DH485 Router/B

KEPServer to SLC setup

Technical Application Note

A-DH485R

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CONTENTS

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1. PREFACE

1.1. PURPOSE OF THIS DOCUMENT

This document will assist the user to setup the DH485 Router/B (referred to as DH485 Router in this document) to allow a KEPServer application to communicate to an SLC device's DH485 port via PCCC Ethernet.

1.2. ADDITIONAL INFORMATION

The following resources contain additional information that can assist the user with the module installation and operation.

Resource	Link
Slate Installation	http://www.aparian.com/software/slate
DH485 Router/B User Manual DH485 Router/B Datasheet Application Notes Example Code & UDTs	https://www.aparian.com/products/dh485routerb
Ethernet wiring standard	www.cisco.com/c/en/us/td/docs/video/cds/cde/cde205_220_420/installation/guide/cde205_220_420_hig/Connectors.html
CIP Routing	The CIP Networks Library, Volume 1, Appendix C:Data Management

1.3. SUPPORT

Technical support will be provided via the Web (in the form of user manuals, FAQ, datasheets etc.) to assist with installation, operation, and diagnostics.

For additional support the user can use either of the following:

Contact Us web link	https://www.prosoft-technology.com/Services-Support/Customer-Support
Support email	support@prosoft-technology.com

2. APPLICATION DESCRIPTION

The Aparian DH485 Router can be used to enable multiple modern Ethernet devices to communicate to legacy SLC5/03 via their DH485 serial ports. In the application example below, two KEPServer applications can read and write data to an SLC500.

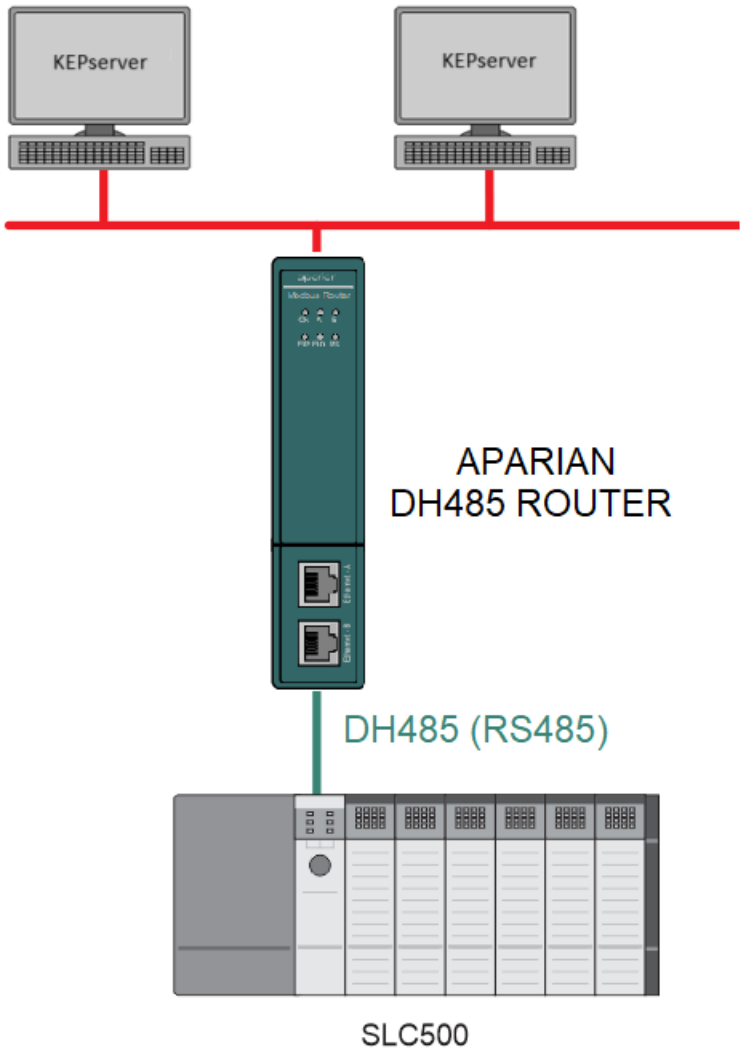

FIGURE 2.1. - EXAMPLE OF A TYPICAL NETWORK SETUP

3. SETUP

The following sections will describe the installation and configuration of all the required devices to assist the user with the initial setup.

3.1. MODULE LAYOUT

The module has two ports at the bottom and two ethernet ports on the front of the enclosure as shown in the figure below. The ports are used for Ethernet, RS232 or RS485 serial, and power. The power port uses a three-way connector which is used for the DC power supply positive and negative (or ground) voltage as well as the earth connection.

The Ethernet cable must be wired according to industry standards which can be found in the additional information section of this document.

