CFW900 VARIABLE FREQUENCY DRIVE

Industrial Motors

Commercial & Appliance Motors

Automation

Digital & Systems

Energy

Transmission & Distribution

Coatings

Complete solution with **high performance** and **safety** combined with maximum flexibility and connectivity

Driving efficiency and sustainability

SUMMARY


STATUS
COMM
Run R1 1800rpm 02:22
Menu Principal
Status
Diagnósticos
Configurações
Assistentes
Procura NetID
LOC REM
JOG
CFW900
SYSTEM DRIVE

Complete solution with high performance and safety combined with flexibility and connectivity

The CFW900 is a full-featured VFD for controlling three-phase induction and permanent magnet motors. It offers excellent performance and highly precise torque, speed and position control. It can be used in a wide range of applications due to its high overload capacity.

The CFW900 variable frequency drive provides energy savings, safety, increased productivity and quality in the process network in which it is implemented.
It allows quick and easy access to the application information and configuration settings.

Using a menu structure, the new interface of the CFW900 line offers an unprecedented user interactive experience, providing settings and configurations with a detailed description of the parameters right on the HMI, in addition to event logs with date and time and a setup wizard.

Normal Duty (ND)

- 110% for 60 seconds every 5 minutes
- 150% for 3 seconds every 5 minutes

Power ranges[1)]

- 1.5 to 3.0 HP / 200-240 Vac single-phase or three-phase
- 1.5 to 150 HP / 200-240 Vac three-phase
- 1.5 to 650 HP / 380-480 Vac three-phase

Note: 1) For more power values, contact WEG Automation.

Heavy Duty (HD)

- 150% for 60 seconds every 5 minutes
- 200% for 3 seconds every 5 minutes

Power ranges[1)]

- 1.5 to 3.0 HP / 200-240 Vac single-phase or three-phase
- 1.5 to 125 HP / 200-240 Vac three-phase
- 1.5 to 500 HP / 380-480 Vac three-phase

Certifications

Benefits

- Easy operation
- Efficiency and high performance
- Connectivity
- Advanced energy saving function
- High power density
- Reduced size
- Functional safety
- 3C2 class tropicalization and conformal coating in the standard product or optional 3C3 class according to IEC 60721-3-3
- Modern graphic HMI
- Long cables to the motor, providing greater flexibility
- Connection for motor thermistor-PTC

WEG high performance technology

Vectrue technology®

Motor Control Methods

Induction motor

- Variable Torque (Scalar Volts/Hertz)
- Constant Torque (Slip Compensation)
- VVW (Voltage Vector WEG) – voltage vector control: motor speed control with automatic adjustment to load and power supply variations.
- Sensorless vector (without encoder) – induction motors: torque and speed vector control with excellent dynamic response, even at low speeds.
- Vector with encoder: the encoder module makes the interface between the CFW900 and the motor, providing a closed-loop speed and position control with excellent precision and dynamic response across the entire speed range (even with the motor stopped).

PM motor

- VVW PM is a method to control permanent magnet motors. It is ideal for medium and high speed applications where the main requirement is energy efficiency, such as: fans, pumps and compressors.

Advanced *Energy saving* function

The *Energy saving* function[1)] is intended to control the motor stator flux so that it operates at the optimum point of efficiency, seeking maximum energy savings.
This way, it reduces the motor losses and improves the system performance.
This new technology brings advantages for applications with variable and constant torque loads.

Note: 1) The energy saving function is only available for induction machines. For synchronous machines, the MTPA (Maximum Torque Per Amp) function is used. For further information, refer to the programming manual.

Result

- Maximize the torque output of the motor for a given stator current magnitude by the use of Field-Oriented Control. (FOC) Minimizes stator losses not related to torque development.

Benefits

- Improved torque performance and efficiency development.

Complete solution for permanent magnet motors

High efficiency and performance solution for your application

The CFW900, together with permanent magnet motors, offers the highest energy efficiency solution on the market. A perfect match for applications that require speed variation, low noise and a small size. In the *Sensorless* mode, the system — composed of a permanent magnet motor and the CFW900 — is capable of performing torque control at zero speed without forced ventilation.

The CFW900 variable frequency drive has a special software application for sensorless drive and control of permanent magnet motors with an exclusive control strategy named “Maximum Torque per Ampere”. This control combines the components of alignment torque with reluctance torque, resulting in an excellent high-efficiency drive system. WEG technology provides the industry greater efficiency, quality and savings.

Intelligent thermal management

Due to the constant evolution of industrial processes and machines, efficient and effective solutions are increasingly required. The CFW900 has a unique thermal management function that allows its use in environments with different temperatures. From an integrated system, the VFD can measure the ambient temperature and **configure itself** by varying its switching frequency, thus becoming a **versatile** VFD and enabling its use in different industrial applications.

- Reduces the need to size the CFW900 for applications with possible operation at high temperatures.
- Keeps the VFD and the motor operating in adverse conditions of higher temperature, avoiding fault conditions that cause the system to stop.
- In addition to the optimized performance, the fans can be monitored via parameters, which will indicate the speed and the running time, ensuring better performance and low energy consumption.

MULTIPLE **ADVANTAGES**

In addition to its modernity and high performance, the CFW900 offers many other benefits for your application:

- Operation at ambient temperature from -10 °C to 50 °C[1)]
- Easy fan removal for cleaning or replacement
- Improved control type methodology
- Optimal Braking®
- Higher power density

Menu navigation | Robustness | Easy operation | Simple monitoring

Note: 1) In models with frames A, B, C and D.

Human-machine interface

The CFW900 HMI offers a smart, modern and easy-to-use interface with simple and fast interaction.

USB port

Easy monitoring via PC and firmware update

Bluetooth connectivity®

RTC

Real-time clock with event log containing date/time and data storage in the VFD

Graphic HMI

Intuitive, customizable

Detachable keypad

Panel door or machine installation

***Help* key**

Shows help text on the highlighted content

Selection of the direction of rotation

***Start* key**

***Stop* key**

Local/remote selection

***JOG* key**

1

High performance graphic HMI

There are three main screens, which can be configured to display up to nine variables each.

2

Programming

All the HMI operation is based on menus, which contain the reading and writing variables. The menus are divided into levels, containing menus and submenus.

3

Diagnostics

To simplify the diagnosis of faults and problems in the application or in the motor, the CFW900 can store the statuses at a given time interval — such as: faults, alarms, event history, all of them saved with the RTC date and time in .csv files.

4

Selectable languages

The user can choose the language of the HMI: English, Spanish or Portuguese.[1)]

Note: 1) To check the other languages available, consult the programming manual.

WEG solutions

The CFW900 offers a free tool package in its standard version, adding flexibility and versatility to the VFD.

