

CFW100 - VARIABLE SPEED DRIVE

The ideal solution for small machine manufacturers

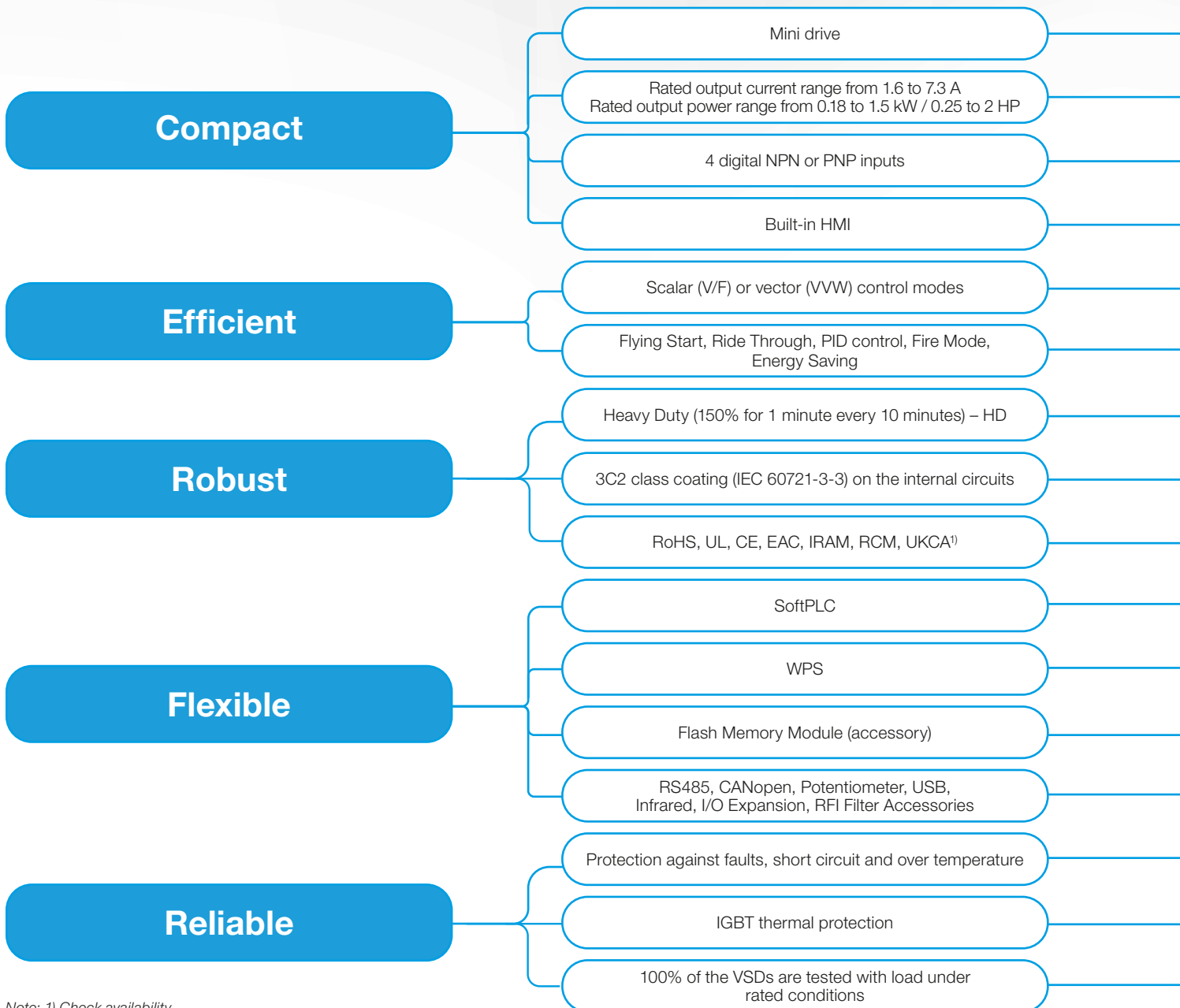


Motors | Automation | Energy | Transmission & Distribution | Coatings

CFW100

Mini Drive

The CFW100 is an extremely small, high performance variable speed drive for three-phase induction motors suitable for manufacturers of small machines. It features selectable scalar (V/F) or voltage vector (VVW) control, HMI, and Plug & Play philosophy for fast and simple accessory installation. It also offers SoftPLC, which adds the functionalities of PLC to the drive, and free programming and monitoring software applications.



Note: 1) Check availability.

Many applications...



at your fingertips!

- The smallest VSD on the market
- Single-phase power supply 100-127 V or 200-240 V
- Built-in inputs and outputs in the standard version
- CFW100 status information is easily viewed on the screen
- Selectable modes
- Functions for improved performance
- High overload capacity
- Greater protection for aggressive environments
- Lead free, international certifications
- Built-in software resource, equivalent to a small PLC
- Online monitoring, programming and configuration
- Used to copy the CFW100 original programming and download it to others, with the VSDs off
- Plug & Play accessories can be easily installed
- It prevents unexpected stoppages and damages to the equipment
- It prevents damages to the CFW100
- High reliability
- Able to operate in up to 50 °C ambient temperature without derating
- Ideal for small industrial, commercial or home applications
- 1 slot for functions or I/O expansion accessory
- Simple operation, reliable displays, remote operating interface (accessory)
- Suitable for simple or complex applications
- Easy configuration and high performance
- No oversized VSDs
- No extra costs
- Green product, it contributes to the environment conservation and complies with national and international standards
- It customizes and integrates the CFW100 to the application
- Easy and intuitive environment, free software
- Faster setting and configuration and quick start up
- Flexibility, according to the application requirements
- Less downtime
- It increases the VSD useful life
- It prevents exchanges due to defects or assembly errors

Simple Configuration

Compact and innovative design. Flexible selection.

