



# CFW11

Variable Speed Drive for  
Advanced Applications



# 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**<sup>®</sup> Technology

# 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

# 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



# Standard Features and Ratings



	 <p><b>CFW11</b></p>		 <p><b>CFW11M</b></p>	
<b>Voltage and Ratings</b>	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	
<b>Enclosure</b>	NEMA 1, NEMA 12 / IP55 NEMA 12 / 3R (EDP11 Enclosed)		NEMA 12 Filtered	
<b>I/O and Interfaces</b>	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	
<b>Available Communications</b>	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

# 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.

# Standard Features and Ratings



Zero Space Mounting with  
Vent Cover Removed



# Standard Features and Ratings



## Surface Mounting



## Flange Mounting





# 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

# Standard Features and Ratings

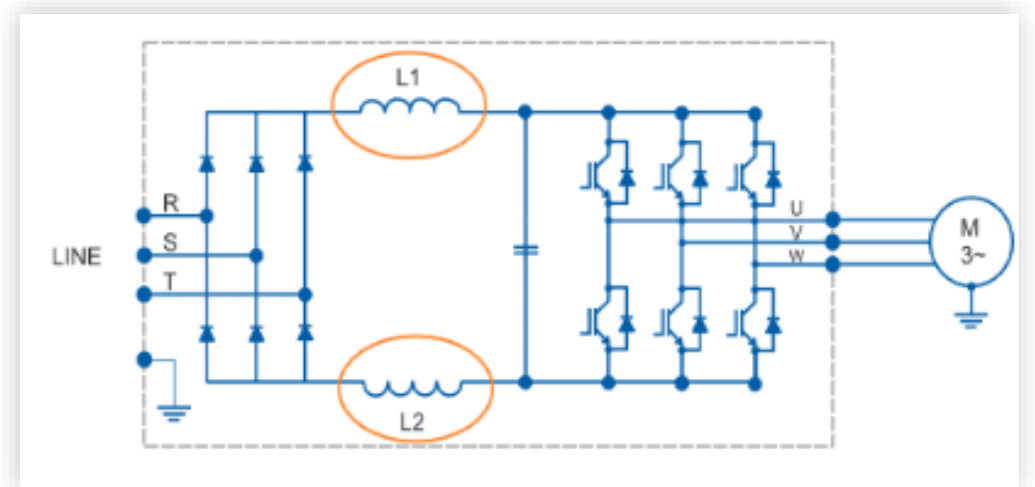


## RFI Filter

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.