SoftPLC

Available in the standard version, this software function adds to the CFW900 the functionalities of a programmable logic controller (PLC), allowing the creation of your own software applications, ensuring flexibility and lower costs. This functionality streamlines operation and increases performance, in many cases, eliminating the need for an external PLC, optimizing and simplifying the system.

WPS – WEG Programming Suite

The WPS software is a WEG integrated tool that assists in the creation of automation applications, enabling graphic monitoring, parameter setting and programming in Ladder Logic.

Monitoring
You can view dashboards and graphs of the drive performance.

Parameter list
Allows navigation of numeric parameters, enumerations and bit string with parameter description and text containing detailed help.

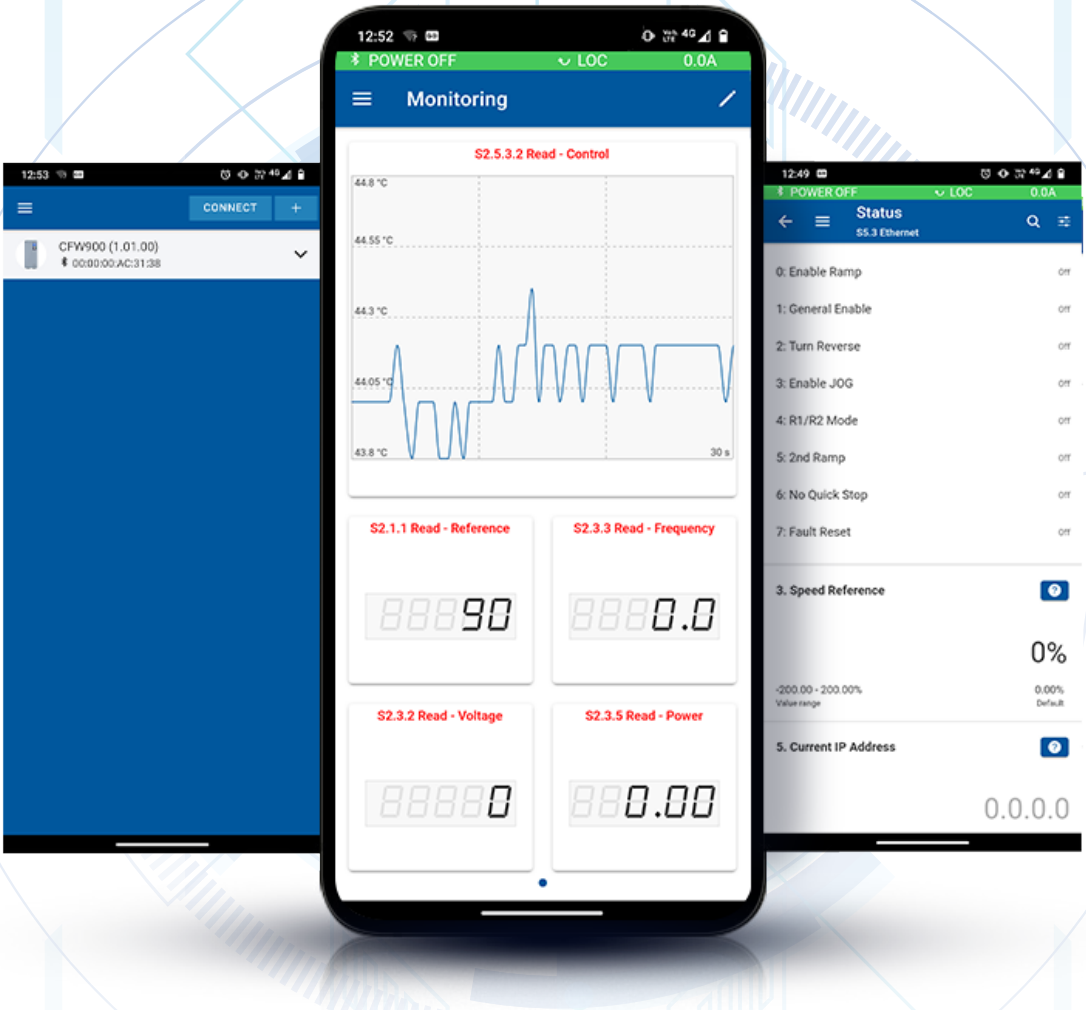
Parameter backup
Allows recording backups. The backup, when restored, performs the comparison with the present parameter setting.

Oriented start-up
Allows performing the parameter setting following an oriented sequence.

Trend
Allows creating graphs containing multiple channels of different scales and units. It has the option to share the screenshot or data through data file in the .csv file.

Fault, alarm and event log
Allows consulting the history of the device's faults, alarms and event logs. It has the option to share the logs through data file in the .csv file.

The WPS programming software is available on the website: *www.weg.net*.



Information at Your Fingertips

Developed to be the best VFD on the market and bring more convenience and flexibility to the operation, maintenance and management of your Drive, the CFW900 has Bluetooth® communication and the free WPS Mobile app. It allows monitoring, naming, tracking in the plant and setting the parameters of your VFD.

The new WPS Mobile app is available for Android and IOS. Download it and learn more about this WEG solution.

Baixar na App Store

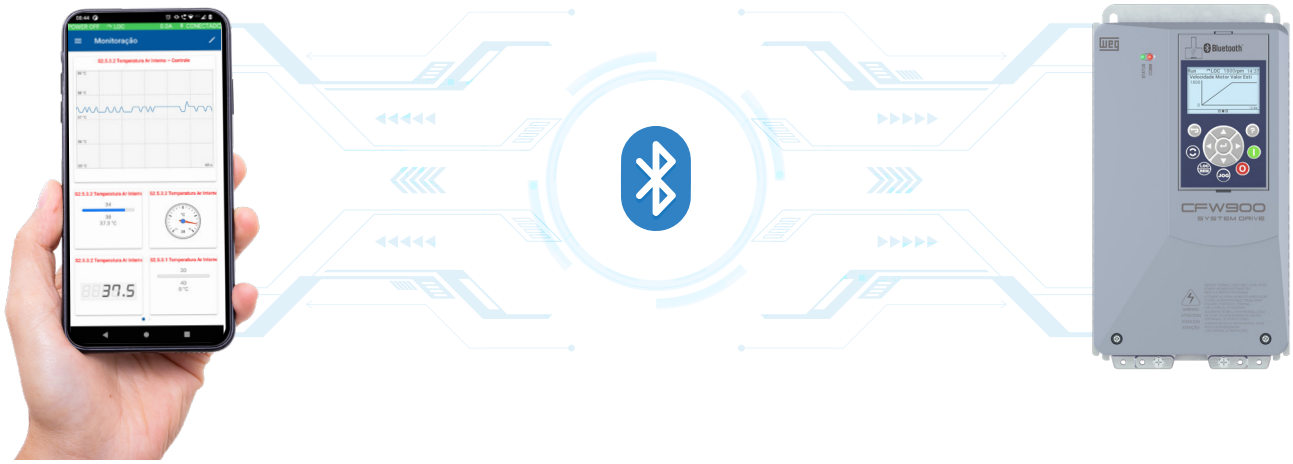
DISPONÍVEL NO Google Play


CONTROL PANEL
ON
OFF
ESP
Control
Control

Connectivity

The CFW900 can be connected to the main industrial communication networks without additional modules, as it has two switch Ethernet ports for EtherNet/IP, Modbus-TCP and MQTT communication, and a serial port (RS485) for Modbus-RTU communication. Furthermore, by adding the plug-in module, communication can be expanded to other industrial protocols, such as Profibus-DP, CANopen, DeviceNet and EtherCAT.

