Quick Installation Guide

MW500

1 SAFETY INSTRUCTIONS

This quick installation guide contains the basic information necessary to commission the MW500. It has been written to be used by qualified personnel with suitable training or technical qualification for operating the type of equipment. The informational shall follow all the safety instructions described in this manual and comply with all local regulations. Failure to comply with the safety instructions may result in death, serious injury, and/or equipment damage.

2 SAFETY WARNINGS IN THE MANUAL

The information mentioned in this warning have the purpose of avoiding material damage.

3 PRELIMINARY RECOMMENDATIONS

High voltages are present.

NOTE!

Always connect the power supply before changing any electric component associated with the inverter. Many components may be loaded with high voltages and/or moving parts, even after the AC power supply is disconnected or turned off. Wait at least ten minutes in order to guarantee the full discharge of the capacitors. Always connect the grounding point of the inverter to the protective ground (PE).

Frequency Inverters may interact with other electronic equipment. Follow the precautionaries recommended in manuals available in www.weg.net.

NOTE!

It is not the intention of this guide to present all the possibilities for the application of the MW500, as well as WEG cannot take liability for the use of the MW500 which is not covered in this guide. For further information about installations, full parameter list and recommendations, visit the website www.weg.net.

Do not perform any withstand voltage test! If necessary, contact WEG.

ATTENTION!

The basic electronics have components sensitive to electrostatic discharges. Do not touch the components or connectors directly. If necessary, first touch the grounding point of the inverter which must be connected to the protective ground or use a proper grounding strap. Do not touch this frame of the inverter directly. The inverter may deviate during handling and the electrostatic discharge may damage the capacitors or connectors.

4 ABOUT THE MW500

The MW500 is a high-performance, distributed inverter with IP56 degree of protection dust and water. The MW500 allows speed and torque control of three-phase induction motors. The product features vector (VVC) control and (VFF) control - both programmable according to your application.

5 NOMENCLATURE

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<th>Recommended Values</th>
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<td>Table 4</td>
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9 INSTALLATION AND CONNECTION

9.1 ENVIRONMENTAL CONDITIONS

Avoid:
- Direct exposure to sunlight.
- Inadequate ventilation.
- Corrosives fluids or gases.
- Metallic particles or oil mist.

Environment/conditions permitted for the operation of the inverter:
- Ambient temperature surrounding the inverter: -25°C to 40°C (3°F to 104°F).
- Relative humidity: 5 to 95 % non-condensing.
- Maximum airborne dust: up to 1500 mm / 302 ft. (standard conditions for the rating required of D4 and G100).
- From 1000 to 4000 m (330 to 13200 ft): maximum air density of 1 % each 10 m (or 0.5 % each 100 m) above 1000 (3.300 ft.2000 m).
- From 2000 to 4050 m (6600 to 12000 ft); maximum air density reduction (80% for 380-480 V models) of 1.1 % for each 10 m (or 0.3 % for 480 V models).

Environmental conditions for the use of the inverter:
- Temperature: 0°C to 50°C (32°F to 122°F).
- Humidity: 20 to 95 % non-condensing.
- Maximum of 1200 mm / 3.9 ft. airborne dust, and no dust or oil mist. Ventilation sufficient to exhaust condensate if necessary.

9.2 POWERING AND MOUNTING

The external dimensions, the net weight (mass) of the inverter and the suggested torque values are presented in Table 5.

Integrate the inverter:
For assembling of the inverter coupled to the motor follow the step by step in Figure 3 of APPENDIX D - MOUNTING INSTRUCTIONS. In the user’s manual of the inverter, available for download on the website: www.weg.net.

Well mounted:
For assembling of the motor in the wall follow the step by step in Figure 3 of APPENDIX D - MOUNTING INSTRUCTIONS. In the user’s manual of the inverter, available for download on the website: www.weg.net.

10 ELECTRICAL INSTALLATION

10.1 IDENTIFICATION OF THE POWER TERMINALS AND GROUNDING POINTS

Description of the power terminals:
- Terminal R/L1, S/L2 and T/L3: 480V AC power supply.
- Terminal U/T1, V/T2 and W/T3: 380V AC power supply.
- Terminal 24V AC power supply.

ATTENTION!

“Terminals B to B, C to C and D to D” are connected for the negative pole of the power supply.
- Terminal 3000V AC power supply.
- Terminal 6000V AC power supply.
- Terminal 1500V DC power supply.
- Terminal 3000V DC power supply.

ATTENTION!

