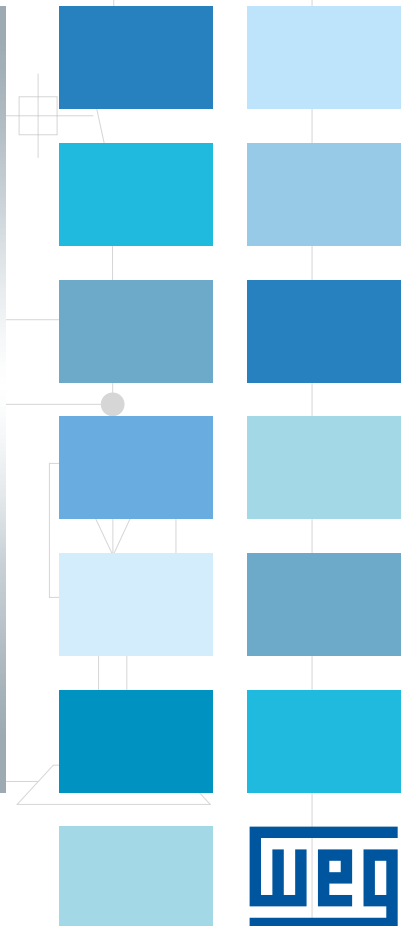
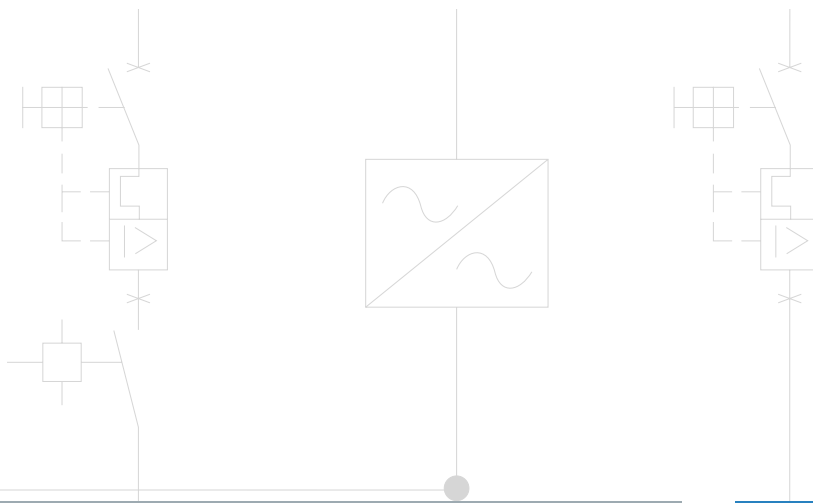


CFW700 General Purpose Drive

Variable Speed Drives



3

3



CFW700 - General Purpose Drive

The CFW700 was developed for controlling squirrel cage three-phase induction motors, it is a general purpose drive that gives customers the flexibility needed for the control of applications ranging from simple speed control to more demanding ones as torque control. Designed for exclusively industrial or professional use the CFW700 features Sensorless and Closed Loop control as standard utilising the internal micro PLC, the SoftPLC means that the CFW700 can be used for more sophisticated applications like overhead cranes, PCP (Progressive Cavity Pump), pump jack and many more.

Own Technology



Optimal Braking® WEG Frequency Inverters Braking Technology

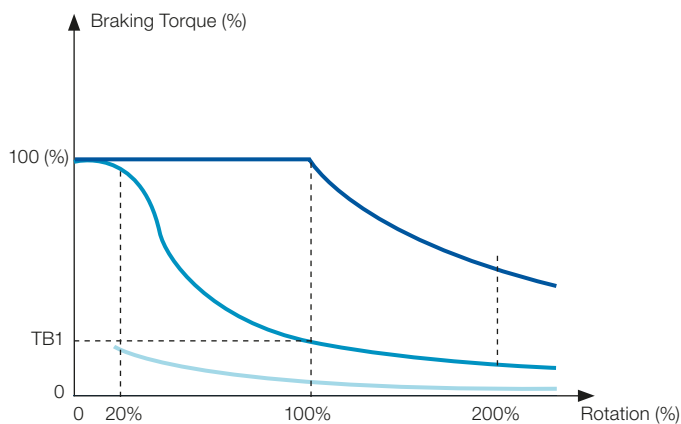
In applications where high inertia and short deceleration times are involved, a large amount of energy is returned from the motor to the VSD.

