

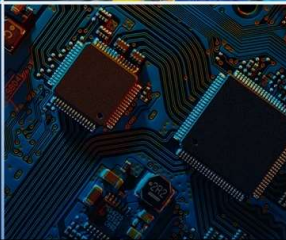
CFW11 Overview



Driving efficiency and sustainability



Class: CFW111
Version: 01.2025



Automation Training

CFW11 Overview



- Multiple Configurations
 - Panel or Flange Mountable NEMA 1 Enclosure
 - IP55 / NEMA 12 Wall Mount
 - Modular Drive System Configuration
- Normal Duty (110% for 60 sec) and Heavy Duty (150% for 60 sec) Ratings
- Range of Voltage Ratings through 690VAC
- Available through 2,500HP (CFW11M)
- Up to 50 degrees Celsius (derating required depending on frame)
- Intelligent Thermal Management maximizing Up-Time
- Dual DC Link Inductors Standard on All Ratings
- Scalar (V/F) and Voltage Vector (VVW) Motor Control Options utilizing WEG's **Optimal Flux®** Technology

The WEG CFW11 Variable Frequency Drive is a powerhouse designed for a multitude of industrial applications.

The CFW11 VFD is engineered for both normal duty and heavy duty ratings, making it a robust choice for demanding environments.

One of the standout features of the CFW11 is its intelligent thermal management system, which maximizes uptime by monitoring and controlling the drive's temperature.

For motor control, the CFW11 offers both scalar and voltage vector options, utilizing WEG's Optimal Flux® Technology to optimize motor performance and efficiency.

CFW11 Overview



- Conformal Coated Circuit Boards
- Optional Brake Chopper and Safety Features
- WEG Pump Genius Available (Simplex, Multiplex up to Five Parallel Pumps)
- Utilizes Common WEG Variable Speed Drives Parameter Set
- PID Controller and Configuration
- Built-in SoftPLC Ladder Logic Programming using WEG WPS Software
- Integral Braking IGBT – Standard through Frame D, Optional on other Ratings
- Optional embedded Safety (STO) Features
- Extensive Range of Standard and Optional Input and Output Modules and Configurations

The WEG CFW11 is built to last, with conformal coated circuit boards that protect against environmental

One of the standout features of the CFW11 is the WEG Pump Genius, which supports simplex and multiplex

The built-in SoftPLC ladder logic programming, using WEG WPS software, provides advanced control

The extensive range of standard and optional input and output modules and configurations makes

Lets go over the CFW11 in more detail.

Common Applications and Industries



- Fans
- Dosing pumps
- Centrifugal pumps
- Exhausters
- Compressors
- Dryers
- Centrifuges
- Roller tables
- Lifting / load handling
- Conveyor belts
- Mills
- Ovens
- Mixers
- Paper process machines



From fans and dosing pumps to compressors and conveyor belts, the CFW11 VFD is engineered to

Standard Features and Ratings



	CFW11 		CFW11M 	
Voltage and Ratings	240VAC 1-Phase, 240, 480, and 575VAC 3-Phase Input 240, 480, and 575VAC 3-Phase Output 2 – 1,000HP		480, 575, or 690VAC 3-Phase Input and Output 500 – 2,500HP	
Enclosure	NEMA 1, NEMA 12 / IP55 NEMA 12 / 3R (EDP11 Enclosed)		NEMA 12 Filtered	
I/O and Interfaces	Up to (8) Digital Inputs Up to (3) Relay Outputs Up to (2) Digital Outputs Up to (4) Analog Inputs Up to (4) Analog Outputs Encoder Feedback Remote Keypad, Safety Features		Up to (8) Digital Inputs Up to (3) Relay Outputs Up to (2) Digital Outputs Up to (4) Analog Inputs Up to (4) Analog Outputs Encoder Feedback Remote Keypad, Safety Features	
Available Communications	EtherNet IP EtherCAT ProfiNet IO Profibus DP Modbus TCP	Modbus RTU (RS232 / RS485) CANopen DeviceNet RS485 BACnet	EtherNet IP EtherCAT ProfiNet IO Profibus DP Modbus TCP	Modbus RTU (RS232 / RS485) CANopen DeviceNet RS485 BACnet

The CFW11 model is a versatile powerhouse, accommodating a wide range of voltage inputs, inclu