Footprint RFI Filter¹⁾
Category C2 or C3 to reduce the electromagnetic interference level

Operating Interface (HMI)

Plug-In Module (Accessories)
Plug & Play Philosophy

DIN Rail Mounting

Easily Removable Fan (Frames B and C)

Greater Protection in Aggressive Environments
Standard coating classified as 3C2 according to IEC 60721-3-3 on all versions, ensuring greater protection of the internal circuits on harsh environments. Also available as extra-coating, class 3C3.



Flash Memory Module
Download/Upload of the programming from/to other CFW100 units without having to power them up

MMF-uDrives Accessory



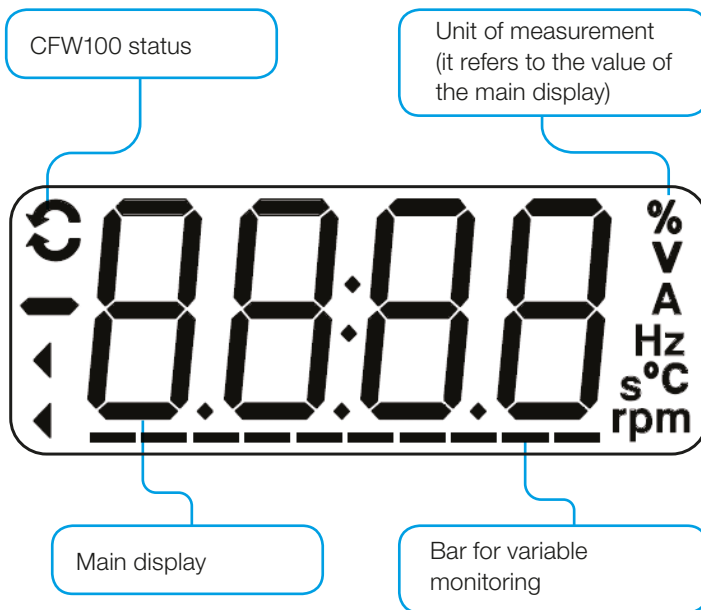
Remote HMI²⁾

CFW100-KHMIR Accessory

Notes: 1) The CFW100 is mounted on the surface of the external footprint RFI filter. See more details in accessories or in the installation guide available at www.weg.net.
2) The accessory CFW100-CRS485 is supplied with the remote HMI, for communication with the interface.

HMI

- Simultaneous indication of up to two selected parameters. The only one in this VSD category.
- Included in the standard version of the CFW100 (non-detachable).



Friendly Programming

- Oriented start-up: step by step programming.

Remote HMI - Accessory

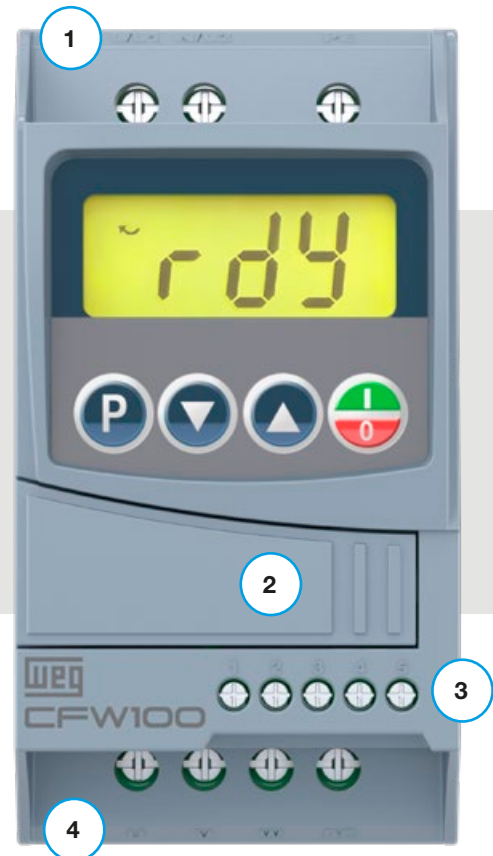
Solution for panel door or machine console.

Easy Installation

- Ideal to replace contactors or similar products.
- The standard CFW100 (without accessory) has 4 DIs ready to run.