To handle this energy traditional VSDs have to dissipate it as heat in power resistors, such resistors are usually large and very expensive also the heat dissipation has to be taken into consideration during installation.

As an alternative to the use of braking resistors the CFW700 features a special braking method in vector control mode named Optimal Braking®.

This innovation delivers rated torque with high performance requiring no resistor.

The graph illustrated shows a comparison of the braking torque offered by the different braking methods used.



Typical Braking Torque x Speed Graph for a 10 HP / 7.5 kW motor driven by a CFW700

- Dynamic Braking Torque Curve
- Optimal Braking® Torque Curve
- DC Braking Torque Curve



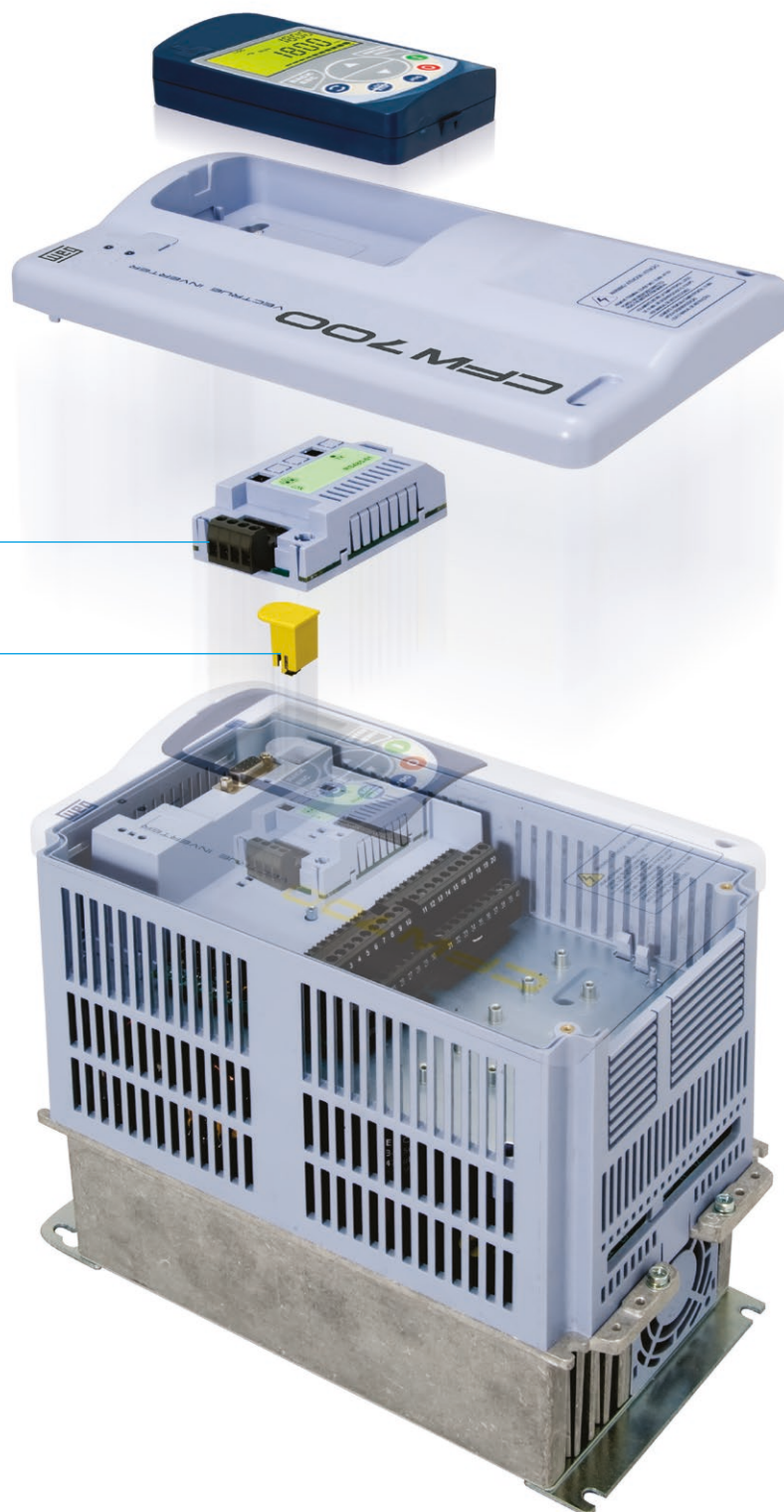
Optimal Flux® - WEG Technology for the Control of High Efficiency Induction Motors Applied to Constant Torque Load