On the other hand, the CFW11M model is engineered for higher power applications. It supports vo

Standard Features and Ratings



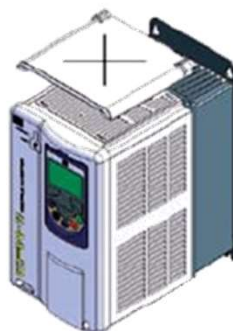
Frame Sizes	A	B	C	D	E	F	G	H
Dimensions (HxWxD)	12.1 x 5.8 x 9 in.	13.9 x 7.5 x 9 in.	17.7 x 8.7 x 11.5 in.	19.9 x 11.9 x 12 in.	26.6 x 13.2 x 14.1 in.	48.6 x 16.9 x 14.2 in.	50 x 21.1 x 16.8 in.	55.7 x 27.1 x 16.6 in.
Weight	22 lbs.	23 lbs.	46 lbs.	125 lbs.	144 lbs.	309 lbs.	474 lbs.	486 lbs.
Enclosure Rating	NEMA 1	NEMA 1	NEMA 1	NEMA 1	NEMA 1	IP20	IP20	IP20

Note: Frame H utilizes external DC Bus Line Reactors not included in these dimensions.

The CFW11 series offers a diverse range of eight frame sizes. Frames A through E are rated Nema 1

On the other hand, frames F, G, and H are rated IP20.

Standard Features and Ratings



Zero Space Mounting with Vent Cover Removed



The CFW11 series offers a unique advantage with its zero-space mounting capability. By simply removing the vent cover, you can achieve a seamless, space-saving installation. This feature is particularly beneficial for applications where panel space is at a premium, allowing you to maximize the efficiency of your setup without compromising on performance.

Standard Features and Ratings



Surface Mounting



Flange Mounting



The CFW11 series offers exceptional versatility with its dual mounting options: surface mounting and flange mounting. When opting for surface mounting, the drive can achieve an IP20 or IP21 rating, depending on the spacing.

Flange mounting, on the other hand, is an innovative solution designed to enhance thermal management. In this configuration, the heat sink of the drive extends through the panel, effectively placing it outside the enclosure. This clever design significantly reduces the heat buildup within the panel, ensuring optimal performance and longevity of the drive components. When flange mounted, the drive achieves an impressive IP54 rating, offering superior protection against dust and water ingress.

By providing both surface and flange mounting options, the CFW11 series caters to diverse installation requirements, ensuring that you can select the most appropriate method for your specific application.

Standard Features and Ratings



Frame Sizes	B	C	D	E
Dimensions (HxWxD)	20.8 x 10.7 x 11 in.	26.4 x 12.1 x 13.7 in.	29.7 x 14.8 x 11.9 in.	39.4 x 16.9 x 15.3 in.
Weight	37.5 lbs.	66.2 lbs.	108 lbs.	211.7 lbs.
Enclosure Rating	NEMA 12	NEMA 12	NEMA 12	NEMA 12

The NEMA 12 version of the CFW11 series is designed to meet the rigorous demands of industrial environments.

Each drive is equipped with an integrated disconnect, providing a convenient and efficient way to isolate the drive for maintenance.

Standard Features and Ratings

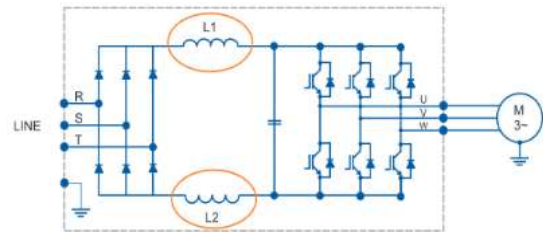


RFI Filter

Built-in RFI filter reduces the electromagnetic interference, meets the requirements of the electromagnetic compatibility directive - "EMC Directive 89/336/EEC" – with the complement 93/68/EEC.

Dual DC Link Inductors

Provides compliance with harmonic reduction requirements and enhanced protection in systems with less than ideal power quality.



DC link reactor built-in up to frame size G, provided as field installed reactors for frame size H drives.

