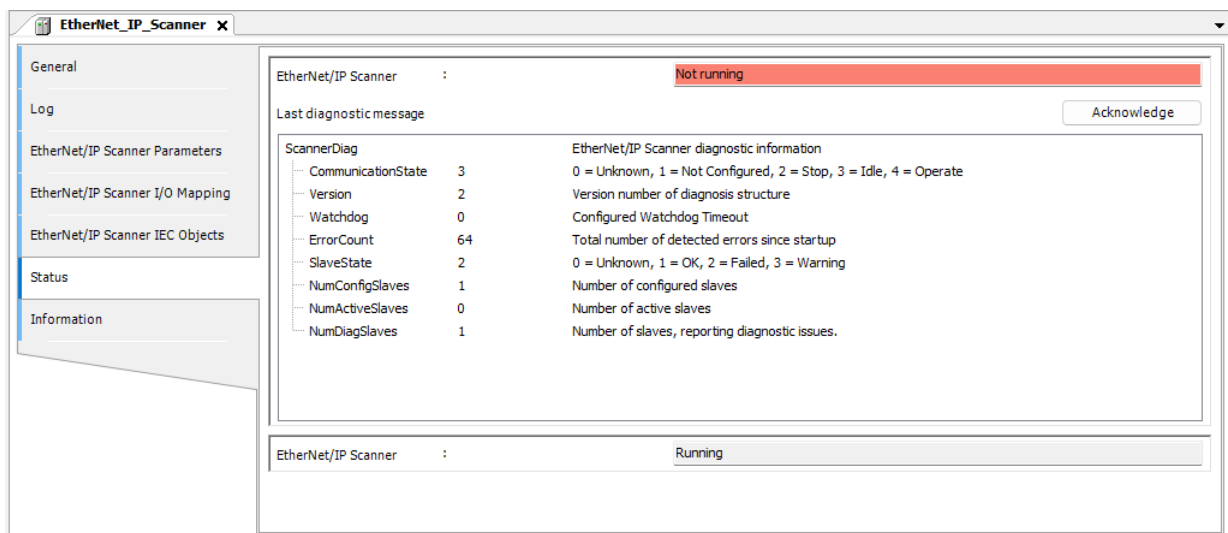


Figure 5.4: EtherNet/IP scanner device status tab.

After reconnecting the cable and waiting a few moments, the network communication is restored, and the device icons turn green. An exclamation mark icon is shown on the device, indicating that an error has been declared, as seen in [Figure 5.5 on page 5-3](#).

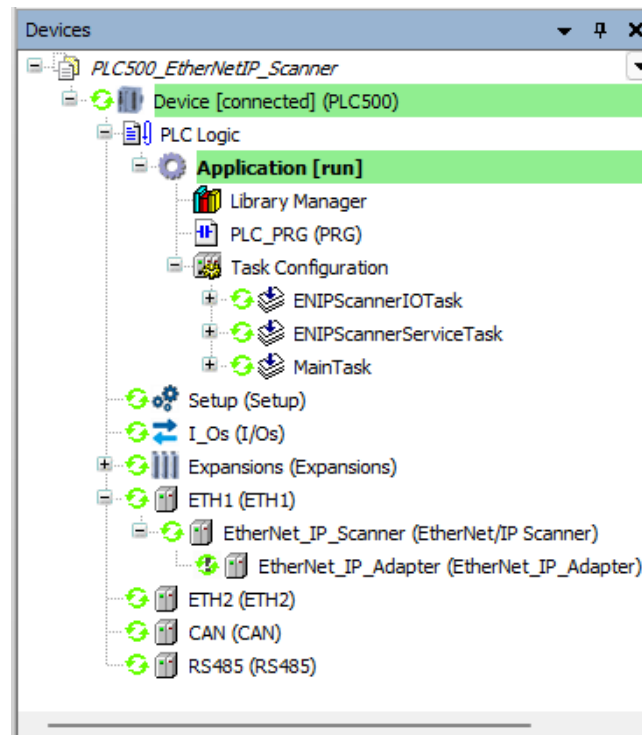


Figure 5.5: Indication of an error declared on the EtherNet/IP network.

To remove the warning, simply click on **Acknowledge**, as shown in Figure 5.6 on page 5-3.