- 1 - Power supply terminals
- 2 - Slot for plug-in modules¹⁾
- 3 - Digital inputs
- 4 - Motor terminals

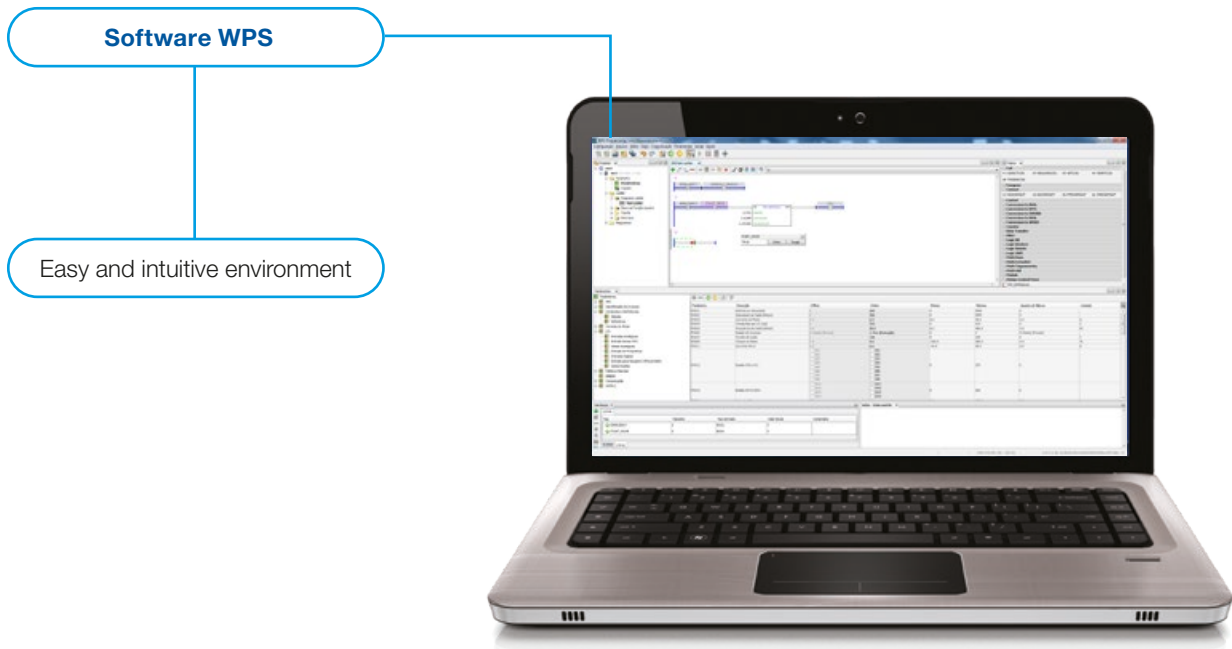
Note: 1) Internal USB connector for plug-in modules only. Do not connect the cables directly.



Connectivity

WEG Programming Suite (WPS)

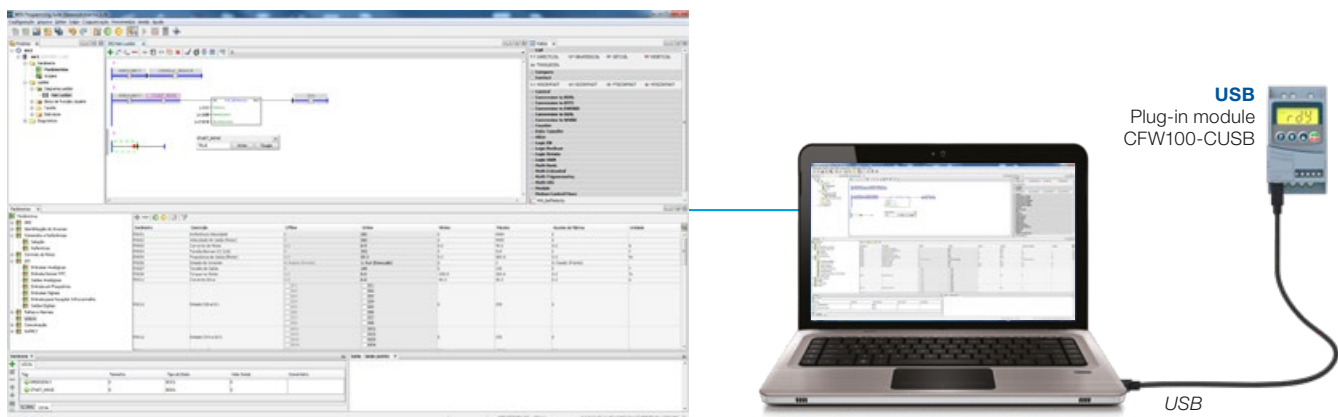
WPS is an integrated PC software that assists in the creation of automation applications allowing graphical monitoring, parameterization and programming in Ladder language (IEC 61131-3) of several WEG product families.



SoftPLC

Built-in tool in all the CFW100 versions which is equivalent in resources to a small PLC. It has free programming software which enables the user to develop logic projects, customizing the applications.

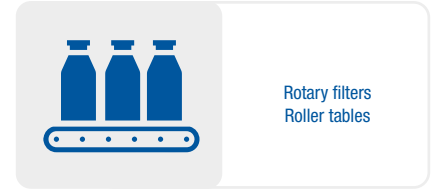
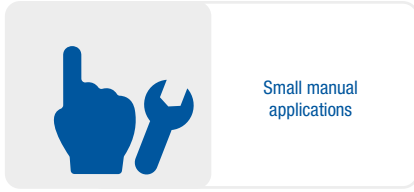
The SoftPLC is the simplest and smartest way to make your CFW100, motor and application work together. For the operation of the SoftPLC, it is necessary to use a CFW100-CUSB plug-in module. To design your logic programs, use the free software WPS, available at www.weg.net.



