Drive Scan
Drive Specialist

Medium Voltage Devices

Manual
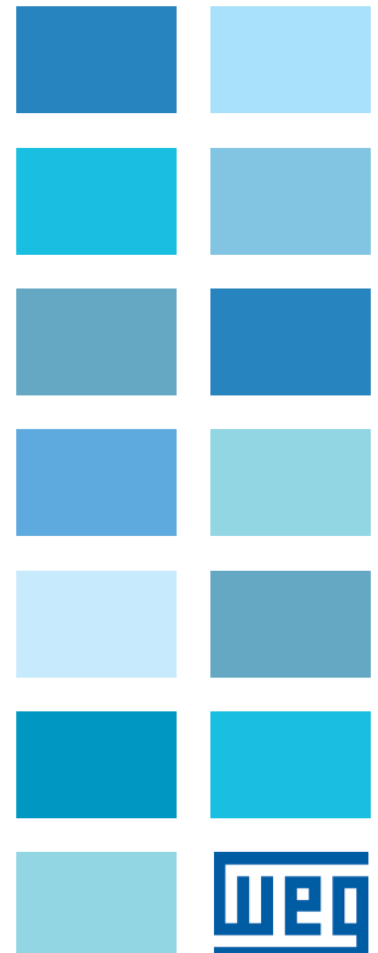
scan

Version	Revision	Description
1.0x	00	First edition.
1.1x	01	General revision.
1.2x	02	General revision.
1.3x	03	General revision.

Contents

1 INTRODUCTION

This document addresses the general concepts and configurations of Drive Scan and Motion Fleet Management for communication and monitoring of the WEG medium voltage inverter line.

To complement the information contained in this document, please also refer to the contents related to the following documents:

- Manuals of the frequency inverters connected to the Drive Scan;
- Manual of the MVW-01;
- Manual do MVW-3000;
- Manual of the WEG Motion Fleet Management platform.

All those manuals are available for download at the WEG website download center (www.weg.net).

Some procedures described are subject to changes that will not affect the user's understanding.

1.1 ABBREVIATIONS AND DEFINITIONS

- MFM   WEG Motion Fleet Managment. Cloud service platform used in WEG IoT applications.

- Drive   Frequency inverter.

- Asset   Dispositivo que normalmente possui um bom valor agregado (um inversor de frequência CFW11, por exemplo).

- Attribute   An attribute usually consists of only one variable monitored by the Drive Scan published in the MFM, but there are situations where a variable is subdivided into more than one attribute, such as: last value, average value, minimum value and maximum value.

- DHCP   Dynamic Host Configuration Protocol. Protocol that allows devices newly connected to a network to obtain an IP address automatically.

- DNS   System responsible for translating IP addresses into domain names and vice versa.

- Ethernet   Interconnection architecture for local area networks (IEEE 802.3).

- Firmware   Set of operating instructions that are programmed directly into electronic equipment hardware.

- Gateway   Electronic device that allows data flow between different communication networks.

- Hardware   Equipment or device.

- IoT   Internet of Things. Technology that allows machine-to-machine communication using an internet connection.

- IP   Internet Protocol. Internet protocol for forwarding datagrams between networked devices.

- Login   Action for the user to access the system. It is usually necessary to enter a username and password.

- Logout   Action that terminates the user's connection to the system.

- MQTT   Message Queuing Telemetry Transport. Transport protocol that uses the publish/subscribe architecture to transfer lightweight messages between devices.

- Pop-up   Window smaller than a screen, which is over the main window.

- Plant   Factory installation.

- RS-485   Interface standard for asynchronous serial communication.

- Site   Set of plants.
- Software   A program or set of instructions executed by a microcontroller or a microprocessor.
- URL   Uniform Resource Locator. Web address of a resource available on a network.
- Web   World Wide Web. Hypertextual system that operates over the internet.
- WLAN   Wireless Local Area Network.

1.2 OVERVIEW - DRIVE SCAN AND DRIVE SPECIALIST

The Drive Scan consists of the Drive Scan gateway and the WEG Motion Fleet Management platform. It is designed to monitor information of different assets and assist in their maintenance.

The Drive Scan has dedicated firmware to integrate assets with the MFM platform, performing several important tasks, such as:

- Registration on the MFM platform;
- Reading of each connected asset;
- Processing of the read data;
- Data storage for up to 30 days in case of disconnection from the MFM;
- Publishing of sampled data on the MFM platform.
- It has smart code Drive Scan-DSMV-2P2SE-W-POE, item 15474012.

2   INSTALLATION RECOMMENDATIONS

This manual contains the necessary information for the correct installation, configuration and use of the Drive Scan. The document was developed for professionals with suitable training or technical qualifications to operate this type of product. Failure to comply with the product instructions may cause operating accidents and damages to the device, in addition to voiding the warranty. The user is responsible for the correct definition of the environment and application characteristics.

2.1   INSPECTION ON RECEIPT

When you receive the Drive Scan, please check that the package contains the items listed below. Figure Figure 2.1 shows the accessories contained in the package.

- 1x WCD Drive Scan,

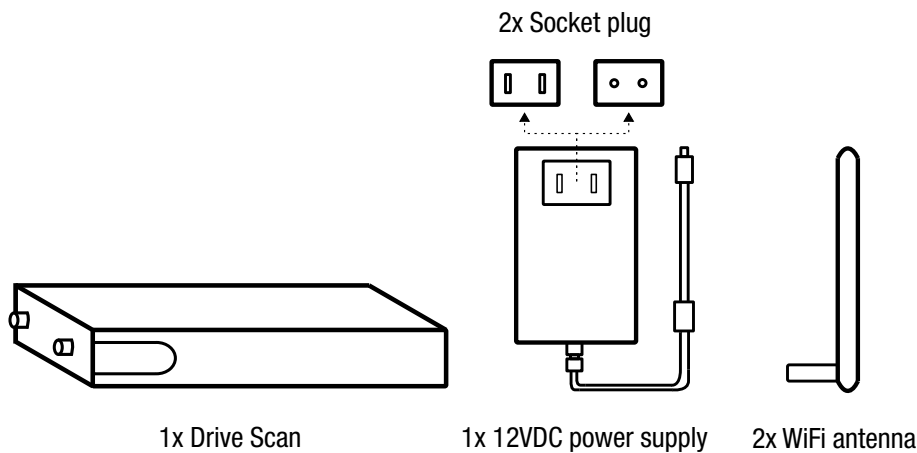- 2x WiFi antenna,

- 1x power supply 12V + 2x socket plug.

Figure 2.1: Drive Scan and Accessories

2.2   PHYSICAL INSTALLATION

Installing the Drive Scan is a simple task. Just follow the steps listed below.

1. Insert both antennas, one into each input.

2. Insert one of the power plugs (at your discretion) into the power supply and insert the cable into the Drive Scan power input.

3. Panel Installation:

   a) Place the Drive Scan on the base of the panel and energize it through an outlet.

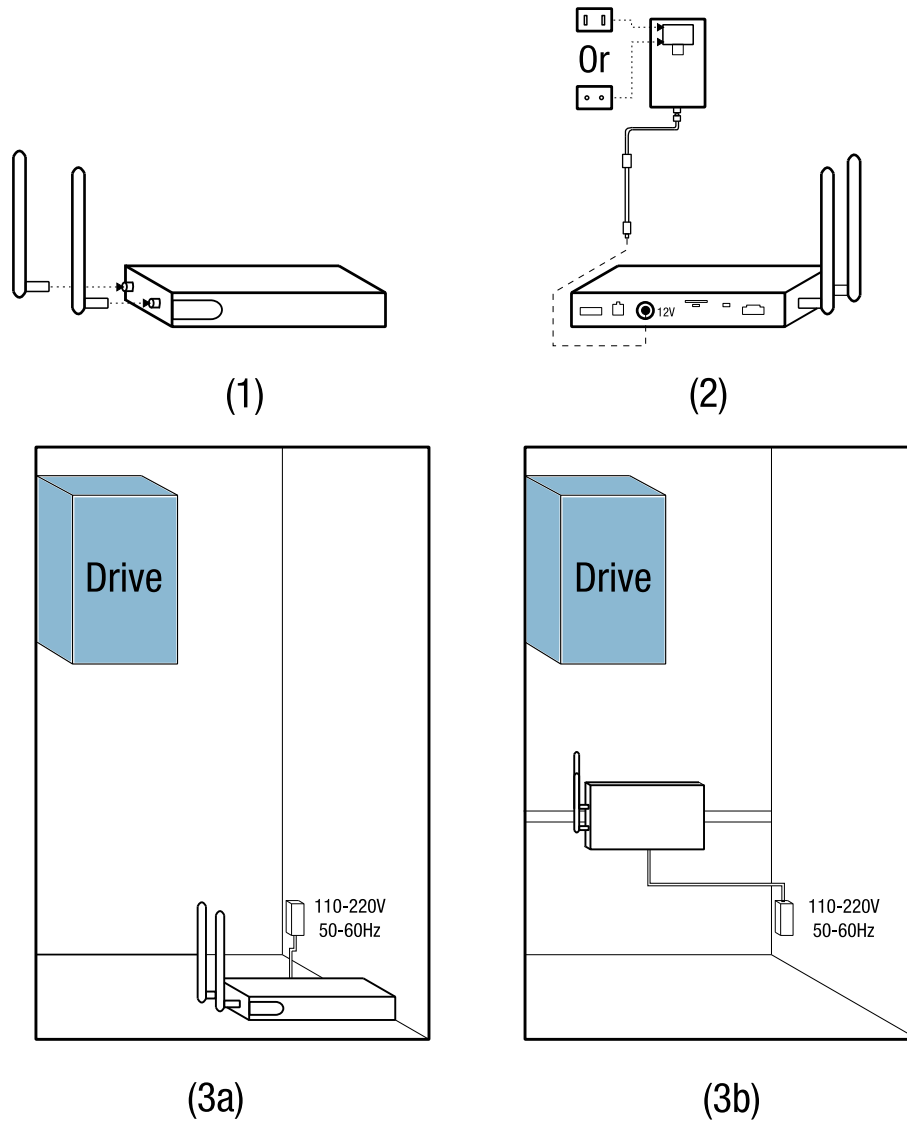   b) Or, if possible, snap the Drive Scan onto the DIN rail on the panel.

Figure 2.2: *Instructions for the Drive Scan Physical Installation*

⚠ **WARNING!**
Be sure to power the Drive Scan within 110V to 220V power range (with frequency from 50 to 60Hz).

Installation and configuration of the Drive Scan communication with WEG devices, as well as the platform configurations, are covered in the following chapters.

3 WEG MOTION FLEET MANAGEMENT

3.1 FUNCTIONALITIES AND DOCUMENTATION

The WEG Motion Fleet Management platform is WEG's IoT system that performs the user's interaction in a secure environment. Among other things, the platform main functions are:

- Account and user management;
- Plant and site edition;
- Subscription request;
- Asset registration;
- Presentation of each asset in dashboards;
- Presentation of performance indicators;
- Maintenance management;
- Complete health diagnostics of the asset (only with the Drive Specialist subscription for the CFW-11 frequency inverter);
- Estimation and prediction of variables through the Drive Specialist.

Access the WEG Motion Fleet management at https://mfm.wnology.io, fill out your registration and download the MFM guide. To that end, just select the "Guide" option from the "User" menu, located on the upper right corner of the page, as shown in Figure 3.1.
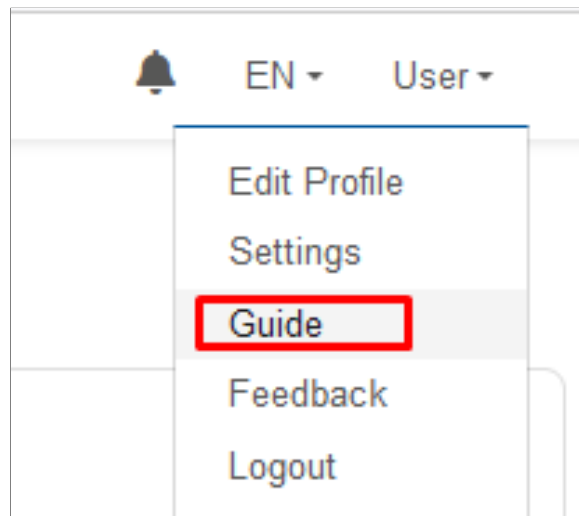

Figure 3.1: *Access to the MFM manual*

While reading the MFM guide, take the opportunity to organize the site and the plans. After that, you can register your assets on the platform. This will simplify the initial configuration of the Drive Scan, which will be detailed in Chapter 6.

3.2 REGISTERING AN ASSET

Before registering an asset, it is necessary to register the Drive Scan on the WEG Motion Fleet Management platform, as explained in Chapter 6.

Step 1   In the web browser, access the website https://mfm.wnology.io.

Enter your email and password and click on the "SIGN IN" button, as shown in Figure 3.2.

If you don't have an account, create one through the "Sign up" link.

Figure 3.2: *Accessing the WEG MFM platform*

Step 2   Click on the menu and select the "REGISTER AND UPDATE" option.

Click on the "Device" option, as shown in Figure 3.3.
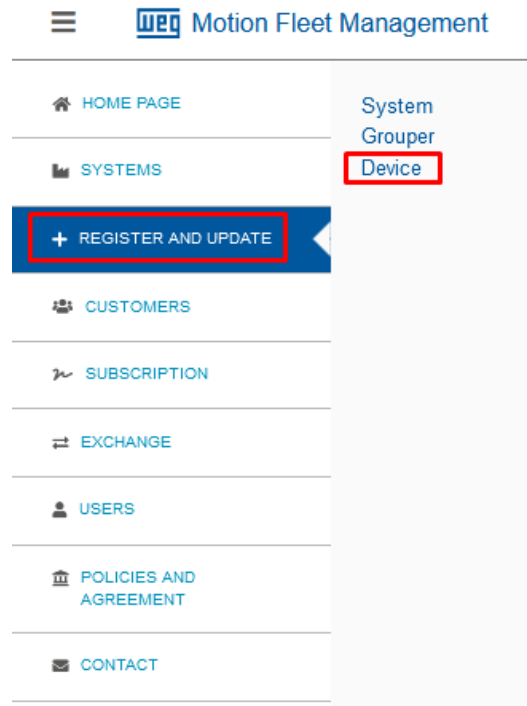
Figure 3.3: Registering a new device

Step 3   Click on "+DEVICES" button, as shown in Figure 3.4.
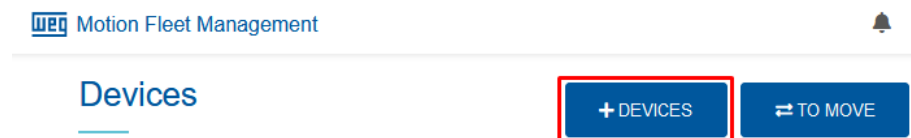
Figure 3.4: Adding a device

Step 4   Select the "Drive" option and click on the "Register" button, as shown in Figure 3.5.
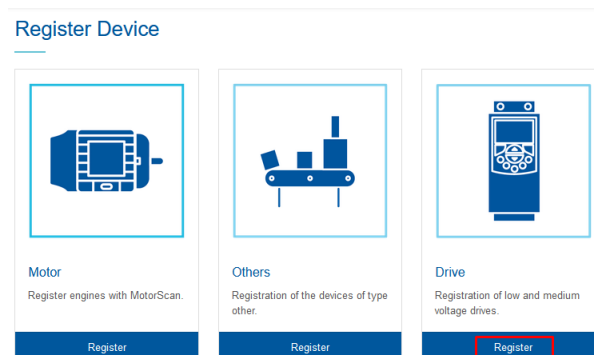
Figure 3.5: Adding a drive

Step 5

⚠️ **WARNING!**
The Drive Scan must have been previously registered on the MFM, as described in Chapter 6.

Select Drive Scan and click on the "CONTINUE" button, as shown in Figure 3.6.

Figure 3.6: *Ading a drive*

Step 6   Click on the "+ADD" button, as shown in Figure 3.7.

Figure 3.7: *Adding a drive to the MFM*

Step 7 Enter your device name.

Select your device connection mode to Drive Scan.

In Figure 3.8, the RS-485 option was chosen. The following settings are related to this choice.

Figure 3.8: Registering a drive

Set the drive ModBus address.

Select the device model (asset).

Enter the asset serial number.

Click on the "SAVE" button.

Step 8 Click on the name of your asset to view the dashboard, as shown in Figure 3.9.

Figure 3.9: List of registered drives in the Drive Scan on the MFM

Step 9 A shows the dashboard of the drive newly registered on the MFM.
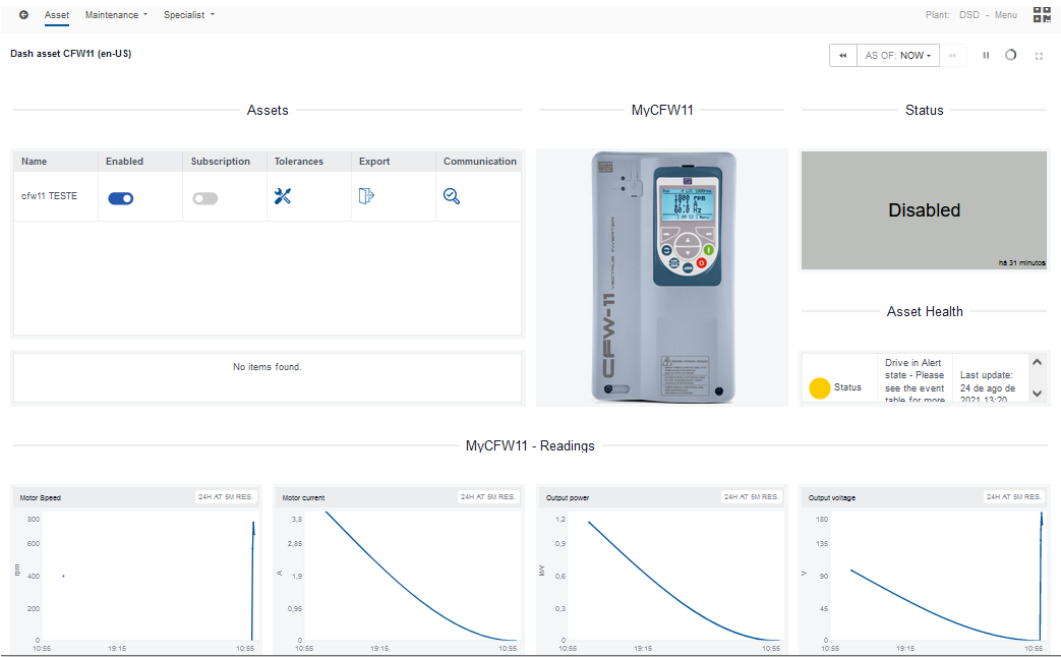
Figure 3.10: *Dashboard of the drive registered on the MFM*

4 DRIVE SCAN COMMUNICATION

4.1 COMPATIBILITIES

To establish communication between the Drive Scan and the inverter, make sure that each system has a suitable version. Table 4.1 contains the version compatibilities of the Drive Scan system components.