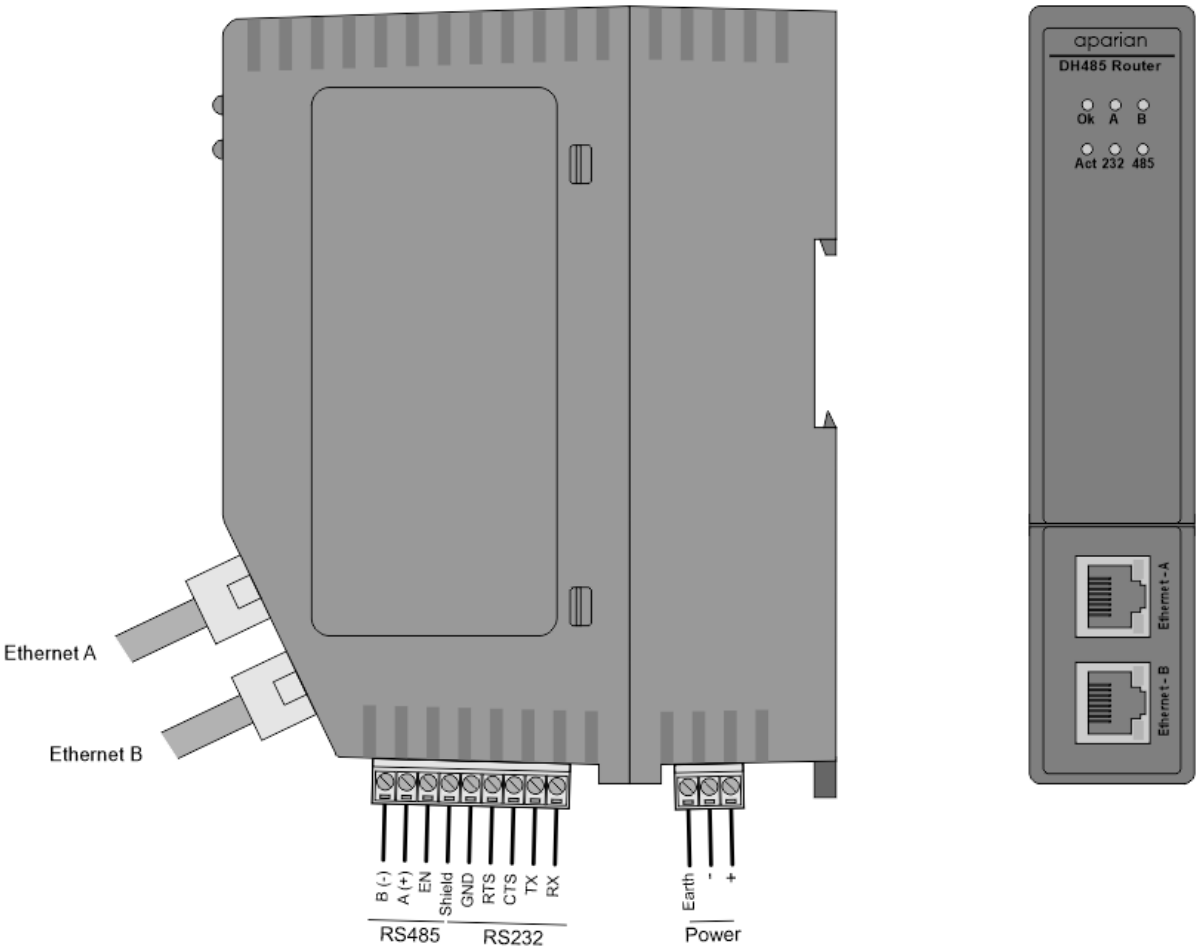

FIGURE 3.1. - DH485 ROUTER/B SIDE AND FRONT VIEW

3.2. SERIAL CABLE WIRING

The serial cable pinout is shown in the figure below:

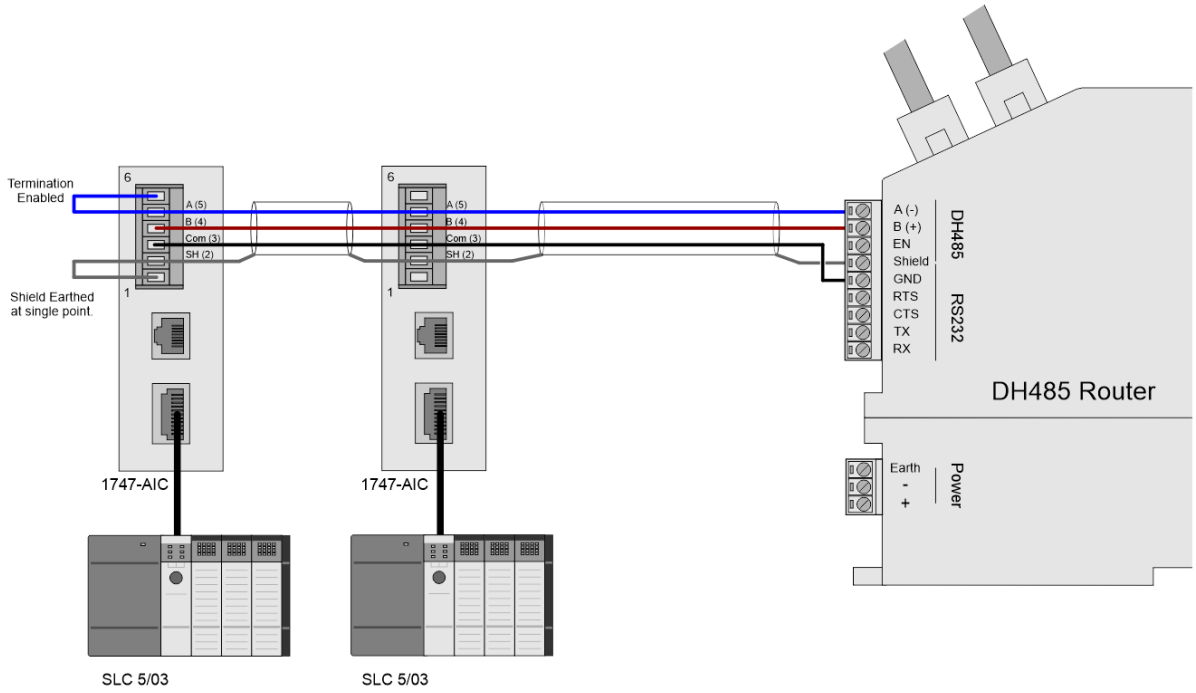

FIGURE 3.2. – SERIAL CABLE PINOUT – 1747-AIC

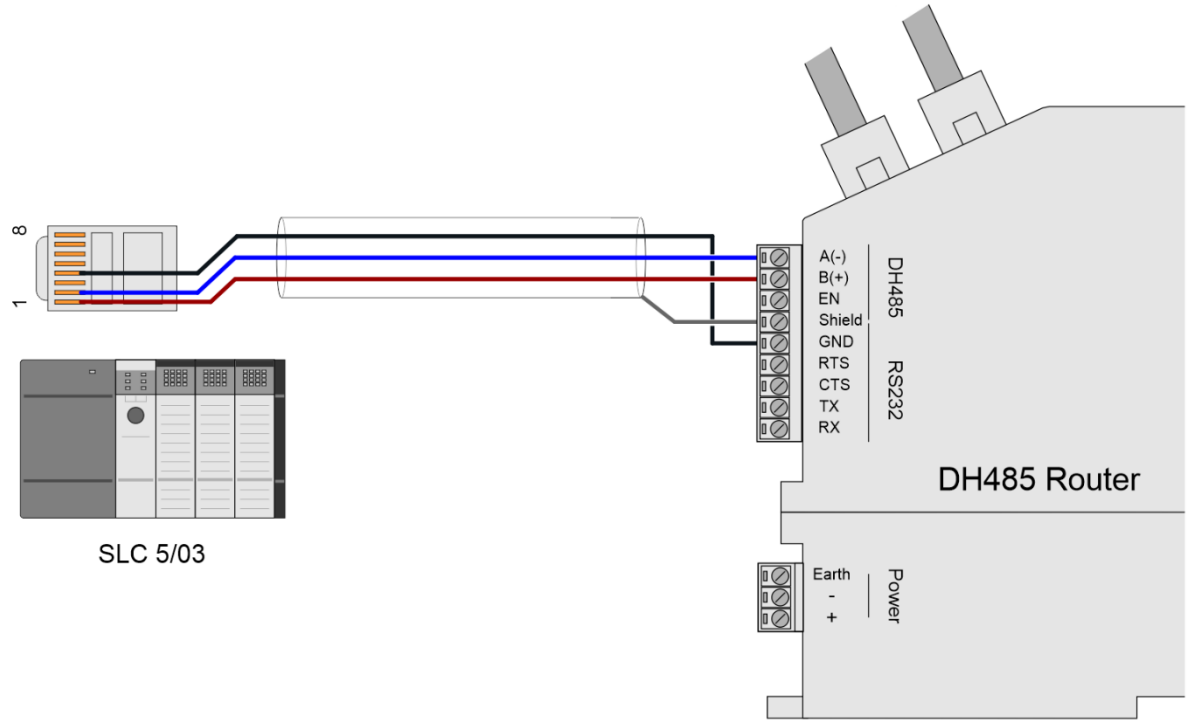

FIGURE 3.3. – SERIAL CABLE PINOUT – SLC DIRECT

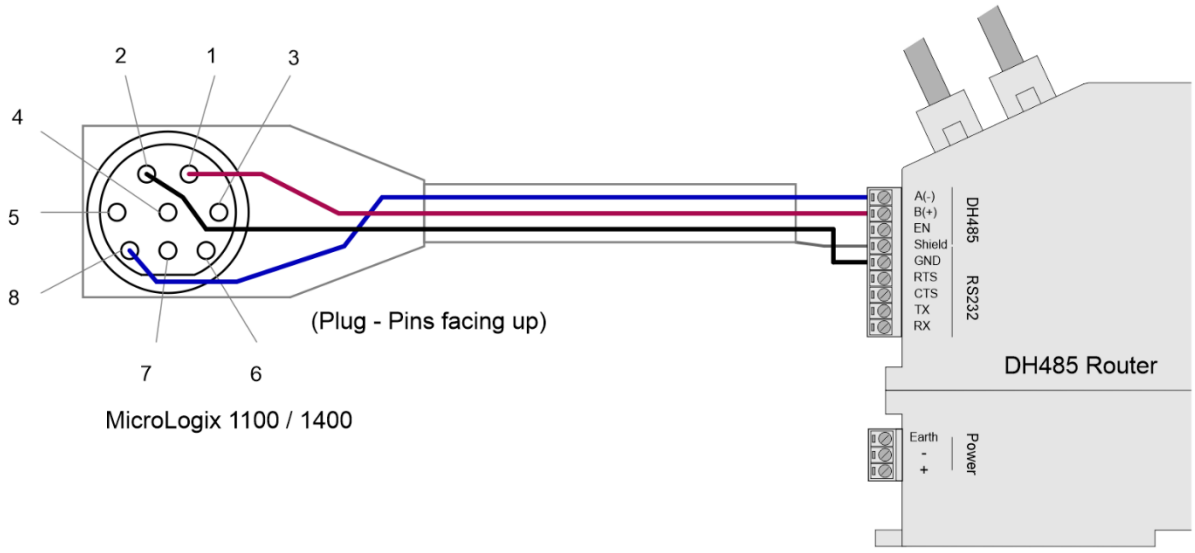

FIGURE 3.4. – SERIAL CABLE PINOUT – MICROLOGIX 1100

All RS485 networks need to be terminated at the extremities (start and end point) of the communication conductor. The termination is done by placing a resistor between the positive and negative communication conductor. The value of the resistor will depend on the characteristic impedance of the cable chosen, but generally ranges from 100 Ohm to 150 Ohm.

The DH485 Ground Bridge should be enabled and the user can also enable the DH485 Router internal RS485 terminator in the module configuration in Slate (see below):

