

WEG Frequency Inverter CFW500 IP66

English



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CFW500 User Manual Addendum



- The information contained in this addendum applies to inverters with number 66 in the protection rating field of the inverter smart code; for example: CFW500A07P3S2DB66. For further information on the smart code, refer to Item 2.3 NOMENCLATURE of the user manual.
- Use this guide together with the CFW500 programming and user manuals, available for download on the website: www.weg.net.

1 INTRODUCTION

The CFW500 IP66 frequency inverter is an inverter dedicated to applications that require a higher protection degree. Nema 4X/IP66 protection rating ensures protection against dust, dirt and water jets from any direction.

2 INSTALLATION AND CONNECTION

2.1 WORK ENVIRONMENT

The recommended environments for the CFW500 IP66 operation are:

- Nema 12.
- Nema 4X indoor/outdoor.
- IP66 indoor/outdoor.

Other considerations are identical to the CFW500 IP20 and can be found in Chapter 3 INSTALLATION AND CONNECTION of the CFW500 user manual, except the environmental application conditions that are described below:

- For temperatures surrounding the inverter above 40 °C (104 °F), it is necessary to apply a 2 % current derating for each Celsius degree, limited to an increase of 10 °C (18 °F).
- The WEG IP66 / NEMA 4X outdoor rated frequency inverter has an enclosure and keypad which are UV & corrosion resistant, making them less prone to cracking or warping under direct sunlight. The combination of direct sunlight, high ambient temperature, and operating continuously near maximum current rating may cause the internal temperature of the frequency inverter to exceed the safe operating limit. This combination could lead to intermittent drive trips on over temperature within the volume of the frequency inverter to protect the electronics from overheating. Installation environments subject to direct torrential storms that may include hail and snow accumulation should be avoided. In such conditions, WEG recommends a sun shield to keep the frequency inverter operating at optimal performance.

2.2 DIMENSIONS

See Figure A.1 and Figure A.2 in APPENDIX A - FIGURES.



- NOTE!** Consider the positioning, fixation and assembly recommendations described in the CFW500 user manual - see Chapter 3 INSTALLATION AND CONNECTION.

2.3 POSITIONS OF THE POWER, GROUNDING AND CONTROL CONNECTIONS

To access the power, control and ground terminals, the inverter front cover must be removed as shown in the Figure A.4 in APPENDIX A - FIGURES. Disconnect the cable of the product HMI.

Figure A.5 in APPENDIX A - FIGURES shows the location of the power and control terminals as well as the place for grounding.



- NOTE!** Always disconnect the main power supply before touching any electrical components associated to the inverter. Many components may remain charged with high voltages and/or moving (fans) even after the AC power supply input is disconnected or turned off. Wait for 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 earth (PE).

2.4 ELECTRICAL INSTALLATION

Refer to Chapter 3 INSTALLATION AND CONNECTION of the CFW500 user manual.

2.4.1 Power/Grounding Wiring and Circuit Breakers

Use proper terminals for the power and grounding connection cables. Refer to Table B.1 and Table B.2 of the CFW500 user manual addendum for the recommended wiring, circuit breakers and fuses. Keep sensitive equipment and wiring at least 0.25 m away from the inverter and from the cables connecting the inverter to the motor. It is not recommended to use miniature circuit breakers (MDU) due to the magnet actuation level.



- NOTE!** The use of appropriate cables is essential to ensure the specified protection rating. The use of multipolar cables is recommended. For example, a four-pole cable for power supply (R, S, T) and grounding, and another four-pole cable for motor connection. Figure 1 shows an example of a four-pole cable to connect the power cables.

To ensure the specified protection rating, it is necessary to use a suitable cable gland system on the power and control connections with protection rating compatible with the one desired for the application. Entry diameter: 28.3 mm / cable gland: PG21 / M25 (the use of PG21 to M25 adapter is recommended).



