

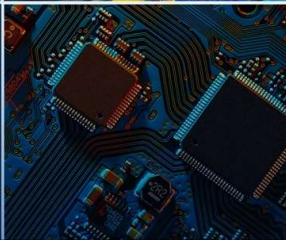
CFW500 Overview



Driving efficiency and sustainability



Class: CFW501
Version: 12.2024



Automation Training

FEATURES



CFW500 – MACHINERY DRIVES

- V/Hz, Vector Control modes (VVW), Sensorless and Closed loop with encoder and Permanent Magnet Motor Control (VVW PM)
- SoftPLC
- Integrated HMI
- PID built-in
- Optional Flash Memory (External memory module)
- Fieldbus: Modbus RTU, CANopen, DeviceNet, EtherNet/IP, Modbus-TCP, Profinet-IO and Profibus-DP
- USB communication
- Ambient temperature up to 50 °C (40 °C side by side)
- Flexible Interface Modules “Plug-In”
- Safety functions STO and SS1, classified as SIL3, cat. 4 / PLe
- Available in IP20, Nema type 1 (with kit), and IP66 / N4X
- IP66 / N4X version available with and without disconnect



The CFW500 Machinery Drives are designed to elevate performance and flexibility across various industrial applications. These drives support multiple control modes, including V/Hz, Vector Control modes (VVW), Sensorless, and Closed loop with encoder, as well as Permanent Magnet Motor Control (VVW PM).

POWER RANGES – IP20 VERSION



CFW500 – MACHINERY DRIVES

SIZE	VOLTAGE	HP	KW
A	220 Vac / 1F	0.25 - 2.0	0.18 - 1.5
	220 Vac / 3F	0.25 - 3.0	0.18 - 2.2
	440 Vac / 3F	0.5 - 4.0	0.37 - 3.0
B	220 Vac / 1F	2.0 - 3.0	1.5 - 2.2
	220 Vac / 3F	2.0 - 5.0	1.5 - 3.7
	440 Vac / 3F	1.5 - 6.0	1.1 - 4.5
C	220 Vac / 3F	7.5	5.5
	440 Vac / 3F	10 - 12.5	7.5 - 9.2
	575 Vac / 3F	1.0 - 10	0.75 - 7.5
D	220 Vac / 3F	10 - 15	7.5 - 11
	440 Vac / 3F	15 - 20	11 - 15
E	220 Vac / 3F	20	15
	440 Vac / 3F	30	22
F	220 Vac / 3F	25 - 30	18.5 - 22
	440 Vac / 3F	60 - 75	45 - 55
G	220 Vac / 3F	40 - 60	30 - 45
	440 Vac / 3F	75 - 150	55 - 110



The CFW500 in IP20 supports a 0.25 to 150 horsepower motor and offers single-phase and three-phase supply voltages of 200-240 V or 380-480 V or 500-600 V. The IP20 version has a kit that can be installed to make the drive NEMA 1-rated.

POWER RANGES – IP66 VERSION



CFW500 – MACHINERY DRIVES



SIZE	VOLTAGE	HP	KW
A	220 Vac / 1F	0.25 - 3.0	0.18 - 2.2
	220 Vac / 3F	5.0	3.7
	440 Vac / 3F	0.5 - 6.0	0.37 - 4.5
B	220 Vac / 3F	7.5 - 12.5	5.5 - 9.2
	440 Vac / 3F	10 - 20	7.5 - 15
	575 Vac / 3F	1.0 - 10	0.75 - 7.5

The CFW500 also offers IP66 or NEMA 4X version that is available with or without a disconnect option. The IP66 unit is versatile, suitable for both indoor and outdoor installations, and can be used in washdown environments. This version of the drive supports motors ranging from 0.25 to 20 horsepower and accommodates both single-phase and three-phase supply voltages of 200-240 V, 380-480 V, or 500-600 V.