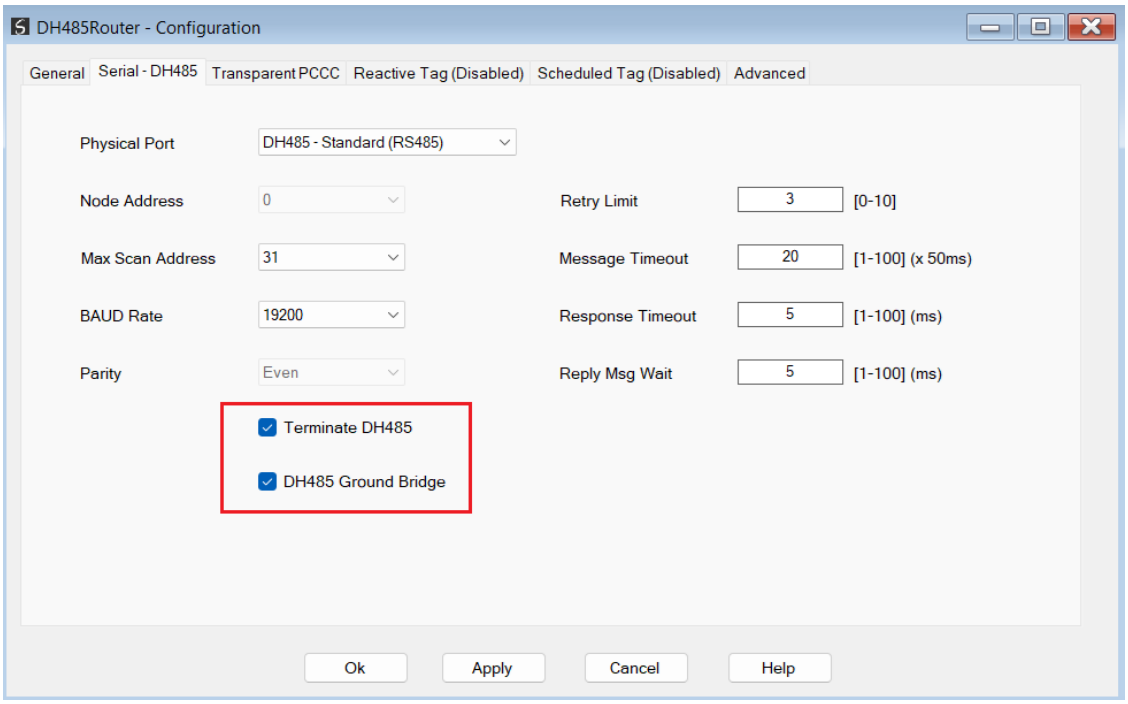

FIGURE 3.5. – INTERNAL RS485 TERMINATION

3.3. DH485 ROUTER SETUP

The DH485 Router must be configured in Transparent PCCC mode, as shown below.

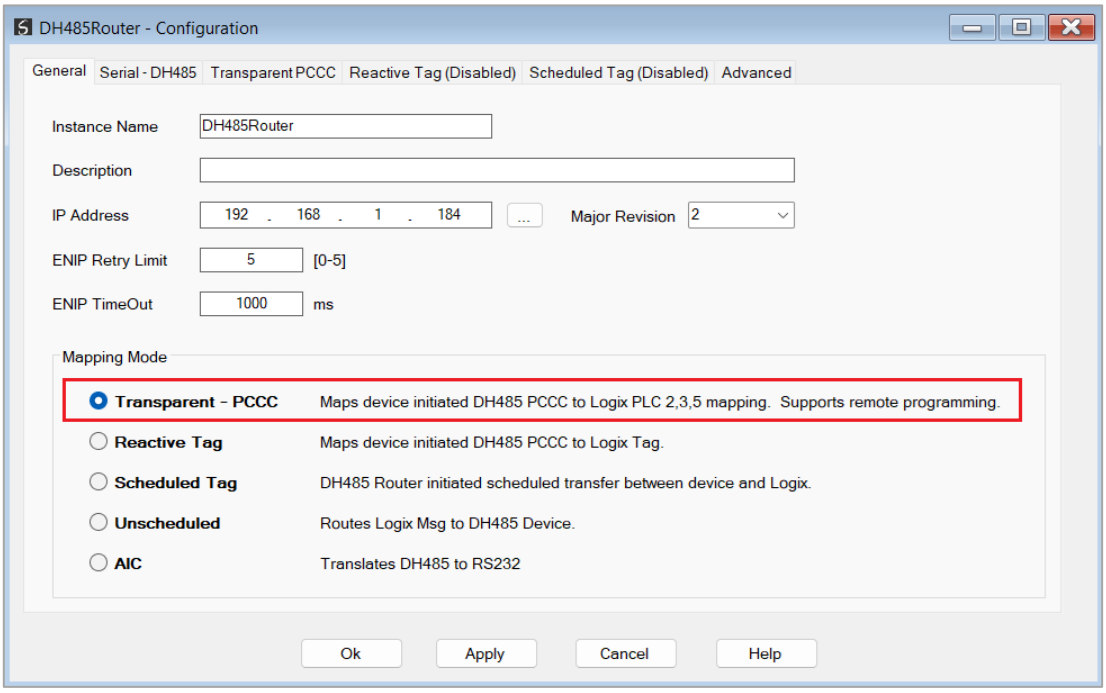

FIGURE 3.6. – DH485 GENERAL CONFIGURATION

In the Serial-DH485 settings, the BAUD Rate must match that of the SLC device (as configured using RSLogix 500).