The CFW11 features an RFI Filter that ensures compliance with the EMC Directive, reducing electro

Standard Features and Ratings

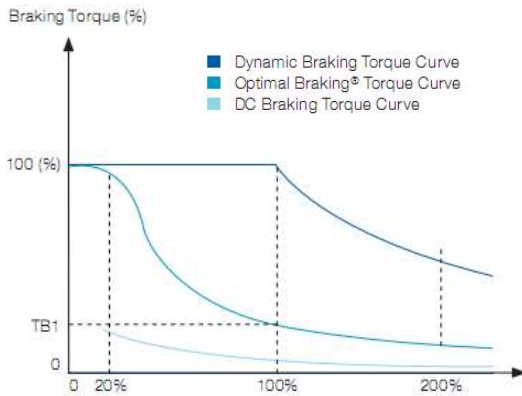


Optimal Braking®

In applications involving high inertia loads, high-performance short deceleration times are required, a large amount of energy is returned from the motor to the VFD.

As an alternative to the use of braking resistors, the CFW11 features a special braking method in vector control mode known as Optimal Braking®.

This innovation delivers a high-performance braking torque without requiring a braking resistor resulting in lower overall installation cost with smaller physical space required.



Typical Braking Torque x Speed Graph for a 10 HP / 7.5 kW motor driven by a CFW11

The CFW11's Optimal Braking feature is a game-changer for applications with high inertia loads wh

Standard Features and Ratings



Keypad Buttons



1. Soft Keys – function changes based on display
2. Menu Scroll Buttons
3. Forward / Reverse selection key
4. Local / Remote selection key
5. Start key
6. Stop key
7. JOG key

The CFW11 keypad is an intuitive and user-friendly interface for the drive.

At the top of the keypad, you'll find the Soft Keys, which adapt their functions based on the display

The Local/Remote selection key is another critical feature, giving you the flexibility to switch betwe

Standard Features and Ratings



Keypad Indications

1. Loc. / Rem. indication
2. Motor speed direction indication
3. Inverter indications:
 - Run
 - Ready
 - Configuration
 - Last fault: FXXX
 - Last alarm: AXXX
 - DC braking
 - STO
4. Left soft-key function
5. Indication of time



6. Motor speed indication in rpm
7. Monitoring parameters
 - Motor speed in rpm
 - Motor current in Amps
 - Output frequency in Hz (default)
 - Numerical values or bar graph



8. Right soft-key function

The CFW11 keypad display is designed to provide users with a comprehensive and intuitive interface.

At the top of the display, users can easily determine whether the device is being controlled locally or remotely.

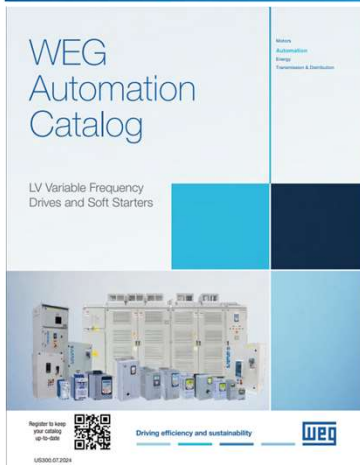
The inverter indications section is packed with essential information for diagnosing and troubleshooting.

On the left side of the display, the left soft-key function offers additional control options, enhancing the user experience.

The motor speed indication in RPM is prominently displayed. The monitoring parameters section provides a clear overview of the system's performance.

Finally, the right soft-key function is displayed, allowing for easy access to additional settings and functions.

Sizing and Selecting



[Access our Interactive Catalog on-line](#)



CFW11 Catalog Number Sequence

CFW11 0105 T 4 O N1 DB Z

Rated Current

0003 = 3 Amps
0006 = 6 Amps
0010 = 10 Amps
0024 = 24 Amps
0070 = 70 Amps
0105 = 105 Amps
0142 = 142 Amps
0211 = 211 Amps
0312 = 312 Amps
0477 = 477 Amps
0720 = 720 Amps
1141 = 1141 Amps

Configuration

S = Standard
O = Options Added

Supply Voltage

2 = 200-240 Vac
4 = 380-480 Vac
5 = 500-600 Vac
6 = 600-690 Vac

Supply Phases

S = Single Phase
B = 1 or 3 Phase
T = Three Phase

Options

N1 = NEMA 1 *
55 = NEMA 12/IP55
DS = Disconnect Switch (only IP55)
DB = Dynamic Brake
NB = No Brake
FA = RFI Filter
NF = No RFI Filter
W = External 24Vdc
Y = Safe Stop (STO)
Z = End of Number

* CFW11 Frames F and G and H are IP20 Chassis

Table intended as reference only and not to create part numbers.