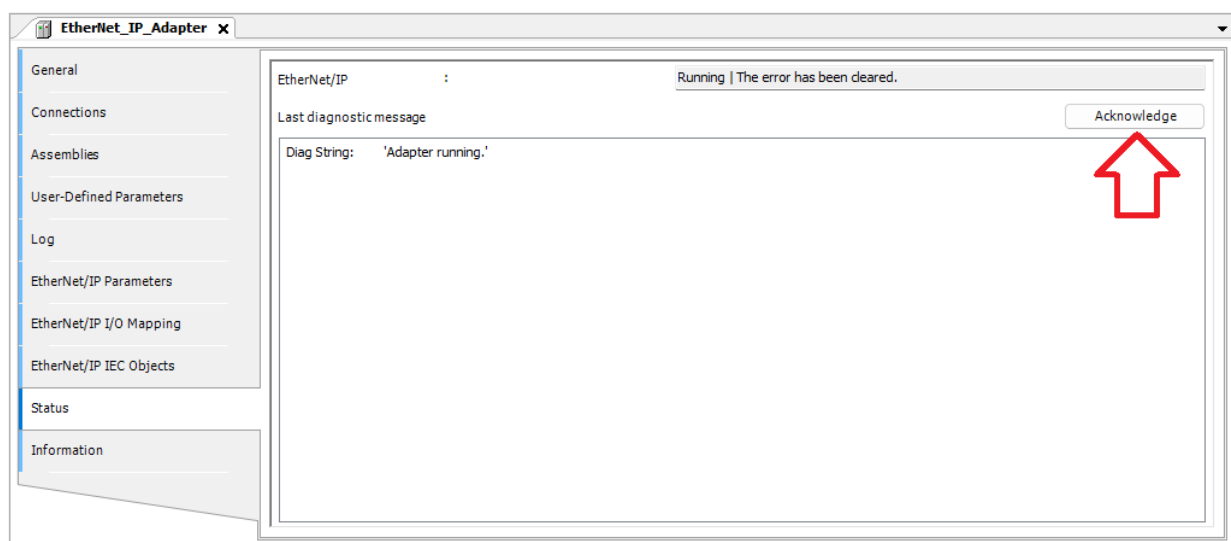


Figure 5.6: Acknowledging the declared error on the EtherNet/IP network.

After acknowledging the warning and verifying the network's proper functioning, the device icons will be displayed as shown in Figure 5.7 on page 5-4.

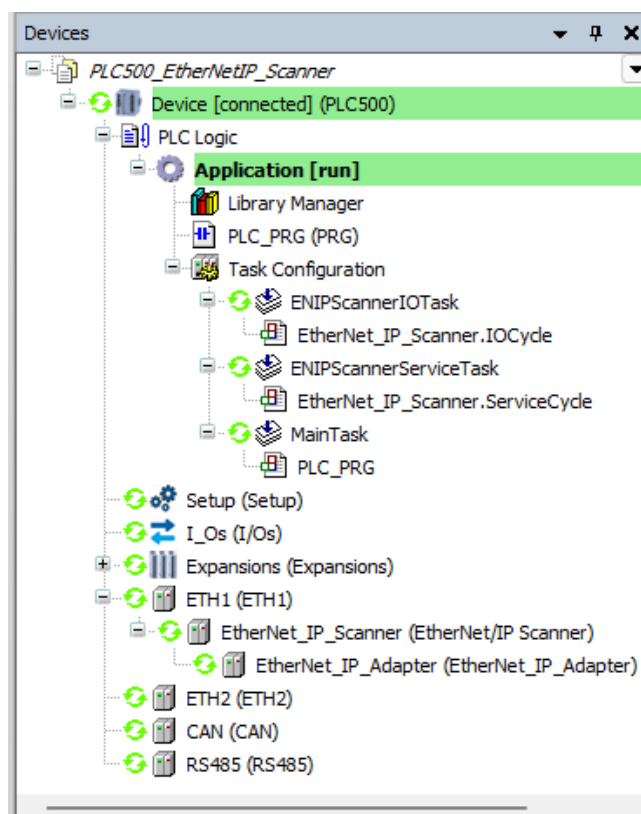


Figure 5.7: Properly configured communication and devices communicating.



NOTE!

It is recommended to consult the documentation available in the **Library Manager**, or access the online help at [CODESYS Online Help](#), for more information on EtherNet/IP network configuration and the available methods and functions.



BRAZIL

WEG DRIVES & CONTROLS - AUTOMAÇÃO LTDA.

Av. Prefeito Waldemar Grubba, 3000

89256-900 - Jaraguá do Sul - SC

Phone: 55 (47) 3276-4000

Fax: 55 (47) 3276-4060

www.weg.net/br