



## Technical Note

# Read-Write VFD parameters via Ethernet/IP using DiaDesigner

**Delta Electronics (Netherlands) BV**

Helmond, the Netherlands

Technical Support contact: [iatechnicalsupport@deltaww.com](mailto:iatechnicalsupport@deltaww.com)

[www.delta-emea.com](http://www.delta-emea.com)

**History**

Rev.	Comments	Date
V1.0	First published	Oct 2023

**Table of Contents**

---

1	Introduction.....	4
1.1	Devices, Software and Firmware.....	4
1.2	Connection .....	4
1.3	Wiring .....	6
1.4	Creating Driver in COMMGR.....	6
2	Application.....	7

# 1 Introduction

Ethernet/IP is a commonly used industrial communication protocol in many stages of all industrial communication scenarios. Being a most commonly supported protocol, its necessary hardware is mostly off the shelf. In this technical paper, we will have a look at how we can establish an Ethernet/IP communication between PC/laptop and Delta VFDs using Delta's innovative software platform DiaDesigner. No PLC or other master controller is necessary for this application. We will be able to read and write VFD parameters via Ethernet/IP.

## 1.1 Devices, Software and Firmware

	Model	Version	Relative Documents
VFD	C2000+	3.07	C2000 Plus Series User Manual
Ethernet/IP card	CMC-EIP02	1.0	EtherNet/IP Communication Card User Manual EtherNet/IP CMM CMC Application Manual EtherNet/IP Communication Card Instruction Sheet
Software platform	DiaDesigner	1.2.3	DiaDesigner Software User Manual
	COMMGR	2.2.1	
<a href="https://downloadcenter.deltaww.com/">https://downloadcenter.deltaww.com/</a>  <a href="https://diastudio.deltaww.com/">https://diastudio.deltaww.com/</a>			

## 1.2 Connection

Ethernet/IP card (CMC-EIP02 or CMC-EIP01) should be properly installed on C2000+ drive and necessary parameters should be checked before establishing communication. Please see necessary instructions on how to install and commission CMC-EIP02 in user manual, application manual and instruction sheet as mentioned above. Parameter group 09-Communication Parameters in drive has the relevant parameters for communication settings.

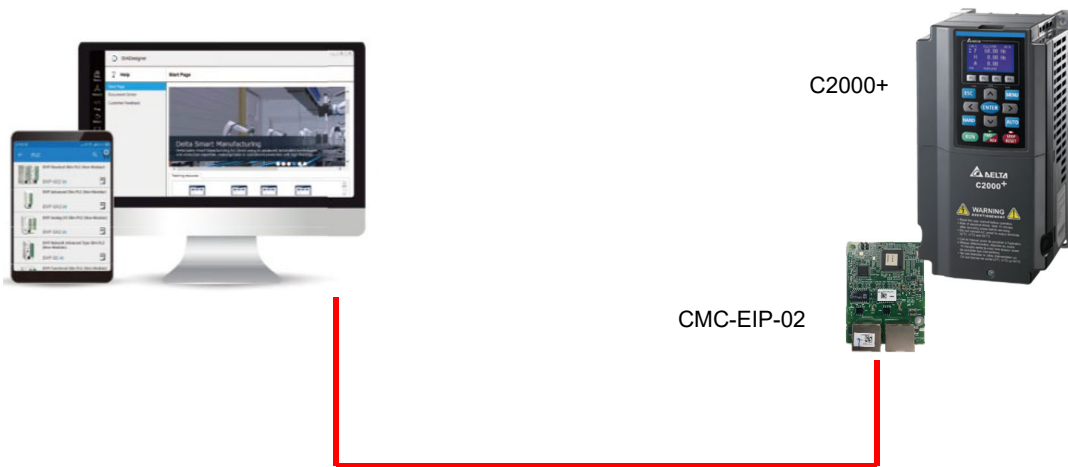
**Pr. 09-60** and **09-61** is for checking if the VFD recognizes the card. If everything is correct, parameter 09-60 should show 5 and **09-61** should show 100 (v1.00) in our case.

**Pr. 09-91** is necessary to set to 6 to save IP address of VFD if we are setting the IP address via keypad. This will save VFD's IP address. Otherwise, the IP address that you set will not be saved and VFD will go back to previous IP settings when switched off and on.