Table 4.1: Version compatibility for the Drive Scan communication

	v0.0.1	v0.0.5	v0.0.8	v0.1.x	v0.3.x	v0.4.x	v0.5.x	v1.x.x		
Scan Application		x	x	x	x	x	x	x		
	v1.0.0	v1.1.0	v1.2.0	v1.3.0	v1.4.0	v1.5.0	v1.6.0	v1.7.0	v1.8.x	v1.9.x	2.x.x
WCD ED300 DSLV				x	x	x	x	x	x	x	x
	v1.00	v1.10	v1.17	v1.18	v1.19	v1.2x	v1.6.0	v1.7.0	v1.8.x	v1.9.x	2.x.x
Wnology/Edge-Agent			x	x	x	x	x	x	x	x	x
	v1.0.xx	v1.1.xx	v1.2.xx	v1.3.xx	v1.4.xx	v1.5.xx	v1.6.0x	v1.7.0xx	v1.8.xx	v1.9.xx	
Motion Fleet Management		x	x	x	x	x	x	x	x	x	

The compatibility of each product with the Drive Scan can be seen in their respective sections, in Chapter 5.

4.2 COMMUNICATION INTERFACES AND PROTOCOLS

The Drive Scan Drive Scan connects to the assets by one of the following communication interfaces, according to Figure 4.1:

- Ethernet port GbE1 (1), using Modbus-TCP protocol;
- RS-485 port (2), using Modbus-RTU protocol.

(1) Ethernet GbE1 port
ModBus TCP protocol

(2) RS-485 port
ModBus RTU protocol

Figure 4.1: Drive Scan Drive Scan Communication Interfaces

4.3 RS-485 CONNECTOR

Figure 4.2 describes the RS-485 connector pin signals.

Pin	Signal
1	RS485 -
2	GND
3	RS485 +
4	RS485 +
5	GND
6	RS485 -
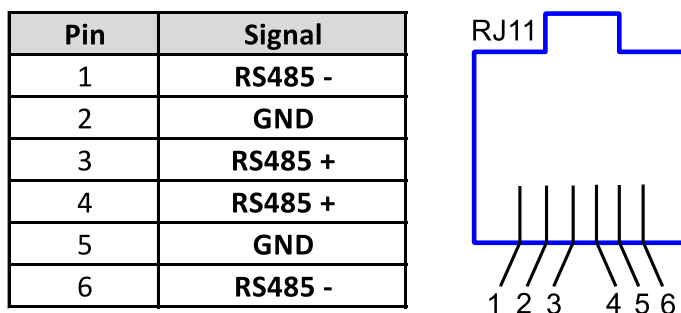
Figure 4.2: Drive Scan Scan Drive RS-485 Connector Signals

4.4 NETWORK SETTINGS

All the devices connected to physical networks, whether via RS-485 or Ethernet, must have the same baud rate, data bit, parity and stop bit settings, so that the respective network works correctly.

4.5 NUMBER OF MONITORED ASSETS

4.6 INTERNET CONNECTION REQUIREMENTS

For the proper operation of the Drive Scan and connection to the MFM cloud, the customer's network must meet some requirements and have some releases.

Note: to release the addresses, ports and internet access, ask the IT team in charge of the network.

- The user's network must not have VPN or PROXY;

- The ports of Table 4.2 and the IP addresses of Table 4.3 must be accessible.

Table 4.2: Addresses required for the Drive Scan communication with the MFM

Destination	IP	Objective
broker.app.wnology.io	3.234.136.81	Send data to the MFM
*.wnology.io	3.227.206.235	Data exchange with mfm
api.app.wnology.io	52.22.246.163	MFM service requests
hub.docker.com	Dynamic address	Edge-Agent Maintenance
nexus3.weg.net	Dynamic address	Firmware update

Table 4.3: Ports required for the Drive Scan communication with the MFM

Protocol	Port	Objective
TCP	443	Update/Support the Drive Scan and Send data to the MFM
TCP	8883	

5 CONNECTING A DEVICE TO THE DRIVE SCAN

5.1 RECOMMENDATIONS FOR CONNECTION VIA RS-485

When connecting the Drive Scan to any WEG device via serial (RS-485), terminations must be provided at the external connection points. In cases where both ends are arranged on the CFW, SSW or MVW lines, their interfaces already have switches to enable the termination resistors.

In case the ED300 is at an end, it is recommended to use an external termination module, such as those listed below:

- PSB-TERMINATOR-PB-TBUS (Phoenix Contact);

- 6ES7972-6DA00-0AA0 (Siemens);
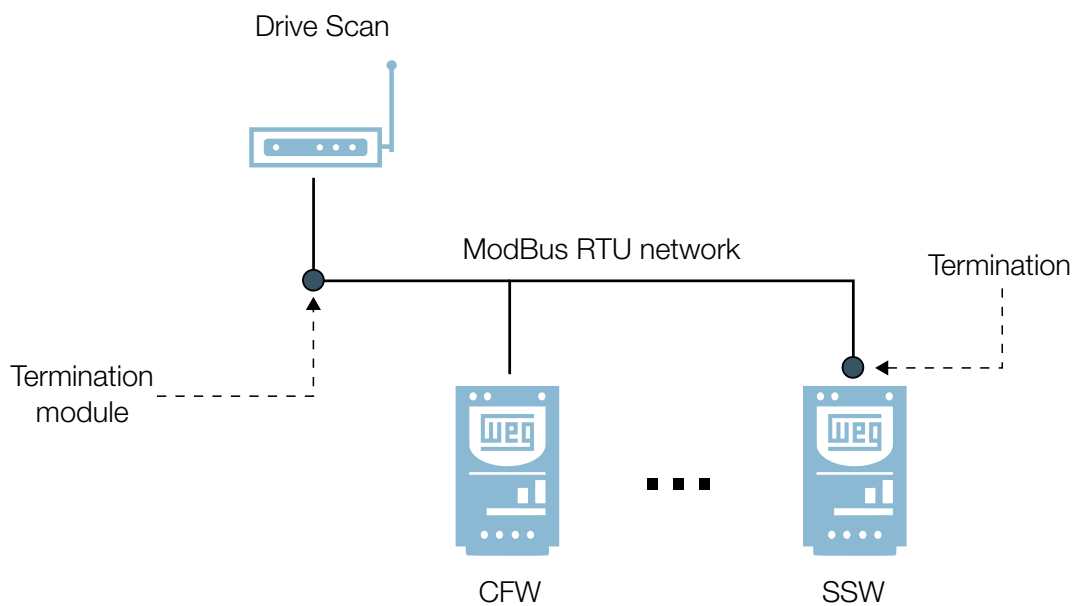
- AT303 (Smar)

Figure 5.1 illustrates the situation.

Figure 5.1: *ModBus RTU network with Drive Scan at one end*

5.2 MVW-01 FREQUENCY INVERTER

5.2.1 RS-485

To connect the MVW-01 to the Drive Scan via the RS-485 communication interface using the Modbus-RTU protocol, it is necessary to install on the CFW100 the accessory listed in Table 5.1. The accessories can be installed in any firmware version of the device.

Refer to the Optional Acessories and Boards section from the MVW-01 User's Manual, which can be obtained from the download center at www.weg.net, for additional information.

Table 5.1: RS-485 hardware accessories of the MVW-01 compatible with Modbus RTU protocol

Accessory	WEG Item	Parameters	Connector	Signal
EBA.01-A1	10056494		10	RS-485 reference
EBA.02-A2	10203411		11	RS-485 A-LINE (-)
		Table 5.2	12	RS-485 B-LINE (+)
EBB.01 B1	10432096			
EBB.03 B3	10056495			
CSI2	15423438	Table 5.2	Terminal 1	RS-485 A-LINE (+)
			Terminal 2	RS-485 B-LINE (-)
			Terminal 3	RS-485 reference

The connections between MVW-01, EBA, EBB and CSI2 to establish a RS-485 serial communication with the Drive Scan are illustred in Figure 5.14.
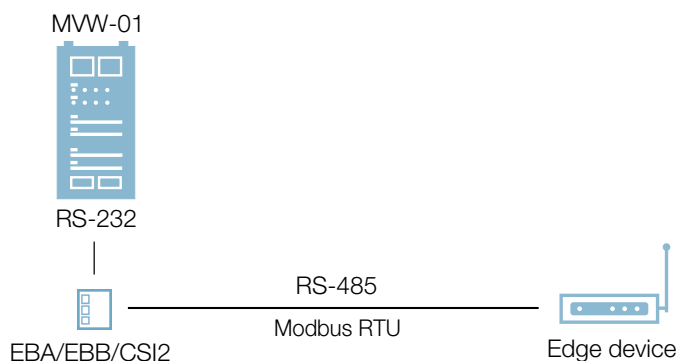

Figure 5.2: RS-485 connection between MVW-01, accessories and Drive Scan

Table 5.2: EBA.01, EBA.02, EBB.01, EBB.03 e CSI2 accessories related parameters

Parameter	Description	Values range
P0308	Serial address	1 a 30

Table 5.2: EBA.01, EBA.02, EBB.01, EBB.03 e CSI2 accessories related parameters

Parameter	Description	Values range
P0312	Serial protocol type	0 = WEG protocol 1 = Modbus-RTU, 9600 bps, no parity 2 = Modbus-RTU, 9600 bps, Odd parity 3 = Modbus-RTU, 9600 bps, Even parity 4 = Modbus-RTU, 19200 bps, no parity 5 = Modbus-RTU, 19200 bps, Odd parity 6 = Modbus-RTU, 19200 bps, Odd parity 7 = Modbus-RTU, 19200 bps, Odd parity 8 = Modbus-RTU, 19200 bps, Odd parity 9 = Modbus-RTU, 19200 bps, Odd parity 10 = Modbus-RTU, 19200 bps, Odd parity 11 = Modbus-RTU, 19200 bps, Odd parity 12 = Modbus-RTU, 19200 bps, Odd parity 13 = Modbus-RTU, 19200 bps, Odd parity
P0313	Communication error action	0 = Run/Stop 1 = General enable 2 = Inactive 3 = Go to local 4 = No function 5 = Fatal failure
P0314	Serial watchdog	0,0 a 999,0 s

5.2.2 ETHERNET

To connect to the Drive Scan via Ethernet GbE1 communication interface, using the Modbus TCP protocol, it is necessary to install one of the accessories listed below on the MVW-01.

- HMI Ethernet port (Only in G3 model);
- Gateway Ethernet/Serial WEG RS485-ETH-N (Etor 4).

5.2.2.1 HMI G3

To connect the MVW-01 with the Drive Scan using the HMI G3 ethernet port, a direct connection with an Ethernet cable between both devices is needed. That communication is illustred in Figure 5.15.

> ⚠️ **WARNING!**
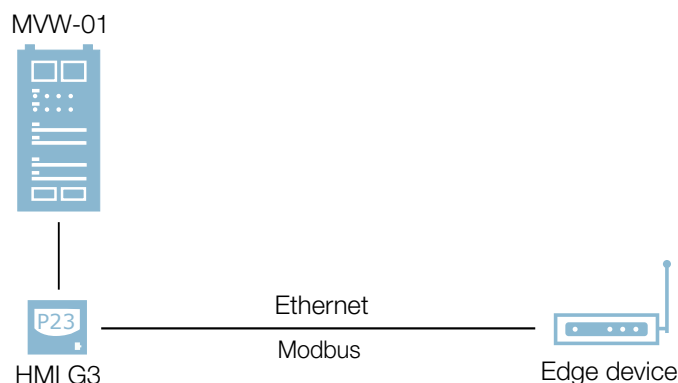> The HMI G3 is compatible with MVW3000 with v3.0 firmware version onwards.

Figure 5.3: Ethernet communication with HMI G3

To configure the Ethernet communication on the MVW HMI G3, just click on "Settings", access the "Communication Settings" tab and, finally, access the "Ethernet" tab. The IP address configured on the HMI must be in the same range as the IP address configured for the Drive Scan Modbus. The Figure 5.16 illustrates the Ethernet configuration in which the HMI and Gateway IP's (Drive Scan) are configured for the range 192.168.1.xxx.

Figure 5.4: *Ethernet configuration in the HMI G3*

5.2.2.2 Etor 4

To use the WEG RS485-ETH-N (or Etor 4) converter and establish a communication between the MVW-01 and Drive Scan, it is necessary to setup the converter with the WEG Gateway Master software. The Etor can be seen in Figure 5.17. The converter is compatible with any MVW-01 firmware version. All manuals and softwares are available to download on WEG download center (www.weg.net).
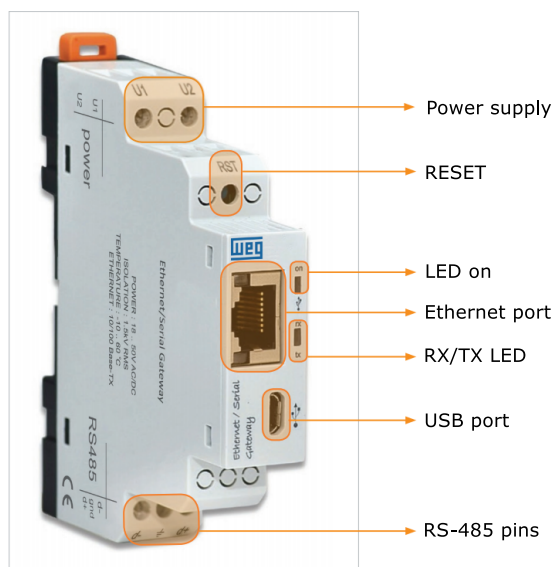
Figure 5.5: *Ethernet/Serial WEG RS485-ETH-N converter*

After the Gateway Master installation, start it.

To begin the setup an USB cable is necessary to connect the converter with the computer. Then, it is necessary to choose the device to be configured (Etor, in this case). The Etor converter is the first item on the left of the window (Figure 5.18).
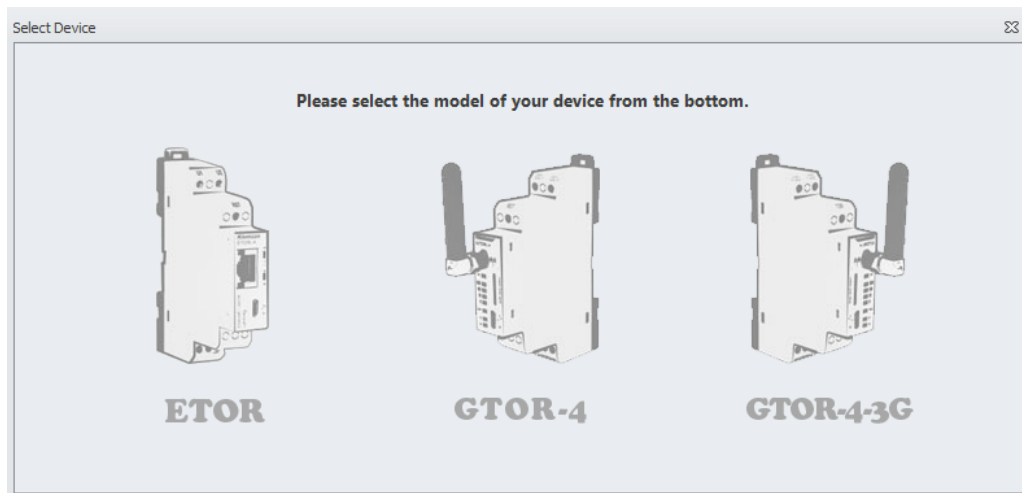
Figure 5.6: *Selecting the device to setup in Gateway Master*

In the next step, it's necessary to select the connector type used to make the configurations. In this case, it's the USB cable (Figure 5.19).
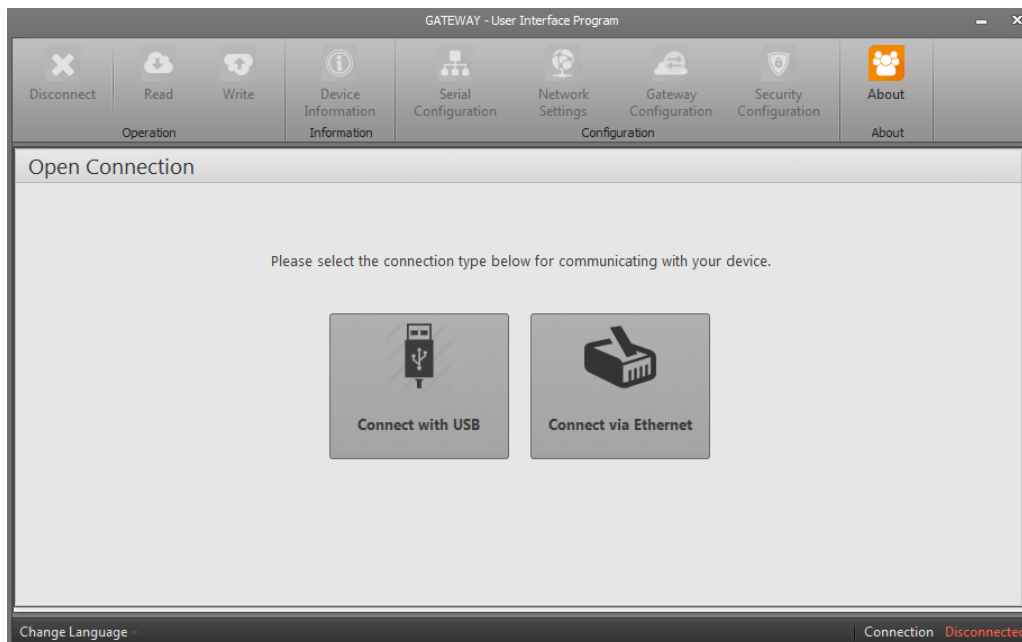
Figure 5.7: *Selecting the connector in Gateway Master*