The new CFW900 HMI with Bluetooth® connectivity is ideal for panel builders and repair shops and allows programming, monitoring, parameter backup and much more via tablets or smartphones.



In line with Industry 4.0

With the constant evolution and search for higher productivity, industries are increasingly investing in the automation and digitization of their processes. The CFW900 VFD has native integration and is easy to implement with the **WEG Motion Fleet Management** (MFM) solution, which allows online monitoring and maintenance management of the industrial drive fleet.

Using the Ethernet port available on the standard product, your drive can publish the relevant drive data on the MFM and thus provide a way to optimize the operation and maintenance resources, increasing performance and reducing costs by means of the preventive and predictive maintenance of your application.

Note: 1) For further information about the WEG Motor Fleet Management, see the catalog of the solution.

Safety

Machine reliability has become a major concern, and the CFW900 was therefore developed for applications where safety is essential.

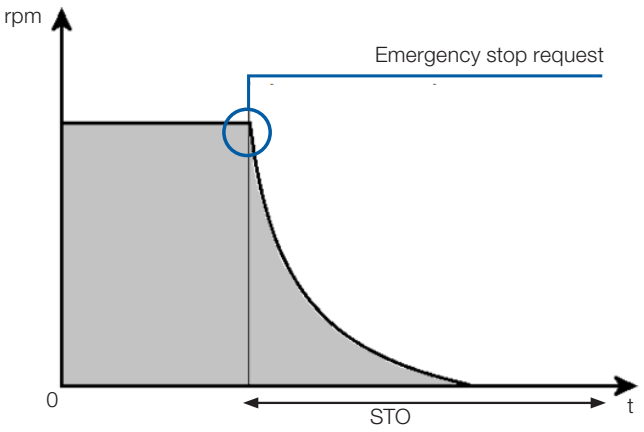
Safety stop function - Safe Torque Off (STO) and SS1

The CFW900 has the STO and SS1 safety functions built-in the standard product, making it easier to meet the safety requirements of the machine and the application.

STO (Safe Torque Off)

Once activated, the *STO* function immediately switches off the VFD output to the motor, disconnecting the supply of torque generating power.
The *STO* function is also used for preventing unexpected machine starts or for emergency stops, in compliance with stop category 0 (IEC 60204-1).

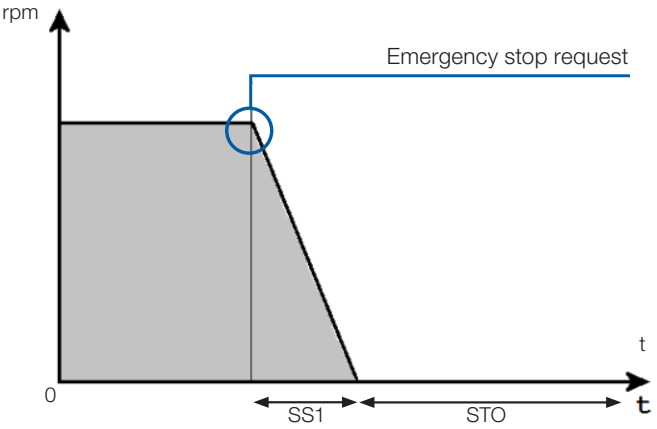
This function is applicable where the motor can be stopped soon enough by the load itself or when motor coasting is not safety-relevant. The *STO* function is widely used in many types of machines: with moving shafts, handling equipment, conveyors, extruders and mixers.



SS1 (Safe Stop)

Once activated, the *SS1* function first enables the motor deceleration ramp and, after the programmed time, automatically enables the STO function. The *SS1* function can be used to implement a controlled stop with available energy, so that the deceleration is performed first and then the power supply to the motor is disconnected, in compliance with stop category 1 according to IEC 60204-1. This function is used when, in case of a safety-related fault, the drive must first stop the motor and then enter the STO state.

It is typically used to brake motors at high speed as quickly as possible or to stop loads with high inertia where the motion needs to be stopped before transitioning to the no torque state. The most common applications are rolling mills, saws, conveyors, fans, mills, winders, extruders and mixers.



Safety functions built-in the CFW900 VFD, making it easier to meet the safety requirements of the machine and the application.

Fewer components and no additional cabling required, saving space and installation costs.

No electromechanical components, resulting in faster responses and a higher degree of productivity.

Due to the SIL 3/PL e safety level, the CFW900 with safety functions does not require external safety relays for monitoring cables and emergency-stop pushbuttons.

Features

Inductor on DC link reduces harmonic distortion

The CFW900 VFDs are equipped with a DC link inductor for harmonic mitigation, providing compliance with the requirements of IEC 61000 parts 3-2 and 3-12, related to the injection of harmonics into the network. In VFDs with three-phase power supply, we have THDi ≤ 42% for operation with output current between 75 and 100% of the ND (Normal Duty) rated current.

Built-in RFI suppressor filter

The CFW900 VFD standard version has a built-in RFI filter, meeting the requirements of the electromagnetic compatibility directive.

Conformal coating

Application of special varnish on the CFW900 electronic boards to extend the service life, protecting against dust, humidity and corrosive chemical substances.
Class 3C2 protection is standard for the entire CFW900 line, and it complies with IEC 60721-3-3. Also available in the Extra-Coating version, class 3C3, as an optional feature.

Control circuit with independent power supply

24 VDC power supply to keep the control and communication circuit energized via an external source, without the need for power supply in the power circuit.

Motor temperature monitoring

Monitoring of the motor temperature readings (PTC, Pt-100), providing motor thermal protection.[1)]

Baixar na App Store

DISPONÍVEL NO Google Play

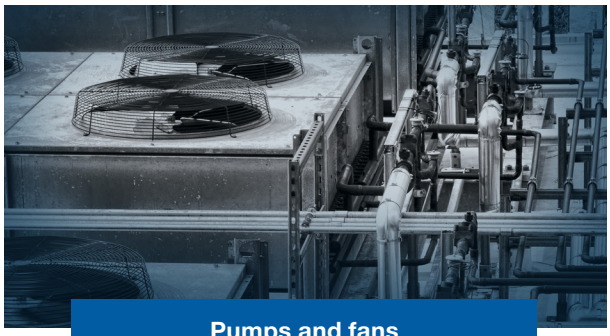
Developed Following International Standards

WEG, seeking to ensure that its products have an increasingly high energy efficiency level, developed the new CFW900 VFD in line with the new European Ecodesign directive, which establishes mandatory minimum energy performance standards for integrated systems.