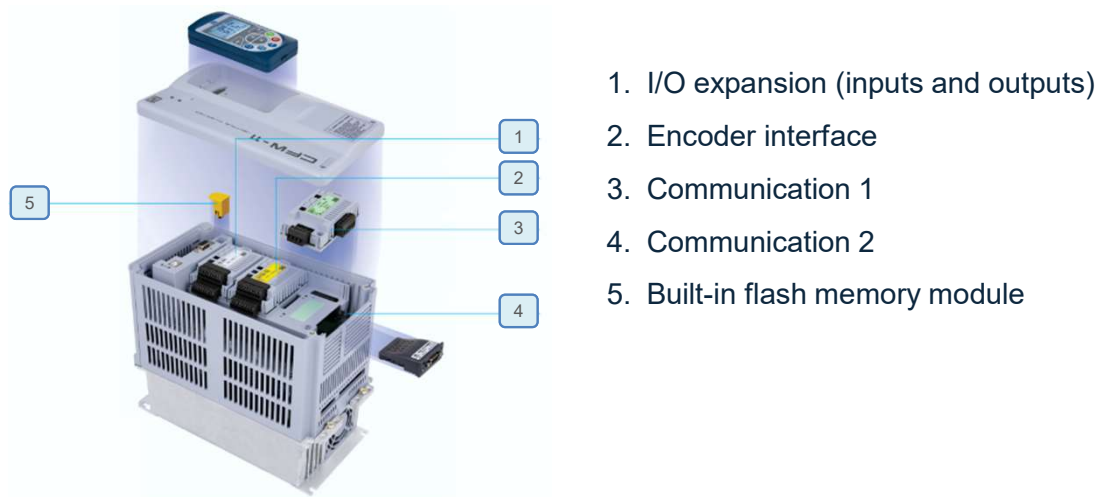
The CFW11 part number is structured into five distinct components, each serving a critical role in identifying the specific characteristics of the product. These components are the Rated Current, which indicates the maximum current the device can handle; the Supply Phases, specifying whether the device operates on single-phase or three-phase power; the Supply Voltage, denoting the voltage range the device is designed to work within; the Configuration, outlining if it is a standard configuration or options are added; and the Options, which include any additional features or customizations available for the device.

For a comprehensive list of all available CFW11 part numbers, please refer to the WEG Automation Catalog.

Accessories and Options



Option and Accessory Locations



The CFW11 offers a range of accessories and options to enhance its functionality and performance

First, we have the I/O expansion, which provides greater flexibility in connecting various devices.

The CFW11 also boasts two communication ports, Communication 1 and Communication 2, which

Finally, the built-in flash memory module.

Accessories and Options



IOA-01 [Accessory plug-In]

- 1 (14 bit) analog input (voltage or current)
- 2 digital inputs
- 2 (14 bit) analog outputs (voltage or current)
- 2 digital outputs (open collector)



IOB-01 [Accessory plug-In]

- 2 isolated analog inputs (12 bit)
- 2 digital inputs
- 2 (11 bit) isolated analog outputs (voltage or current)
- 2 open collector digital outputs



IOC-01 [Accessory plug-In]

- 8 digital inputs
- 4 digital output
- (use with SoftPLC)



IOC-02 [Accessory plug-In]

- 8 digital inputs
- 8 open collector digital outputs
- (use with SoftPLC)



IOC-03 [Accessory plug-In]

- 8 digital inputs
- 7 open collector digital outputs
- External 24 Vdc
- (use with SoftPLC)

The CFW11 offers a diverse range of I/O cards, providing multiple options for both analog and digit

Accessories and Options



IOE-01 [Temperature Transducer Accessory plug-in]

- 5 PTC type temperature sensor inputs

IOE-02 [Temperature Transducer Accessory plug-in]

- 5 PT-100 type temperature sensor inputs

IOE-03 [Temperature Transducer Accessory plug-in]

- 5 KTY8 type temperature sensor inputs



ENC-01 [Encoder Interface Accessory plug-In]

- Incremental encoder module
- 5 to 12 Vdc (internal power supply)
- 100 kHz
- Encoder signal repeater (external power supply)



PLC11-01 and PLC-02

[PLC Functions Accessory plug-In]

- Provides the CFW11 with Master PLC functionality, speed reference generator and motion control functions.