Another important thing to modify is the IP addresses of both VFD and computer. We should use same 3 bytes (**ie. 192.168.1.xx**) for both. You can see explanations of IP addresses on many resources referring to Internet Protocol version 4 (IPv4). Please see necessary parameters below.

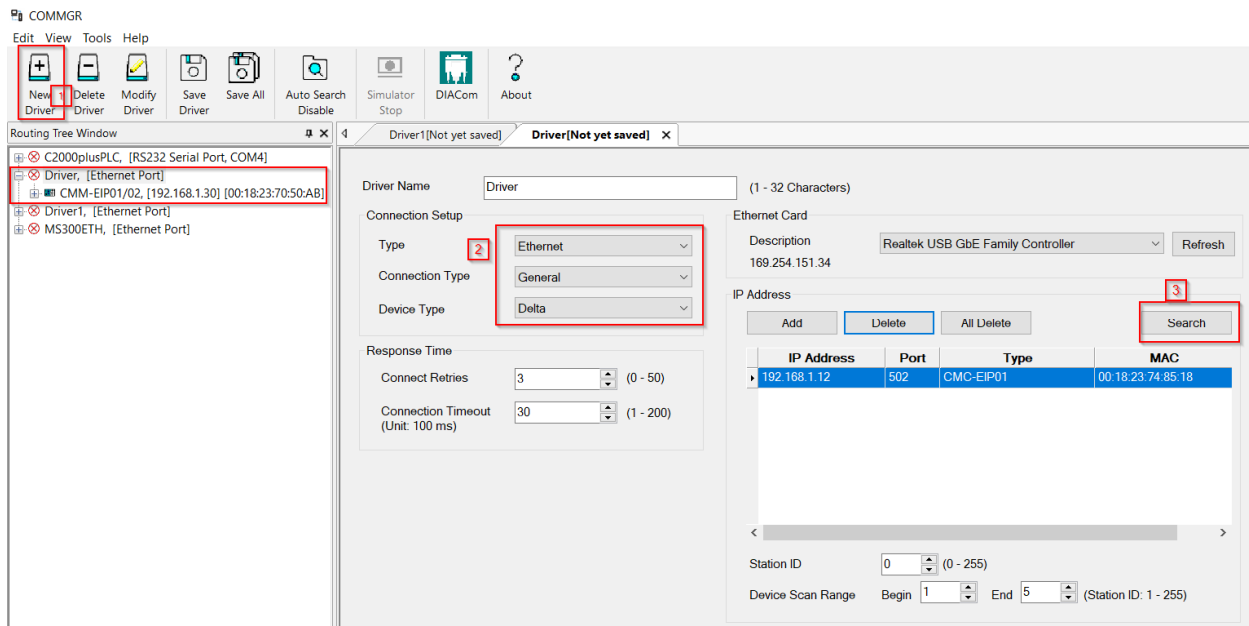
	Pr.	Parameter Name	Setting Range	Default / ie.
	09-60	Communication Card Identification	0: No communication card 1: DeviceNet Slave 2: Profibus-DP Slave 3: CANopen Slave / Master 5: EtherNet / IP Slave 6: EtherCAT (applied to 230V / 460V models) 12: PROFINET (applied to 230V / 460V models)	Read Only
	09-61	Firmware Version of Communication Card	Read Only	Read Only
<input type="checkbox"/>	09-75	Communication Card IP Configuration (for EtherNet)	0: Static IP 1: Dynamic IP (DHCP)	0
<input type="checkbox"/>	09-76	Communication Card IP Address 1 (for EtherNet)	0-65535	0 / 192
<input type="checkbox"/>	09-77	Communication Card IP Address 1 (for EtherNet)	0-65535	0 / 168
<input type="checkbox"/>	09-78	Communication Card IP Address 1 (for EtherNet)	0-65535	0 / 1
<input type="checkbox"/>	09-79	Communication Card IP Address 1 (for EtherNet)	0-65535	0 / 5
<input type="checkbox"/>	09-91	Additional Settings for the Communication Card (for EtherNet)	bit0: Enable IP filter bit1: Enable internet parameters (1 bit). When the IP address is set, this bit is enabled. After updating the parameters for the communication card, this bit changes to disabled. bit2: Enable login password (1 bit). When you enter the login password, this bit is enabled. After updating the parameters for the communication card, this bit changes to disabled.	0 / 6