Then, the user has to select the Port in which the USB cable is connected (Figure 5.20).
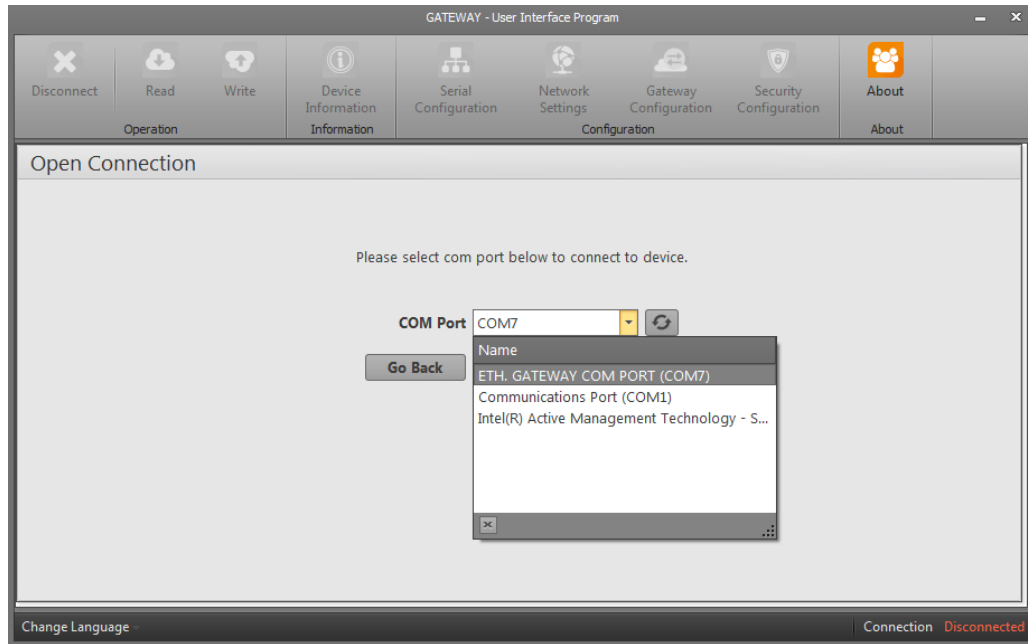
Figure 5.8: Selecting the USB port in Gateway Master

In the next step, access the "Serial Confguration", and setup the serial parameters such as baud rate, parity and stop bits according to the parameters configured on the MVW-01 (Figure 5.21).
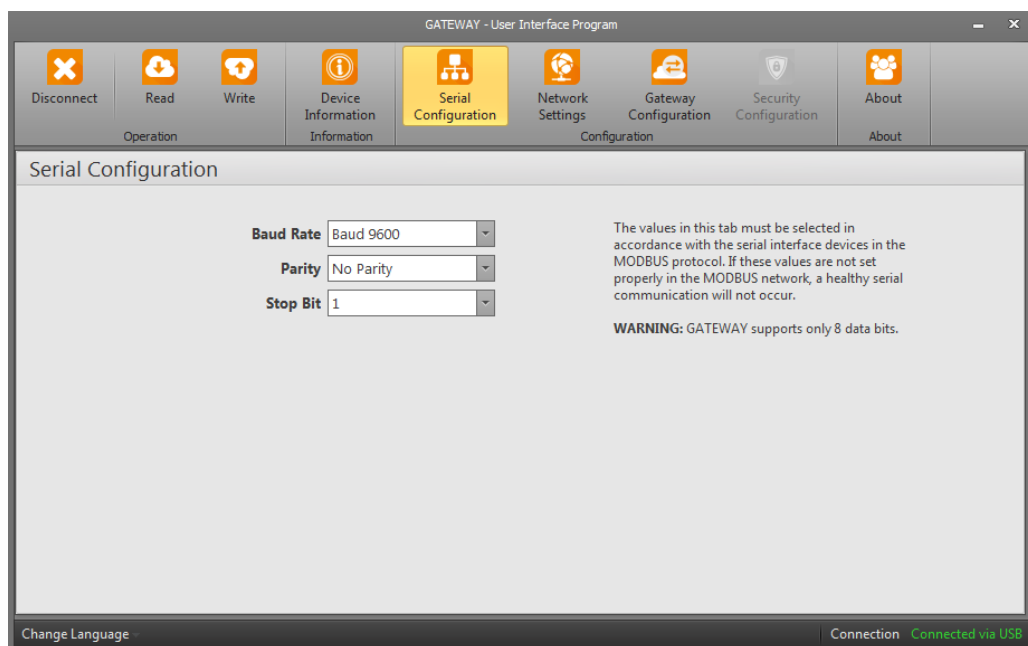
Figure 5.9: Serial parameters configuration in Gateway Master

Then, enter the "Network Settings" page, to configure the Ethernet interface parameters. The gateway IP address must be in the same range of the Drive Scan IP address (Figure 5.22).
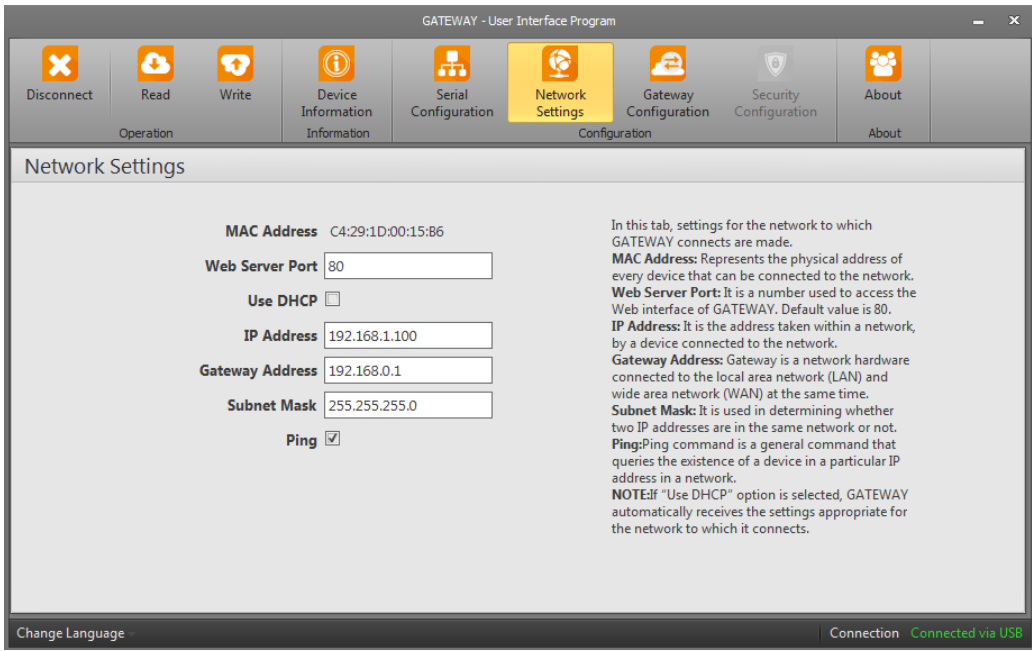
Figure 5.10: *Ethernet setup in Gateway Master*

For the last step, enter the "Gateway Configuration" page, setup the Etor as "Server", by clicking on "Server" button (Figure 5.23).
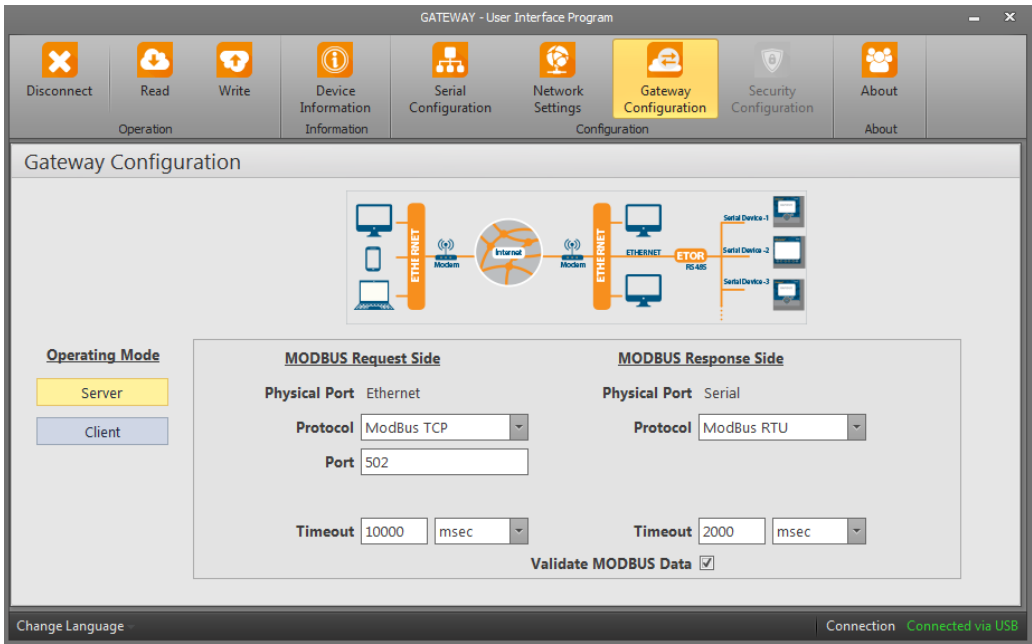
Figure 5.11: *Configuring the Etor converter as Server in Gateway Master*

After the configurations it's possible to establish a connection between the MVW-01, Etor and Drive Scan. For that, it is necessary to connect one of the RS485 communication accessories (EBA, EBB or CSI2) to the drive.

Then, the RS485 accessory output signals must be connected to the Etor RS485 pins (GND, + and -).

So, you can connect the Etor to the Drive Scan using an Ethernet cable.

It's also necessary to supply the Etor with a 18V to 50VDC voltage range. The Figure 5.24 illustrates all the connections between MVW-01, Etor and Drive Scan.
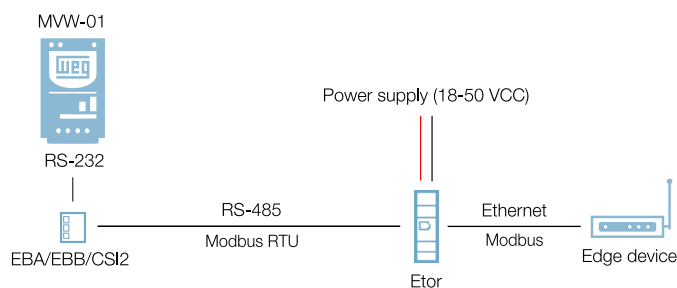
Figure 5.12: *Connections between MVW-01, Etor and Drive Scan*

The ethernet interface communication parameters used to setup the Etor are analogous to those listed in Table 5.2.

It's also important to observe the following setting:

- Maximum number of simultaneous clients connected to the RS485 accessory.

5.2.3   POSSIBLE FORMS OF CONNECTION

Figure 5.13 illustrates the possible ways to connect the MVW-01 to the Drive Scan.
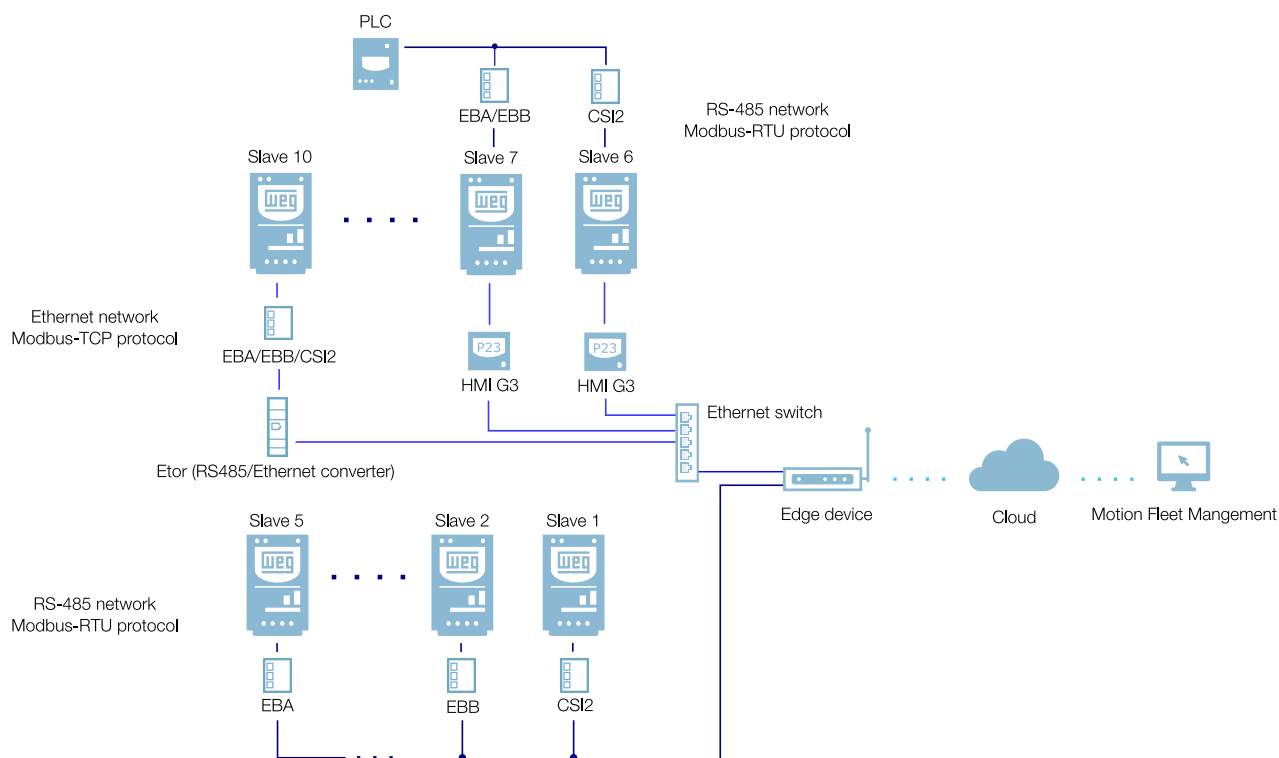
Figure 5.13: *Possible connections with the MVW-01*

⚠ **WARNING!**
The Drive Scan can only be connected to the internet using the Ethernet port GbE0 if it does not have a proxy.

5.2.4 MONITORING

The Drive Scan continuously monitors the MVW-01 parameters specified in Section 5.2.4.1 Cyclically Monitored Attributes by the MVW-01 on page 5-9 .
After a cycle of all these readings, as well as of the other assets connected to the Drive Scan, a new reading cycle starts automatically.

The parameters read are transformed into attributes, which can be:

- Only at initialization;
- Last value read;
- Average value;
- Minimum value;
- Maximum value.

Every 5 minutes, the Drive Scan publishes the attributes to the WEG Fleet Management platform.
In case of an internet connection failure, the Drive Scan stores the data for up to 30 days in the internal memory, publishing it to the MFM when the connection is reestablished.