The CFW11 also provides temperature sensor input cards, encoder cards, and cards that enable PLC

Accessories and Options



CAN-01 [Accessory plug-in]

- CANopen and DeviceNet communication



RS232 Interface [Accessory plug-in]

- Modbus RTU communication



RS485 Interface [Accessory plug-in]

- Modbus RTU and BACnet communication

EtherCAT Interface [Accessory plug-in]



DeviceNet Interface [Accessory plug-in]

- DeviceNet Communication



Modbus-TCP Interface [Accessory plug-in]

- Modbus-TCP communication module – 1 port
- Modbus-TCP communication module – 2 ports



Ethernet-IP Interface [Accessory plug-in]

- EtherNet-IP communication module – 1 port
- EtherNet-IP communication module – 2 ports



Profinet-IO Interface [Accessory plug-in]

- PROFINET IO communication module – 1 port
- PROFINET IO communication module – 2 ports



The CFW11 has a comprehensive range of network cards designed to meet diverse communication

Accessories and Options



Remote Keypad Kit

- Intuitive and easy to use keypad (same functionalities of the HMI)
- Reading of three variables at the same time.
- Indication of engineering units and status of the VFD
- Alphanumeric LCD screen



The Remote Keypad Kit is designed to enhance the functionality of your HMI. The Remote Keypad I

Accessories and Options



Flash Memory Modules – MMF-03

- Allows for the transfer of parameters stored in the flash memory module to the CFW11 and vice versa
- Useful function for machine manufactures or in processes where parameter settings are repeated (copy function)
- Stores CFW11 parameters, ensuring that that the programming will not be lost
- Backs up parameters and SoftPLC based application software
- Included as standard on CFW11 Variable Speed Drives

The CFW11 Variable Speed Drives has an optional Flash Memory Module, the MMF-03. This modul

Enclosed Solutions



EDP11 – Enclosed Drive Package utilizing the CFW11 Variable Frequency Drives:

- Ratings up to 75HP at 230VAC or 1000HP at 460VAC
- Same Features and Capabilities as NEMA 1 CFW11
- Flanged Mounted CFW11, Efficient Heat Dissipation, reduced thermal impact on Control Circuits inside the Enclosure
- Circuit Breaker with Door Mounted Rotary Disconnect
- Rated NEMA 12 at 40 degrees Celsius, No Derating Required
- 120V Secondary Control Circuit Transformer
- With or Without AC3 Rated (3) Contactor Bypass
- Door Mounted Remote Keypad and Cover, Start-Stop Push Buttons, HOA, Run and Fault Pilot Lights
- WEG Pump Genius Available (Simplex, Multiplex up to three Parallel Pumps)
- Utilizes Common WEG Variable Frequency Drives Parameter Set
- PID Controller and Configuration
- Built-in SoftPLC Ladder Logic Programming using WEG WPS Software
- Optional AC3 Rated (3) Contactor Bypass
- NEMA 3R version which includes Space Heater, Lightning Arrestor, and is Service Entrance Rated Available



The EDP11, is an enclosed drive package that leverages the advanced capabilities of the CFW11. This package is engineered to handle ratings up to 75 Horsepower at 230 volts or 1000 Horsepower at 460 Volts, ensuring robust performance and reliability. The CFW11 is flange-mounted, which enhances heat dissipation and minimizes the thermal impact on control circuits within the enclosure.

The EDP11 package includes a circuit breaker with a door-mounted rotary disconnect and is rated Nema 12 at 40 degrees Celsius, eliminating the need for derating. It features a 120 Volt secondary control circuit transformer and offers the option of an AC3 rated

contactor bypass. The door-mounted remote keypad and cover, along with start-stop push buttons, HOA, run, and fault pilot lights, provide intuitive and user-friendly operation.

Additionally, the WEG Pump Genius is available for simplex and multiplex configurations, supporting up to three parallel pumps. The package utilizes a common WEG variable speed drives parameter set and includes a PID controller and configuration. The EDP11 boasts built-in SoftPLC ladder logic programming.