To help customers obtain power information based on operating points, WEG developed a calculation app that will classify the VFD efficiency and also the system efficiency for motors used together with the VFDs. It can be obtained for free at the App Store and Google Play.

Note: 1) Temperature Monitoring: through PTC sensors (available by default, using AI and the AO of the IOS Module) or PTC/Pt-100/PT1000 (with TEMP-01 accessory module).

Applications

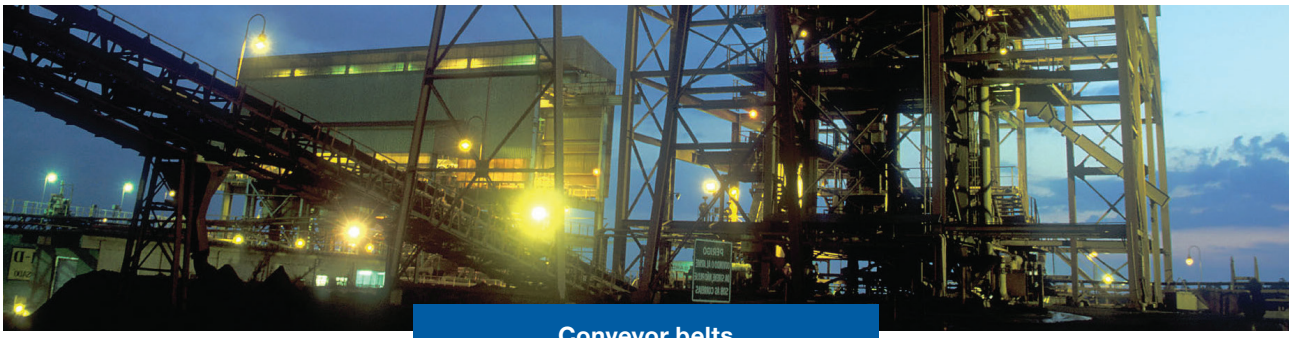


Pumps and fans

Compressors

Load hoisting

Mills and centrifuges



Conveyor belts

Machines and processes in general

Coding[1)]

1	2	3	4	5
CFW900	A	02P6	T	4

6	7	8	9	10
NB	20	---	---	---

1 - CFW900 variable frequency drive
2 - CFW900 size according to the table below
3 - Rated output current according to the table below

Size	Single-phase or three-phase	Three-phase		
	200 - 240 Vac	200 - 240 Vac	208 - 240 Vac	380 - 480 Vac
A	04P6 = 4.6 A 06P0 = 6.0 A 07P5 = 7.5 A 10P0 = 10.0 A	04P6 = 4.6 A 06P0 = 6.0 A 07P5 = 7.5 A 10P6 = 10.6 A 13P0 = 13.0 A 19P0 = 19.0 A		02P8 = 2.8 A 03P6 = 3.6 A 04P8 = 4.8 A 06P5 = 6.5 A 09P6 = 9.6 A 14P0 = 14.0 A 17P0 = 17.0 A
B		26P0 = 26.0 A 34P0 = 34.0 A 45P0 = 45.0 A		26P0 = 26.0 A 33P0 = 33.0 A 39P0 = 39.0 A
C		56P0 = 56.0 A 70P0 = 70.0 A 80P0 = 80.0 A		50P0 = 50.0 A 62P0 = 62.0 A 74P0 = 74.0 A
D			0110 = 110 A 0135 = 135 A 0150 = 150 A	96P0 = 96.0 A 0124 = 124 A 0146 = 146 A
E			0172 = 172 A 0195 = 195 A 0250 = 250 A	0172 = 172 A 0203 = 203 A 0242 = 242 A
F			0315 = 315 A 0370 = 370 A	0315 = 315 A 0370 = 370 A
G				0430 = 430 A 0480 = 480 A 0540 = 540 A 0601 = 601 A
H				0760 = 760 A

Note: 1) ND rated currents.

4 - Number of phases

B	Single-phase or three-phase power supply
T	Three-phase power supply

5 - Rated voltage

2	200-240 V
4	380-480 V
5	500-600 V

6 - Internal dynamic braking

NB	Without internal dynamic braking IGBT
DB	With internal dynamic braking IGBT

7 - Protection rating

20	IP20 protection rating
21	IP21 protection rating
N1	NEMA UL Type 1 protection rating

8 - Safety functions

Y2	With safety functions (STO AND SS1) in accordance with EN 61800-5-2

9 - HMI version

Blank	HMI without Bluetooth®
B	HMI with Bluetooth®

10 – Special hardware versions

Blank	Standard hardware
HEC	Products with extra-coating boards
Hxx	Special hardware

11 – Special software version

Blank	Standard software
Sxx	Special software

Specification

CFW900 – IP20 – 230 VAC

Motor Voltage	ND / VT [1]		HD / CT [1]		Catalog Number	Braking Transistor	Frame Size [4]	Dimensions (in) H x W x D	Approx. Weight (lbs)
	Motor HP [2]	Drive Amps [3]	Motor HP [2]	Drive Amps [3]					
230 VAC / Three-Phase	Input Power Supply: Single or Three-Phase 200-240 VAC with Dynamic Braking Transistor								
	1 1/2	4.6	1 1/2	4.6	CFW900A04P6B2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	2	6	2	6	CFW900A06P0B2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	2	7.5	2	7.5	CFW900A07P5B2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	3	10	3	10	CFW900A10P0B2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	Input Power Supply: Three-Phase 200-240 VAC with Dynamic Braking Transistor								
	1 1/2	4.6	1 1/2	4.6	CFW900A04P6T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	2	6	1 1/2	5	CFW900A06P0T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	2	7.5	2	6.8	CFW900A07P5T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	3	10.6	3	9.6	CFW900A10P6T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	5	13	3	11	CFW900A13P0T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	7 1/2	19	5	16	CFW900A19P0T2DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	10	26	7 1/2	22	CFW900B26P0T2DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	10	34	10	28	CFW900B34P0T2DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	15	45	10	35	CFW900B45P0T2DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	20	56	15	47	CFW900C56P0T2DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	25	70	20/25	59	CFW900C70P0T2DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	30	80	25	70	CFW900C80P0T2DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	40	110	30	92	CFW900D0110T2DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	50	135	40	110	CFW900D0135T2DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	60	150	50	124	CFW900D0150T2DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	75	172	60	150	CFW900E0172T2DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	75	195	60	160	CFW900E0195T2DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	100	250	75	211	CFW900E0250T2DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	Input Power Supply: Three-Phase 200-240 VAC without Dynamic Braking Transistor								
	40	110	30	92	CFW900D0110T2NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	50	135	40	110	CFW900D0135T2NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	60	150	50	124	CFW900D0150T2NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	75	172	60	150	CFW900E0172T2NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	75	195	60	160	CFW900E0195T2NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	100	250	75	211	CFW900E0250T2NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	125	315	100	263	CFW900F0315T2NB20Y2B	No	F	42.3 x 14.6 x 14.2	222.6
	150	370	125	315	CFW900F0370T2NB20Y2B	No	F	42.3 x 14.6 x 14.2	222.6