### 1.3 Wiring



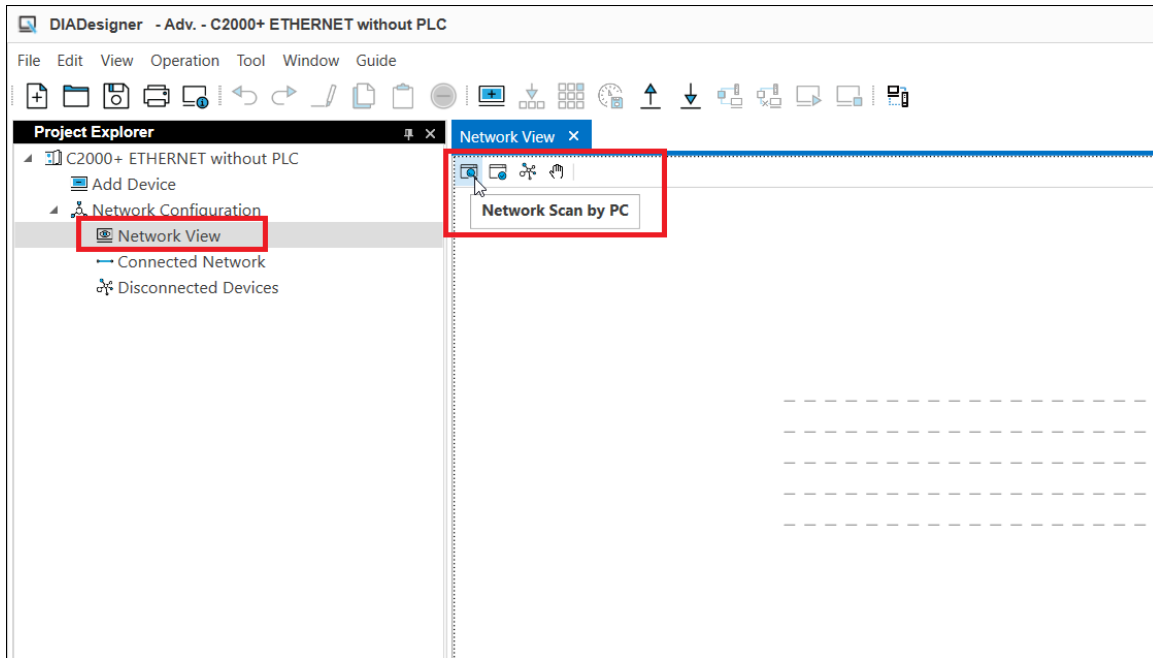
### 1.4 Creating Driver in COMMGR

Open **COMMGR** and click on **New Driver** on the upper left. Chose **Ethernet** as type and **Delta** as **Device Type**. Chose your Ethernet Card and click on **Search**. Save the driver to be able to use in Dia Designer.