5.2.4.1 Cyclically Monitored Attributes by the MVW-01

Parâmetro	Descrição	Atributo	Tipo de aquisição	Classe
P0202	Control type	controlType	Inicialização	identification
P0295	Inverter rated current	inverterRatedCurrent	Inicialização	
P0296	Inverter rated voltage	inverterRatedVoltage	Inicialização	
P0401	Motor rated current	motorRatedCurrent	Inicialização	
P0402	Motor rated speed	motorRatedSpeed	Inicialização	
P0400	Motor rated voltage	motorRatedVoltage	Inicialização	
P0023	Software version	softwareVersion	Inicialização	
P0297	Switching frequency	switchingFrequency	Inicialização	
P0001	Motor speed reference	motorSpeedReferenceAvg	Valor médio	status
P0097	Status word	statusWord	Último valor	
P0006	VFD Status	vfdStatus	Último valor	
P0043	Enabled hours	enabledHours	Último valor	diagnostic
P0042	Energized hours	energizedHours	Último valor	
P0004	DC link voltage	dcLinkVoltageAvg dcLinkVoltageMin dcLinkVoltageMax	Valor médio Valor mínimo Valor máximo	measurement
P0044	Energy counter	energyCounterAvg	Valor médio	
P0003	Motor current	motorCurrentAvg motorCurrentMin motorCurrentMax	Valor médio Valor mínimo Valor máximo	
P0005	Motor frequency	motorFrequencyAvg motorFrequencyMin motorFrequencyMax	Valor médio Valor mínimo Valor máximo	
P0076	Motor overload	motorOverloadAvg motorOverloadMin motorOverloadMax	Valor médio Valor mínimo Valor máximo	
P0002	Motor speed	motorSpeedAvg	Valor médio	
P0009	Motor torque	motorTorqueAvg motorTorqueMin motorTorqueMax	Valor médio Valor mínimo Valor máximo	
P0007	Motor voltage	motorVoltageAvg motorVoltageMin motorVoltageMax	Valor médio Valor mínimo Valor máximo	
P0010	Output power	outputPowerAvg outputPowerMin outputPowerMax	Valor médio Valor mínimo Valor máximo	
P0022	Control temperature	controlTemperatureAvg	Valor médio	temperature
P0030	Motor temperature 1	motorTemperature1Avg	Valor médio	
P0031	Motor temperature 2	motorTemperature2Avg	Valor médio	
P0032	Motor temperature 3	motorTemperature3Avg	Valor médio	
P0033	Motor temperature 4	motorTemperature4Avg	Valor médio	
P0034	Motor temperature 5	motorTemperature5Avg	Valor médio	
P0035	Motor temperature 6	motorTemperature6Avg	Valor médio	
P0036	Motor temperature 7	motorTemperature7Avg	Valor médio	
P0037	Motor temperature 8	motorTemperature8Avg	Valor médio	
P0055	Phase U temperature	phaseUTemperatureAvg	Valor médio	
P0056	Phase V temperature	phaseVTemperatureAvg	Valor médio	
P0057	Phase W temperature	phaseWTemperatureAvg	Valor médio	
P0059	Rectifier temperature	rectifierTemperatureAvg	Valor médio	
P0018	Analog input 1	analogInput1	Último valor	io
P0019	Analog input 2	analogInput2	Último valor	
P0020	Analog input 3	analogInput3	Último valor	
P0021	Analog input 4	analogInput4	Último valor	
P0028	Analog input 5	analogInput5	Último valor	
P0012	Digital inputs	digitalInputs	Último valor	
P0013	Digital outputs	digitalOutputs	Último valor	

5

5.3 MVW3000 FREQUENCY INVERTER

5.3.1 RS-485

To connect the MVW3000 to the Drive Scan via the RS-485 communication interface using the Modbus-RTU protocol, it is necessary to install on the CFW100 the accessory listed in Table 5.3. The accessories can be installed in any firmware version of the device.

Refer to the Optional Acessories and Boards section from the MVW3000 User's Manual, which can be obtained from the download center at www.weg.net, for additional information.

Table 5.3: RS-485 hardware accessories of the MVW3000 compatible with Modbus RTU protocol

Accessory	WEG Item	Parameters	Connector	Signal
EBA.01-A1	10056494		10	RS-485 reference
EBA.02-A2	10203411		11	RS-485 A-LINE (-)
		Table 5.4	12	RS-485 B-LINE (+)
EBB.01 B1	10432096			
EBB.03 B3	10056495			
CSI2	15423438	Table 5.4	Terminal 1	RS-485 A-LINE (+)
			Terminal 2	RS-485 B-LINE (-)
			Terminal 3	RS-485 reference

The connections between MVW3000, EBA, EBB and CSI2 to establish a RS-485 serial communication with the Drive Scan are illustred in Figure 5.14.
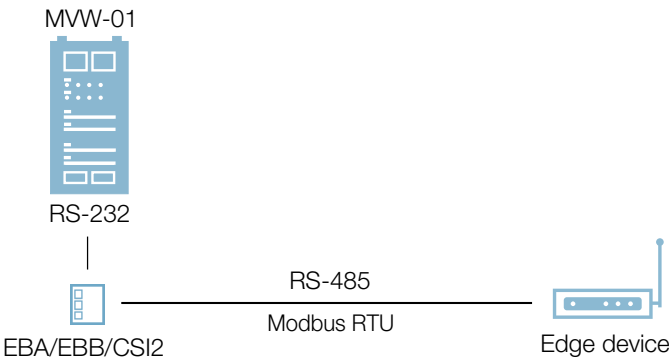

Figure 5.14: RS-485 connection between MVW3000, accessories and Drive Scan

Table 5.4: EBA.01, EBA.02, EBB.01, EBB.03 e CSI2 accessories related parameters

Parâmetro	Descrição	Values range
P0308	Serial address	1 a 30

Table 5.4: EBA.01, EBA.02, EBB.01, EBB.03 e CSI2 accessories related parameters

Parâmetro	Descrição	Values range
P0312	Serial protocol type	0 = WEG protocol 1 = Modbus-RTU, 9600 bps, no parity 2 = Modbus-RTU, 9600 bps, Odd parity 3 = Modbus-RTU, 9600 bps, Even parity 4 = Modbus-RTU, 19200 bps, no parity 5 = Modbus-RTU, 19200 bps, Odd parity 6 = Modbus-RTU, 19200 bps, Odd parity 7 = Modbus-RTU, 19200 bps, Odd parity 8 = Modbus-RTU, 19200 bps, Odd parity 9 = Modbus-RTU, 19200 bps, Odd parity 10 = Modbus-RTU, 19200 bps, Odd parity 11 = Modbus-RTU, 19200 bps, Odd parity 12 = Modbus-RTU, 19200 bps, Odd parity 13 = Modbus-RTU, 19200 bps, Odd parity
P0313	Communication error action	0 = Run/Stop 1 = General enable 2 = Inactive 3 = Go to local 4 = No function 5 = Fatal failure
P0314	Serial watchdog	0,0 a 999,0 s

5.3.2   ETHERNET

To connect to the Drive Scan via Ethernet GbE1 communication interface, using the Modbus TCP protocol, it is necessary to install on the MVW3000 one of the accessories listed below.

- HMI Ethernet port (Only in G3 model);

- Gateway Ethernet/Serial WEG RS485-ETH-N (Etor 4).

5.3.2.1   HMI G3

To connect the MVW3000 with the Drive Scan using the HMI G3 ethernet port, a direct connection with an Ethernet cable between both devices is needed. The communication is illustred in Figure 5.15.

> ⚠️ **WARNING!**
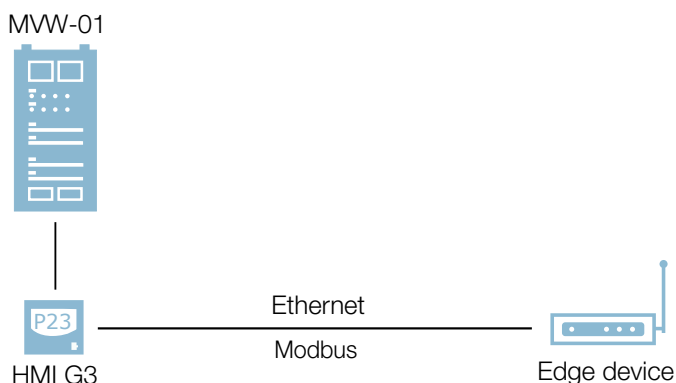> The HMI G3 is compatible with MVW3000 with v3.0 firmware version onwards.

Figure 5.15: Ethernet communication with HMI G3

To configure the Ethernet communication on the MVW HMI G3, just click on "Settings", access the "Communication Settings" tab and, finally, access the "Ethernet" tab. The IP address configured on the HMI must be in the same range as the IP address configured for the Drive Scan Modbus. The Figure 5.16 illustrates the Ethernet configuration in which the HMI and Gateway IP's (Drive Scan) are configured for the range 192.168.1.xxx.

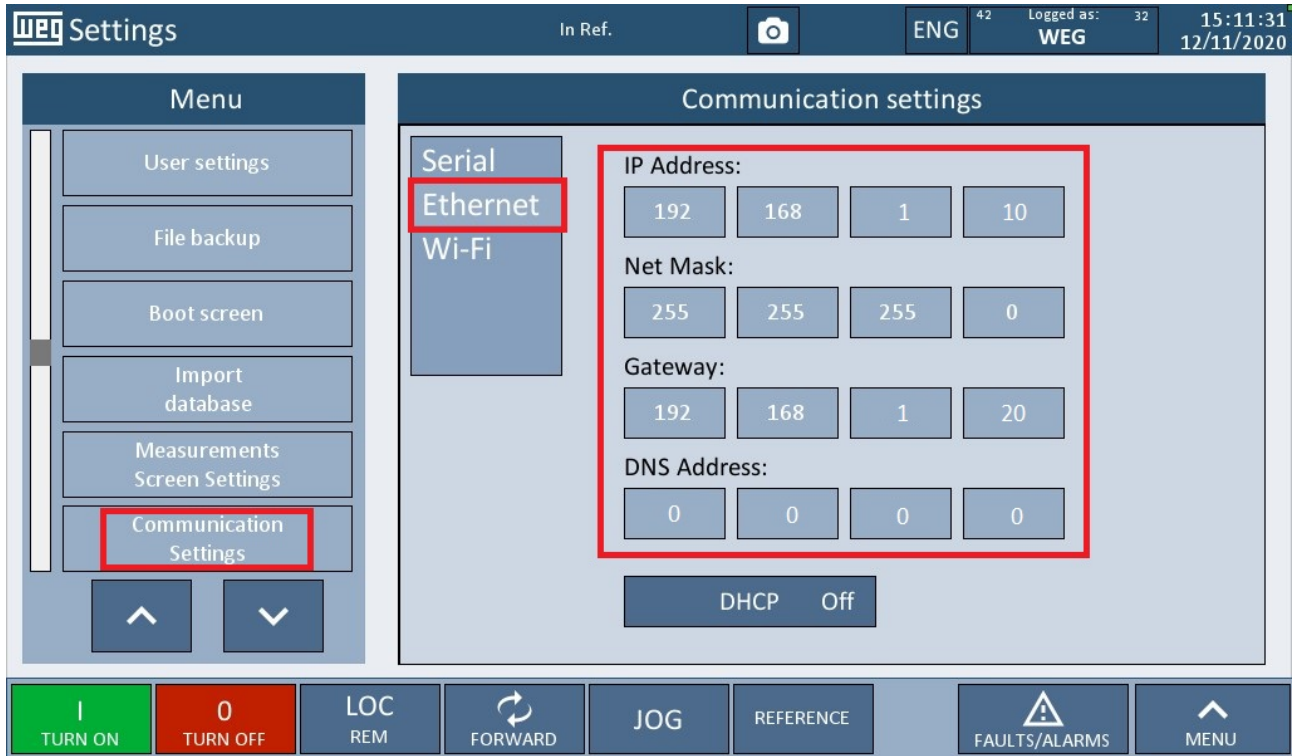**Figure 5.16:** *Ethernet configuration in the HMI G3*

5.3.2.2 Etor 4

To use the WEG RS485-ETH-N (or Etor 4) converter and establish a communication between the MVW3000 and Drive Scan it is necessary to setup the converter with the WEG Gateway Master software. The Etor can be seen in Figure 5.17. The converter is compatible with any MVW3000 firmware version. All manuals and softwares are available to download on WEG download center (www.weg.net).
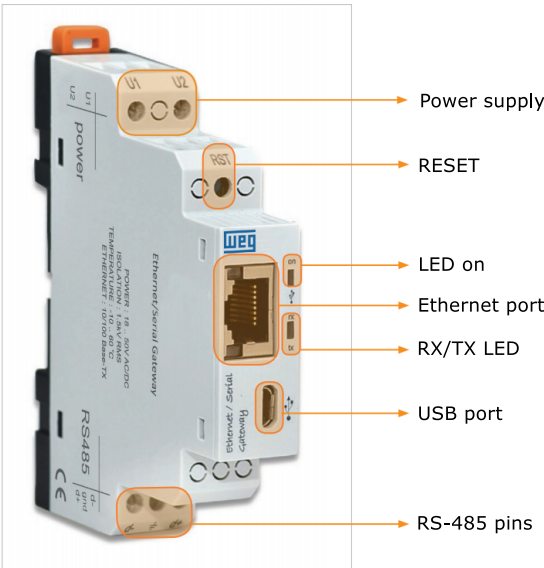

Figure 5.17: *Ethernet/Serial WEG RS485-ETH-N converter*

After the Gateway Master installation, start it.

To begin the setup an USB cable is necessary to connect the converter with the computer. Then, it is necessary to choose the device to be configured (Etor, in this case). The Etor converter is the first item on the left of the window (Figure 5.18).
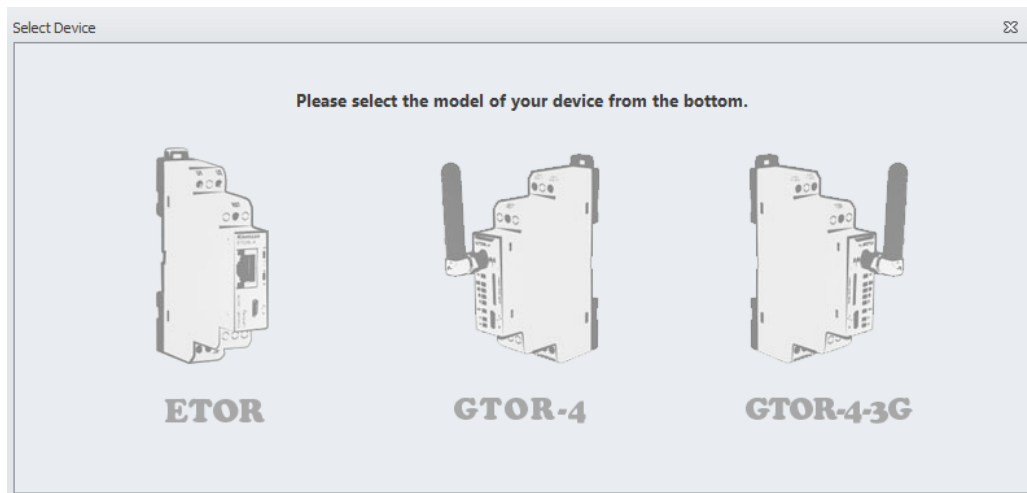

Figure 5.18: Selecting the device to setup in Gateway Master

In the next step, it's necessary to select the connector type used to make the configurations. In this case, it's the USB cable (Figure 5.19).
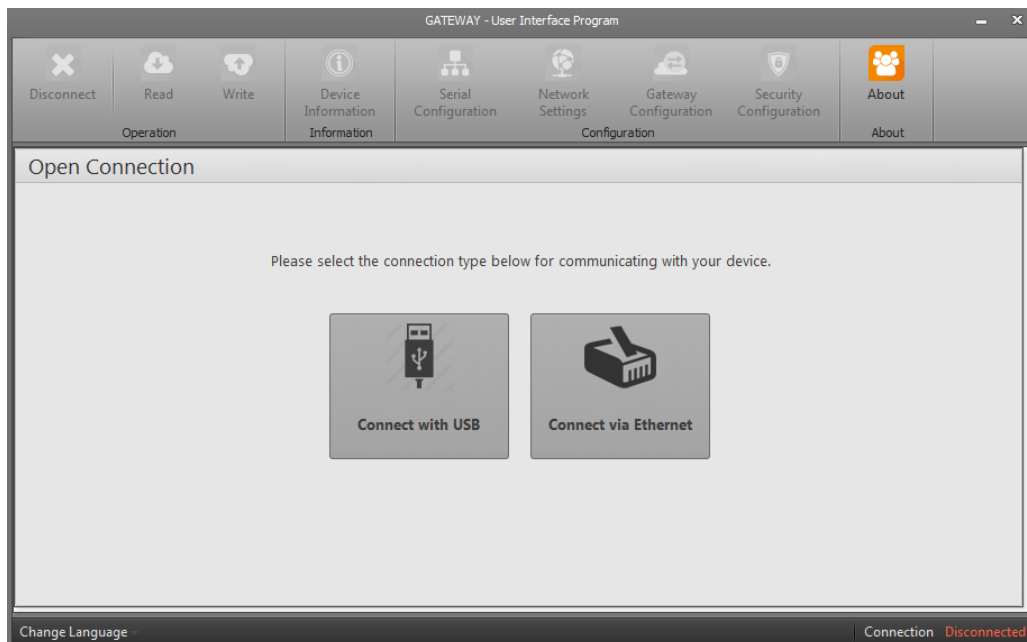

Figure 5.19: Selecting the connector in Gateway Master

Then, the user has to select the Port in which the USB cable is connected (Figure 5.20).
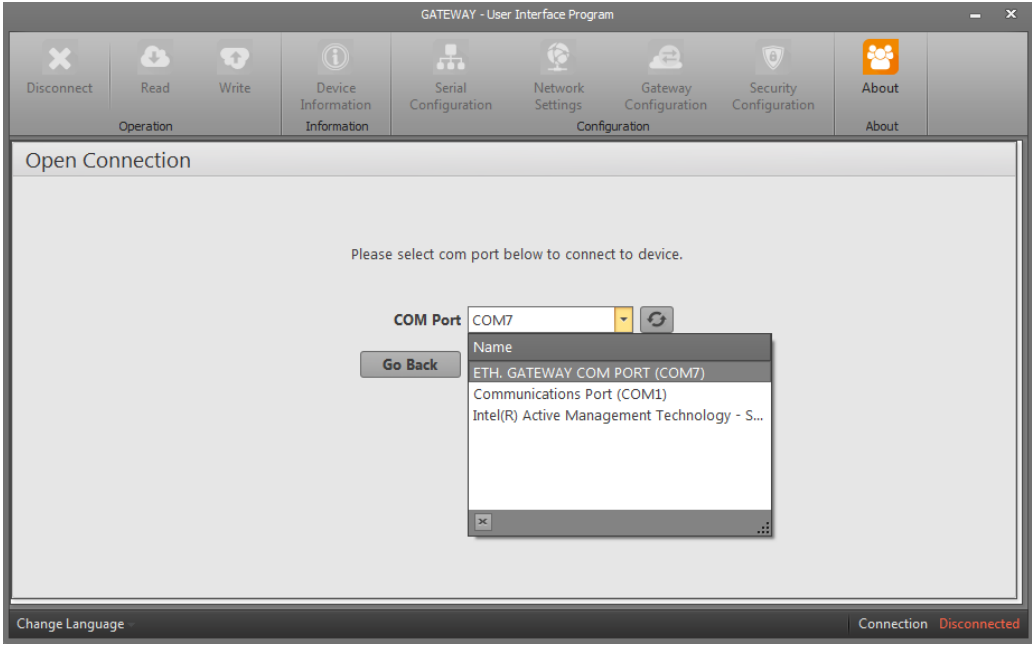
Figure 5.20: Selecting the USB port in Gateway Master

In the next step, access the "Serial Confguration", and setup the serial parameters such as baud rate, parity and stop bits according to the parameters configured on the MVW3000 (Figure 5.21).