Notes:
1) ND/ VT = Normal Duty / Variable Torque (Quadratic Load), 110% overload / 60 seconds OR 150% overload / 3 seconds, every 5 minutes.
HD/ CT = Heavy Duty / Constant Torque, 150% overload / 60 seconds OR 200% overload / 3 seconds, every 5 minutes.
2) "HP" rating based on WEG 4-Pole W22 motors' "average FLA values." Use as a guide only.
3) Motor FLA may vary with speed and manufacturer. ALWAYS compare motor FLA to nominal amps of the drive.
4) Frame A to D: Maximum 122°F (50°C) ambient temperature (w/o derating) with factory default settings for Intelligent Thermal Management (Active) and switching frequency (4 kHz).
Frame E: Maximum 113°F (45°C) ambient temperature (w/o derating) with factory default settings for Intelligent Thermal Management (Active) and switching frequency (2 kHz).

Specification

CFW900 – IP20 – 460 VAC

Motor Voltage	ND / VT[1]		HD / CT[1]		Catalog Number	Braking Transistor	Frame Size[4]	Dimensions (in) H x W x D	Approx. Weight (lbs)
	Motor HP[2]	Drive Amps[3]	Motor HP[2]	Drive Amps[3]					
460 VAC / Three-Phase	Input Power Supply: Three-Phase 380-480 VAC with Dynamic Braking Transistor								
	2	2.8	1 1/2	2.4	CFW900A02P8T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	2	3.6	2	2.8	CFW900A03P6T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	3	4.8	2	3.9	CFW900A04P8T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	5	6.5	3	5.3	CFW900A06P5T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	7 1/2	9.6	5	8	CFW900A09P6T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	10	14	7 1/2	12	CFW900A14P0T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	10	17	10	17	CFW900A17P0T4DB20Y2B	Yes	A	10.6 x 5.7 x 8.7	9.9
	15/20	26	15	21	CFW900B26P0T4DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	25	33	20	28	CFW900B33P0T4DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	30	39	25	33	CFW900B39P0T4DB20Y2B	Yes	B	15.2 x 6.5 x 9	22.0
	40	50	30	40	CFW900C50P0T4DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	50	62	40	50	CFW900C62P0T4DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	60	74	50	62	CFW900C74P0T4DB20Y2B	Yes	C	18.1 x 7.9 x 11.6	45.2
	75	96	60	75	CFW900D96P0T4DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	100	124	75	103	CFW900D0124T4DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	125	146	100	124	CFW900D0146T4DB20Y2B	Yes	D	24.6 x 9.8 x 11.6	73.8
	150	172	125	146	CFW900E0172T4DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	175	203	125	161	CFW900E0203T4DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	200	242	150	190	CFW900E0242T4DB20Y2B	Yes	E	26.6 x 13.2 x 14.1	140.0
	Input Power Supply: Three-Phase 380-480 VAC without Dynamic Braking Transistor								
	75	96	60	75	CFW900D96P0T4NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	100	124	75	103	CFW900D0124T4NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	125	146	100	124	CFW900D0146T4NB20Y2B	No	D	24.6 x 9.8 x 11.6	73.8
	150	172	125	146	CFW900E0172T4NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	175	203	125	161	CFW900E0203T4NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	200	242	150	190	CFW900E0242T4NB20Y2B	No	E	26.6 x 13.2 x 14.1	140.0
	250	315	200	263	CFW900F0315T4NB20Y2B	No	F	42.3 x 14.6 x 14.2	222.6
	300	370	250	315	CFW900F0370T4NB20Y2B	No	F	42.3 x 14.6 x 14.2	222.6
	350	430	300	370	CFW900G0430T4NB20Y2B	No	G	50.00 x 16.9 x 14.2	407.8
	400	480	350	430	CFW900G0480T4NB20Y2B	No	G	50.00 x 16.9 x 14.2	407.8
	450	540	400	480	CFW900G0540T4NB20Y2B	No	G	50.00 x 16.9 x 14.2	407.8
	500	601	450	515	CFW900G0601T4NB20Y2B	No	G	50.00 x 16.9 x 14.2	407.8
	650	760	500	601	CFW900H0760T4NB20Y2B	No	H	51.3 x 21.6 x 16.8	533.5

Notes:

1) ND/ VT = Normal Duty / Variable Torque (Quadratic Load), 110% overload / 60 seconds OR 150% overload / 3 seconds, every 5 minutes.
HD/ CT = Heavy Duty / Constant Torque, 150% overload / 60 seconds OR 200% overload / 3 seconds, every 5 minutes.

2) "HP" rating based on WEG 4-Pole W22 motors' "average FLA values." Use as a guide only.

3) Motor FLA may vary with speed and manufacturer. ALWAYS compare motor FLA to nominal amps of the drive.

4) Frame A to D: Maximum 122°F (50°C) ambient temperature (w/o derating) with factory default settings for Intelligent Thermal Management (Active) and switching frequency (4 kHz).
Frame E: Maximum 113°F (45°C) ambient temperature (w/o derating) with factory default settings for Intelligent Thermal Management (Active) and switching frequency (2 kHz).

Accessories

By default, the CFW900 comes with: CFW900-IOS, which contains digital and analog inputs and outputs, input for external power supply and RS485 communication; CFW900-4SLOTS, backplane, which allows the installation of up to four accessories (slots A to D); CFW900-REL-01, which provides relay outputs.

The VFDs of the CFW900 line can be equipped with accessories to expand their application possibilities; the accessories are interchangeable between all frames.

Accessory installation

Control accessories expand the drive communication and input/output functions and are mounted in the backplane slots. The slots are interchangeable, and any accessory can be mounted in any slot in any quantity (except for communication network accessories, which are limited to one per VFD).