Infrared Remote Control



Applications



OEM and Small Industrial and Commercial Processes

The CFW100 with integrated SoftPLC is particularly suitable for small machines or small industrial processes due to its flexibility to meet the requirements of different applications, easy operation and compact size, perfectly fitting even small electrical panels. It can also be used in commercial applications such as lifting garage doors and opening automatic gates.

Certifications



Coding¹⁾

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------|---|------|---|---|----|---|---|----|
| CFW100 | A | 01P6 | S | 2 | 20 | - | - | G2 |

1 - CFW100 variable speed drive

2 - CFW100 size according to table below

3 - Rated output current as shown in table

| Rated output current | Size |
|----------------------|------|
| 01P6 = 1.60 A | A |
| 02P6 = 2.60 A | B |
| 04P2 = 4.20 A | C |
| 06P0 = 6.0 A | D |
| 07P3 = 7.3 A | |

4 - Number of phases

| | |
|---|---------------------------|
| S | Single-phase power supply |
|---|---------------------------|

5 - Rated voltage

| | |
|---|-----------|
| 1 | 100-127 V |
| 2 | 200-240 V |

6 - Degree of protection

| | |
|----|---------------------------|
| 20 | Degree of protection IP20 |
|----|---------------------------|

7 - Special hardware version²⁾

| | |
|-------|----------------------------------|
| Blank | Standard hardware |
| Hx | Special hardware |
| EC | Extra-coating version, class 3C3 |

8 - Special software version²⁾

| | |
|-------|-------------------|
| Blank | Standard software |
| Sx | Special software |

9 - Generation

| | |
|-------|--------------|
| Blank | Generation 1 |
| G2 | Generation 2 |

Specification

| Variable speed drive CFW100 | | | | Maximum applicable motor ³⁾ | | | | | | | | | | | | | | | |
|-----------------------------|------------------|--------------|------------|--|------------------------|-----|------|------------------------|-----|------|-----|------|------|------|-----|------|-----|------|------|
| Reference | Power supply (V) | | Frame size | Rated output current (A) | IEC | | | UL | | | | | | | | | | | |
| | | | | | Power supply (V) 60 Hz | HP | kW | Power supply (V) 60 Hz | HP | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| CFW100A01P6S120G2 | 100-127 V ac | Single-phase | A | 1.6 | 220 | | 0.25 | 0.18 | 230 | 0.33 | | | | | | | | | |
| CFW100B02P6S120G2 | | | B | 2.6 | | | | | | | 0.5 | 0.37 | 0.75 | | | | | | |
| CFW100D04P2S120G2 | | | D | 4.2 | | | | | | | 1.0 | 0.75 | 1.0 | | | | | | |
| CFW100D06P0S120G2 | | | | 6.0 | | | | | | | 1.5 | 1.32 | 1.5 | | | | | | |
| CFW100A01P6S220G2 | 200-240 V ac | Single-phase | A | 1.6 | | | | | | | 220 | | 0.25 | 0.18 | 230 | 0.33 | | | |
| CFW100B02P6S220G2 | | | B | 2.6 | | | | | | | | | | | | | 0.5 | 0.37 | 0.75 |
| CFW100C04P2S220G2 | | | C | 4.2 | | | | | | | | | | | | | 1.0 | 0.75 | 1.0 |
| CFW100D06P0S220G2 | | | D | 6.0 | | | | | | | | | | | | | 1.5 | 1.32 | 1.5 |
| CFW100D07P3S220G2 | | | | 7.3 | 2.0 | 1.5 | 2.0 | | | | | | | | | | | | |

Notes: 1) Other configurations available upon request.


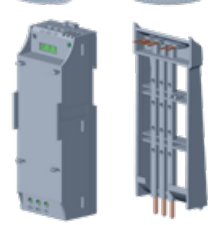
2) For versions with special hardware (Hx) and software (Sx), contact WEG Automation sales department or your sales representative.

3) The motor powers are reference values, valid for WEG IEC or NEMA three-phase induction motors. The motor powers for IEC standard are based on WEG W22 IE2 High-Efficiency 4-pole motors, while the motor powers for UL standard are based on WEG W22 NEMA Premium 4-pole motors with 220 V or 230 V. The proper size must be always determined according to the rated current of the motor used, which must be lower than or equal to the inverter rated output current.

4) Designed for exclusive industrial or professional use.

Accessories

They are hardware resources that can be added to the CFW100:

| Reference | Description | Illustrative figures |
|----------------------------|---|--|
| Control accessories | | |
| CFW100-CRS485 | RS485 communication module, with Modbus Master function |  |
| CFW100-CUSB | USB communication module with 2 m cable | |
| CFW100-IOA | I/O expansion module with 1 analog input and 1 analog output | |
| CFW100-IOADR | I/O expansion and infrared remote control module ¹⁾ | |
| CFW100-IOAR | I/O expansion module with 1 analog input and 1 relay output | |
| CFW100-IOD | I/O expansion module with 4 isolated (configurable) NPN or PNP digital inputs | |
| CFW100-CCAN | CANopen communication module | |
| CFW100-IOP | Potentiometer plug-in module | |
| Flash memory | | |
| MMF-uDrives | Flash memory module (3 m cable included) | |
| External HMI | | |
| CFW100-KHMIR | CFW100 remote interface kit (CFW100-CRS485 + 3 m cable included) |  |
| RFI filter | | |
| CFW100-KFABC-S1 | Footprint radiofrequency filter kit ²⁾ , category C2, for frames A, B or C single-phase at 110 V | |
| CFW100-KFABC-S2 | Footprint radiofrequency filter kit ²⁾ , category C2, for frames A, B or C single-phase at 220 V | |
| CFW100-KFD-S1 | Footprint radiofrequency filter kit ²⁾ , category C2, for frame D single-phase at 110 V | |
| CFW100-KFD-S2 | Footprint radiofrequency filter kit ²⁾ , category C2, for frame D single-phase at 220 V | |
| Others | | |
| PLMP | Adapter kit for surface mounting, fastening with screws, set with two units | |

Notes: 1) I/O expansion and infrared remote control module contains: 1 NTC sensor with 1 m cable, 1 infrared (IR) remote control, 1 infrared receiver cable with 1.5 m, 1 NTC sensor input, 1 analog current input (0-10 or 2-20 mA), 1 analog voltage input (0-10 V dc), 3 NO digital outputs (240 V ac).

2) The footprint radiofrequency filter is an external accessory on whose surface the VSD is mounted, and the electrical connection between the filter and the CFW100 is done through the coupling guide that accompanies the filter. After mounted on the filter surface, the set can be fastened to a DIN rail. I/O = Inputs and outputs.

Configuration of the Plug-In Modules

| Reference | Function | | | | | | | | |
|--------------------------|----------|-----------------------|--------|---------------|-----|---------------|----------|-----------------------|---------|
| | Inputs | | Output | | USB | Potentiometer | Infrared | Network communication | |
| | Analog | Digital ¹⁾ | Analog | Relay digital | | | | RS485 | CANopen |
| CFW100-CRS485 | - | - | - | - | - | - | - | 1 | - |
| CFW100-CCAN | - | - | - | - | - | - | - | - | 1 |
| CFW100-IOP | - | - | - | - | - | 1 | - | - | - |
| CFW100-CUSB | - | - | - | - | 1 | - | - | - | - |
| CFW100-IOA | 1 | - | 1 | - | - | - | - | - | - |
| CFW100-IOADR | 1 | - | - | 3 | - | - | 1 | - | - |
| CFW100-IOAR | 1 | - | - | 1 | - | - | - | - | - |
| CFW100-IOD ²⁾ | - | 4 | - | - | - | - | - | - | - |

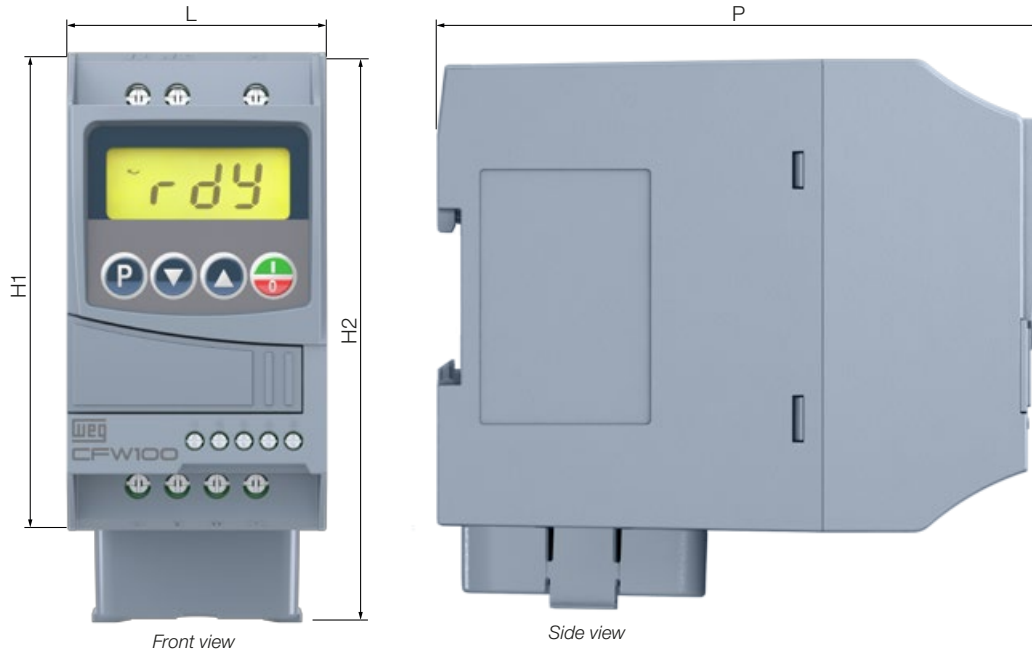
Notes: 1) The standard version of the CFW100 comes with 4 isolated NPN or PNP (configurable) digital inputs.

2) The digital inputs of the CFW100-IOD module are configurable (NPN or PNP) isolated digital inputs.