- Rated torque at very low speed discarding the use for forced ventilation or even motor oversizing, thus costs are reduced.
- Better performance results can be achieved with the set motor + VSD, as losses are decreased (tests were conducted based on the set WEG high efficiency MOTOR + WEG VSD).

Simplicity

The new CFW700 was designed based on the Plug & Play technology concept where by plugging in expansion modules hardware and software recognize it automatically. Also this feature allows for easy installation and safe operation with no need for additional configuration.

Certifications



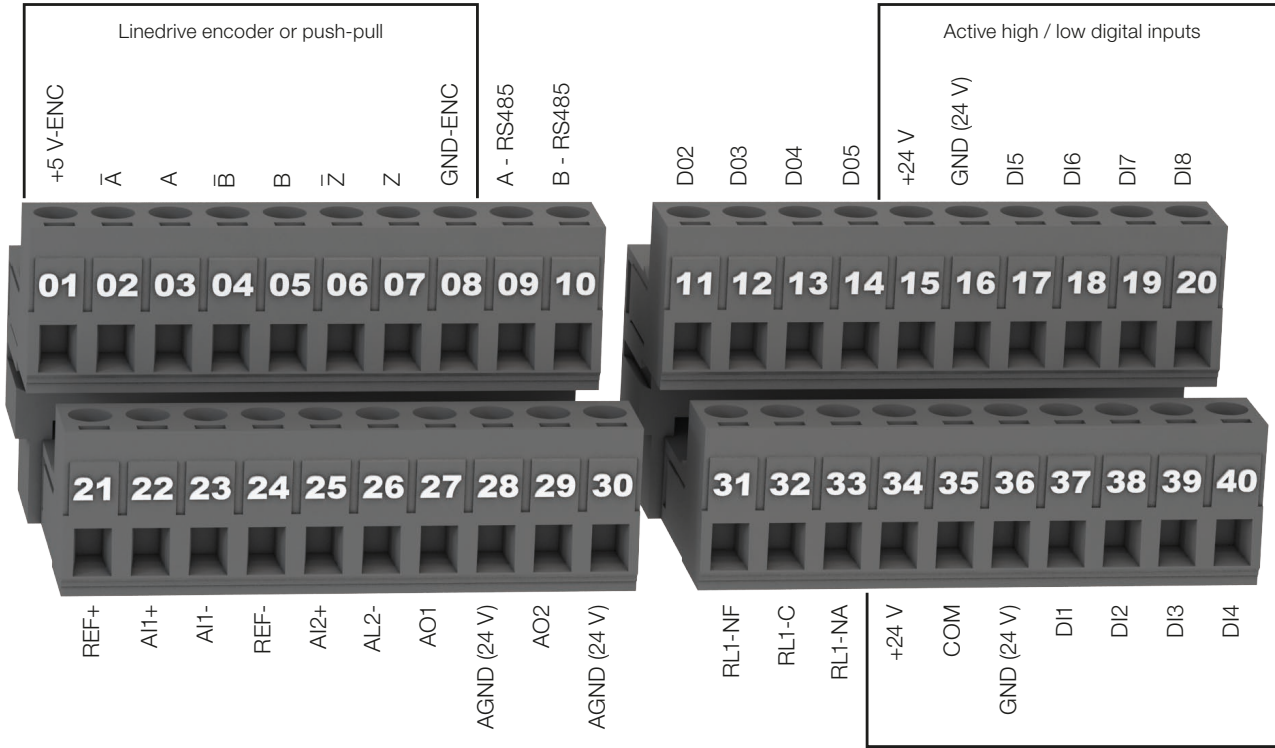
Slot 3 - Communication protocol module (accessory)