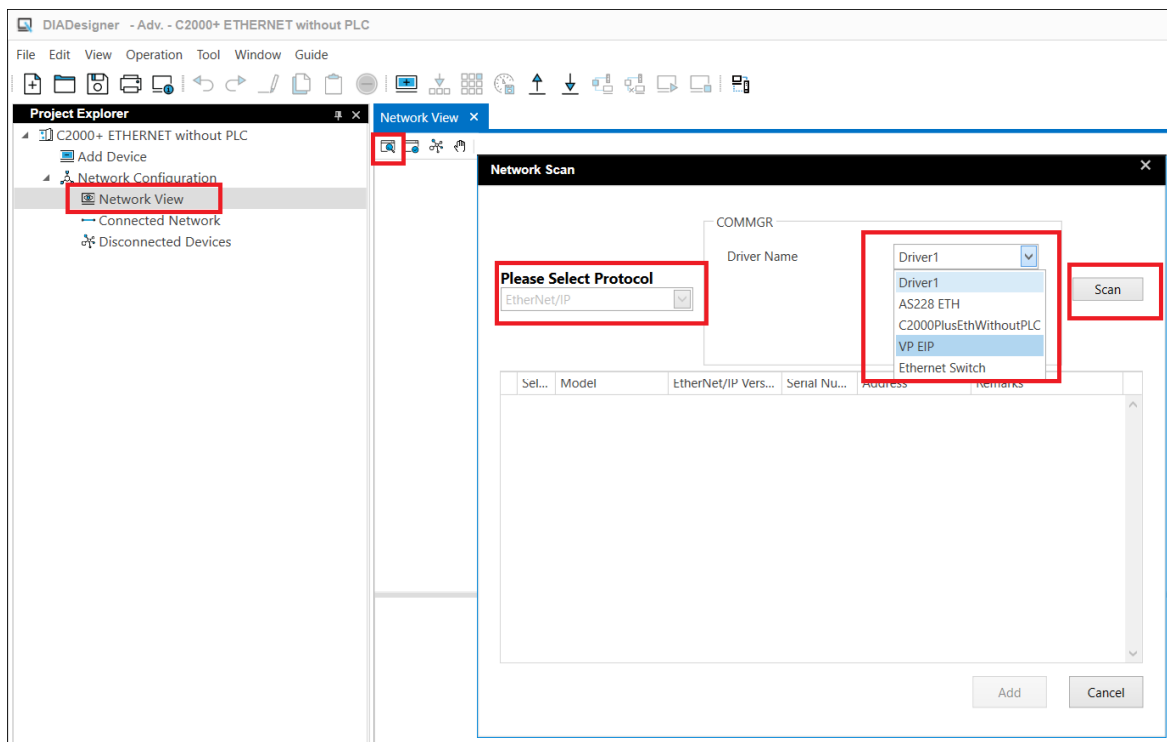


## 2 Application

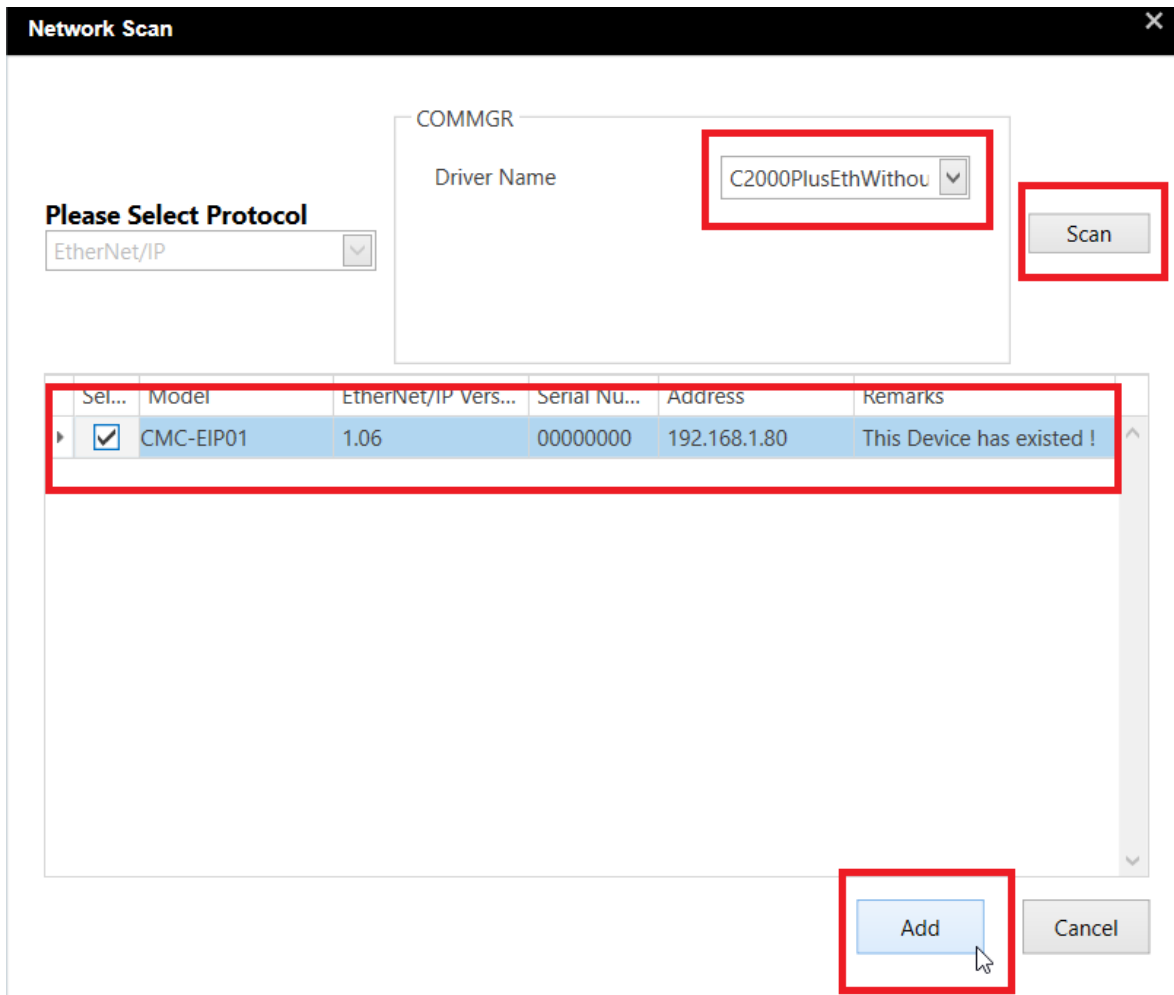
- 1- Start Dia Designer and create a new project. Click on **Network View** on the left of the main screen, in the **Project Explorer** window.
- 2- Then click on **Network Scan by PC** on the upper left corner in the **Network View** window.