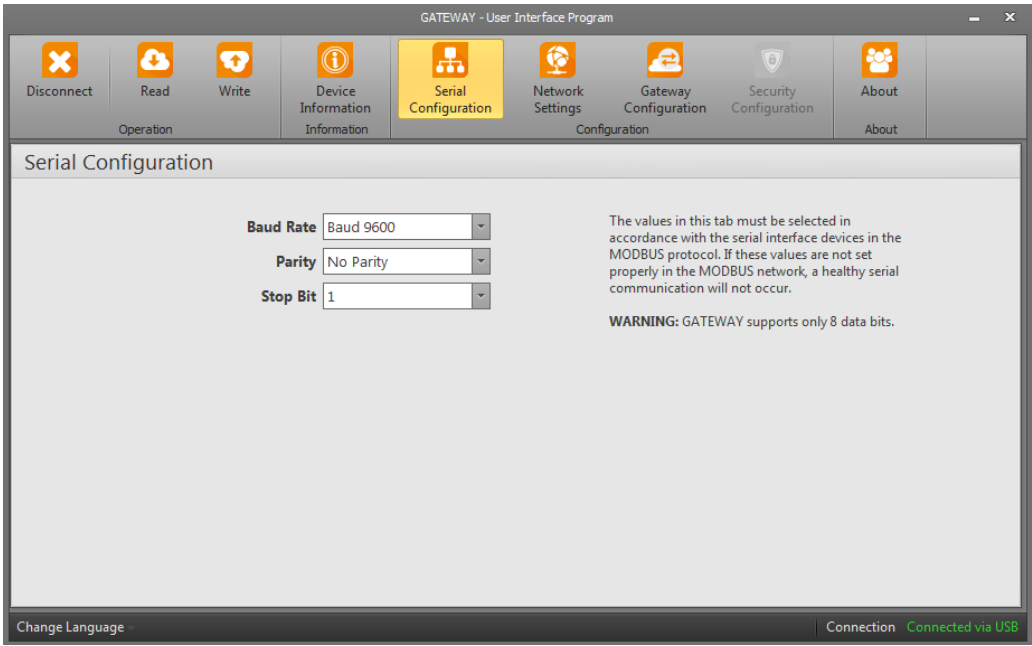*Figure 5.21: Serial parameters configuration in Gateway Master*

Then, enter the "Network Settings" page, to configure the Ethernet interface parameters. The gateway IP address must be in the same range of the Drive Scan IP address (Figure 5.22).
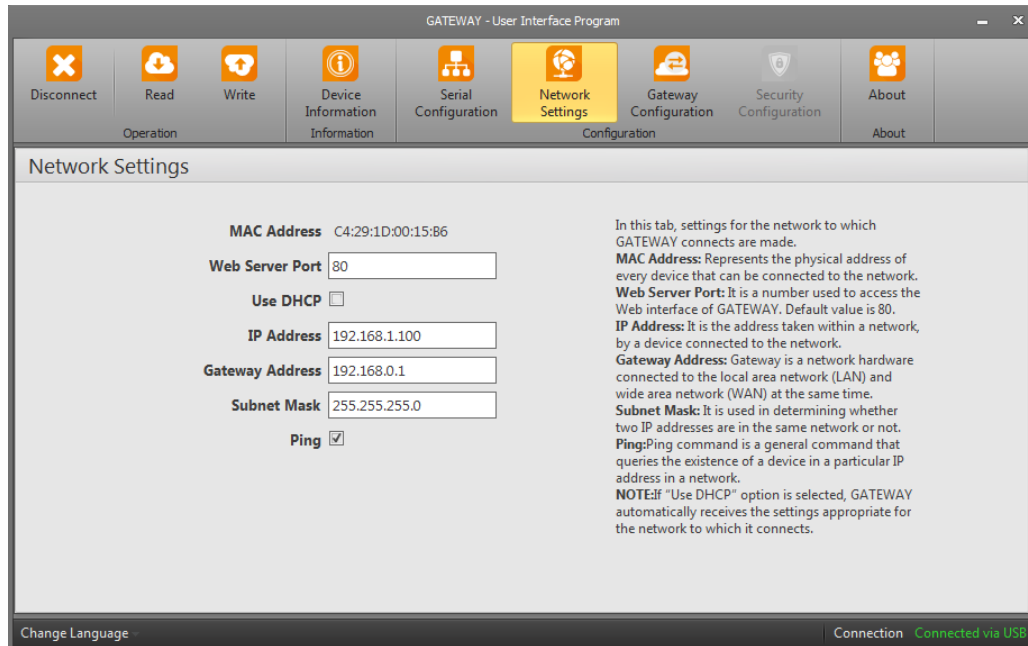
Figure 5.22: Ethernet setup in Gateway Master

For the last step, enter the "Gateway Configuration" page, setup the Etor as "Server", by clicking on "Server" button (Figure 5.23).
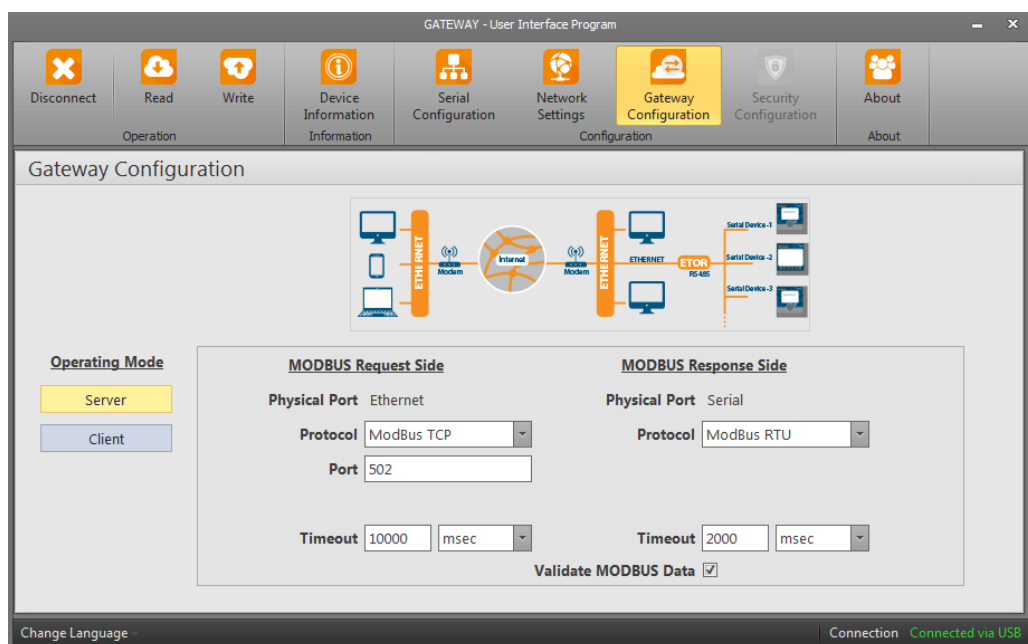
Figure 5.23: Configuring the Etor converter as Server in Gateway Master

After the configurations it's possible to establish a connection between the MVW3000, Etor and Drive Scan. For that, it is necessary to connect one of the RS485 communication accessories (EBA, EBB or CSI2) to the drive.

Then, the RS485 accessory output signals must be connected to the Etor RS485 pins (GND, + and -).

So, you can connect the Etor to the Drive Scan using an Ethernet cable.

It's also necessary to supply the Etor with a 18V to 50VDC voltage range. The Figure 5.24 illustrates all the connections between MVW3000, Etor and Drive Scan.
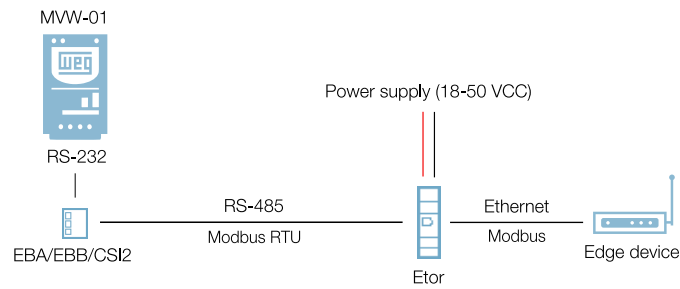
Figure 5.24: *Connections between MVW3000, Etor and Drive Scan*

The ethernet interface communication parameters used to setup the Etor are analogous to those listed in Table 5.4.

It's also important to observe the following setting:

- Maximum number of simultaneous clients connected to the RS485 accessory.

5.3.3 POSSIBLE FORMS OF CONNECTION

Figure 5.25 illustrates the possible ways to connect the MVW3000 to the Drive Scan.

Figure 5.25: *Possible connections with the MVW3000*

> ⚠️ **WARNING!**
> The Drive Scan can only be connected to the internet using the Ethernet port GbE0 if it does not have a proxy.

5.3.4 MONITORING

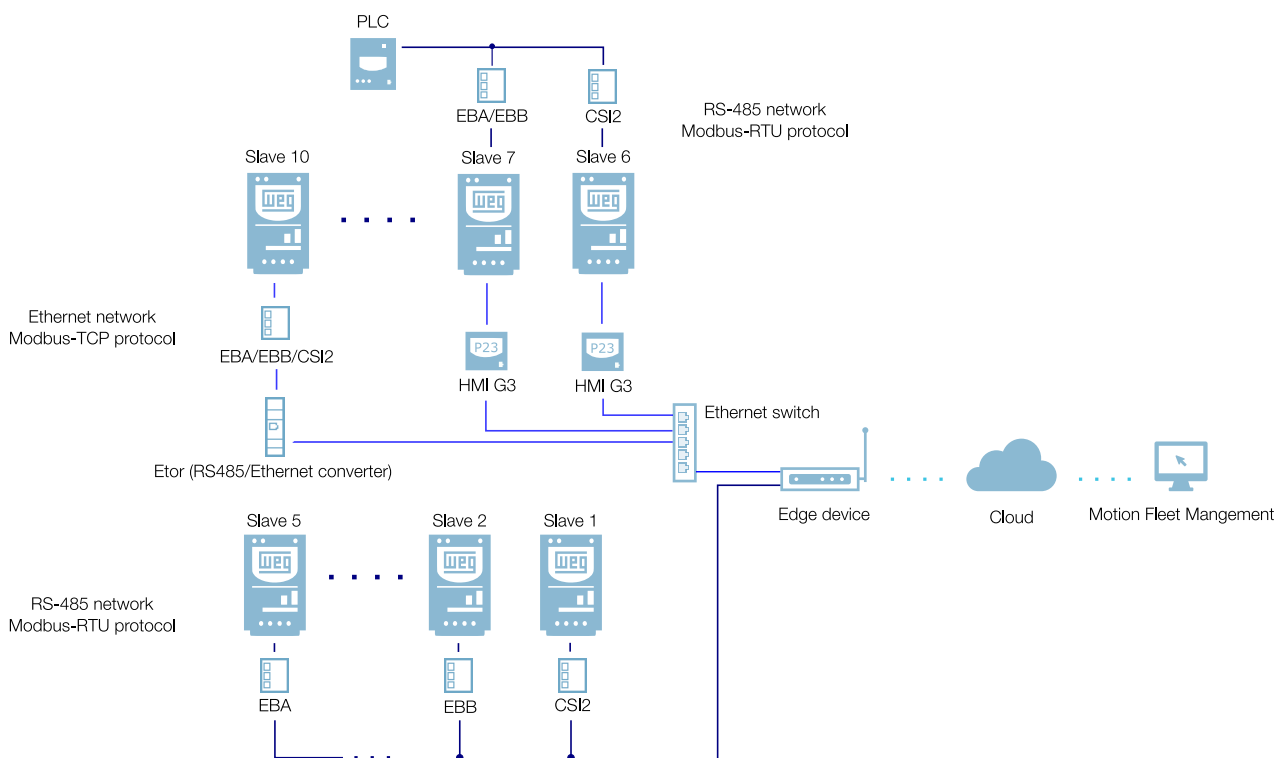The Drive Scan continuously monitors the MVW3000 parameters specified in Section 5.3.4.1 Cyclically Monitored Attributes by the MVW3000 on page 5-18 .
After a cycle of all these readings, as well as of the other assets connected to the Drive Scan, a new reading cycle starts automatically.

The parameters read are transformed into attributes, which can be:

- Only at initialization;
- Last value read;
- Average value;
- Minimum value;
- Maximum value.

Every 5 minutes, the Drive Scan publishes the attributes to the WEG Fleet Management platform.
In case of an internet connection failure, the Drive Scan stores the data for up to 30 days in the internal memory, publishing it to the MFM when the connection is reestablished.

5

5.3.4.1 Cyclically Monitored Attributes by the MVW3000

Parâmetro	Descrição	Atributo	Tipo de aquisição	Classe
P0202	Control type	controlType	Inicialização	identification
P0295	Inverter rated current	inverterRatedCurrent	Inicialização	
P0296	Inverter rated voltage	inverterRatedVoltage	Inicialização	
P0401	Motor rated current	motorRatedCurrent	Inicialização	
P0402	Motor rated speed	motorRatedSpeed	Inicialização	
P0400	Motor rated voltage	motorRatedVoltage	Inicialização	
P0023	Software version	softwareVersion	Inicialização	
P0297	Switching frequency	switchingFrequency	Inicialização	
P0001	Motor speed reference	motorSpeedReferenceAvg	Valor médio	status
P0097	Status word	statusWord	Último valor	
P0006	VFD Status	vfdStatus	Último valor	
P0043	Enabled hours	enabledHours	Último valor	diagnostic
P0042	Energized hours	energizedHours	Último valor	
P0004	DC link voltage	dcLinkVoltageAvg dcLinkVoltageMin dcLinkVoltageMax	Valor médio Valor mínimo Valor máximo	measurement
P0044	Energy counter	energyCounterAvg	Valor médio	
P0003	Motor current	motorCurrentAvg motorCurrentMin motorCurrentMax	Valor médio Valor mínimo Valor máximo	
P0005	Motor frequency	motorFrequencyAvg motorFrequencyMin motorFrequencyMax	Valor médio Valor mínimo Valor máximo	
P0076	Motor overload	motorOverloadAvg motorOverloadMin motorOverloadMax	Valor médio Valor mínimo Valor máximo	
P0002	Motor speed	motorSpeedAvg	Valor médio	
P0009	Motor torque	motorTorqueAvg motorTorqueMin motorTorqueMax	Valor médio Valor mínimo Valor máximo	
P0007	Motor voltage	motorVoltageAvg motorVoltageMin motorVoltageMax	Valor médio Valor mínimo Valor máximo	
P0010	Output power	outputPowerAvg outputPowerMin outputPowerMax	Valor médio Valor mínimo Valor máximo	
P0022	Control temperature	controlTemperatureAvg	Valor médio	temperature
P0030	Motor temperature 1	motorTemperature1Avg	Valor médio	
P0031	Motor temperature 2	motorTemperature2Avg	Valor médio	
P0032	Motor temperature 3	motorTemperature3Avg	Valor médio	
P0033	Motor temperature 4	motorTemperature4Avg	Valor médio	
P0034	Motor temperature 5	motorTemperature5Avg	Valor médio	
P0035	Motor temperature 6	motorTemperature6Avg	Valor médio	
P0036	Motor temperature 7	motorTemperature7Avg	Valor médio	
P0037	Motor temperature 8	motorTemperature8Avg	Valor médio	
P0055	Phase U temperature	phaseUTemperatureAvg	Valor médio	
P0056	Phase V temperature	phaseVTemperatureAvg	Valor médio	
P0057	Phase W temperature	phaseWTemperatureAvg	Valor médio	
P0059	Rectifier temperature	rectifierTemperatureAvg	Valor médio	
P0018	Analog input 1	analogInput1	Último valor	io
P0019	Analog input 2	analogInput2	Último valor	
P0020	Analog input 3	analogInput3	Último valor	
P0021	Analog input 4	analogInput4	Último valor	
P0028	Analog input 5	analogInput5	Último valor	
P0012	Digital inputs	digitalInputs	Último valor	
P0013	Digital outputs	digitalOutputs	Último valor	

5.4   SOFT-STARTER SSW7000

5.4.1   RS-485

To connect the CFW11 to the Drive Scan via the RS-485 communication interface using the Modbus-RTU protocol, it is necessary to install on the CFW11 one of the accessories listed in Table 5.5.

Os acessórios podem ser utilizados em qualquer versão de firmware do SSW7000.

WEG's download center, which can be accessed at www.weg.net, is a channel that provides a wide range of documents about WEG equipment and accessories, as well as installation guides.

Table 5.5: RS-485 hardware accessories of the SSW7000 compatible with Modbus RTU protocol

Accessory		Item WEG	Parameter	Pin	Signal
RS485-01		11008102	Table 5.6	1	RxD/TxD negative
				2	RxD/TxD positive
				3	GND (isolated)
RS485-05		11008161		5	GND (isolated)
				8	RxD/TxD positive
				9	RxD/TxD negative

Table 5.6: Parameters related to the RS485-01 e RS485-05 accessories

Parameter	Description	Values range
P0308	Serial address	1 a 247
P0310	Serial baud rate	0 = 9600 bps 1 = 19200 bps 2 = 38400 bps 3 = 57600 bps
P0311	Serial interface byte configuration	0 = 8 bits, no parity, 1 stop bit 1 = 8 bits, even parity, 1 stop bit 2 = 8 bits, odd parity, 1 stop bit 3 = 8 bits, no parity, 2 stop bits 4 = 8 bits, even parity, 2 stop bits 5 = 8 bits, odd parity, 2 stop bits
P0312	Serial protocol	2 = Modbus RTU
P0313	Action for communication error	0 = Inactive 1 = Ramp stop 2 = General disable 3 = Go to LOCAL 4 = LOCAL holds enabled 5 = Fault cause
P0314	Serial Watchdog	0,0 a 999,0 s
P0316	Serial interface status	0 = Inactive 1 = Active 2 = Watchdog error

5.4.2   ETHERNET

To connect to the Drive Scan via Ethernet GbE1 communication interface using the Modbus TCP protocol, it is necessary to install on the CFW11 one of the accessories listed in Table 5.7.
It is also important to observe the following settings in the table:

- The maximum number of clients connected simultaneously to the accessory;
- The minimum Drive Scan version compatible the with the SSW7000 firmware.