Name	Description
Communication accessories and functionality expansion	
CFW900-CCAN-W[1)]	CAN interface module (CANopen/DeviceNet)
CFW900-ENC-01	Module for connecting an incremental encoder with a signal of up to 310 kHz
CFW900-IOAI-01	Module with 3 analog inputs and 2 isolated analog outputs
CFW900-IOD-01	Module with 8 isolated digital inputs and 8 isolated digital outputs
CFW900-REL-01	Module with 3 digital relay outputs (1 unit supplied as standard)
CFW900-TEMP-01	Module with 6 isolated inputs for PTC/Pt-100/Pt-1000 sensors
CFW900-CPDP-N	Anybus Profibus-DP interface module
CFW900-CPN-IRT-N	Anybus PROFINET IRT interface module
CFW900-CECAT-N	Anybus EtherCAT interface module
Individual HMI, frame and cables for external HMI	
CFW900-IHM-BLT H	HMI with Bluetooth® interface (individual item) (standard for option B)[2)]
CFW900-HMI	HMI (individual)[2)]
CFW900-RHMIF	Frame kit for HMI (IP66 protection rating)
CFW900-CCHMIR01M	1 m serial cable for remote HMI
CFW900-CCHMIR02M	2 m serial cable for remote HMI
CFW900-CCHMIR03M	3 m serial cable for remote HMI
CFW900-CCHMIR05M	5 m serial cable for remote HMI
CFW900-CCHMIR07M	7.5 m serial cable for remote HMI
CFW900-CCHMIR10M	10 m serial cable for remote HMI

Notes: 1) It is only possible to use one CFW900-CCAN-W communication module per inverter.
2) For remote HMI connection, use a D-Sub9 (DB-9) male and female cable with pin-to-pin connections.

Accessories

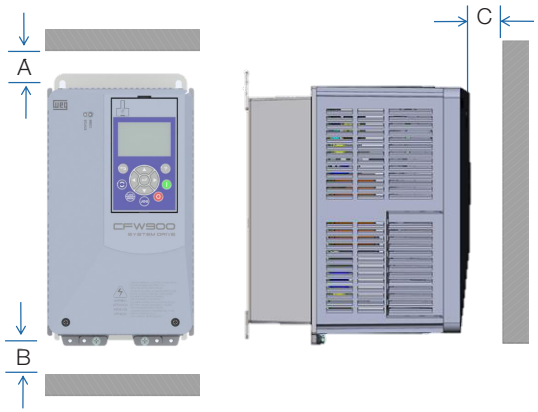
Name	Description
Others	
CFW900-4SLOTS	Backplane with 4 slots (A through D) to connect accessories (supplied as standard)
CFW900-7SLOTS	Backplane with 7 slots (A through G) to connect accessories
CFW900-KN1A	NEMA1 kit for frame A (standard for option N1)
CFW900-KN1B	NEMA1 kit for frame B (standard for option N1)
CFW900-KN1C	NEMA1 kit for frame C (standard for option N1)
CFW900-KN1D	NEMA1 kit for frame D (standard for option N1)
CFW900-KN1E	NEMA1 kit for frame E (standard for option N1)
CFW900-IP21A	IP21 kit for frame A
CFW900-IP21B	IP21 kit for frame B
CFW900-IP21C	IP21 kit for frame C
CFW900-IP21D	IP21 kit for frame D
CFW900-IP21E	IP21 kit for frame E
CFW900-KMFA	Flange mounting kit Frame A
CFW900-KMFB	Flange mounting kit Frame B
CFW900-KMFC	Flange mounting kit Frame C
CFW900-KMFD	Flange mounting kit Frame D
CFW900-KMFE	Flange mounting kit Frame E
CFW900-KMFF	Flange mounting kit Frame F
CFW900-KMFG	Flange mounting kit Frame G
CFW900-KMFH	Flange mounting kit Frame H
CFW900-KDF-01	Flexible duct kit (intake kit) for frames E, F, G & H
CFW900-KDF-02	Flexible duct kit (exhaust kit) for frames E, F, G & H
CFW900-KMH-01	Removable mounting kit[1)]
SDC-8GB	SDC-8GB - 8GB industrial temperature microSD card

Note: 1) Kit applicable to F, G and H frames.

Mechanical installation

Standard installation

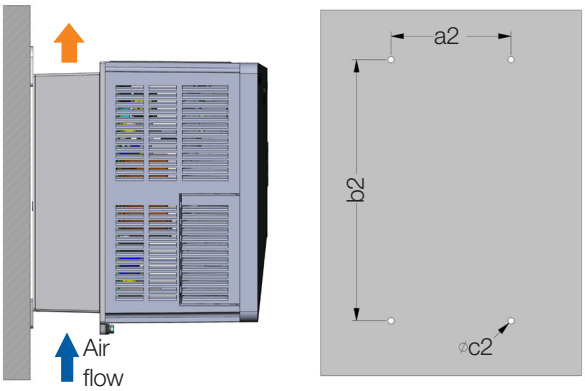
Side by side installation[1)]



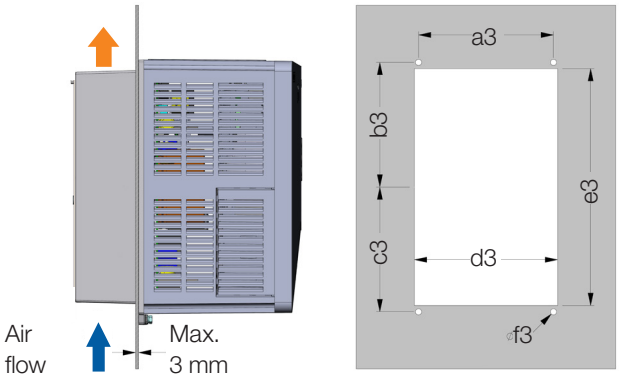
Frame	Protection rating	A mm	B mm	C mm	D mm
A	IP20	25	25	10	0
	IP21 / UL Type 1	25	25	10	30
B	IP20	40	45	10	0
	IP21 / UL Type 1	40	45	10	30
C	IP20	110	130	10	0
	IP21 / UL Type 1	110	130	10	30
D	IP20	110	130	10	0
	IP21 / UL Type 1	110	130	10	30
E	IP20	150	250	20	0
	IP21 / UL Type 1	150	250	20	30
F	IP20	150	250	20	0
G	IP20	150	250	20	0
H	IP20	150	250	20	0

Note: 1) Only for frames A, B, C and D: side by side mounting without side clearance with removal of the top sticker.

Surface installation



Flange installation



Model	a2 (mm)	b2 (mm)	c2 (M)	a3 (mm)	b3 (mm)	c3 (mm)	d3 (mm)	e3 (mm)	f3 (M)
Frame A	115	250	M5	130	120	120	136	226	M5
Frame B	125	370	M5	150	177,1	177,1	158	342	M5
Frame C	150	425	M6	175	210	210	188	405	M6
Frame D	200	600	M8	220	290	298	238	565	M8
Frame E	200	650	M8	275	320	320	316	620	M8
Frame F	125[1)]	1000	M10	270	497	497	331	957	M10
Frame G	150[2)]	12000	M10	350	591,8	591,8	392	1147,6	M10
Frame H	150[3)]	1224	M10	425	609,6	609,6	507,5	1183,2	M10

Notes: 1) In frame F there are 3 holes, so the total width between the holes is 250 mm [9.84 in].
2) In frame G there are 3 holes, so the total width between the holes is 300 mm [11.81 in].
3) In frame H there are 4 holes, so the total width between the holes is 450 mm [17.71 in].