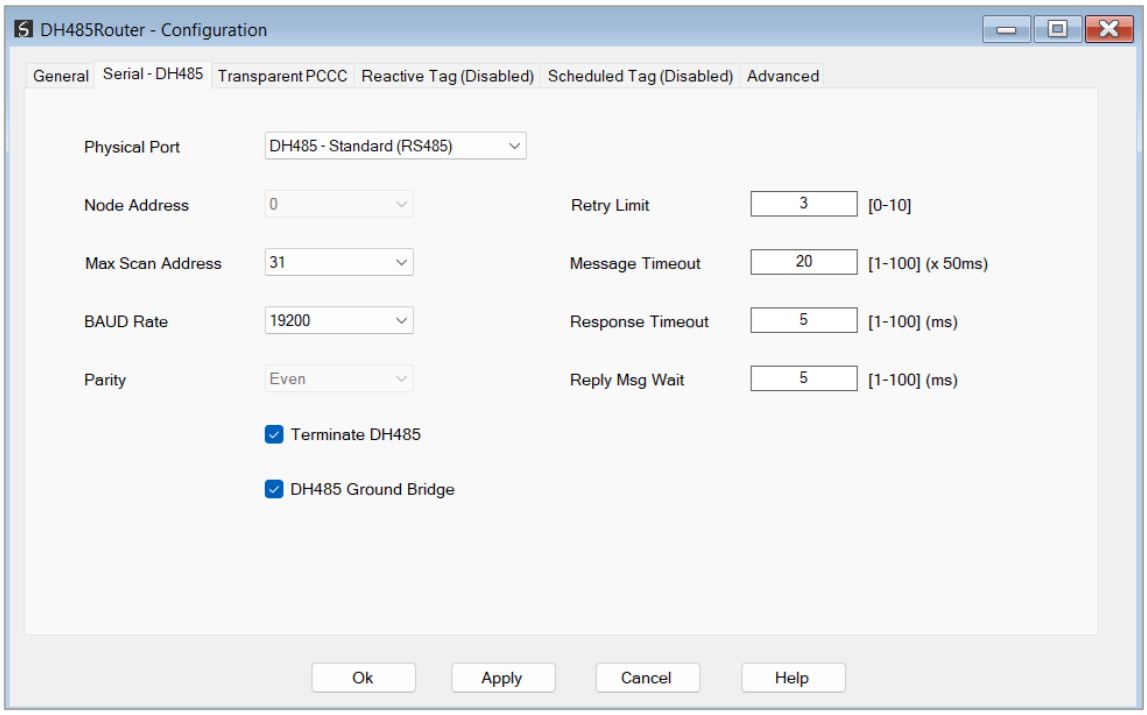

FIGURE 3.7. – DH485 SERIAL CONFIGURATION

NOTE: At least one transparent mapped item must be added for the SLC500 communication to work over DH485. If the DH485 Router is used purely for communicating to the KEPServer, then the user can, as an example, add a DH485 Node of 1 (which **must be unique** on the DH485 network) with an IP address of the DH485 Router. The reason for this is because the DH485 Router requires a node on the DH485 network.

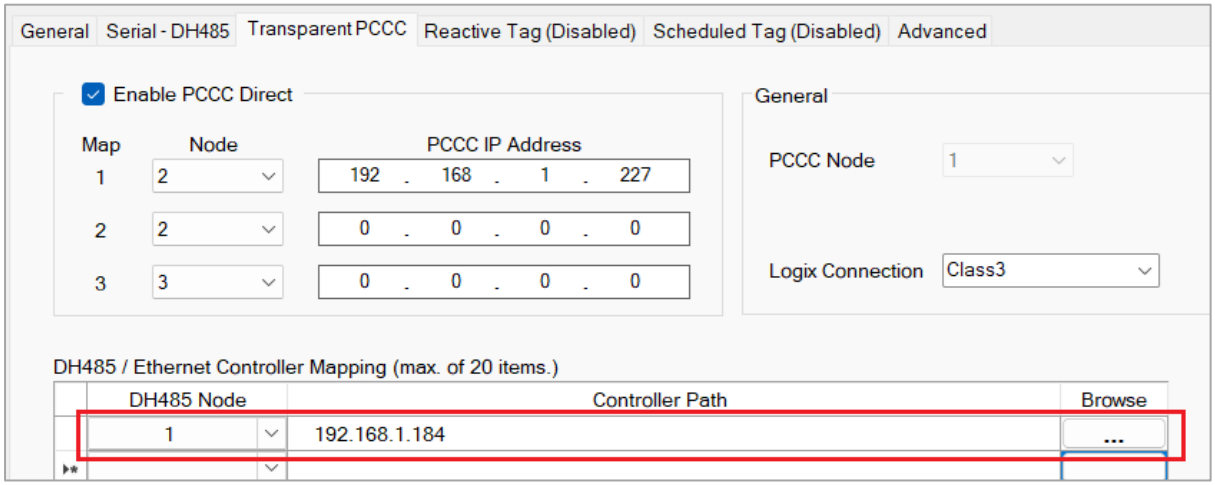

FIGURE 3.8. – TRANSPARENT PCCC CONFIGURATION

The KEPServer application will use PCCC (AB-ETH) to communicate with the DH485 Router. To enable this on the DH485 Router, the user will need to set the *Enable PCCC Direct* in the Transparent PCCC tab, set the DH485 node of the SLC, and set the IP address that will be used for the PCCC communicate (i.e., the IP address the DH485 Router will emulate).

NOTE: The IP address selected in the PCCC Direct mapping **must not** match the DH485 Router main IP address configured in the General tab.

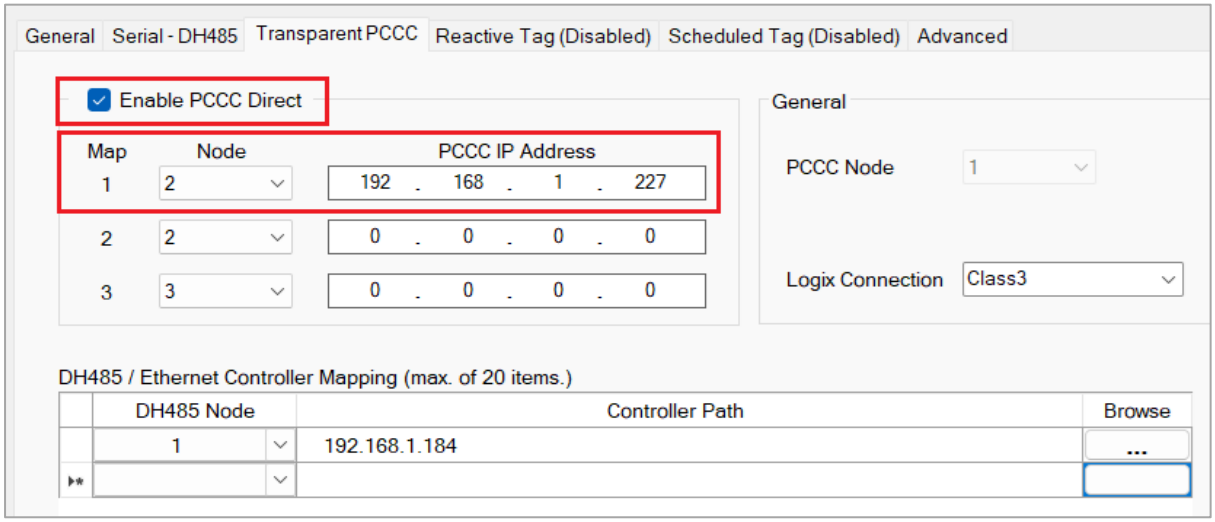

FIGURE 3.9. – PCCC DIRECT CONFIGURATION

3.4. RSLOGIX 500 SETUP

Using RSLogix500, the DH485 port must be configured to match that of the DH485 Router's serial port settings with respect to BAUD rate. The DH485 node address of the SLC must also match the Node set in the PCCC Direct Map.