Slot 5 - Flash memory module (accessory)



Technical Features

Characteristics Integrated in the Standard Product



Encoder Interface

- For applications requiring closed loop control the encoder module is available at the control terminals
- No need for external power supply for the encoder module (5 V dc)
- 5 V line drive or push pull types can be used

RS485 Port Built-In

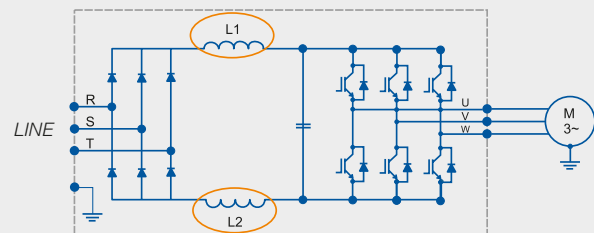
- Modbus-RTU communication protocol ready

I/Os Capability

- 8 digital inputs / 5 digital outputs
- 2 analog inputs / 2 analog outputs

Built-in DC Link Reactor

- Allows the VSD to be installed in any network (no restriction for power supply impedance)
- Typical power factor (PF) for steady condition:
 - 0.94 for three-phase models
 - 0.70 for single-phase and single/three-phase
 - Models fed from single-phase power supply
- Displacement power factor >0.98
- It meets 61000-3-12 standard (limits for harmonic currents)
- No need for an extra line reactor



Technical Features



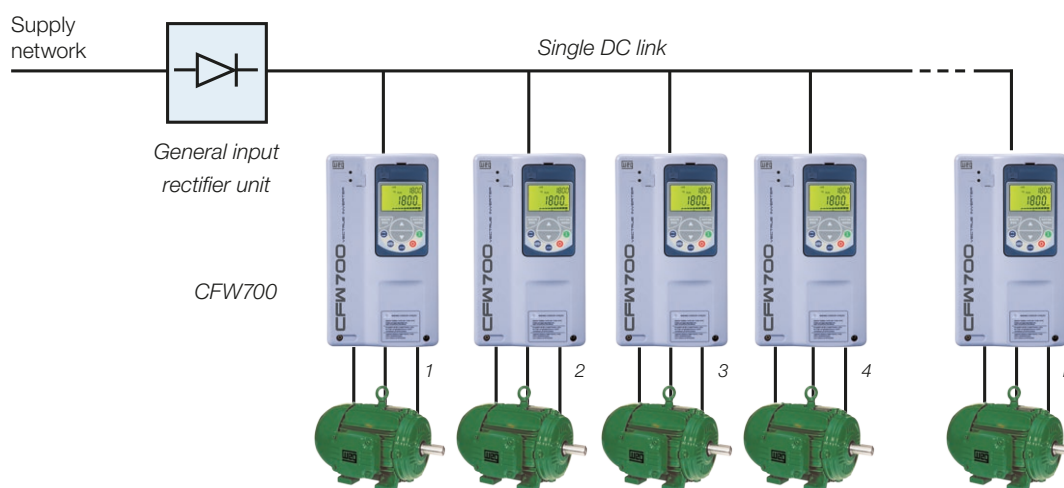
USB Port Built-In

- USB connection in the display ready



Conformal Coating

- Increasing the lifetime, protecting the electronic boards against corrosive atmospheres. Classified as 3C2 according to IEC 60721-3-3



Common DC Bus Connection

In multi motor applications it is possible to supply the CFW700 (AC drive) with DC voltage, this offers extra flexibility and energy savings. By sharing a common DC bus in some applications the energy consumption can be lowered as the power needed to run any of the motors can be drawn from the stored energy at the VSD DC link.