SIMPLIFIED INSTALLATION



CFW500 – MACHINERY DRIVES



1. HMI Built-in
2. Surface Mounting
3. DIN rail Mounting
4. Detachable fans make it easier to maintain
5. Plug-in modules (product can be customized with accessories acquired separately)
6. Front cover

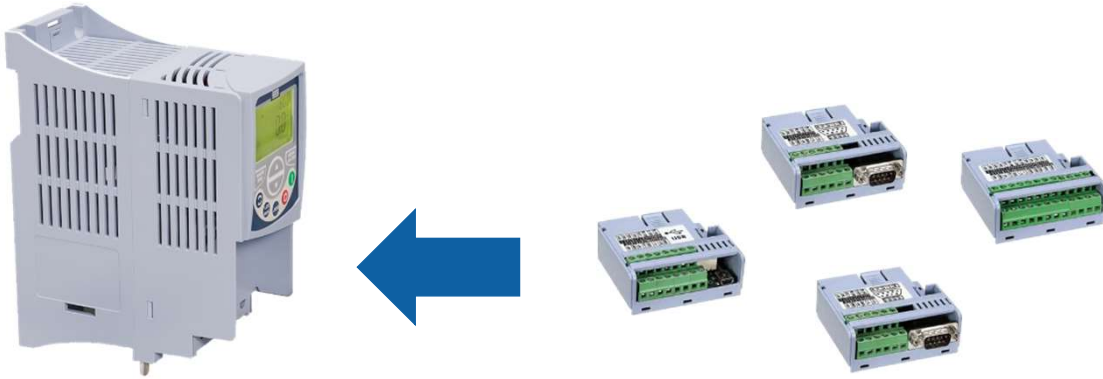
The CFW500 is designed for simplified installation and intuitive operation. The built-in HMI for the CFW500 ensures easy and user-friendly control. It offers versatile installation options, supporting both surface mounting and DIN rail mounting in many sizes. The detachable fans are engineered for effortless maintenance, enhancing the longevity and reliability of the drives. Additionally, the CFW500 can be customized with plug-in modules, available separately, to meet specific requirements. The front cover design further contributes to the ease of use and maintenance, making the CFW500 an ideal choice for various applications.

FLEXIBILITY



CFW500 – MACHINERY DRIVES

- The variety of Plug-in modules allows for flexibility to meet customer needs.
- Allowing for a more flexible and reduced cost of inventory.



As touched on in the previous slide, the CFW500 drive is designed with flexibility in mind, offering a range of plug-in modules to meet diverse customer requirements. This modular approach not only enhances adaptability but also helps in reducing inventory costs, making it a cost-effective solution for various applications.

PLUG-IN MODULES

CFW500 – MACHINERY DRIVES



Configuration of the Plug-In Modules¹⁾

Plug-in module	Functions															
	Inputs		Outputs			STO/SS1	USB port	Input for Encoder ²⁾	Fieldbus networks							Supply
	Digital	Analog	Analog	Digital relay	Digital transistor				CANopen DeviceNet	RS232	RS485	Profibus-DP	EtherNet/IP	Modbus-TCP	PROFINET ID	
CFW500-IOS	4	1	1	1	1	-	-	-	-	-	1	-	-	-	-	1 1
CFW500-IOD	8	1	1	1	4	-	-	-	-	-	1	-	-	-	-	1 1
CFW500-IOAD	6	3	2	1	3	-	-	-	-	-	1	-	-	-	-	1 1
CFW500-IOR-B	5 ³⁾	1	1	4	1	-	-	-	-	-	1	-	-	-	-	1 1
CFW500-ENC	5 ³⁾	1	1	4	1	-	-	1	-	-	1	-	-	-	-	1 1
CFW500-CUSB	4	1	1	1	1	-	1	-	-	-	1	-	-	-	-	1 1
CFW500-SFY2 ⁴⁾	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
CFW500-CCAN	2	1	1	1	1	-	-	-	1	-	1	-	-	-	-	1 -
CFW500-CRS232	2	1	1	1	1	-	-	-	-	1	1	-	-	-	-	1 -
CFW500-CRS485-B	4	2	1	2	1	-	-	-	-	-	2	-	-	-	-	1 1
CFW500-CPDP	2	1	1	1	1	-	-	-	-	-	1	1	-	-	-	1 -
CFW500-CETH-IP	2	1	1	1	1	-	-	-	-	-	1	-	1	-	-	1 -
CFW500-CEMB-TCP	2	1	1	1	1	-	-	-	-	-	1	-	-	1	-	1 -
CFW500-CEPN-IO	2	1	1	1	1	-	-	-	-	-	1	-	-	-	1	1 -



CRS232,
CRS485 and
CPDP



CUSB



IOD, IOR,
IOAD and ENC



IOS



CETH, CEMB
and CEPN

The modules include various inputs and outputs, including digital, analog, relay, and transistor options.