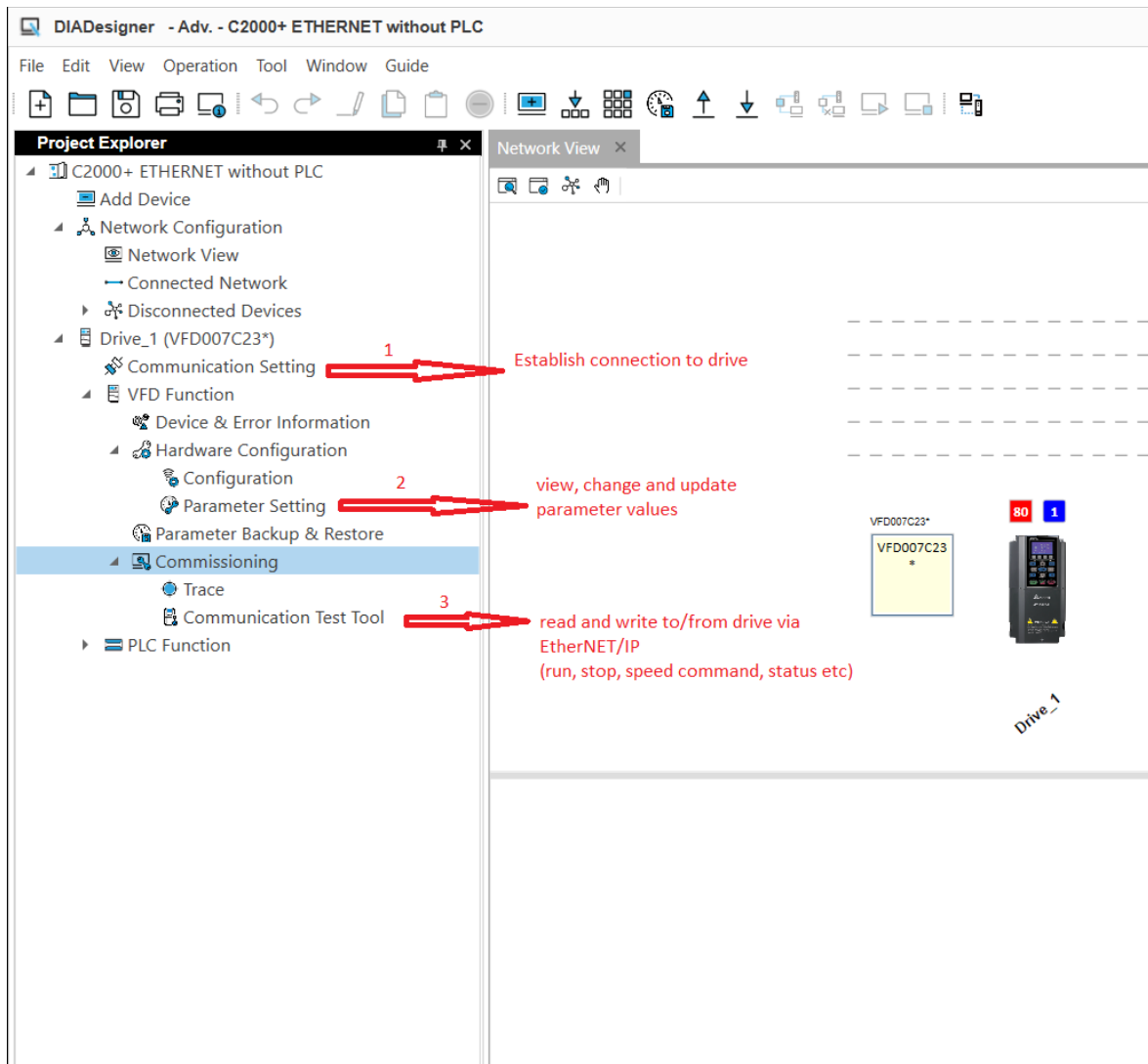
- 3- **Network Scan** window will appear. Select the driver that you have created for your Ethernet/IP connection. Then click on scan.