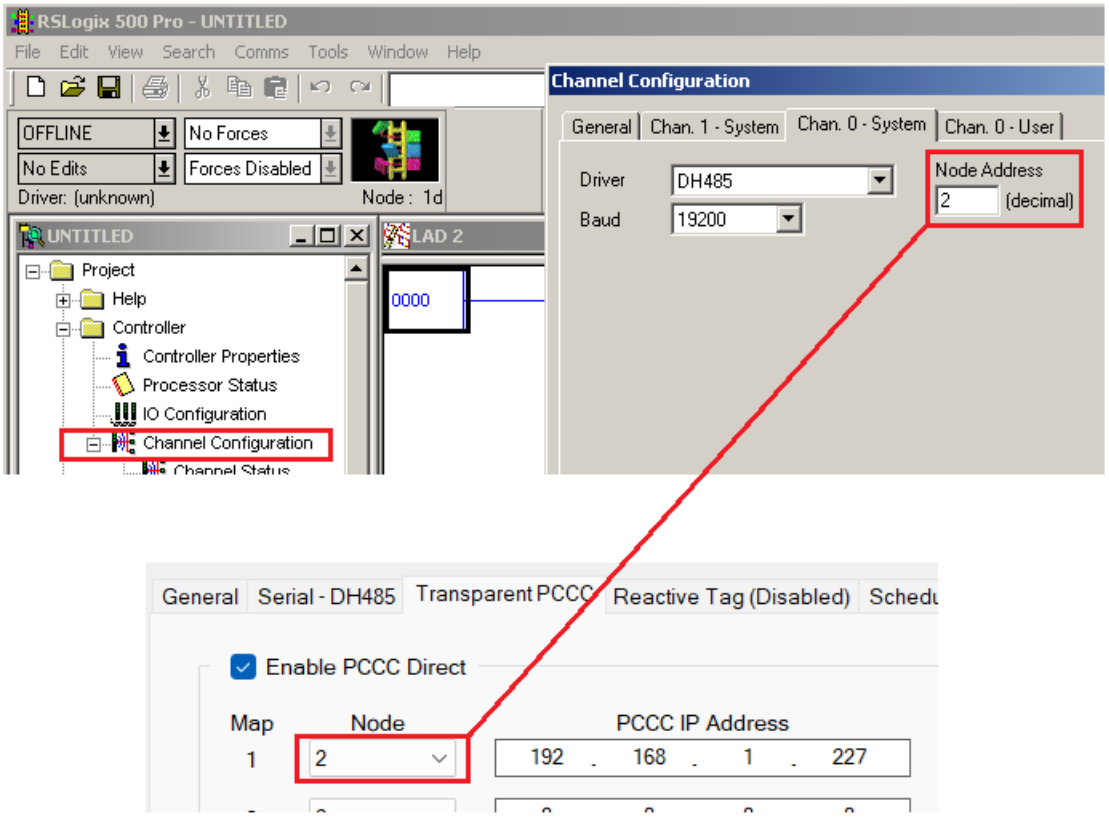

FIGURE 3.10. – RSLOGIX 500 CONFIGURATION

3.5. KEPSERVER SETUP

Follow the steps below to connect KEPware Server to a SLC503 via the DH485 Router/B.

- Select the *Allen-Bradley Ethernet* driver and enter the required details (in the example below, it is called *AB_ETH*).

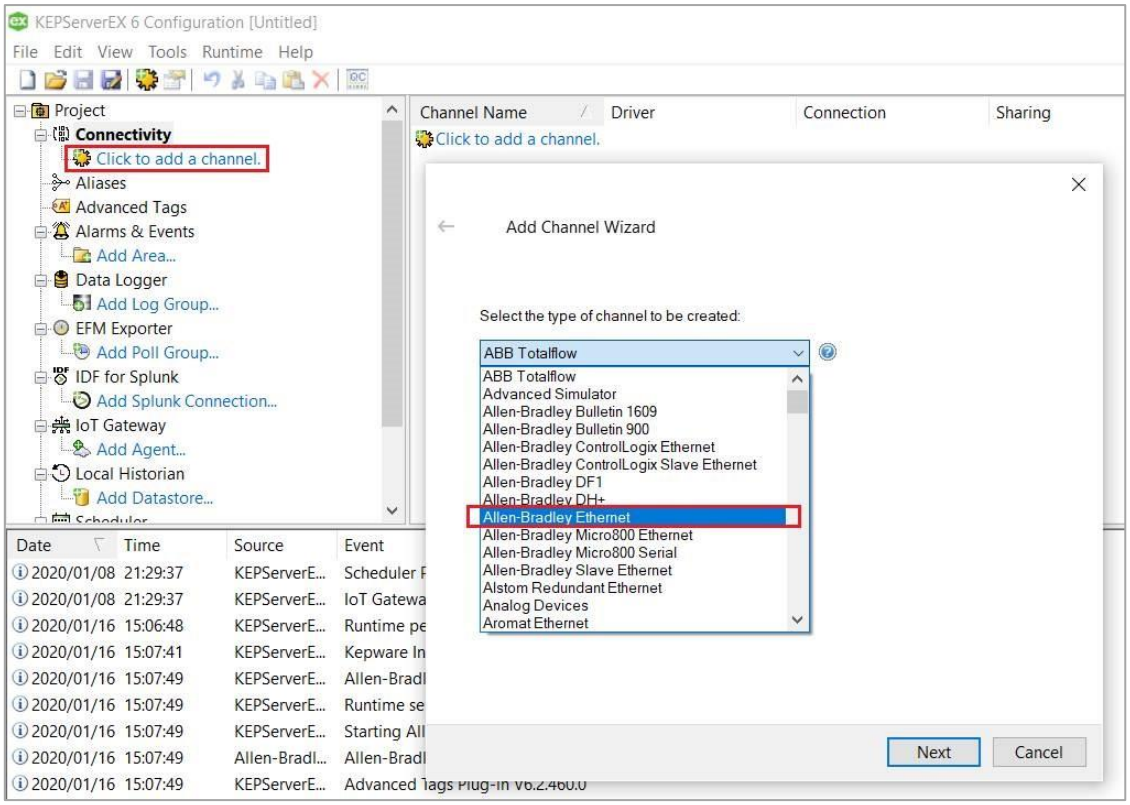

FIGURE 3.11. – KEPSERVER – DRIVER SELECT

- Next, create a new device under the *Allen-Bradley Ethernet* driver (in the below example, it is called *SLC503*).