Ensure that the connection of the brake resistor and DC is positive to the pole of the DC link.

10.1.1 Power and Grounding Wiring, Circuit Breakers and Fuses

KEEP SAFETY IN MIND when assembling the inverters. Use proper cable lugs for the power and grounding connection cables. Refer to Table 1 for recommended cable sizes and cable lengths. Use standard no. 10 AWG Silicon rubber-insulated, UL approved power and grounding cables.

Keep sensitive equipment and wiring at a minimum distance of 0.25 m from the inverter and from the cables connecting the inverter to the motor.

NOTE!

It is not recommended the use of mini circuit breakers (MCB) because of the acetone level of the inverter.

ATTENTION!

If the power supply voltage is below 20% and above 120%, the inverter may not be able to operate properly. While it cannot be guaranteed that the inverter will not work in this condition, it can be expected that the performance of the inverter will be affected.
11.2 EMISSION AND IMMUNITY LEVELS

<table>
<thead>
<tr>
<th>Emission Class</th>
<th>Immunity Class</th>
<th>Level</th>
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<tbody>
<tr>
<td>Emission Class A</td>
<td>Immunity Class A</td>
<td>Level A</td>
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<tr>
<td>Emission Class B</td>
<td>Immunity Class B</td>
<td>Level B</td>
</tr>
<tr>
<td>Emission Class C</td>
<td>Immunity Class C</td>
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11.3 CONTROL BOARD

Digital input 2
Modbus-RTU protocol with maximum communication of 38.4 kbps

11.4 OVERVOLTAGE

When the desired value is

Overvoltage according to Category III (EN 61010/UL 508C).

12.1 MENU BASIC - BASIC APPLICATION

12.2 4-20 mA CONTROL TYPE (FOC020–0)

12.3 DISCONNECTING SWITCH

An integrated disconnecting switch is available as an option.

13.1 WIRES

13.2 OPTIONAL KITS AND ACCESSORIES

A kit option is available to reduce the conducted disturbance from the inverter to the main power supply in the high frequency band (> 10 G Hz). It is necessary to meet the maximum levels of conducted and radiated emissions of electromagnetic compatibility standards, such as EN 61800-3 and EN 61000-6-3.

For further details, refer to Chapter 11: INSTALLATIONS ACCORDING TO EUROPEAN DIRECTIVE OF ELECTROMAGNETIC COMPATIBILITY.

15.1 CONSIDERED STANDARDS

EN 61800-3: “Adjustable Speed Electrical Power Drives Systems”

Field

Mains terminal disturbance voltage Frequency

Table 1: Conducted radiated emission limits, and safety of information

<table>
<thead>
<tr>
<th>Field</th>
<th>Mains terminal disturbance voltage Frequency</th>
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<tbody>
<tr>
<td>1</td>
<td>150 kHz to 30 MHz</td>
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</tbody>
</table>

15.2 MAIN PARAMETERS

Table 1: Input and output current, overload currents, center frequency and power loss (except for FOC020–0)

<table>
<thead>
<tr>
<th>Field</th>
<th>Input and output current, overload currents, center frequency and power loss (except for FOC020–0)</th>
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15.3 ELECTRONICS/GENERAL DATA

Table 2: ELECTRONICS/GENERAL DATA

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<tr>
<th>Field</th>
<th>ELECTRONICS/GENERAL DATA</th>
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15.4 MODBUS-RTU PROTOCOL

Table 3: MODBUS-RTU PROTOCOL

<table>
<thead>
<tr>
<th>Field</th>
<th>MODBUS-RTU PROTOCOL</th>
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15.5 FOC020–0

Table 4: FOC020–0

<table>
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<tr>
<th>Field</th>
<th>FOC020–0</th>
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16.1 INSTALLATIONS ACCORDING TO EUROPEAN DIRECTIVE OF ELECTROMAGNETIC COMPATIBILITY

EN 61000-6-1

The installation diagram shown in Figure 9 in the user's manual MW500 is available for downloading on the website www.weg.net.

16.2 ELECTRICAL CONNECTIONS

16.3 PROTECTION AGAINST EXTERNAL INFLUENCES

ATTENTION!
When inverter is used in IT networks, neutral conductor not grounded (grounded through a high (time) value resistor), removing groundig screw XS1, since those kinds of network cause damage to the filter capacitors of the inverter.

Inverters with internal RFI filter to be used in IT networks (neutral conductor not grounded or grounded through a high (time) value resistor), removing groundig screw XS1, since those kinds of network cause damage to the filter capacitors of the inverter.