Note: an external pre-charge circuit must be added to each of the VSDs.

Thermal Management

- It is possible to monitor heat sink and inside air temperature thus ensuring protection to critical components e.g. IGBTs and control board
- Fans installed closed to heatsink are turned on and off depending on the temperature of power modules
- Readings of fan operation hours can be analyzed through parameters as well as alarm or fault messages are displayed
- Easy removal of fans makes maintenance and/or replacement a lot faster



Technical Features

Drive Features

- **Multi-Speed:** up to 8 preset speeds can be programmed.
- **PID Regulation:** eliminates the use of an external controller for closed loop control, thus great performance of speed and torque can be achieved.
- **Ride Through:** embedded in the CFW700 control this function prevents the drive from tripping during some power outage. It uses the kinetic energy stored through a forced deceleration imposed to the load by the VSD control algorithm.
- **Speed/Torque Regulation:** open and closed loop (encoder feedback required).
- **Flying Start:** it is able to start smoothly a motor connected to a rotating load regardless of rotation direction.
- **Control Options for DC Bus Regulation:** prevents the drive from tripping when short deceleration time is required, vital for applications with high inertia loads.
- **S ramp:** the smoothness at the starting can be mandatory for process e.g. the beverage industry, by setting up properly this functionality production losses caused by traditional starting methods can be avoided.
- **Three-Wire Start/Stop Control:** no retentive contact can command the drive to start/stop the motor.
- **Electronic Potentiometer:** the drive keeps increasing motor speed as long as the digital input remains closed.
- **Skip Frequency:** for some applications specific frequencies must be avoided in order to protect the machine against resonance effect.
- **Motor Thermal Curve Adjustment:** the possibility for separate adjustment between motor and drive allows for a much more effective protection for overload cycles.
- **Copy Function:** by using the flash memory card MMF-02 parameter settings can be easily stored ensuring integrity and safety in case of replacement of the drive is needed.



Applications

Pumps and Fans

- Precise control of process variables (pressure, flow, temperature, etc.) through a PID regulator superposed to the speed control
- Optimization of power consumption through speed control with an adjustable V/F curve
- Safety and maintenance signaling and alarms of pumps and fans
- Availability of PID regulators to control other process accessories like valves, dumpers, other VSDs, etc.



Compressors

- Optimization of system pressurization control with energy savings and improvement of compressor efficiency
- Reduction of motor startup current minimizing wear and tear of the mechanical system avoiding fees charged by the power supplier company
- Safety and maintenance signaling and alarms available for pressurization system
- Provides startup system control of other compressor units with an increased efficiency of the pressurization system



Pulp & Paper / Wood

- Precise speed and torque control.
- Flexible hardware programming and configuration, making applications where synchronism is required easier
- Can be integrated in a variety of communication protocols commonly used in the industry
- Provided in a compact design the CFW700 series allows for side by side assembly
- Quick and simplified programming
- Highly reliable and robust



Chemical & Petrochemical

- Highly reliable and robust
- Plug & Play system for additional modules, ensuring greater flexibility in adapting to existing system
- Possibility to be integrated in a variety of communication protocols commonly used in the industry



Ironworks and Metallurgy

- Highly precise speed and torque control
- Large overload capacity (models sized in HD)
- Flexible hardware programming and configuration
- Possibility to be integrated in a variety of communication protocols mainly used in the industry



Keypad

The CFW700 comes equipped with a LCD display capable of providing readings for programming, guided start-up and troubleshooting.