Dimensions and weights

Size	Dimension (mm) [in]			Weight (Kg) I (lb)
	Height (H)	Width (W)	Depth (D)	
A	269 [10.59]	145.0 [5.71]	222 [8.73]	4.5 I 9.92
B	385.0 [15.16]	165.2 [6.51]	228 [8.98]	10.0 I 22.04
C	460.0 [18.11]	200.0 [7.87]	294 [11.57]	20.5 I 45.2
D	625.0 [24.60]	250.0 [9.84]	294 [11.57]	33.5 I 73.8
E	675 [26.57]	335.0 [13.19]	358 [14.09]	63.5 I 140.0
F	1,074.3 [42.30]	370.0 [14.57]	360.1 [14.18]	101 I 222.6
G	1,267.8 [49.91]	430.0 [16.93]	358.7 [14.12]	185 I 407.8
H	1,303.4 [51.31]	535.0 [21.6]	425.9 [16.77]	242 I 533.5

Protection rating

The standard protection rating of the CFW900 is IP20, but it is possible to increase its protection rating to IP21 or UL Type 1 by installing specific kits[1)].

Frame A with UL Type 1 kit - "CFW900-KN1A" accessory.

Frame A with IP21 kit - "CFW900-IP21A" accessory.

Note: 1) The kit must be selected according to the size of the VFD.

Standards

Compliance with the standards	
Safety standards	UL 61800-5-1 - Adjustable Speed Electricla Power Drive Systems - Part 5-1: Safety Requirements - Electrical, Thermal and Energy. Note: Suitable for Installation in a compartment handling conditioned air
	EN 61800-5-1 - Safety requirements electrical, thermal and energy
	EN 50178 - Electronic equipment for use in power installations
Specification standards	EN 60146 (IEC 146) - Semiconductor converters
	EN 61800-2 - Adjustable speed electrical power drive systems - Part 2: general requirements - Rating specifications for low voltage adjustable frequency AC power drive systems
Electromagnetic compatibility standards (EMC)	EN 61800-3 - Adjustable speed electrical power drive systems - Part 3: EMC product standard including specific test methods
	EN 55011 - Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment
	CISPR 11 - Industrial, scientific and medical (ISM) radio-frequency equipment
	EN 61000-4-2 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Sec. 2: electrostatic discharge immunity test
	EN 61000-4-3 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Sec. 3: radiated, radio-frequency, electromagnetic field immunity test
	EN 61000-4-4 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Sec. 4: electrical fast transient/burst immunity test
	EN 61000-4-5 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Sec. 5: surge immunity test
	EN 61000-4-6 - Electromagnetic compatibility (EMC) - Part 4: testing and measurement techniques - Sec. 6: immunity to conducted disturbances, induced by radio-frequency fields
	EN 61000-4-11 - Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests
Frame standards	EN 60529 - Degrees of protection provided by enclosures (IP code)
	U_L 50 - Enclosures for electrical equipment
Ecodesign standards	IEC 61800-9-2 Parts 1 & 2 - Adjustable speed electrical power drive systems - Ecodesign for power drive systems, motor starters, power electronics and their driven applications
Functional safety standards	EN 61800-5-2 - Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional
	EN ISO 13849-1 - Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
	EN 62061 - Safety of machinery - Functional safety of safety-related control systems
	IEC 61508 Parts 1-7 - Functional safety of electrical/electronic/programmable electronic safety-related systems
	EN 60204-1 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements
Directives	
Low-voltage	2014/35/EU
EMC	2014/30/EU
RoHS	2011/65/EU 2015/863/EU
Ecodesign	2009/125/EC
Certificaciones	
U_L and c_{UL}	E184430
CE	
Functional safety	TÜV Rheinland Certificate