For additional information, see the document "Anybus-CC Communication Modules" of the SSW7000, which can be found in the download center at the website www.weg.net by searching for the keyword "anybus-cc".

Table 5.7: Ethernet hardware accessories of the SSW7000 compatible with the Modbus TCP protocol

Accessory		WEG item	Modbus TCP clients	SSW7000 Firmware	Parameters
MODBUSTCP-05 (1 or 2 ports)		11550476 (1P) 14033951 (2P)	up to 2	≥ V1.80	Table 5.8
ETHERNETIP-05 (1 or 2 ports)		10933688 (1P) 12272760 (2P)	up to 4		
PROFINETIO-05		11550548	up to 2		

Table 5.8: Parameters related to the MODBUSTCP-05, ETHERNETIP-05 and PROFINETIO-05 accessories

Parameter	Description	Values range
P0723	Anybus identification	0 = Inactive 10 = RS485 19 = EtherNet/IP 21 = Modbus TCP 23 = PROFINET IO Other = Not compatible with Drive Scan
P0724	Anybus communication status	0 = Inactive 1 = Not supported 2 = Access error 3 = Offline 4 = Online
P0725	Anybus address	0 a 255
P0760	Anybus status	0 = Setup 1 = Init 2 = Wait Comm 3 = Idle 4 = Data Active 5 = Error 6 = Reserved 7 = Exception 8 = Access Error
P0761	Ethernet baud rate	0 = Auto 1 = 10 Mbps, half duplex 2 = 10 Mbps, full duplex 3 = 100 Mbps, half duplex 4 = 100 Mbps, full duplex
P0762	Modbus TCP timeout	0 a 655 s
P0763	IP address configuration	0 = Parameters 1 = DHCP 2 = DCP 3 = IPconfig
P0764	IP1 address	0 a 255
P0765	IP2 address	0 a 255
P0766	IP3 address	0 a 255
P0767	IP4 address	0 a 255

Table 5.8: Parameters related to the MODBUSTCP-05, ETHERNETIP-05 and PROFINETIO-05 accessories

Parameter	Description	Values range	
P0768	CIDR (subnet mask)	0 = Reserved 1 = 128.0.0.0 2 = 192.0.0.0 3 = 224.0.0.0 4 = 240.0.0.0 5 = 248.0.0.0 6 = 252.0.0.0 7 = 254.0.0.0 8 = 255.0.0.0 9 = 255.128.0.0 10 = 255.192.0.0 11 = 255.224.0.0 12 = 255.240.0.0 13 = 255.248.0.0 14 = 255.252.0.0 15 = 255.254.0.0	16 = 255.255.0.0 17 = 255.255.128.0 18 = 255.255.192.0 19 = 255.255.224.0 20 = 255.255.240.0 21 = 255.255.248.0 22 = 255.255.252.0 23 = 255.255.254.0 24 = 255.255.255.0 25 = 255.255.255.128 26 = 255.255.255.192 27 = 255.255.255.224 28 = 255.255.255.240 29 = 255.255.255.248 30 = 255.255.255.252 31 = 255.255.255.254
P0769	Gateway 1	0 a 255	
P0770	Gateway 2	0 a 255	
P0771	Gateway 3	0 a 255	
P0772	Gateway 4	0 a 255	

Figure 5.26 illustrates an Ethernet network among the SSW7000 using all the communication modules.
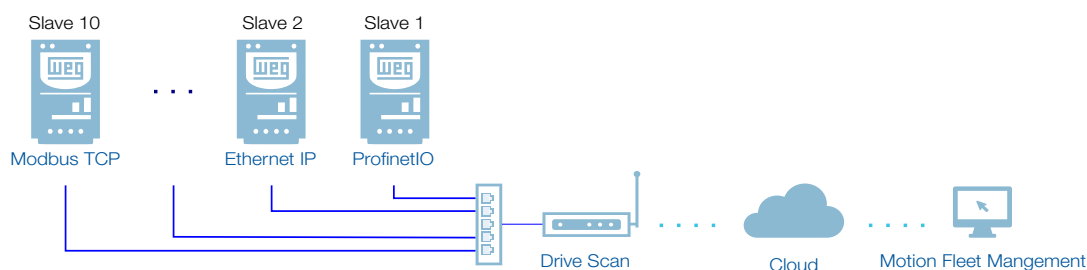

Figure 5.26: Ethernet network among SSW7000 and a Drive Scan

Note that to establish a network with more than one SSW7000, it is necessary to use a switch. It is important to remember that the inverters in an Ethernet network must have different IP values.

5.4.3   POSSIBLE FORMS OF CONNECTIONS

Figure 5.27 illustrates the possible ways to connect the SSW7000 to the Drive Scan.
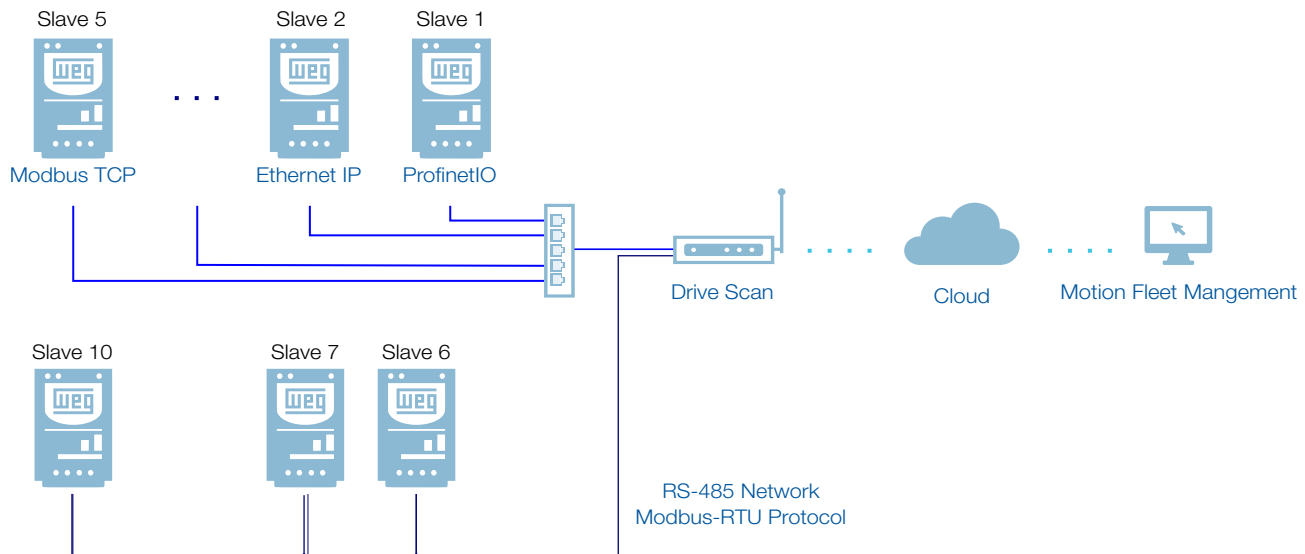
Slave 5 — Modbus TCP
Slave 2 — Ethernet IP
Slave 1 — ProfinetIO

Slave 10
Slave 7
Slave 6

Drive Scan
Cloud
Motion Fleet Mangement

RS-485 Network
Modbus-RTU Protocol

Figure 5.27: Possible connections with the CFW11

⚠️ **WARNING!**
The Drive Scan can only be connected to the internet using the Ethernet port GbE0 if the network does not have a proxy.

5.4.4 MONITORING

The Drive Scan continuously monitors the SSW7000 parameters specified in .
After a cycle of all those readings, as well as of the other assets connected to the Drive Scan, a new reading cycle starts automatically.

The parameters read are transformed into attributes, which can be:

- Only at initialization;
- Last value read;
- Average value;
- Minimum value;
- Maximum value.

Every 5 minutes, the Drive Scan publishes the attributes to the WEG Fleet Management platform.
In case of an internet connection failure, the Drive Scan stores the data for up to 30 days in the internal memory, publishing it to the MFM when the connection is reestablished.

5.4.4.1 SSW7000 cyclically monitored attributes

Parâmetro	Descrição	Atributo	Tipo de aquisição	Classe
P0202	Control type	controlType	Inicialização	identification
P0295	Inverter rated current	inverterRatedCurrent	Inicialização	
P0296	Inverter rated voltage	inverterRatedVoltage	Inicialização	
P0401	Motor rated current	motorRatedCurrent	Inicialização	
P0402	Motor rated speed	motorRatedSpeed	Inicialização	
P0400	Motor rated voltage	motorRatedVoltage	Inicialização	
P0099	Software Version C2	softwareVersion2	Inicialização	
P0023	Software version	softwareVersion	Inicialização	
P0006	SSW7000 Status	vfdStatus	Último valor	status
P0680	Status Word	statusWord	Último valor	
P0042	Enabled Hours	enabledHours	Último valor	diagnostic
P0043	Enabled Time	enabledTime	Último valor	
P0044	Energy Counter	energyCounter	Último valor	
P0046	Fan Hours Enabled	fanHours	Último valor	
P0047	Max Start Current	maxStartCurrent	Último valor	
P0050	Thermal State	thermalState	Último valor	
P0020	Present fault	presentFault	Último valor	
P0021	Present alarm	presentAlarm	Último valor	
P0003	Motor current	motorCurrent	Valor médio	measurement
P0004	Line Voltage	lineVoltage	Valor médio	
P0007	Output Voltage	motorVoltage	Valor médio	
P0008	Power Factor	powerFactor	Valor médio	
P0009	Motor torque	motorTorque	Valor médio	
P0011	Apparent Power	apparentPower	Valor médio	
P0037	Motor overload	motorOverloadAvg	Valor médio	
P0073	Control voltage	controlVoltage	Valor médio	
P0074	Control voltage 2	controlVoltage2	Valor médio	
P0059	Starts Number	startsNumber	Último valor	
P0102	Max Start Time	maxStartTime	Último valor	
P0030	Current Phase R	phaseCurrentR	Valor médio	
P0031	Current Phase S	phaseCurrentS	Valor médio	
P0032	Current Phase T	phaseCurrentT	Valor médio	
P0033	Line Voltage RS	lineVoltageRs	Valor médio	
P0034	Line Voltage ST	lineVoltageSt	Valor médio	
P0035	Line Voltage TR	lineVoltageTr	Valor médio	
P0010	Output power	outputPower	Valor médio	
P0062	SCR TW temperature	scrTemperatureTw	Valor médio	temperature
P0061	SCR SV temperature	scrTemperatureSv	Valor médio	
P0060	SCR RU temperature	scrTemperatureRu	Valor médio	
P0014	Analog Output 1	analogOutput1	Último valor	io
P0015	Analog Output 2	analogOutput2	Último valor	
P0012	DI6 to DI1 Status	digitalInputs	Último valor	
P0013	DO1 to DO3 Status	digitalOutputs	Último valor	

5

5

6 SETTING THE DRIVE SCAN ON THE MFM

Before starting to make the Drive Scan settings, it is necessary to register all assets that will be monitored through the Drive Scan on the WEG Motion Fleet Management platform (Chapter 3).

The Drive Scan can be connected to the internet and MFM platform by setting and using the Drive Scan Wi-Fi antenna or by connecting a network cable to the GbE0 ethernet port.

For the Drive Scan configuration, follow the instructions below:

Step 1 (via Ethernet)   Connect an Ethernet cable between the computer and the Drive Scan GbE0 port (located next to the power supply connector), as shown in Figure 6.1.

Figure 6.1: *Preparing for the Drive Scan configuration*

6

**Step 1
(via Wi-Fi
AP)**

With Drive Scan turned on and nearby, access the list of available Wireless devices (Windows), as per Figure 6.2. In the case illustrated as an example, the Drive Scan access point has the network named "Drive Scan - 28:0F:76".

Click on "Connect".
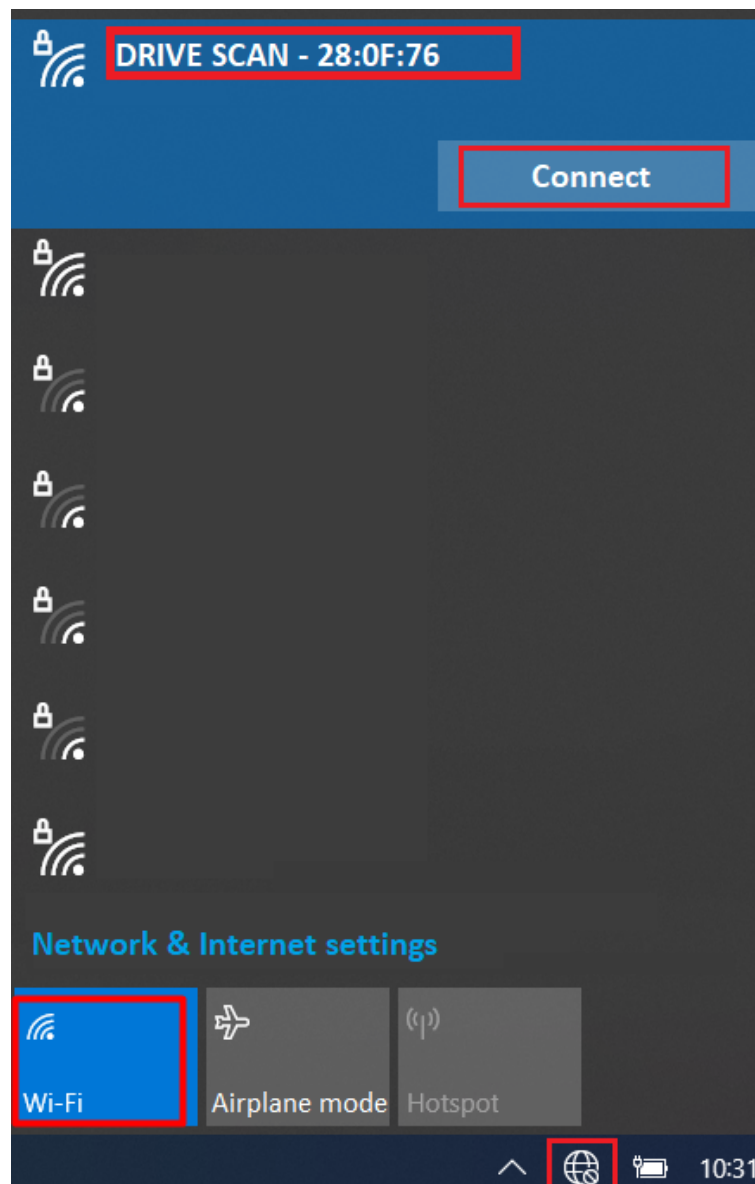
Figure 6.2: *Preparing for the Drive Scan configuration*

The Wi-Fi password is based on the MAC present on the label located under the Drive Scan. Enter the MAC with lowercase letters and removing the colons.

For example, if the label MAC address is 00:01:C0:28:0F:76, then the Wi-Fi password must be **0001c0280f76**.

**Step 2
(via
Ethernet)**

Open a web browser on your computer.

Enter the default Ethernet IP, **192.168.0.10**, into the address bar, as shown in Figure 6.5.
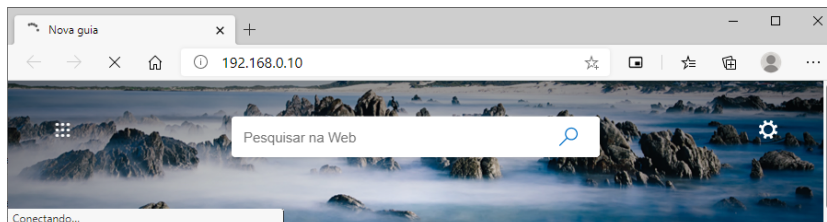
Press the <Enter> key.

Figure 6.3: *Connecting to the Drive Scan via Ethernet*

**Step 2
(via   Wi-Fi
AP)**

Open a web browser on your computer.

Enter the default Wi-Fi IP, **10.10.10.1**, into the address bar, as shown in Figure 6.4.

Press the <Enter> key.
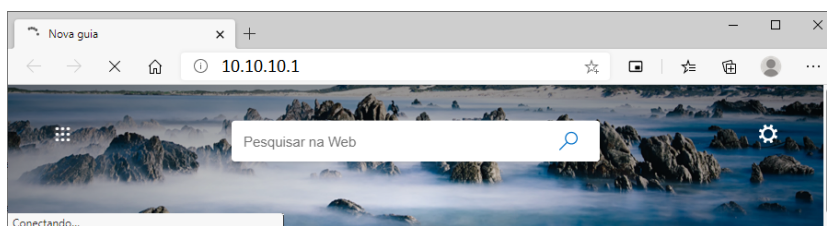
Figure 6.4: *Connecting to the Drive Scan via Wi-Fi*

Step 2

Open a web browser on your computer.

Enter the default IP, **192.168.0.10**, into the address bar, as shown in Figure 6.5.