This customized numeric LCD display features the following functionalities:

- LCD display with backlight
- Allows adjust programming through menu separate in folders
- Remote mounting for panel assembly solutions (it can be placed 30 m distant from the drive)

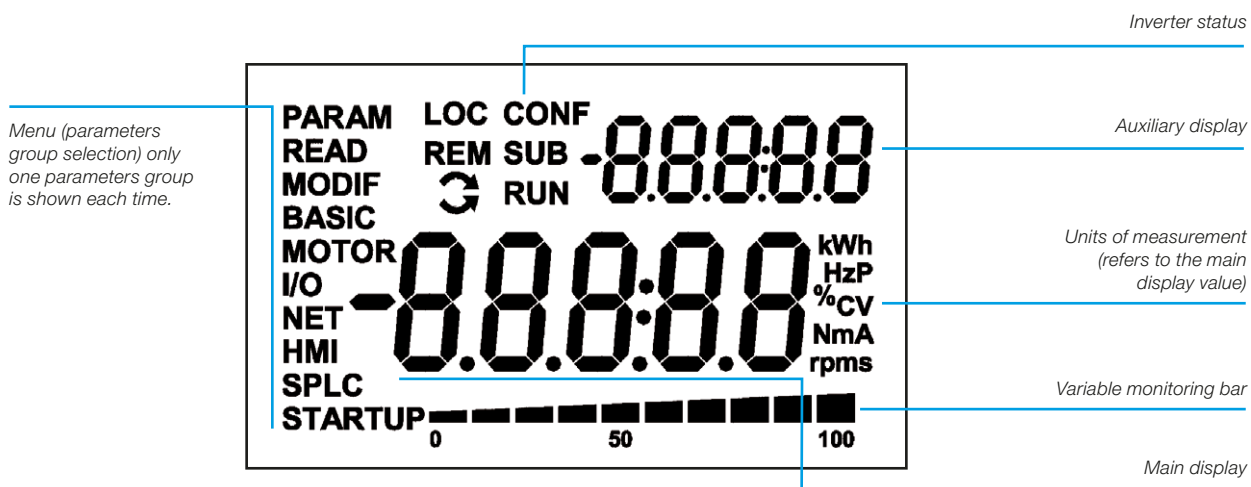


Remote Keypad

The keypad can be remote assembled by using this configuration, degree of protection IP56 can be achieved.

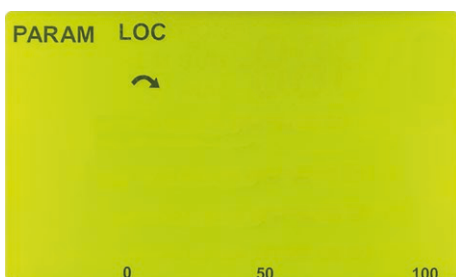


Allows for Showing 3 Variables at Once Through Three Viewing Modes

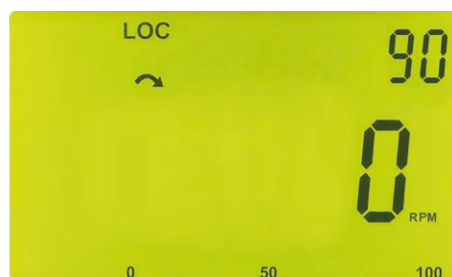


Viewing Modes

Programming Mode



Monitoring Mode



Accessories



Blank Cover - HMID - 01 ¹⁾

Used when there is no need for keypad.



Remote Keypad Frame - RHMIF-02

Used when remote keypad is needed, it can be installed at the panel door as well as machine console. IP56 degree of protection.



CAN-01 (CANopen and DeviceNet)

The possibility to connect the CFW700 into a CANopen or DeviceNet network.



Flash Memory Module MMF - 02

This module allows for backup of VSD parameters ensuring the programming to be safely stored. Also it makes possible the programming to be passed on to other VSDs on the same plant avoiding repetitive programming. The SoftPLC applicative can also be store into this memory.



Profibus-DP-01 (Profibus-DP-V1)

The possibility to connect the CFW700 into a Profibus-DP-01 network.

¹⁾ These options must be provided already installed in the CFW700 (please see coding on page 21).

Accessories

Kit for Shielded Cable

| | |
|---------|---------------------------------|
| PCSA-01 | Shielded cable Kit frame size A |
| PCSB-01 | Shielded cable Kit frame size B |
| PCSC-01 | Shielded cable Kit frame size C |

Notes: The shielded cable kit for frame Sizes D and E is included in the standard version.
For models with RFI filter fitted in shielded cable kit comes as standard.