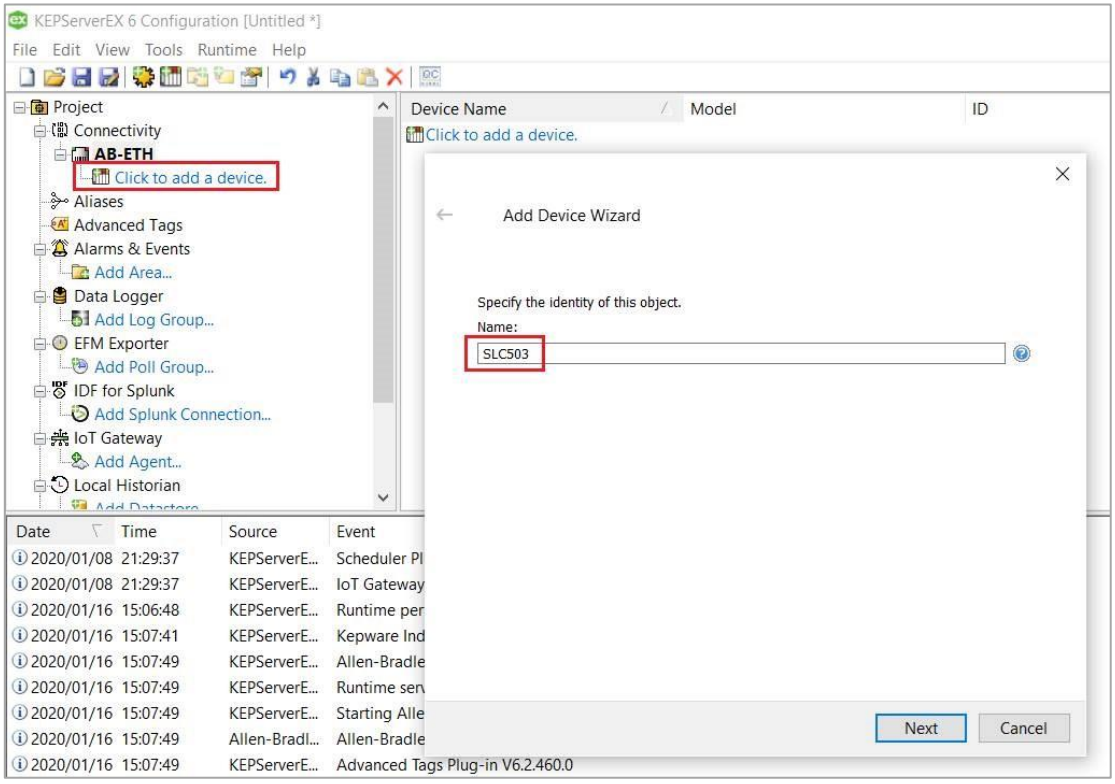

FIGURE 3.12. – KEPSERVER – DRIVER NAME

- Select the *SLC 5/05* as the device.

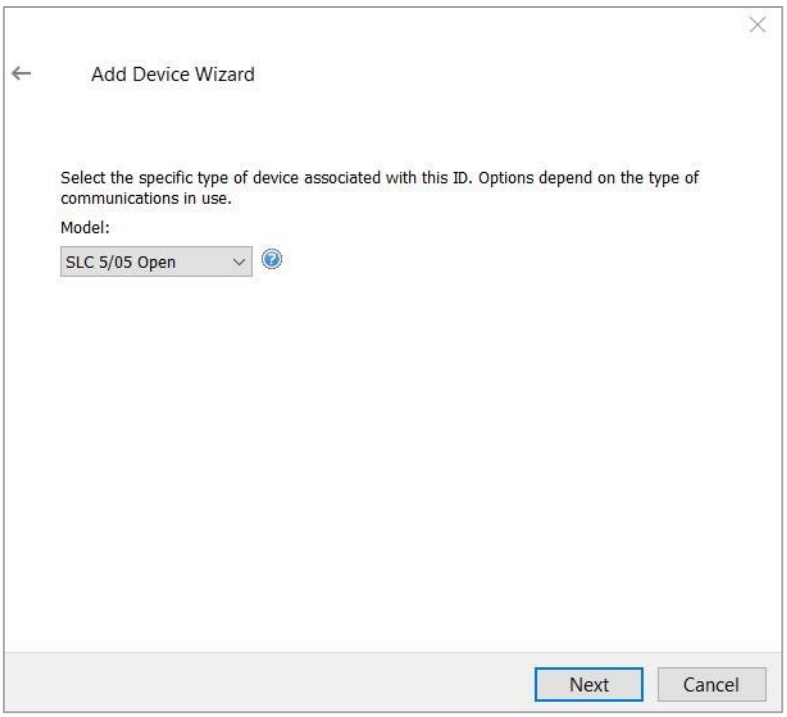

FIGURE 3.13. – KEPSERVER – DEVICE SELECT

- In Slate, the DH485 Router module must be set to Transparent mode. Select the *Enable PCCC Direct* and enter a *PCCC IP Address* that is different from the main module IP address (in the example below, the module IP address is 192.168.1.184 and the PCCC IP Address is 192.168.1.227). This will allow the DH485 Router/B to emulate the SLC503 over PCCC at IP 192.168.1.227. Enter the IP address into the *ID:* section of the device in KEPware.