Press the <Enter> key.
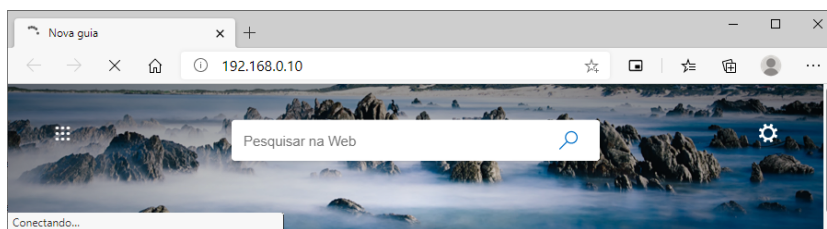
Figure 6.5: *Connecting to the Drive Scan*

Step 3   If you are configuring Drive Scan via Ethernet cable and the login page, shown in Figure 6.6, does not appear, reset your computer IP address to the same IP range as the Drive Scan. This manual has an appendix (Chapter A) with instructions regarding this procedure for Windows 10.

Counterwise, authenticate the Drive Scan, which by default is:
If the login page, shown in Figure 6.6, does not appear, reset your computer IP address to the same IP range as the Drive Scan. This manual has an appendix (Chapter A)) with instructions regarding this procedure for Windows 10.

Authenticate the Drive Scan, which by default is:

- User: **weg**
- Password: **weg**

Click on "Login" button.

Figure 6.6: *Authenticating to the Drive Scan*

Step 4   Click on the "CONFIGURATION" tab, as shown in Figure 6.7.
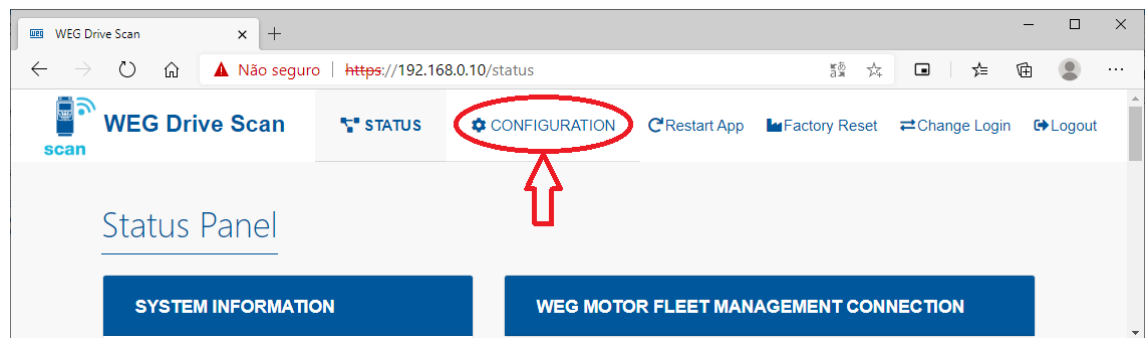
Figure 6.7: *Drive Scan Status*

Step 5   Check the "Internet Status" field. If the status read is:

"Connected": go to **Step 8**; or

"Disconnected": go to **Step 6**, as shown in Figure 6.8.
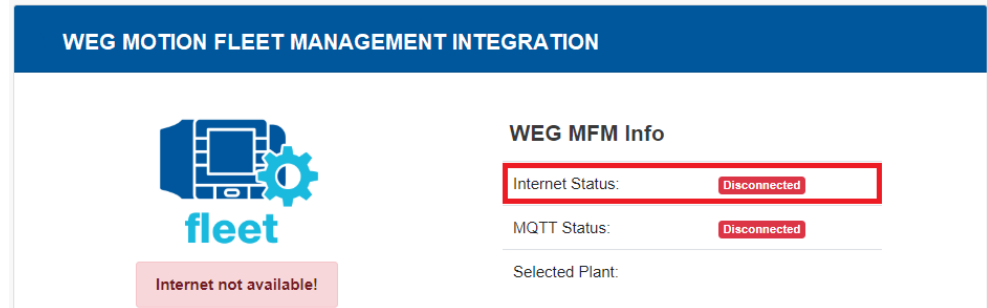
Figure 6.8: *hecking the Drive Scan configuration*

Step 6   Make the settings for the connection to the Wi-Fi internet network, as shown in Figure 6.9:

- SSID (Service Set Identifier): Wi-Fi network name;
- Default Route: enable/disable the use of the default network route for the destination address of IP packets;
- Security: defines the Wi-Fi network access protection mode to be used:
  - – Open network
  - WPA2-PSK
  - WPA2-Enterprise
  - WEP
- EAP Type: defines the network authentication framework to be used:
  - None
  - PEAP-MSCHAPV2
  - PSK
  - PEAP
  - TTLS-MSCHAPV2
- Identity: username to authenticate to the Wi-Fi network
- Password: password or pin to authenticate to the Wi-Fi network
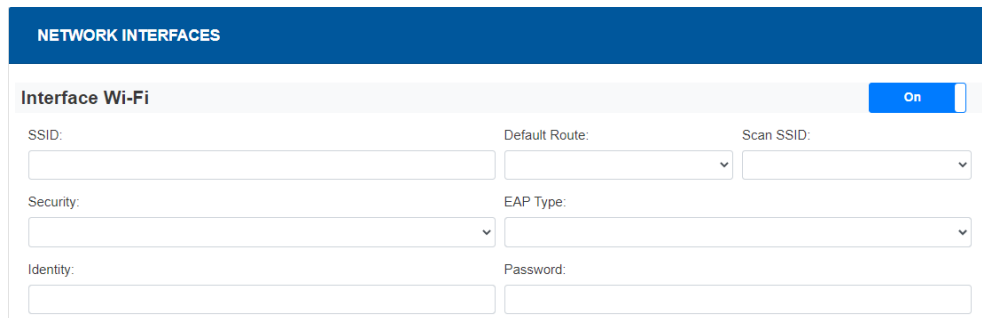
Figure 6.9: *Wi-Fi network internet configuration*

Go to the bottom of the page and click on the "Save Configuration" button (Figure 6.10).

Go to **Step 7**.

If the connection is via ethernet port GbE0 (Figure 6.1) e avance ao **Step 17**.
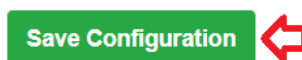
Figure 6.10: *"Save Configuration" button*

Step 7   A pop-up window will inform you that the configuration has been saved, as shown in Figure 6.11.

Then wait for the Drive Scan to restart, as shown in Figure 6.12.

Return to **Step 3**.

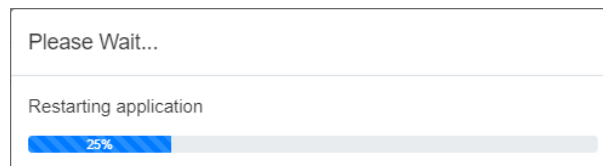
Figure 6.11: *Information about the saving operation*

Figure 6.12: *Drive Scan resetting*

Step 8   The "Internet Status" field should display "Connected".

Check if the fields (Figure 6.13): "MQTT Status" displays "Disconnected" or "Selected Plant" is blank or displays the wrong plant:

- Click on the "Configure WEG MFM" button
- Go to **Step 9**

Otherwise (if the fields above are correct):

- Go to **Step 15**
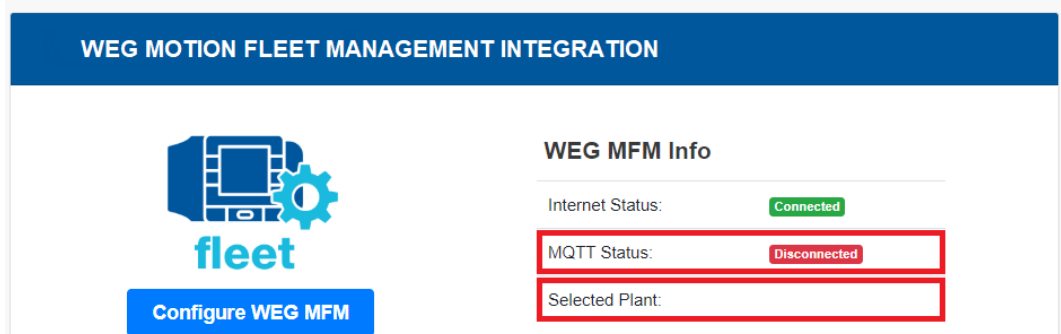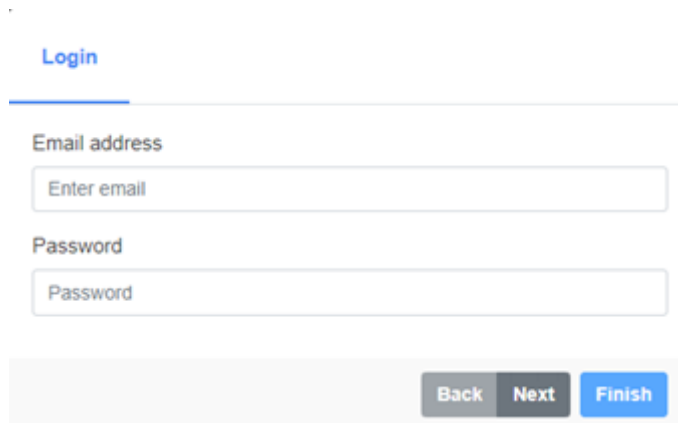
Figure 6.13: *Linking of the Drive Scan to the MFM*

Step 9   Enter your login and password previously registered on the MFM (Chapter 3) and click on "Next", according to Figure 6.14.
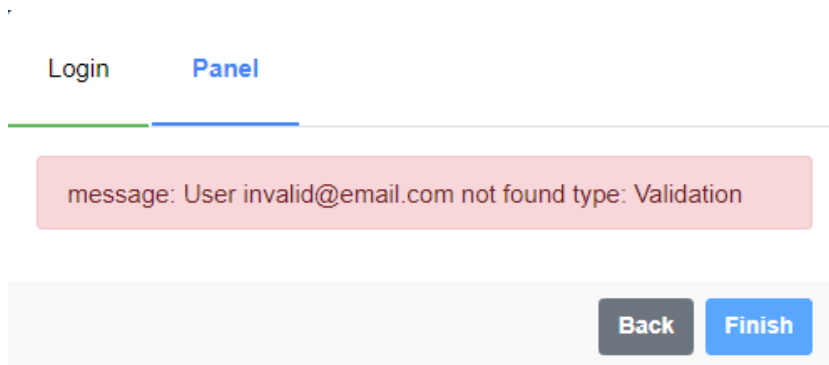

Figure 6.14: MFM Email and password login fields

Step 10   If successful, go to **Step 11**.

In case of failure (Figure 6.15) (wrong login or password), click on the "Back" button and return to **Step 9**.

Figure 6.15: Invalid MFM email or password

Step 11   Drive Scan configuration wizard for the MFM.

Select the task:

  ▪ "Manage Plants": links the Drive Scan to a plant; or
  ▪ "Delete Device": deletes the Drive Scan from the plant.

Clique no botão:

  ▪ "Next":
      – Go to **Step 12** (if "Manage Plants" option - Figure 6.16);
      – Go to **Step 14** (if "Delete Device" option).
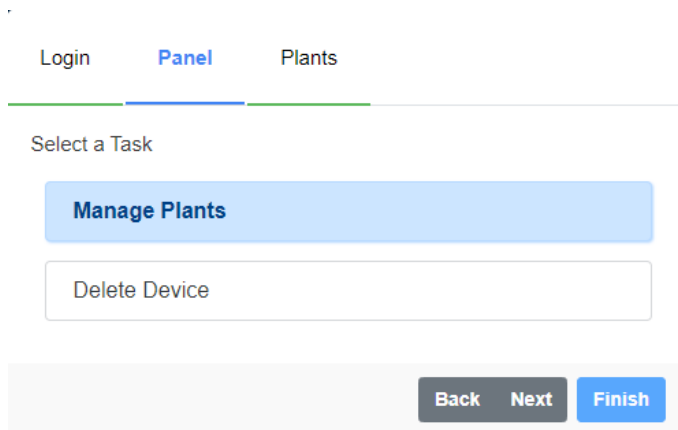 ▪ "Back": return to **Step 9**.

Figure 6.16: *Task selection to the MFM of the Drive Scan*

Step 12 The plants previously registered on the MFM, as per Chapter 2, are displayed.

Select the plant this Drive Scan should be linked to. If no plant is selected, the system will not advance.

Then, select one of the actions for the plant:

- ▪ "Create Device": links the Drive Scan as a new gateway on MFM;
- ▪ "Replace Device": replaces the Drive Scan with another existing gateway on MFM.

Clique no botão:

- ▪ "Next":
  - – Go to **Step 13** (if "Create Device" option - Figure 6.17);
  - – Go to **Step 14** (if "Replace Device" option);
- ▪ "Back": return to **Step 11**.

Figure 6.17: Action on the plant of the Drive Scan MFM

Step 13 Step 13 It is informed that the Drive Scan will be created in the MFM after the configuration is saved, as shown in Figure 6.18.

Click on the button:

- ▪ "Back": return to **Step 12**;
- ▪ "Finish": finishes the wizard and advances to **Step 16**.

Figure 6.18: Information about creating the Drive Scan MFM

Step 14   Confirmation is required to unlink the Drive Scan from the MFM, as shown in Figure 6.19.

Click on the button:

- "Delete": Go to **Step 15**;
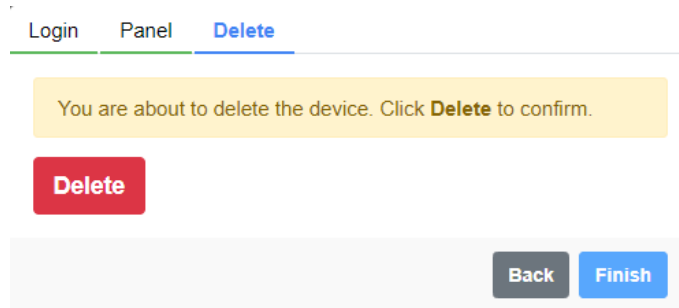- "Back": return to **Step 11**.

Figure 6.19: Screen with information on unlinking the Drive Scan from the MFM

Step 15   If successful, proceed to **Step 16**. If an error message pops up (Figure 6.20), check its content and click on:

- "Back": return to **Step 11**.

If the error persists:

- return to the configuration tab;
- use the Factory Reset option (Figure 6.21);
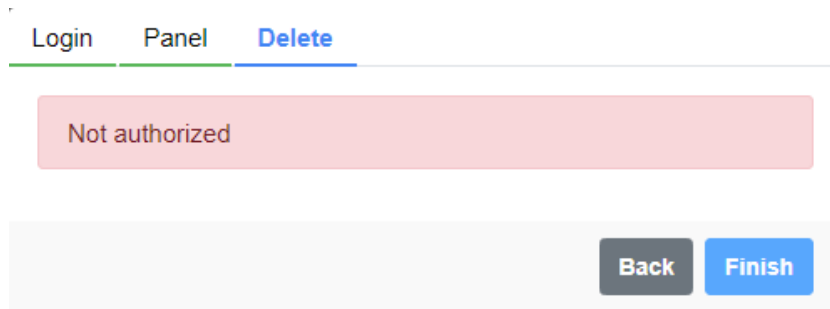- return to **Step 1**, it is necessary to redo all the settings.

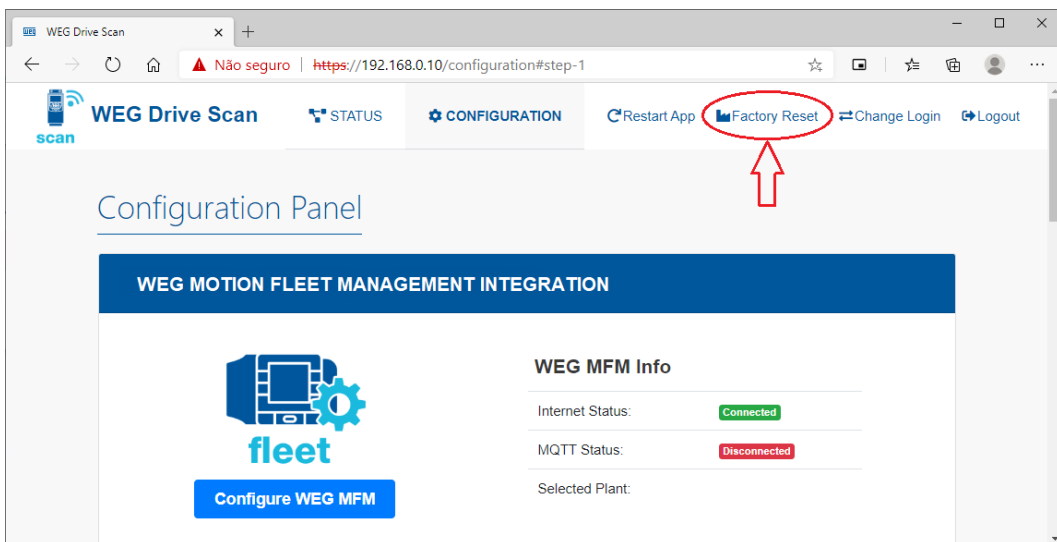*Figure 6.20:* *Failed to unlink the Drive Scan from the MFM*

Figure 6.21: *Command to reset the Drive Scan to factory default*

Step 16   The new plant must have been configured (Figure 6.22).

Click on the "Save Configuration" button (Figure 6.10).