Some modules feature USB ports, encoder inputs, or fieldbus networks such as CANopen, DeviceNet, RS232, RS485, Profibus-DP, EtherNet/IP, Modbus-TCP, and PROFINET.

ETHERNET DUAL-PORT



CFW500 – MACHINERY DRIVES

- Module will be compatible with Ethernet IP and Modbus TCP protocols.
- Supports topologies: Star with external switch, Daisy chain.
- With LED Status Indicators.
- Compatible: CFW500 G2 drive must have FM V3.9X or above.



One card worth touching on in detail is the Ethernet Dual-Port module for the CFW500. This module is compatible with both Ethernet IP and Modbus TCP protocols, ensuring seamless integration into various network environments.

It supports multiple topologies, including Star with an external switch and Daisy chain configurations, providing flexibility in network design.

To ensure compatibility, the CFW500 G2 drive must have firmware version V3.9X or above.

Memory Card- MMF



CFW500 – MACHINERY DRIVES



- Allows for download of drive parameters and PLC code (SoftPLC).
- Power supplied by internal batteries (3xAAA) with autonomy for 5000 procedures (minimum).
- There is no need to power up the VFD to use it.
- Dip Switch selection to download/upload parameters and user program from/to the MMF to/from the drive.
- Password to access user program written in the Soft PLC
- Compatible with all plug-in modules.
- It stores two different user programs.

The Memory Card-MMF for CFW500 Machinery Drives is an essential tool for easily downloading drive parameters and PLC code. This device is powered by internal batteries, specifically three AAA batteries, which provide autonomy for a minimum of 5000 procedures. One of the key advantages of this memory card is that it eliminates the need to power up the VFD to use it.

The device features a dip switch selection that allows for the download and upload of parameters and user programs between the MMF and the drive. Additionally, it offers password protection to access user programs written in the Soft PLC, ensuring security and control over the data. The Memory Card-MMF is compatible with all plug-in modules and can store two different user programs, making it a versatile and valuable component for machinery drives.

SAFETY FUNCTION MODULE – SFY2



CFW500 – MACHINERY DRIVES



- Provides machine builders with a cost-effective solution.
- Reduce the risk of unexpected and hazardous movement in industrial machines and processes.
- Less components, no need for additional wiring, saving space and installation costs.
- Easier installation, commissioning and maintenance
- No electromechanical components, meaning faster responses, and a higher degree of productivity.
- STO/SS1 Safety Functions fulfills requirements for safety performance SIL 3 / PL e.

The Safety Function Module SFY2 for CFW500 Machinery Drives offers machine builders a cost-effective solution designed to enhance safety and efficiency in industrial environments. This module significantly reduces the risk of unexpected and hazardous movements in machines and processes, ensuring a safer working environment. With fewer components and no need for additional wiring, it saves both space and installation costs. The SFY2 module simplifies installation, commissioning, and maintenance, making it an ideal choice for various applications. Its lack of electromechanical components results in faster responses and a higher degree of productivity. Additionally, the STO/SS1 Safety Functions meet the stringent requirements for safety performance, achieving SIL 3 / PL e certification.

SECURITY FUNCTION MODULE – SFY2



CFW500 – MACHINERY DRIVES

IP20 protection degree with safety functions STO and SS1



On top in frames A to E



Inside in frames F and G



Inside in IP66 / N4X versions



The module location is different based on IP of the drive and frame size.