4- If the EtherNet connection of drive is correct, it will appear after scan. Add to network.

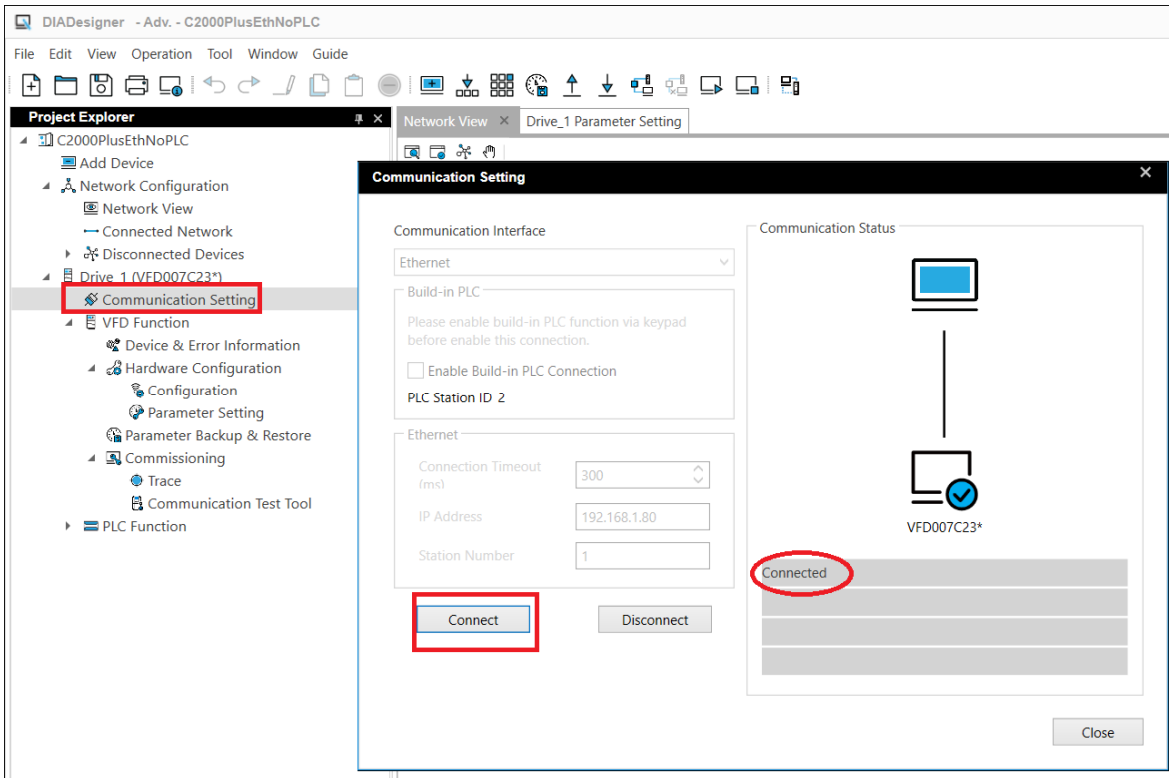


You will have an overview of Ethernet/IP Network – just drive



**Communication Settings** part is where you start the E/IP connection with VFD. **Parameter Settings** part is where you view & edit parameter values. **Communication Test Tool** part is where you can read & write registers via Ethernet/IP.

- 5- **Communication Setting** window will appear when you click on communication settings. Check the settings and click connect. You will see **Connected** message if the settings are correct.



- 6- When you click on **Parameter Setting**, you will see the list of parameters and input value cells. You can change the writable parameters and click on arrow next to the parameter number so save.