# Standard Features and Ratings

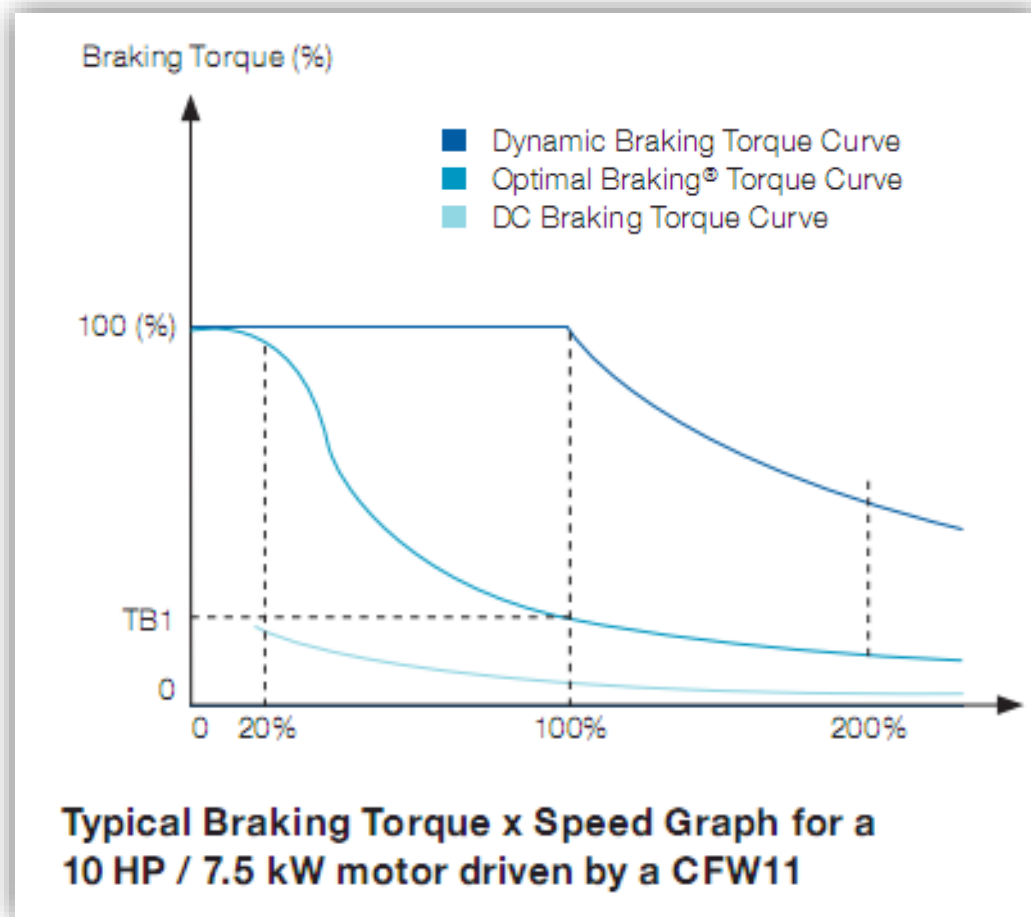


## Optimal Braking®

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

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.



# 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

# 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

# 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.

# Accessories and Options



## Option and Accessory Locations



1. I/O expansion (inputs and outputs)
2. Encoder interface
3. Communication 1
4. Communication 2
5. 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)



## IOC-02 [Accessory plug-In ]

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



## 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-03 [Accessory plug-In ]

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



## IOC-01 [Accessory plug-In ]

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



# 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.



# Accessories and Options



## CAN-01 [Accessory plug-in]

- CANopen and DeviceNet communication

## CAN / RS485-01 Interface [Accessory plug-in]

- CANopen, DeviceNet, Modbus-RTU and BACnet communication

## Profibus DP-V1 Interface [Accessory plug-in]



## 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



# 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



# 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

# Enclosed Solutions



## EDP11 – Enclosed Drive Package utilizing the CFW11 Variable Speed Drives:

- Ratings up to 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 Speed 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



# 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



# 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

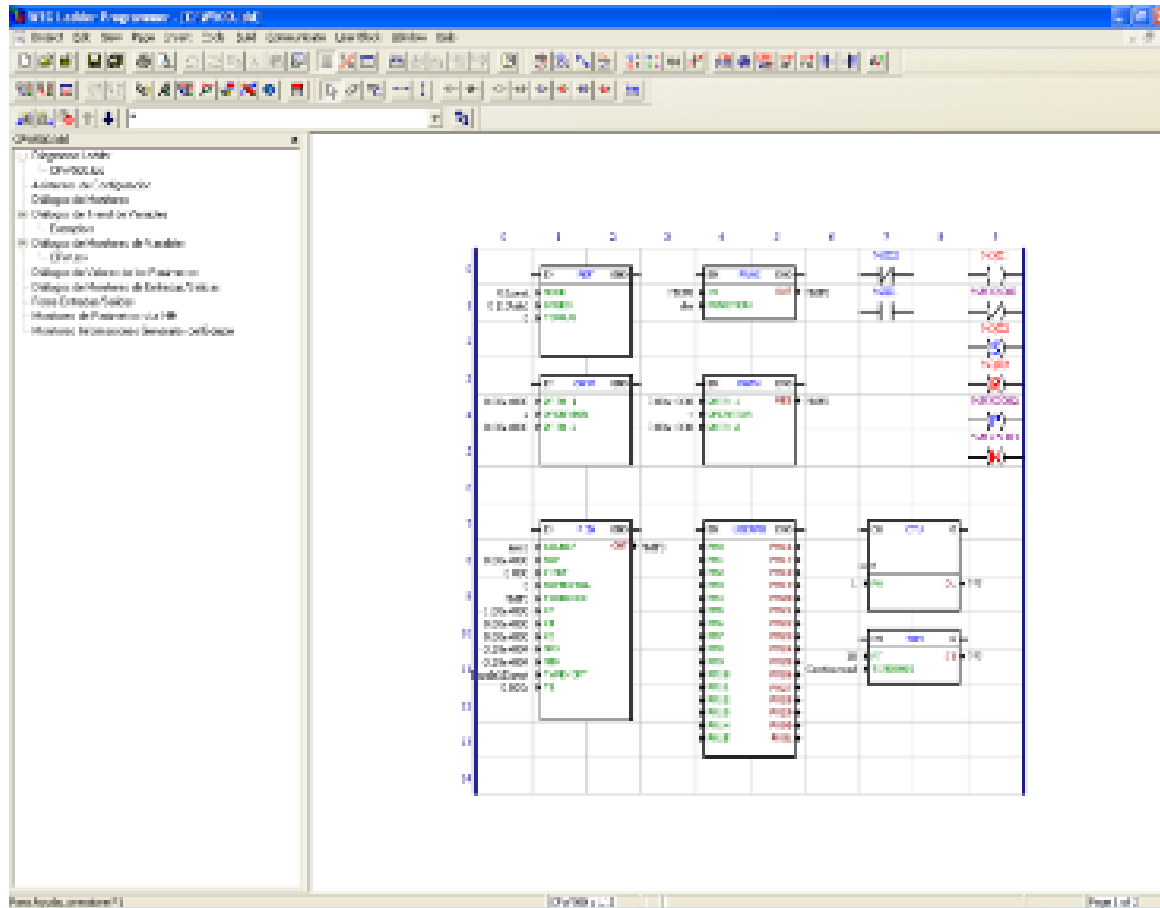
- Simplex – Single Pump / Drive System
- Multiplex – Multiple Pump / Multiple Drive System
- Multipump – Control Multiple Pumps with a Single Drive