Figure 1: Four-pole cable



- NOTE!** Power supply capacity: Suitable for use in circuits capable of delivering a maximum of 30.000 symmetrical Arms (200 V, 480 V or 600 V) when protected by fuses as specified in Table B.2 of the CFW500 user manual addendum.

For further information regarding power and grounding wiring and connections, refer to the CFW500 user manual.

2.4.2 Control Connections

The control connections (analog input/output, digital input/output and RS485 interface) must be made according to the specification of the plug-in module connector connected to the CFW500. Refer to the guide of the plug-in module in the product module package. The typical functions and connections for the CFW500-IOS standard plug-in module are shown in the Figure A.6 in APPENDIX A - FIGURES. For further details on the connector signal specifications, refer to Chapter 8 TECHNICAL SPECIFICATIONS of the user manual.



- NOTE!** For further information on the control board installation and configuration, refer to Chapter 3 INSTALLATION AND CONNECTION of the CFW500 user manual.

- Always disconnect the main power supply before touching any electrical components in connection with the inverter. Many components may remain charged with high voltages and/or moving (fans) even after the AC power supply input is disconnected or turned off. Wait for 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 earth (PE).
- To ensure the specified protection rating, it is necessary to use a suitable cable gland system on the power and control connections with protection rating compatible with the one desired for the application. Entry diameter: 28.3 mm / cable gland: PG21 / M25 (the use of PG21 to M25 adapter is recommended).
- If no electrical connections are present, the rubber plugs that come with the inverter must be kept in place.
- The maximum and minimum power and control cable diameters must comply with the specifications of the cable gland supplier to ensure the specified protection rating.

2.5 EUROPEAN DIRECTIVE OF ELECTROMAGNETIC COMPATIBILITY - PROPOSED FILTERS

The CFW500 inverter series was developed for professional applications only. Therefore, the limits for emission of harmonic currents established by the EN 61000-3-2 and EN 61000-3-2/A 14 standards are not applicable. For further information, refer to the CFW500 user manual.

2.5.1 Inverters and Filters

For the CFW500 IP66 models, the emission levels are shown in Table B.4 of the CFW500 user manual addendum according to IEC/EN61800-3, edition 3, 2017-02.

2.6 CLOSING

To ensure the Nema 4X/IP66 protection rating, it is important to close the frequency inverter properly after the electrical installation is completed.

Below are the instructions to close the unit:

- After completing the electrical installation and tightening the cable glands, make sure that the cable connecting the control board to the HMI board is connected.
- Check that the sealing rubber is inserted into the inner channel of the cover.
- Fit the plastic cover over the base.
- Tighten the screws gradually, alternating them, until a torque of 2 Nm is obtained, so that the rubber is pressed evenly until the complete closing of the inverter.

NOTE!

Opening and closing the product many times shortens the life of the rubber. It is not recommended to do such procedure more than 15 times. See Figure A.7 in APPENDIX A - FIGURES.

3 HUMAN MACHINE INTERFACE (HMI)

For the CFW500 IP66, the HMI functionality is identical to that presented in the CFW500 user manual. See Figure A.8 in APPENDIX A - FIGURES.

4 OPTIONAL ITEMS AND ACCESSORIES

The RFI filter is available as an optional item for the CFW500 IP66 line. All control accessories described in Item 7.2 ACCESORIOS of the CFW500 IP20 user manual are available for the CFW500 IP66 line.

5 TECHNICAL SPECIFICATIONS

See Table B.1 to Table B.6 in APPENDIX B - TECHNICAL SPECIFICATIONS.



Convertidor de Frecuencia CFW500 IP66



Figura 1: Cable tetrapolar

Anexo al Manual del Usuario CFW500

¡ATENCIÓN!

- Las informaciones de este anexo se aplican a los convertidores que contienen la sigla 66 en el campo grado de protección del código inteligente del convertidor, por ejemplo: CFW500A07P3S2DB66. Para más informaciones sobre el código inteligente, consultar el Item 2.3 NOMENCLATURA del manual del usuario.
- Utilizar esta guía en conjunto con los manuales de programación y del usuario del CFW500.