Technical data

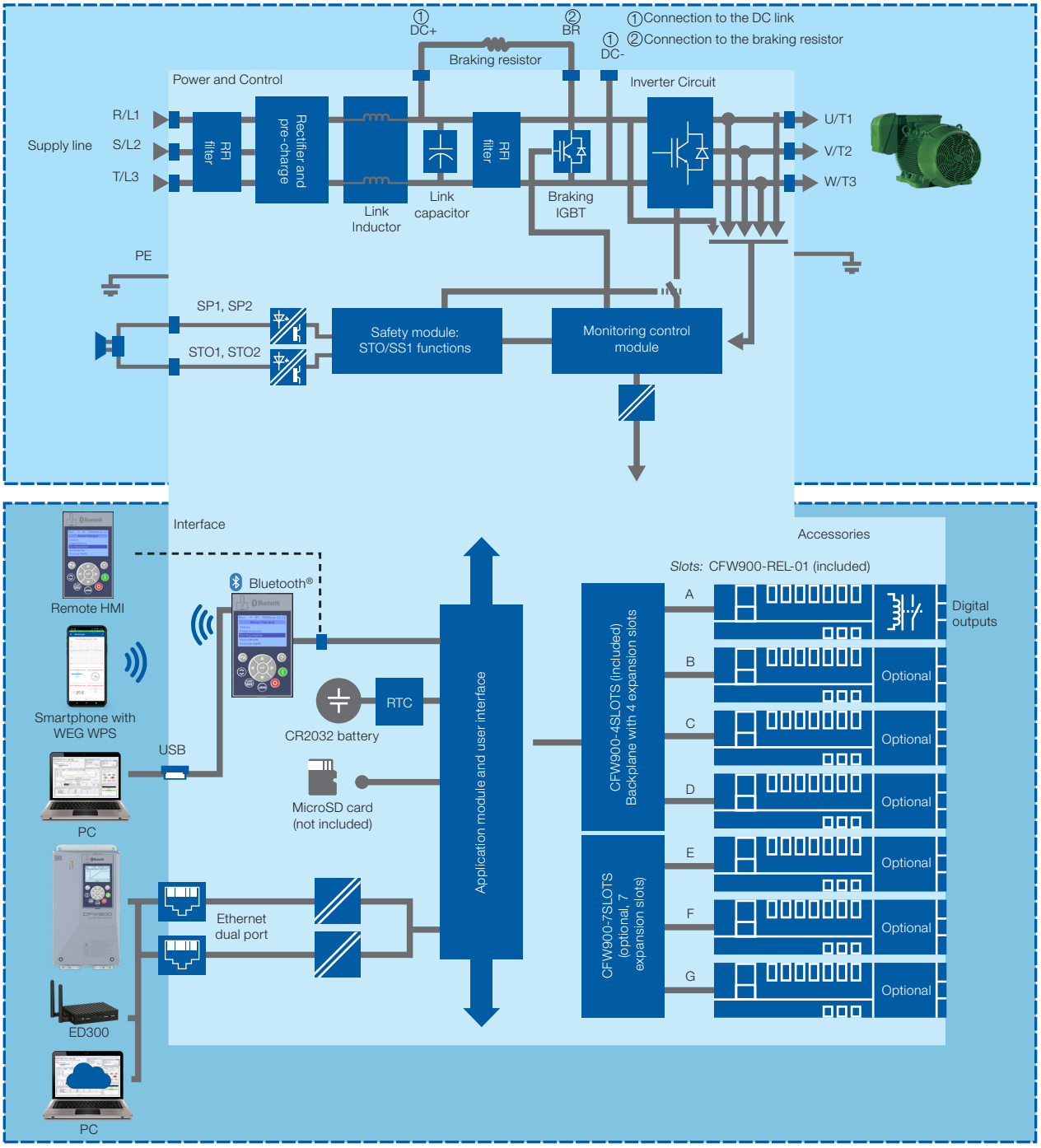
		B2	T2	T4
Power supply	Input	AC power supply		
		200...240 V rms	Frames A, B and C: 200...240 V Frames D, E and F: 208...240 V	380 to 480 V
		Tolerance		
		-15% +10%	Frames A, B and C: -15%+10% Frames D, E and F: -10% +10%	-15% +10%
		DC power supply		
		229...400 VDC	Frames A, B and C: 229…400 VDC Frames D, E and F: 252...400 VDC	436...800 VDC
		Frequency 50/60 Hz (range: 48...63 Hz)		
	Output	Output frequency: Frames A...D: 0 to 500 Hz Frame E: 0 to 250 Hz		
	Typical power factor	0.93 three-phase input 0.70 single-phase input		
	Overvoltages	Category III (EN 61010 / IEC 61800-5-1 / U L61800-5-1)		
Control	Control types	Scalar - V/f VVW: voltage vector control Vector control with encoder Sensorless vector control (without encoder)		
	Supported motors	Induction motor Permanent magnet motor		
	Modulation	PWM SVM PWM for long output cables		
	Measurements and indications	Current measurement accuracy: 5% of the rated current Speed resolution: 1 rpm Built-in real-time clock		
	Switching frequency	Frames A...D: 4 kHz rated - 1...16 kHz adjustable Frame E: 2 kHz rated - 1...8 kHz adjustable Frame F: 2 kHz rated - 1...6 kHz adjustable Frame G and H: 2 kHz rated - 1...7 kHz adjustable		
Environmental conditions	Temperature	The maximum ambient temperature around the heatsink without output current derating: -10 °C to 45 °C (14 °F to 113 °F) for frames E, F, G and H models. -10 °C to 50 °C (14 °F to 122 °F) for other frames.		
	Aggressive environments	Conformal coating 3C2 (standard), 3C3 (optional)		
	Air relative humidity	5% to 95% non-condensing		
	Altitude	Rated up to 1,000 m Maximum 4,000 m with rated output current derating		
	Pollution degree	Degree 2 (according to EN 50178 and UL 508C), with non-conductive pollution. Condensation must not cause conduction through the accumulated residues.		
Protection rating	IP20	Standard protection rate		
	IP21	Using an IP21 kit		
	UL Type 1	With label on top and with conduit kit		
Safety	VFD protection	Overcurrent/short circuit at the output Under/overvoltage at the power Phase loss Overtemperature Overload on the motor, on the braking resistor and on the IGBTs External fault/alarm Phase-ground short circuit at the output		
	Functional safety	Built-in STO (Safe Torque Off) and SS1-t (Safe Stop 1 time controlled) functions Terminals suitable for dry contact or OSSD signals.		
RFI Filter		Built-in the CFW900 Reduced emission category C3 with 200 m shielded cable for motor connection		
Maximum cable length	No output reactance required	200 m (above 100 m it is recommended to use PWM modulation for long cables)		
	With output reactance	200...500 m		
	With sinusoidal filter on the VFD output	500...5,000 m		

Technical data

Inputs	Analog (standard interface)	2 differential analog inputs
		Isolated from the power circuits
		Levels: -10/0 to 10 V (11 bits + signal), 0/4 to 20 mA (10 bits)
		Maximum voltage: 30 V
		Maximum current: 25 mA
		Impedance: 400 kΩ (voltage mode), 250 Ω (current mode)
		Maximum common mode voltage: 10 V
	Digital (standard interface)	DI1 to DI4: 4 isolated digital inputs
		Low level: V_{DC} -3 V to 5 V, I<1.5 mA
		High level: V_{DC} > 11 V, I>2 mA
		Current: 8 mA @ 24 V (Typical)
		Maximum voltage: 30 V_{DC}
		Maximum current: 11 mA @ 30 V_{DC}
		DI5 and DI6
		2 isolated digital inputs
		Low level: V_{DC} -3 V to 5 V, I<0.5 mA
		High level: V_{DC} > 15 V, I>2 mA
		Current: 10 mA @ 24 V (Typical)
		Maximum voltage: 30 V_{DC}
		Maximum current: 13 mA @30 V_{DC}
Outputs	Analog (standard interface)	2 analog outputs
		Isolated from the power circuits
		Levels: 0 to 10 V (12 bits), 0/4 to 20 mA (12 bits)
		Load: RL 1 kΩ (voltage mode), RL 600 Ω (current mode)
	Digital (standard interface)	2 digital transistor outputs (NPN)
		Isolated from the power circuits
		Maximum current: 40 mA
		Protected against short circuit to the GND
		Maximum voltage: 24 V_{DC}
		With freewheel diode for 24 V_{DC} power supply
		Maximum frequency: 32 kHz
Input for microSD[1)] card		Card requirements: Max size 32 GB Industrial temperature (-40 °C to 85 °C) FAT32 file system
Communication	RS485	Isolated RS485 interface Modbus-RTU protocol
	Dual port Ethernet network (RJ45)	Two RJ45 Ethernet connectors 10/100 Mbps data rate with built-in switch dual port Protocol Modbus-TCP
	USB	Built-in the CFW900 HMI, mini type B
	Bluetooth®	Built-in the CFW900 HMI
	Fieldbus	CANopen; DeviceNet; EtherCAT; Ethernet/IP
Efficiency rating		IE2 efficiency (IEC 61800-9-2 / EN 50598-2)

Notes: 1) MicroSD card not included.
2) Features of CFW900-REL-01, standard on the product.

Block diagram



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Notes

Notes

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1-800-ASK-4WEG

info-us@weg.net

Duluth, GA US

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