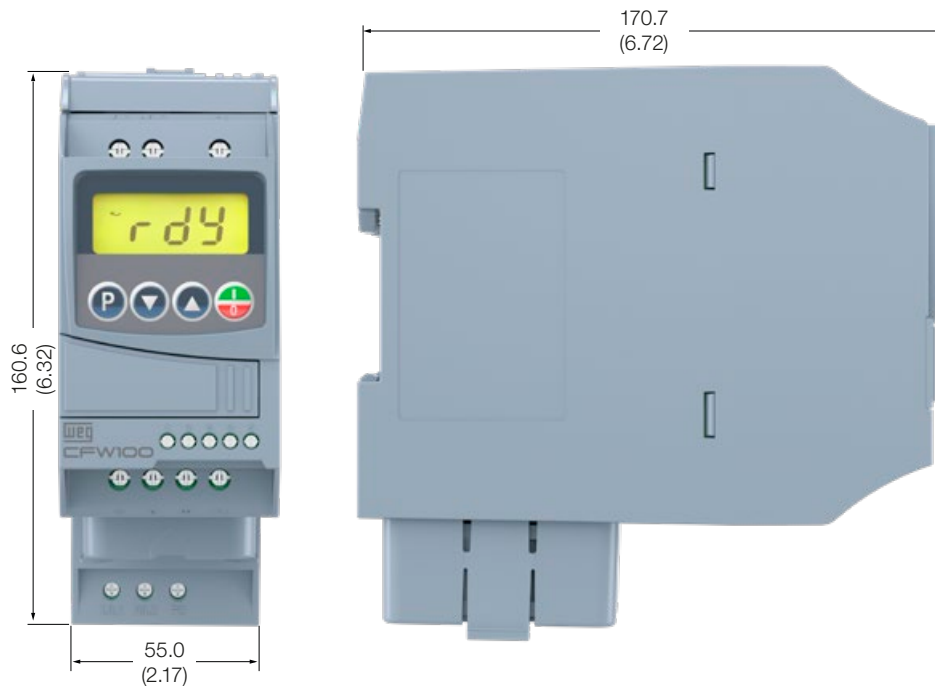
Dimensions

Standard Version



| Size | H1 | H2 | L | P | Weight |
|------|--------------|--------------|-------------|--------------|-------------|
| | mm (in) | mm (in) | mm (in) | mm (in) | kg (lb) |
| A | 100.0 (3.94) | - | 55.0 (2.17) | 129.0 (5.08) | 0.48 (1.05) |
| B | - | 117.0 (4.60) | 55.0 (2.17) | 129.0 (5.08) | 0.57 (1.25) |
| C | - | 125.6 (4.94) | 55.0 (2.17) | 129.0 (5.08) | 0.61 (1.34) |
| D | - | 133.5 (5.26) | 65.1 (2.56) | 129.0 (5.08) | 0.70 (1.54) |

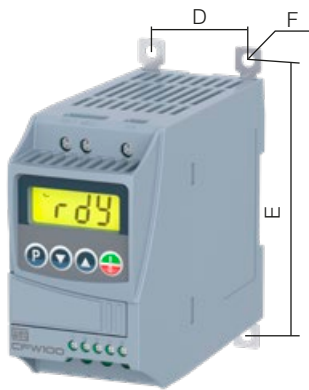
With RFI Filter



Note: Dimensions in millimeters (mm).

In the version with RFI filter, the dimensions are valid for the footprint RFI filter + the CFW100 frame A, B or C.

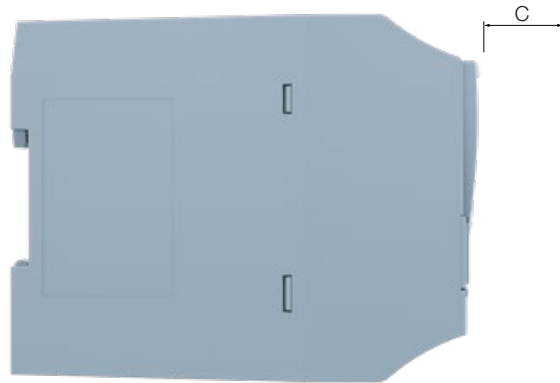
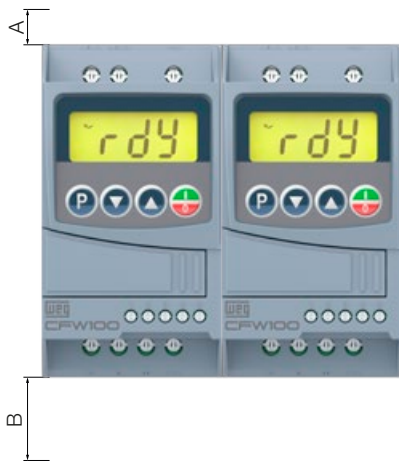
Mounting



a) Surface mounting with PLMP kit



b) DIN rail mounting



Minimum clearances for ventilation

| Size | A | B | C | D | E | F | |
|------|-----------|-----------|-----------|-------------|--------------|-------|--------------|
| | mm (in) | mm (in) | mm (in) | mm (in) | mm (in) | Screw | Torque (N.m) |
| A | 15 (0.59) | 40 (1.57) | 30 (1.18) | 41.3 (1.62) | 113.4 (4.46) | M4 | 2.5 |
| B | 35 (1.38) | 50 (1.97) | 40 (1.57) | | | | |
| C | 50 (1.97) | 50 (1.97) | 50 (1.97) | | | | |
| D | 50 (1.97) | 50 (1.97) | 50 (1.97) | 51.5 (2.03) | 125.8 (4.95) | | |

Note: tolerance of the dimensions ± 1.0 mm (± 0.039 in).