Enclosures

| Standards | Ratings | Frame sizes | | | | |
|-----------|---------|-------------|-----------|-----------|-----------|-------------------|
| | | A | B | C | D | E |
| IEC | IP20 | x | x | x | x | x |
| | IP21 | KIP21A-01 | KIP21B-01 | KIP21C-01 | KIP21D-01 | - |
| NEMA | Type 1 | KN1A-02 | KN1B-02 | KN1C-02 | x | KN1E-01 / KN1E-02 |

Notes: (x) Standard.
(-) NA.

| Standard | Accessory | Composition |
|----------------|-----------|---|
| NEMA Type 1 | KN1A-02 | Conduit kit frame size A |
| | KN1B-02 | Conduit kit frame size B |
| | KN1C-02 | Conduit kit frame size C |
| | KN1E-01 | Top cover size E models 105, 142 and all 600 V frame size E |
| | KN1E-02 | Top Cover + Conduit kit size E models 180 and 211 |
| IEC | KIP21A-01 | Top cover kit frame size A |
| | KIP21B-01 | Top cover kit frame size B |
| | KIP21C-01 | Top cover kit frame size C |
| | KIP21D-01 | Top cover kit frame size D |

Note: in the KN1X-01 Conduit kit (frame sizes A,B and C) power cable shielding is also provided.



Optionals (Factory Built)

External Control Power Supply 24 V dc

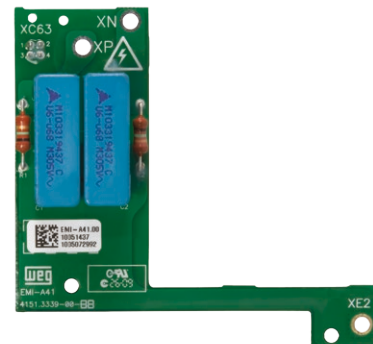
Used mainly for communication networks allowing data exchange even when there is no power at the VSD input (this module must be fed from a power supply different from the one connected to the VSD).



RFI Suppressor Filter (for the VSD to be in Accordance with EN 61800-3 and EN 55011)

When properly installed the CFW700 meet requirements of the electromagnetic compatibility directive - EMC Directive 2004/108/EC.

For models ranging from size A to D, the RFI filter is optional and for size E it is included.



Safety Stop (in Accordance with EN 61800-5-2, EN ISO 13849-1, IEC 62061, IEC 61508 Parts 1-7, EN 50178, IEC 60204-1, Cat. 3/pL d acc. and SIL CL2 acc.)

With this option when the safety circuit is tripped by external causes the IGBT firing circuit is deactivated, thus the power drive system will not provide energy to the motor which can generate torque.



SoftPLC

The new CFW700 incorporates PLC functionalities by means of a factory built micro PLC named SoftPLC. This extra tool gives more flexibility to the product as well as allowing the user to develop his own application through a USB or RS485 ports port available at the control terminal. The SoftPLC features the following characteristics:

- Access to CFW700 I/Os and parameters
- PLC mathematics and control blocks
- Allows user password
- User can save software in the memory flash card to be downloaded into other VSDs

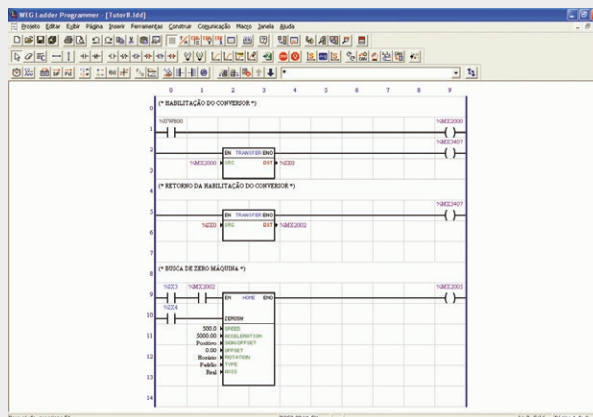
Free of Charge Software

WLP (WEG Ladder Programmer)

Software designed for development of user application through the micro PLC embedded in the CFW700 hardware.