For outdoor applications, the NEMA 3R version includes a space heater, lightning arrestor, and service entrance rating.

Enclosed Solutions



CFW11M – Modular System Drive Solution:

- Available 500HP to 2,500HP, up to 690VAC
- Same Features and Capabilities as NEMA 1 CFW11
- 12-Pulse Configuration Standard
- Modular Design, Removable Inverter Modules Connected to a Single DC Bus
- Rated NEMA 12 Filtered Enclosure
- 40 degrees Celsius, No Derating Required
- Circuit Breaker with Through Door Disconnect
- Door Mounted Keypad, Operator Devices
- Conformal Coated Circuit Boards
- WEG Pump Genius Available (Simplex, Multiplex up to three Parallel Pumps)
- Utilizes Common WEG Variable Speed Drives Parameter Set
- PID Controller and Configuration
- Built-in SoftPLC Ladder Logic Programming
- 18 Pulse Versions Available
- NEMA 3R Enclosure Option



The CFW11M is a Modular System Drive Solution available in power ratings from 500 Horsepower to 2,500 horsepower and can operate up to 690 Volt AC. It shares the same features and capabilities as the Nema 1 CFW11 and comes with a standard 12-pulse configuration. The modular design allows for removable inverter modules connected to a single DC bus, making it highly flexible and efficient. The enclosure is rated Nema 12 and is filtered, ensuring protection and reliability. The system can operate at 40 degrees Celsius without derating, and it includes a circuit breaker with a through-door disconnect for safety. Operator devices such as a door-mounted keypad are included, and the circuit boards are conformally coated for durability. The WEG Pump Genius feature is available, supporting simplex and multiplex configurations with up to three parallel pumps. The system utilizes a common WEG variable speed drives parameter set and includes a PID controller and configuration. Built-in SoftPLC ladder logic programming enhances its functionality. Additionally, 18-pulse versions are available, and there is an option for a Nema 3R enclosure. The image on the right side of the slide shows the physical appearance of the CFW11M system, emphasizing its robust and modular design. This solution is particularly relevant for industries requiring high-power, reliable, and flexible drive systems.

Available Application Software



WEG Pump Genius Software



Pump Genius is a customizable feature of WEG Variable Speed Drives that enables them to become dedicated for pumping systems. It ensures accurate pressure / flow control throughout the processing cycle, starting with raw water and its usage, ending on wastewater treatment.

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 Configurations

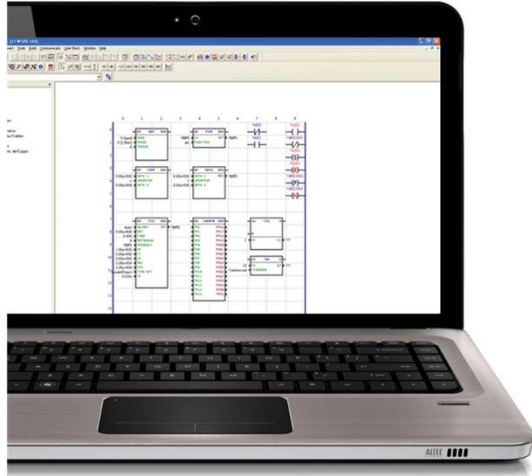
- Simplex – Single Pump / Drive System
- Multiplex – Multiple Pump / Multiple Drive System
- Multipump – Control Multiple Pumps with a Single Drive

WEG Pump Genius Software is available on the CFW11. This is a customizable feature designed to enhance the efficiency and functionality of your pumping systems. This software ensures precise pressure and flow control throughout the entire processing cycle, from handling raw water to managing wastewater treatment. With its user-friendly programming wizard, Pump Genius helps minimize downtime and maximize energy savings. Users can choose from three configurations to best suit their application needs: Simplex for single pump/drive systems, Multiplex for multiple pump/multiple drive systems, and Multipump for controlling multiple pumps with a single drive.