Built-in HMI



CFW500 – MACHINERY DRIVES

User-friendly Programming

- Oriented Startup: step-by-step programming
- Soft keys: shortcut to parameters
- Parameter Groups: direct access to parameters



The built-in HMI is designed for user-friendly programming. This advanced system offers an oriented startup with step-by-step programming, ensuring a smooth and efficient setup process. The inclusion of soft keys provides quick shortcuts to parameters, enhancing usability and reducing setup time. Additionally, parameter groups allow for direct access to parameters, streamlining the configuration process.

REMOTE HMI



CFW500 – MACHINERY DRIVES



- Intuitive and easy-to-use keypad
- Reading of three variables at the same time.
- Indication of engineering units and VFD Status.
- 5 Digits resolution with 126 segments.

The Remote HMI is designed to allow the use of the keypad outside the panel. Removing the need for safety gear to change parameters. The Remote HMI allows for the simultaneous reading of three variables, providing you with comprehensive data at a glance. It also features clear indications of engineering units and VFD status, ensuring you are always informed about the operational state of your machinery. With a resolution of five digits and 126 segments, this device offers precise and detailed information, making it an essential tool for any industrial setting.

REMOTE HMI – ADVANCED TEXT



CFW500 – MACHINERY DRIVES



- Graphic display with backlight;
- Soft Keys for easy operation
- Real-time clock (RTC).
- Parameters in the form of menus
- Language selection: English, Spanish and Portuguese

WEG also offers an Advanced Text remote HMI for the CFW500. This features a graphic display with a backlight, ensuring clear visibility in various lighting conditions.

The inclusion of soft keys allows for easy and intuitive operation, making it user-friendly for all operators. The real-time clock (RTC), provides accurate timekeeping for errors.

The parameters are presented in the form of menus, allowing for straightforward navigation and configuration.

Additionally, the device supports language selection, offering options in English, Spanish, and Portuguese, catering to a diverse range of users.

OPTIONS AND ACCESSORIES



CFW500 – MACHINERY DRIVES



Braking IGBT

Available for all frame sizes, except for frame A of IP20 version.
The drive presents DB on the part number

NEMA1 Kit

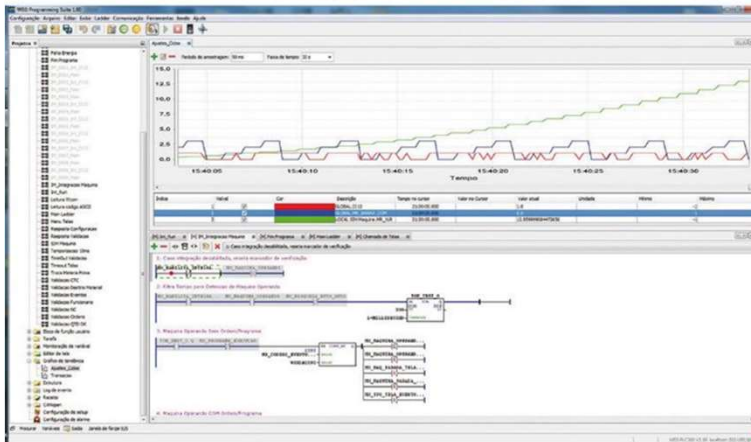
The enclosure complies with North American standards.

A braking IGBT is available for all frame sizes, with the exception of frame A of the IP20 version. The Braking IGBT is crucial for applications requiring rapid deceleration, as it helps manage the energy generated during braking. You can identify this option by looking for "DB" in the part number.

Next, we have the NEMA1 Kit. This kit ensures that the enclosure of your machinery drive complies with North American standards.