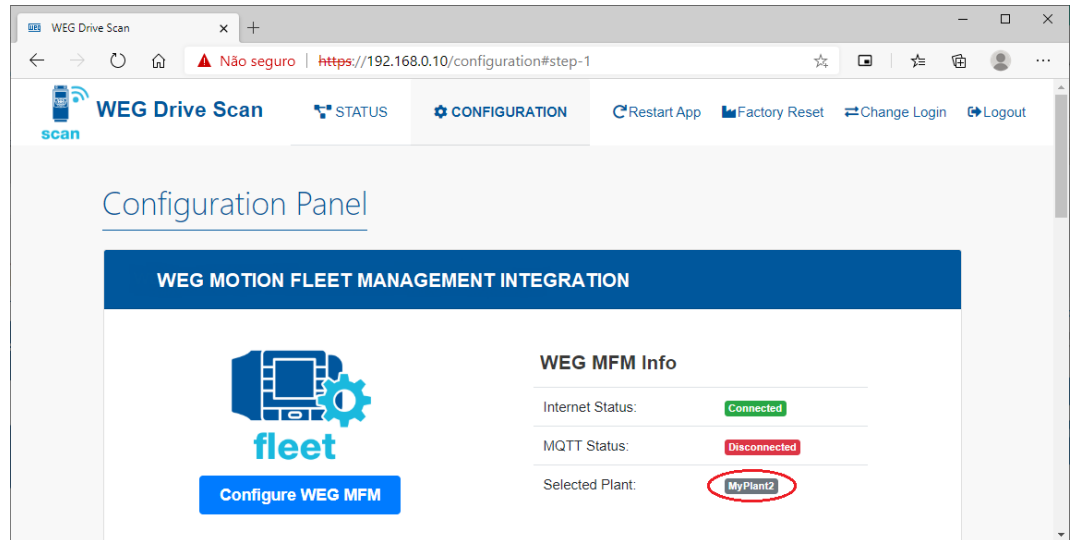Wait for the Drive Scan to restart (Figure 6.12).

Go to **Step 17**.

Figure 6.22: Plant linked to the Drive Scan on the MFM

Step 17   The Drive Scan is already properly configured on the MFM (Figure 6.23).

Configure the Eth1 Ethernet network interface (Figure 6.24).

- Use DHCP: enable/disable the use of DHCP;
- Default Route: enable/disable the use of default network route for the destination address of the IP packets;
- IP Address: Ethernet interface IP address;
- Network Mask: network mask related to the IP address of the Ethernet interface;
- Gateway: Gateway network IP address;
- DNS 1: First DNS server IP;
- DNS 2: Second DNS server IP.

Configure the RS-485 serial network interface (Figure 6.25).

- Speed: baudrate;
- Bits: number of communication bits;
- Parity: communication parity:
  – none,
  – even,
  – odd
- Stop bits: number of communication stop bits.

Click on "Save Configuration" (Figure 6.25).

Wait for the Drive Scan to restart, and it will be ready to be operated (Figure 6.23).
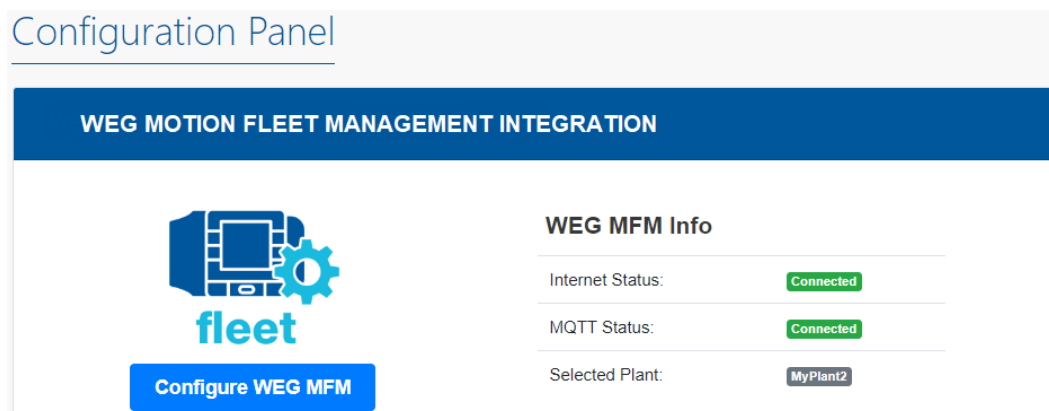

Figure 6.23: Drive Scan linked to the MFM

Figure 6.24: Ethernet network configuration

Figure 6.25: RS-485 network configuration

7 MONITORING DASHBOARD

7.1 ACCESS

1. Access the website of the WEG Motion Fleet Management platform at http://mfm.wnology.io,

2. Enter your email and login, and press the <Enter> key,

3. Click on the "Systems" side tab, and keep clicking on each sublevel until you find your asset,

4. In the plant, select the asset to be monitored.

7.2 FEATURES

Remote asset monitoring provides the customer with enormous potential for cost reductions, especially when aspects related to maintainability and productivity are assessed.

The dashboards of assets monitored by the WEG Motion Fleet Management platform are constantly evolving, increasing the user experience in data reception.

In all dashboards, we will bring direct information about:

- Identification of each asset;
- Asset status;
- Asset health;
- Charts of the various monitored attributes;
- Parameter history (only available for the CFW11).

The user can also create minimum and maximum limits for several monitored variables for each asset, allowing actions to be taken when values are exceeded. In addition, alerts are automatically generated when asset failures occur.

The tool also allows registering and scheduling maintenance events for each of your assets being monitored.

7.3 PARAMETERS

Currently available only for the CFW11 frequency inverter, the "Parameters" dashboard, accessible via the "Maintenance" tab, allows the user to view the values of the drive configuration parameters. Parameter data is shown in a table with the following information:

- Parameter;
- Description;
- Reference;
- Current;
- Status.

Figure 7.1 illustrates the functionality.

Filter				
Parameter ⇅	Description ⇅	Reference : **30/06/2021 14:48:46** ⇅	Current : **30/06/2021 18:18:12** ⇅	Status: 5/426
P0000	Access to parameters	5	5	No change
P0023	Software version	6	6	No change
P0027	Accessories config. 1	0	0	No change
P0028	Accessories config. 2	208	208	No change
P0029	Power HW config.	50176	50176	No change
P0100	Acceleration time	38.6 s	35 s	Changed

Figure 7.1: *Parameters table*

In the table, it is possible to check the parameters, their descriptions, values corresponding to a reference date and to the current date (or date of the last reading). In the dashboard, the user is still able to assign, through the button "Assign reference", a reference date to compare the parameter values of the chosen date with the current values. Through the "Request parameterization reading" button, it is possible to request the reading of the parameters, inserting them as current values in the table. Such event can be repeated once every 10 minutes.

The result of comparing parameter values between the reference date and the current date is listed in the "Status" column. The "Status"' can be "No Change", when there is no divergence between the values read on the two dates, or it can be "Changed", when there is divergence in the values read.

A

A   SETTING THE IP ON WINDOWS 10

Step 1   Right-click on the Windows button (formerly "Start"). Click on the "Settings" button(Figure A.1).

Figure A.1: Start button

Step 2   Click on the "Network and Internet" option (Figure A.2).
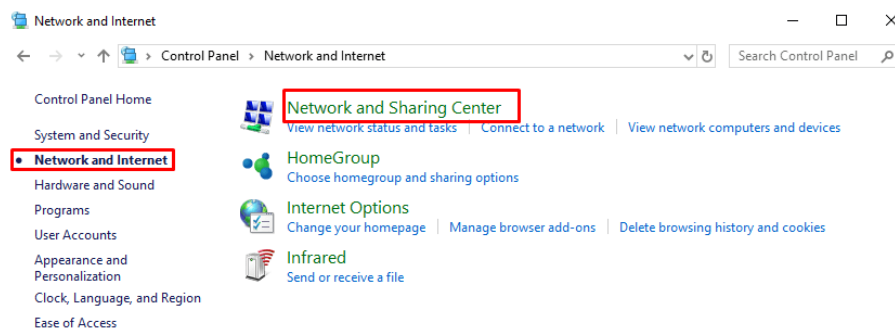

Figure A.2: Netowrk and internet page

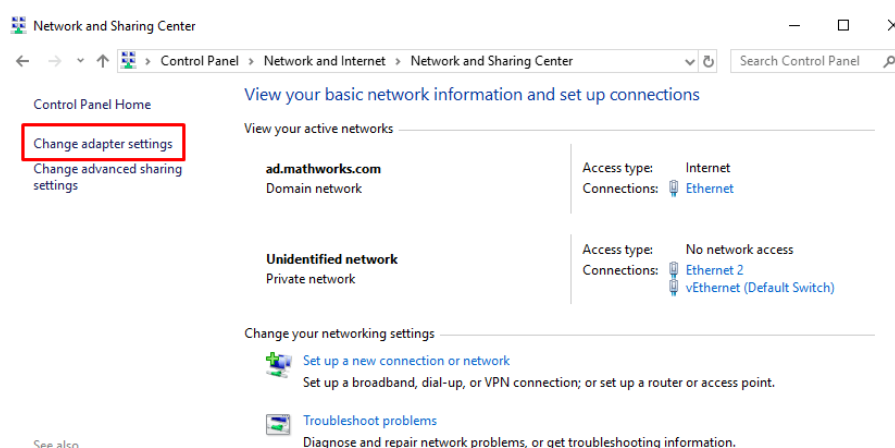**Step 3**   Click on the "Change adapter settings" option (Figure A.3).

Figure A.3: Changin the adapter
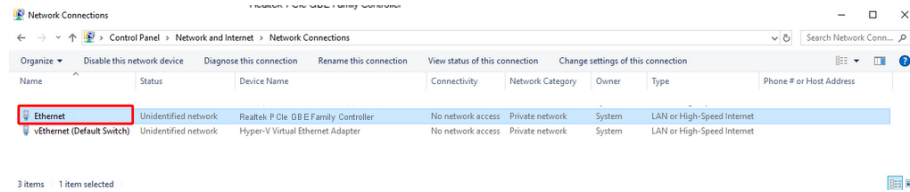
Step 4   Double-click on "Ethernet" (Figure A.4).

Figure A.4: *Selecting the adapter*

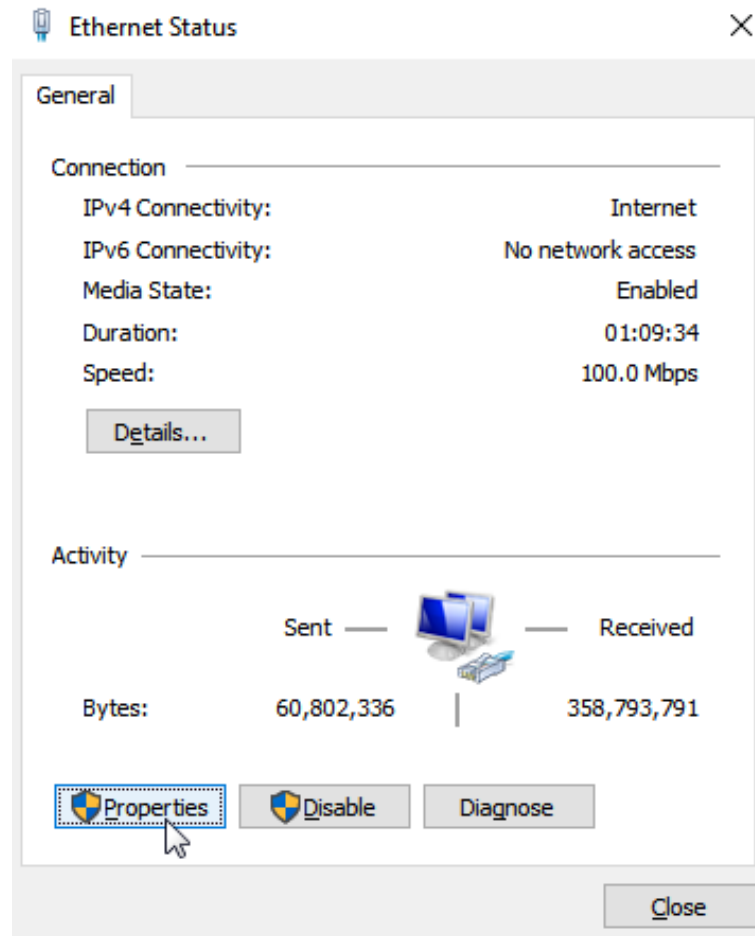**Step 5**   Click on the "Properties" button (Figure A.5).

Figure A.5: *Changin ehternet properties*

A

Step 6   Select the "Internet Protocol Version 4 (TCP/IPv4)" option. Click on the "Properties" button (Figure A.6).
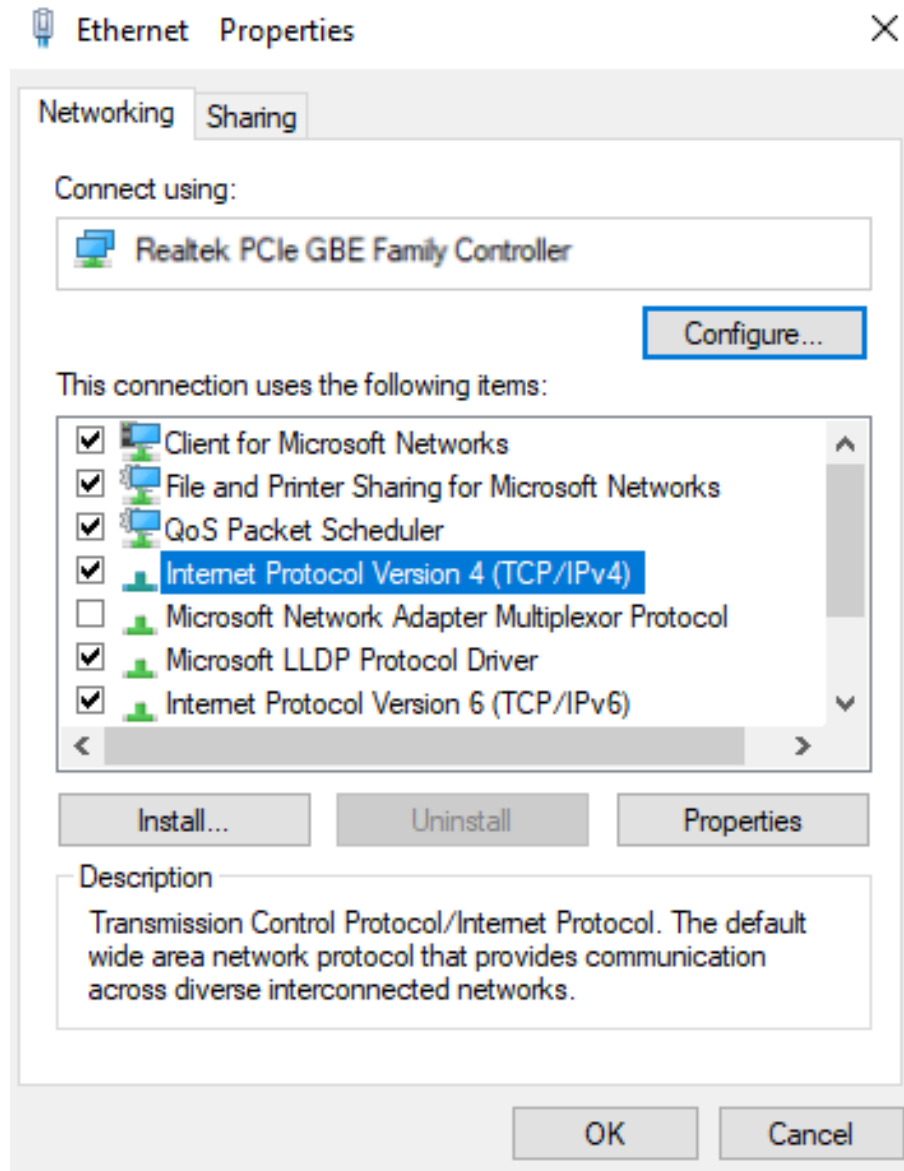

Figure A.6: Selecting IPv4 option

Step 7   Write down the current settings of your network card, because later it will be necessary to restore these settings.
Select the "Use the following IP address" option.
Set the IP address within the same range as the Drive Scan IP; for example, changing the last digit to 20 (or other unused number), resulting in 192.168.0.20.
Change the subnet to 255.255.255.0.
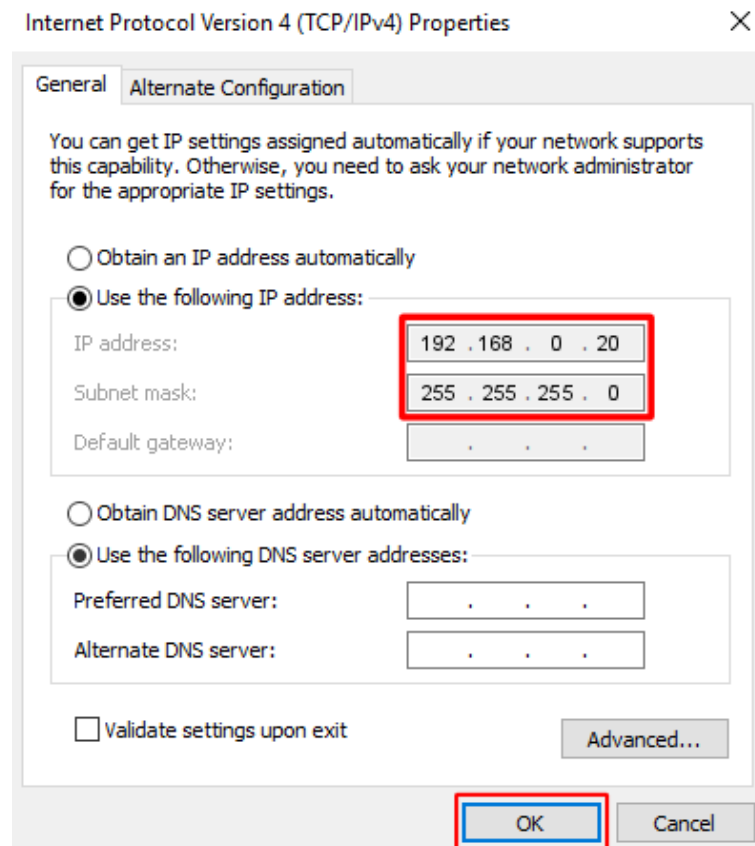
Click on "OK" (Figure A.7).

Figure A.7: *Changing IP*