SOFTPLC FUNCTION



CFW320 - MINI DRIVES



- Provides cost and panel space savings due to elimination of additional Smart Relay / PLC hardware
- Ladder language programming using simple and practical programming environment with free Windows based program
- 50 configurable user parameters.
- Access to all CFW11 parameters, I/Os and keypad
- Runs directly in the CFW11 memory
- Provides 15k bytes for user application storage
- Online user program transferring and monitoring via plug-in module RS232, RS485 or USB

Free software! Access: www.weg.net

The CFW320 has a SoftPLC function available! This feature integrates PLC capabilities directly into the Variable Frequency Drive, eliminating the need for additional hardware or costs. Users can program the Soft PLC using the free WEG WPS software, which provides a single application to set the CFW320 parameters and program the SoftPLC. This software also facilitates quick diagnostics and the ability to copy parameter settings to a PC. Online programming transfer and monitoring can be achieved via RS232 or RS485 connections, or through a USB plug-in module.

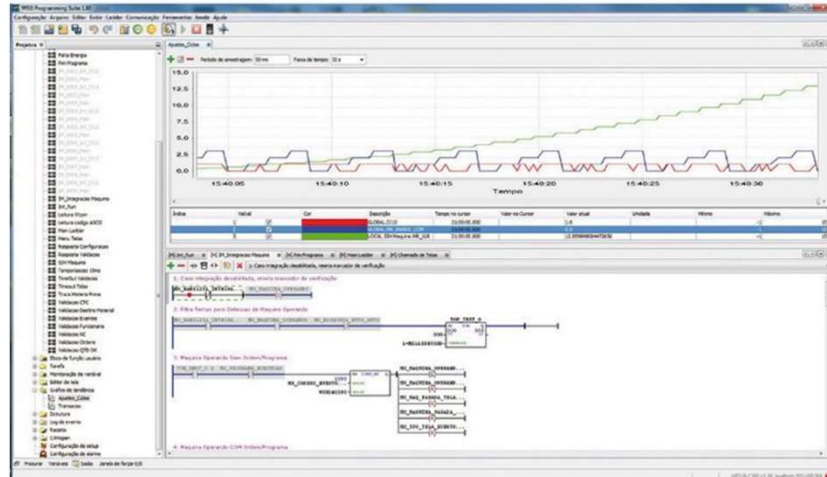
Advanced Monitoring and Diagnostics



WEG WPS PC Software

Provides access to:

- All parameters and settings
- I/O Simulators
- Diagnostics and Trending
- Configuration Guides
- Firmware Updates
- SoftPLC Programming
- Available at no charge!



Free software! Access: www.weg.net

WEG WPS PC Software is a powerful tool that provides comprehensive access to all parameters and settings, ensuring you have full control over your systems. With I/O Simulators, you can test and validate your configurations before deployment, reducing the risk of errors. The software also offers robust diagnostics and trending capabilities, allowing you to monitor system performance and identify potential issues before they become critical. Configuration Guides are available to assist you in setting up and optimizing your systems, while Firmware Updates ensure you always have the latest features and improvements. Additionally, SoftPLC Programming is supported, giving you the flexibility to customize your control logic. Best of all, this software is available at no charge! For more information and to download the software, visit [weg dot net](http://weg.net).

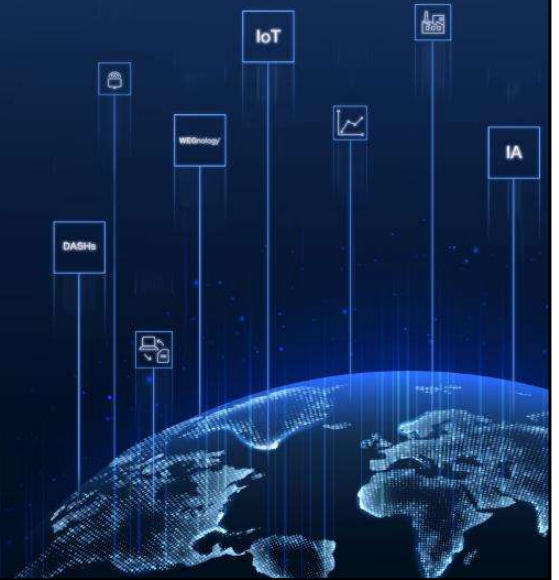


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Thank you for your
time and attention.



Transforming energy in solutions. www.weg.net



Thank you for joining us for this presentation on the CFW11. Please take the test before proceeding to the next course.