CONFIGURATION VIA SOFTWARE

CFW500 – MACHINERY DRIVES



Connect, Configure,
Program, and Monitor using
WEG WPS Software



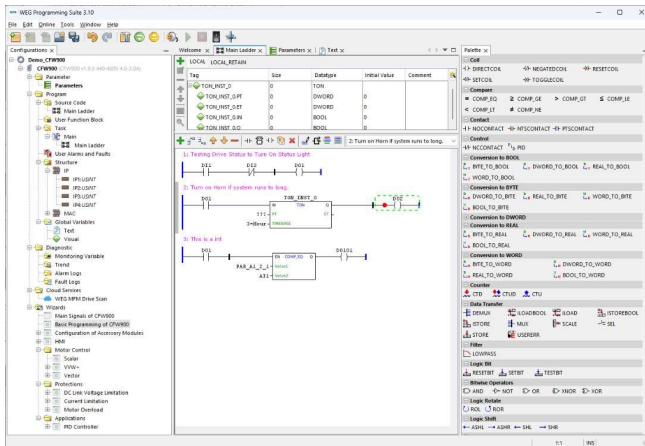
Free software! Download at: www.weg.net

The CFW500 can be configured, programmed, and monitored using WPS software, which is available for free at WEG.net.

SOFTPLC FUNCTION



CFW500 – MACHINERY DRIVES



Free software! Download at: www.weg.net

- PLC functions in the VFD.
- Programmable through WLS software.
- Memory Capacity: 8k bytes (user program), 7788 bytes for the PLC code, and 404 bytes for parameters.
- Online user program transferring and monitoring via plug-in module RS232, RS485, or USB.
- Ladder language programming.
- 50 configurable user parameters.
- Access to all CFW500 parameters, I/Os, and keypad.

The WPS software is also used to setup the soft PLC program that is supported by the drive. This soft program is programmed using ladder logic programming. It allowed up to 50 configurable user parameters and you have access to all the CFW500 parameters, IO, and keypad.

Pump Genius



CFW500 – MACHINERY DRIVES

PUMP GENIUS

simplex

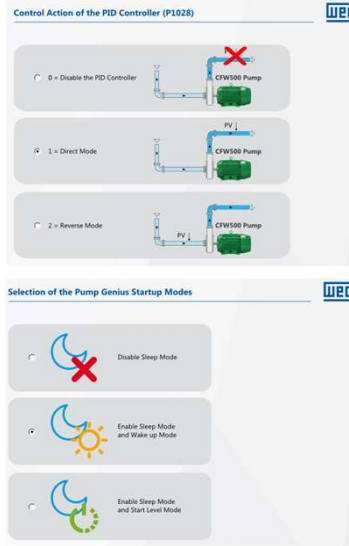
The Simplex software adds ideal features to the VSD for a single pump control.

multipump

Multipump allows driving two or more pumps with only one VSD.

multiplex

With Multiplex the VSDs control, monitor, and manage the entire system on their own.



- Dedicated functions for pumping applications, pre-programmed on the drive.
- Simple and friendly interface through WLP software to adjust the application parameters

Free software!
Download at: www.weg.net

Pumps, pipeline and fittings can get seriously damaged if pressure or flow are out of control and such occurrences are not tracked early.

The Pump Genius is a customizable feature of WEG drives that enables your standard VSD to become dedicated for pumping systems. It ensures accurate pressure and flow control throughout the processing cycle.

With an easy-to-use programming wizard, Pump Genius helps you to minimize downtime and maximize energy savings. Everything you need is selecting one of the three options that best fits to your application.

Pump Genius requires the use of WLP software which is

also available on WEG.net. Please note this is a different software than covered in the previous slide.

There are three different types of setups you can use. Simplex gives you the features needed for a VSD to control a single pump. Multipump allows you to control multiple pumps with a single VSD, and multiplex controls multiple pumps across multiple VSDs.

CFW500 AOI



Requirements

- ControlLogix or CompactLogix PLC controller running ver. 20+ firmware
- 10 mb or faster ethernet network with IP connectivity
- IP addresses for both the PLC and CFW500



WEG has an AOI for the CFW500. This allows the CFW500 to easily be integrated with a Rockwell Compaq Logics or Control Logics PLC.

CERTIFICATIONS



CFW500 – MACHINERY DRIVES



The CFW500 is certified by multiple prestigious organizations, including Underwriters Laboratories, TÜV Rheinland, and more. These certifications ensure that the CFW500 meets rigorous safety, quality, and performance standards, making it a reliable choice for various applications.



WEG Electric Corp
1 800 ASK 4WEG (275-4934)
info@weg.net

Thank you for your
time and attention.



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