# Available Application Software



## SoftPLC Capability – Standard!



- 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



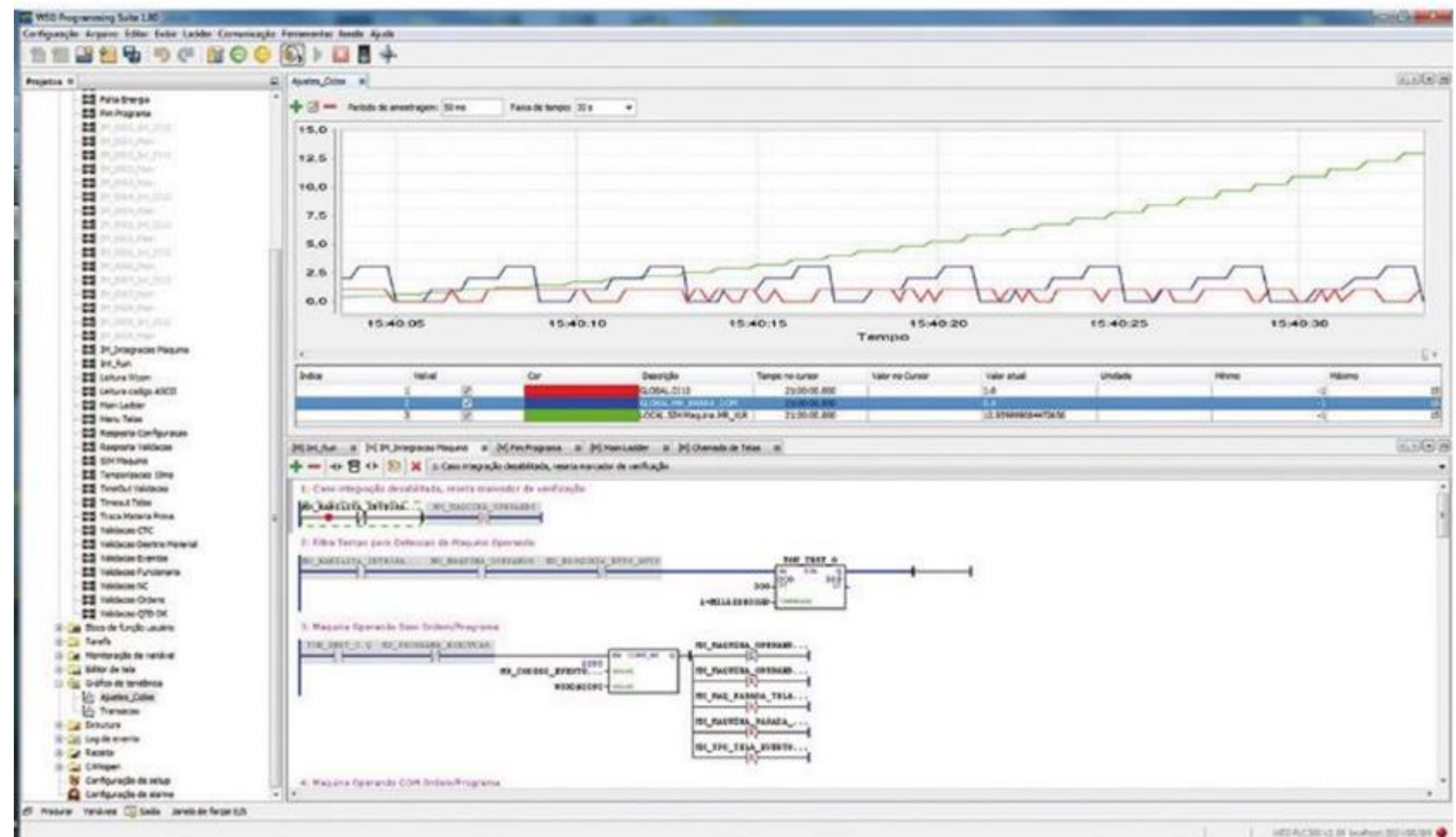
# Advanced Monitoring and Diagnostics



## 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!



Thank you for your  
time and attention.



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