1 INTRODUCCIÓN

El convertidor de frecuencia CFW500 IP66 es un convertidor para aplicaciones que exigen un grado más elevado de protección. El grado de protección Nema 4X/IP66 garantiza protección contra polvo, suciedad y chorros de agua direccional.

2 INSTALACIÓN Y CONEXIÓN

2.1 AMBIENTE DE TRABAJO

Los ambientes recomendados para la utilización del CFW500 IP66 son:

- Nema 12.
- Nema 4X indoor/outdoor.
- IP66 indoor/outdoor.

Otras consideraciones son idénticas al CFW500 IP20 y pueden ser encontradas en el Capítulo 3 INSTALACIÓN Y CONEXIÓN del manual del usuario CFW500, excepto las condiciones ambientales de aplicación que están descritas abajo:

- Para temperatura, alrededor del convertidor, mayor a 40 °C, es necesario aplicar reducción da corriente de 2 % para cada grado Celsius, limitando el incremento en 10 °C.
- Los convertidores de frecuencia WEG, con grado de protección para ambientes externos IP66 / NEMA 4X, poseen envoltorio y teclado resistentes a UV y a corrosión, que los torna menos propensos a rajaduras o doblamientos cuando expuestos directamente a la luz solar. La combinación de luz solar directa, alta temperatura ambiente y una operación continua próxima a la corriente máxima especificada puede hacer que la temperatura interna del convertidor de frecuencia exceda el límite de operación segura. Esta combinación puede llevar a desarmes intermitentes del convertidor de frecuencia, por temperatura excesiva en su interior, para protección del sistema electrónico contra supercalentamiento. Deben ser evitados ambientes de instalación sujetos a tempestades torrenciales directas que puedan generar acumulación de granizo o nieve. En esas condiciones, WEG recomienda una protección contra sol para mantener el convertidor de frecuencia funcionando dentro de su desempeño ideal.

2.2 DIMENSIONES

Conforme la Figura A.1 y Figura A.2 del ANEXO A - FIGURAS.

¡NOTA!

- Considerar las recomendaciones de posicionamiento, fijación y montaje descritas en el manual del usuario del CFW500 - consulte el Capítulo 3 INSTALACIÓN Y CONEXIÓN, disponible para download en el sitio: www.weg.net.

2.3 UBICACIONES DE LAS CONEXIONES DE POTENCIA, PUESTA A TIERRA Y CONTROL

Para el acceso a los bornes de potencia, control y puesta a tierra, es necesario remover el cierre frontal del convertidor, conforme lo indica la Figura A.4 del ANEXO A - FIGURAS. Desconecte el cable de la IHM del producto.

La Figura A.5 del ANEXO A - FIGURAS, presenta la ubicación de los bornes de potencia y control, así como la ubicación para puesta a tierra.

¡NOTA!

- Siempre desconecte la alimentación general antes de tocar cualquier componente eléctrico asociado al convertidor. Muchos componentes pueden permanecer cargados con altas tensiones y/o en movimiento (ventiladores), incluso después de que la entrada de alimentación CA sea desconectada o apagada. Aguarde por lo menos 10 minutos para garantizar la total descarga de los condensadores. Siempre conecte el punto de puesta a tierra del convertidor al terreno de protección (PE).

2.4 INSTALACIÓN ELÉCTRICA

Consulte el Capítulo 3 INSTALACIÓN Y CONEXIÓN del manual del usuario CFW500.

2.4.1 Cableado de Potencia/Puesta a tierra y Disyuntores

Utilizar terminales adecuados para los cables de las conexiones de potencia y de puesta a tierra. Consulte la Tabla B.1 y la Tabla B.2 del anexo del manual del usuario CFW500 para cableado, disyuntores y fusibles recomendados. Apartar los equipos y cableados sensibles a 0.25 m del convertidor y de los cables de conexión entre convertidor y motor. No es recomendable utilizar los mini disyuntores (MDU), debido al nivel de actuación del magnético.