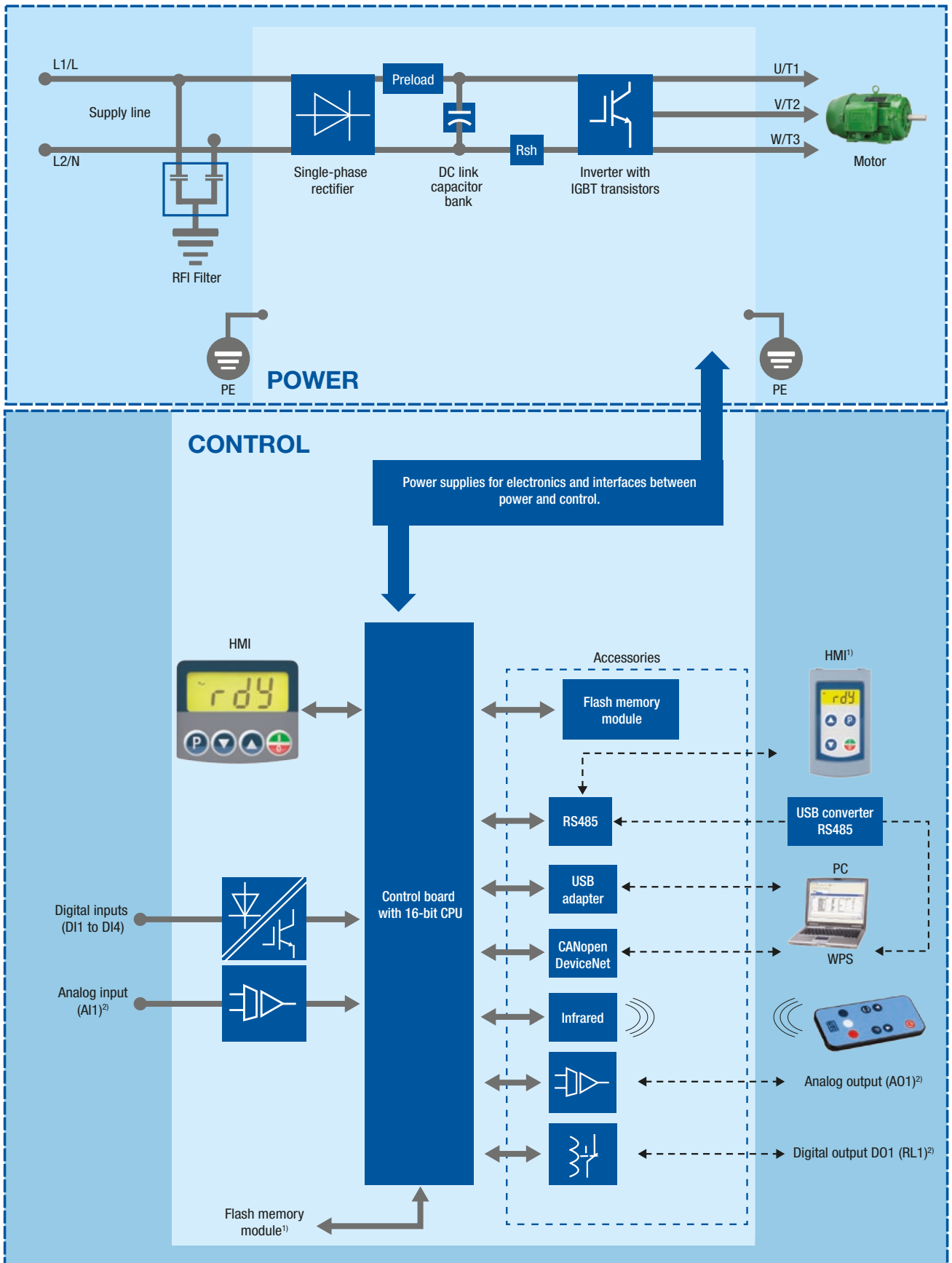


Technical Specifications

| | | |
|---|---|---|
| Supply voltage | Power and voltage range | Tolerance: -15%, +10% |
| | | Frequency: 50/60 Hz \pm 2 Hz |
| | | Transient voltages and overvoltages according to category III (EN 61010/UL 508 C) |
| | | Maximum of 10 (line) connections per hour (1 every 6 minutes) |
| Typical efficiency | \geq 97% | |
| Control | Method | Control types: V/F (scalar) VWV: voltage vector control |
| | Output frequency | 0 to 400 Hz, resolution of 0.1 Hz |
| Performance | V/f Control | Speed regulation: 1% of the rated speed (with sleep compensation) Speed variation range: 1:20 |
| | VWV vector control | Speed regulation: 1% of the rated speed Speed variation range: 1:30 |
| Environment conditions | Temperature around the CFW100 | 50 °C - IP20 without RFI filter Current derating of 2% for each °C above the rated operating temperature, limited to 60 °C |
| | Aggressive environments | Class 3C2 - Standard coating on the internal circuits, according to IEC 60721-3-3 (standard model) |
| | | Class 3C3 - Extra coating - optional, according to IEC 60721-3-3 (optional) |
| | Air relative humidity | 5% to 90% non-condensing |
| | Altitude | Maximum altitude: up to 1,000 m - rated conditions. 1,000 m to 4,000 m - current derating of 1% for each 100 m above 1,000 m. From 2,000 m to 4,000 m above sea level - 1.1% derating of the maximum voltage for each 100 m above 2,000 m. |
| Pollution degree | 2 (according to EN 50178 and UL 508C/UL 61800-5-1), with non-conductive pollution. Condensation must not cause conduction of the accumulated residues. | |
| Inputs ¹⁾ | Analog | Available through accessory plug-in modules: CFW100-IOA, CFW100-IOADR or CFW100-IOAR. For further information, refer to the plug-in manual. |
| | Digital | 4 isolated inputs. Programmable functions: - Active high (PNP): maximum low level 10 V dc, maximum high level 20 V dc - Active low (NPN): maximum low level 5 V dc, minimum high level 10 V dc Maximum input voltage 30 V dc Input current: 11 mA Maximum input current: 20 mA |
| Outputs | Analog | Available through the accessory plug-in module: CFW100-IOA. For further information, refer to the plug-in manual. |
| | Relay | Available through accessory plug-in modules: CFW100-IOAR or CFW100-IOADR. For further information, refer to the plug-in manual. |
| Communication | Plug-in modules | Fieldbus: CANopen, DeviceNet, Profibus-DP |
| Safety | Protection | Overcurrent/phase-phase short circuit in the output Under/overvoltage at the power Motor overload Power module (IGBTs) overload External fault / alarm Configuration error |
| Human machine interface (HMI) | Standard | 4 keys: Run/Stop, Increment, Decrement and LCD Display Settings It allows accessing/changing all the parameters Accuracy of the indications: - Current: 10% of the rated current - Speed resolution: 0.1 Hz |