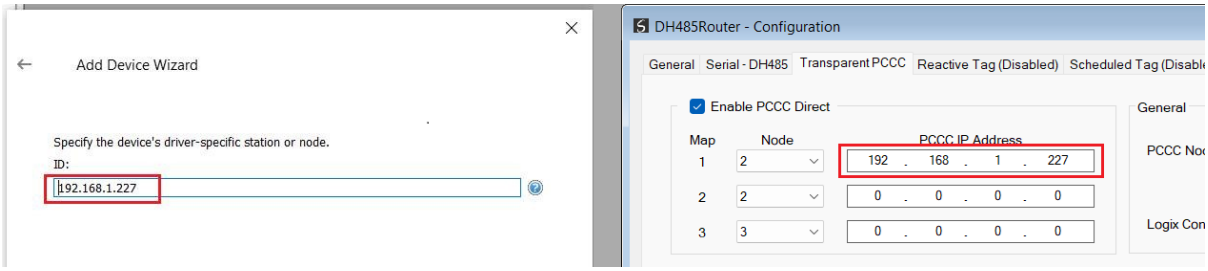

FIGURE 3.14. – KEPSERVER – IP ADDRESS CONFIGURATION

- The DH485 node address in the PCCC Direct Map will need to be set to the destination SLC503 address as shown below.

NOTE: Due to the KEPware driver implementation, a maximum of three SLCs per DH485 Router can be used when communicating with a KEPServer application.

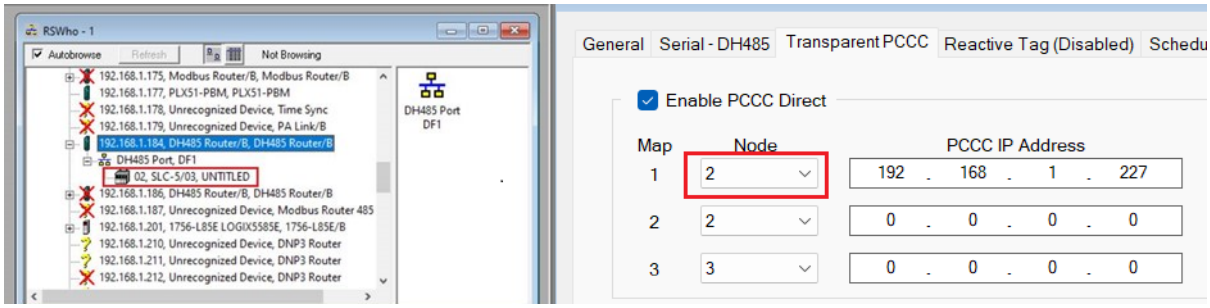

FIGURE 3.15. – KEPSERVER – DH485 NODE SELECT

- Add a tag and select the appropriate SLC503 file address. (In the example below, N9:2 is used)

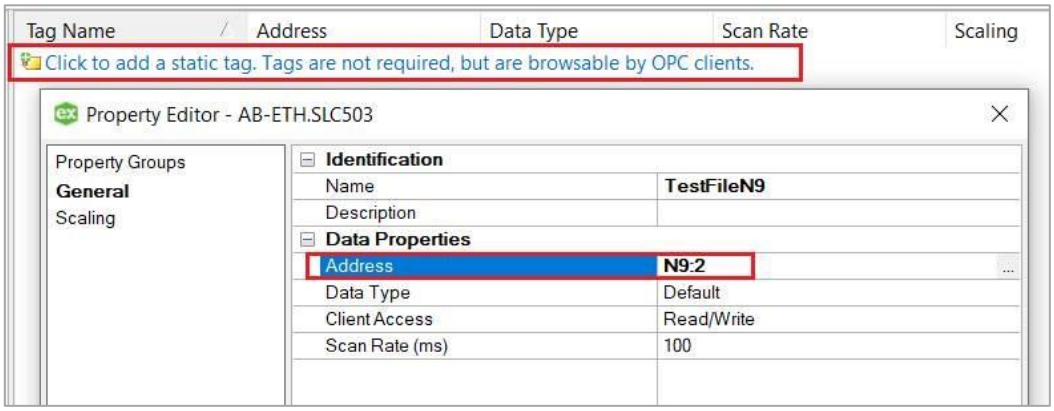

FIGURE 3.16. – KEPSERVER – TAG CONFIGURATION

- To verify the communication is operational, open up the *Quick Client* and see the data being updated from the SLC503 via the DH485 Router/B.

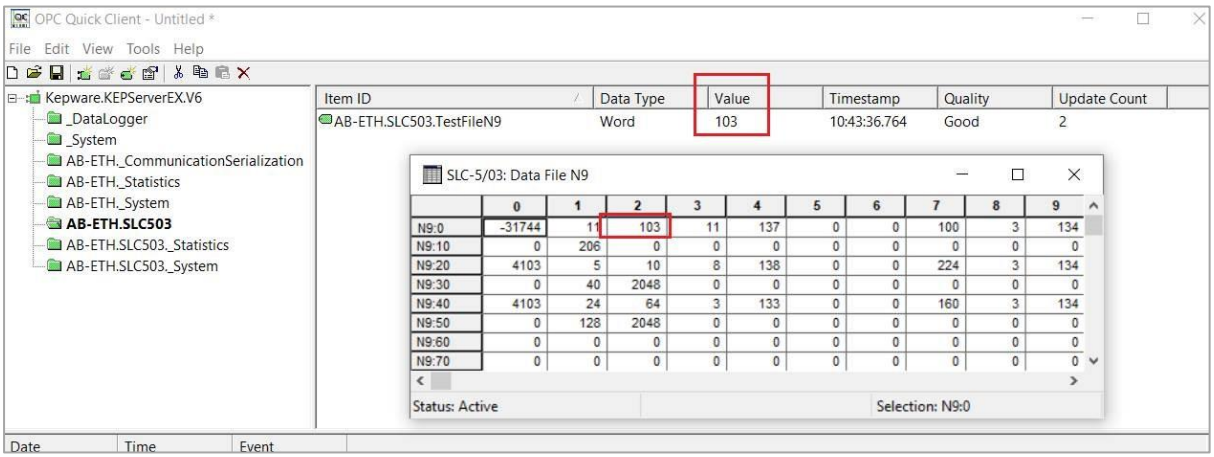

FIGURE 3.17. – KEPSERVER – LIVE VALUES