¡NOTA!

- La utilización de cables apropiados es indispensable para que se garantice el grado de protección especificado. Es recomendado el uso de cables multipolares. Por ejemplo, un cable tetrapolar, para la alimentación (R, S, T) y puesta a tierra, y otro cable tetrapolar para la conexión del motor. La Figura 1 presenta un ejemplo de cable tetrapolar para la conexión de los cables de potencia. Para que el grado de protección especificado sea asegurado, es necesaria la utilización de un sistema adecuado de prensacables en las conexiones de potencia y control con grado de protección compatible con el deseado para la aplicación. Diámetro de entrada: 28,3 mm / prensacables: PG21 / M25 (se recomienda el uso del adaptador PG21 para M25).

2.2 DIMENSÕES

Conforme Figura A.1 e Figura A.2 do ANEXO A - FIGURAS.

NOTA!

- Considerar as recomendações de posicionamento, fixação e montagem descritas no manual do usuário do CFW500 - Capítulo 3 INSTALAÇÃO E CONEXÃO.

2.3 LOCALIZAÇÕES DAS CONEXÕES DE POTÊNCIA, ATERRAMENTO E CONTROLE

Para o acesso aos bornes de potência, controle e aterramento, é necessário remover o fechamento frontal do inversor conforme indica a Figura A.4 do ANEXO A - FIGURAS. Desconecte o cabo da IHM do produto. A Figura A.5 do ANEXO A - FIGURAS apresenta a localização dos bornes de potência e controle, assim como a localização para aterramento.

NOTA!

- Sempre desconecte a alimentação geral antes de tocar em qualquer componente elétrico associado ao inversor. Muitos componentes podem permanecer carregados com altas tensões e/ou em movimento (ventiladores), mesmo depois que a entrada de alimentação CA for desconectada ou desligada. Aguarde pelo menos 10 minutos para garantir a total descarga dos capacitores. Sempre conecte o ponto de puesta a tierra do convertidor ao terreno de proteção (PE).

2.4 INSTALAÇÃO ELÉTRICA

Consulte o Capítulo 3 INSTALAÇÃO E CONEXÃO do manual do usuário CFW500.

2.4.1 Fiação de Potência/Aterramento e Disjuntores

Utilize terminais adequados para os cabos das conexões de potência e aterramento. Consulte a Tabela B.1 e Tabela B.2 do adendo ao manual do usuário CFW500 para fiação, disjuntores e fusíveis recomendados. Afaste os equipamentos e fiação sensíveis em 0,25 m do inversor e dos cabos de ligação entre inversor e motor. Não é recomendável utilizar os mini disjuntores (MDU), devido ao nível de atuação do magnético.

NOTA!

- A utilização de cabos apropriados é indispensável para que se garanta o grau de proteção especificado. É recomendado o uso de cabos multipolares. Por exemplo, um cabo tetrapolar para a alimentação (R, S, T) e aterramento, e outro cabo tetrapolar para a conexão dos cabos de potência. A Figura 1 apresenta um exemplo de cabo tetrapolar para a conexão dos cabos de potência. Para que o grau de proteção especificado seja assegurado, é necessária a utilização de um sistema adequado de prensa-cabos nas conexões de potência e controle com grau de proteção compatível com o desejo para a aplicação. Diâmetro de entrada: 28,3 mm / prensacabos: PG21 / M25 (recomenda-se o uso do adaptador PG21 para M25).



Figura 1: Cabo tetrapolar

NOTA!

- Capacidade da rede de alimentação: Adequado para uso em circuitos com capacidade de entregar no máximo 30.000 Arms simétricos (200 V, 480 V ou 600 V), quando protegido por fusíveis conforme especificação da Tabela B.2 do adendo ao manual do usuário