| Safety standards | | UL 508C - power conversion equipment UL 61800-5-1 - adjustable speed electrical power drive systems - part 5-1: EMC safety requirements - electrical, thermal and energy UL 840 - insulation coordination including clearances and creepage distances for electrical equipment EN 61800-5-1 - safety requirements electrical, thermal and energy EN 50178 - electronic equipment for use in power installations EN 60204-1 - safety of machinery. Electrical equipment of machines. Part 1: general requirements Nota: para tener una máquina en conformidad con esta norma, el fabricante de la misma es responsable por la instalación de un dispositivo de parada de emergencia y de un equipo para seccionamiento de la red. 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 ¹⁾ | | EN 61800-3 - adjustable speed electrical power drive systems - part 3: EMC product standard including specific test methods CISPR 11 - industrial, scientific and medical (ISM) radio-frequency equipment - electromagnetic disturbance characteristics - limits and methods of measurement EN 61000-4-2 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 2: electrostatic discharge immunity test EN 61000-4-3 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 3: radiated, radio-frequency, electromagnetic field immunity test EN 61000-4-4 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 4: electrical fast transient/burst immunity test EN 61000-4-5 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 5: surge immunity test EN 61000-4-6 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 6: immunity to conducted disturbances, induced by radio-frequency fields |
| Mechanical standards | | EN 60529 - degrees of protection provided by enclosures (IP code) UL 50 - enclosures for electrical equipment IEC 60721-3-3 - classification of environmental conditions - part 3: classification of groups of environmental parameters and their severities - section 3: stationary use at weather protected locations level |

Note: 1) Compliance with standards upon installation of external RFI filter.

Block Diagram



Notes: 1) Available as accessory.
 2) The number of inputs/outputs depends on the I/O expansion accessory used.

Global presence is essential, as much as understanding your needs.

Global Presence

With more than 30,000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our **CFW100 variable speed drives** is the right choice for your application and business, assuring safety, efficiency and reliability.



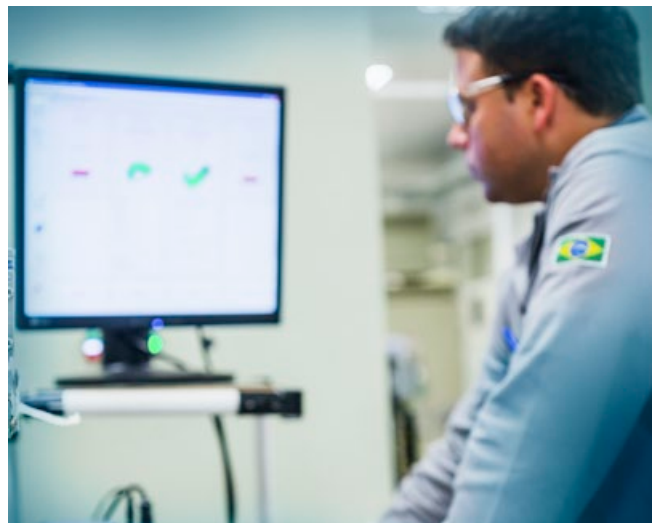
Availability is to have a global support network



Partnership is to create solutions that suit your needs



Competitive edge is to unite technology and innovation



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Cod: 50044138 | Rev: 08 | Date (m/y): 05/2022.

The values shown are subject to change without prior notice.
The information contained is reference values.