The WLP tool features the following capabilities:

- Ladder programming
- PLC, math and control blocks are available
- Access to all CFW700 parameters
- On-line monitoring as well as help topics
- RS485 connection with the drive
- 49 user parameters can be individually accessed allowing for creation of a variety of applications

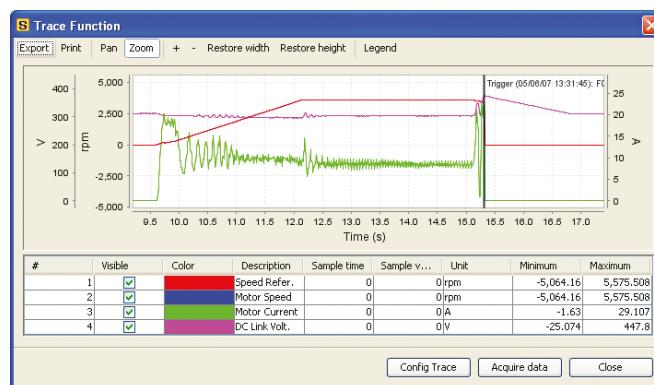


Software SuperDrive G2

It is a windows-based software designed for the programming, commanding and monitoring of WEG VSDs.

The following features the user can benefit from:

- Automatic CFW700 recognition
- CFW700 parameters monitoring
- Off-line/On-line change of parameters
- Reports can be created
- Backup of parameters
- Start/Stop command as well as speed reference can be sent to the drive



Drive Ratings

Normal Duty (ND) Cycle:

- 110% for 60 seconds every 10 minutes
- 150% for 3 seconds every 10 minutes

Heavy Duty (HD) Cycle:

- 150% for 60 seconds every 10 minutes
- 200% for 3 seconds every 10 minutes

Sizing a VFD:

The correct way to size a frequency inverter is by matching its output current with the motor rated current. However, tables below present the expected motor power for each VSD model. The purpose of the table below is for guidance as motor rated current may vary with number of poles and manufacturer.

Note: motor power stated on this table is based on IEC standard for IV poles motor.

Motor Voltages 220 V and 230 V

| Power supply | Model | Normal Duty (ND) | IEC | | NEMA | | Heavy Duty (HD) | IEC | | NEMA | |
|--------------|-------|------------------|-------------------|------|-------------|-----|-----------------|-------------------|-----|-------------|-----|
| | | | 50 Hz 220 V 230 V | | 60 Hz 230 V | | | 50 Hz 220 V 230 V | | 60 Hz 230 V | |
| | | | A | kW | HP | HP | | A | kW | HP | HP |
| 200-240 V | 10 | CFW700A06POS2 | 6 | 1.1 | 1.5 | 5 | 1.1 | 1 | 5 | 1.1 | 1 |
| | | CFW700A07POS2 | 7 | 1.5 | 2 | 7 | 1.5 | 2 | 7 | 1.5 | 2 |
| | 1/30 | CFW700A10POS2 | 10 | 2.2 | 3 | 10 | 2.2 | 3 | 10 | 2.2 | 3 |
| | | CFW700A06POB2 | 6 | 1.1 | 1.5 | 5 | 1.1 | 1 | 5 | 1.1 | 1 |
| | 30 | CFW700A07POB2 | 7 | 1.5 | 2 | 7 | 1.5 | 2 | 7 | 1.5 | 2 |
| | | CFW700A07POT2 | 7 | 1.5 | 2 | 5.5 | 1.1 | 1 | 5.5 | 1.1 | 1 |
| | | CFW700A10POT2 | 10 | 2.2 | 3 | 8 | 1.5 | 2 | 8 | 1.5 | 2 |
| | | CFW700A13POT2 | 13 | 3 | 3 | 11 | 2.2 | 3 | 11 | 2.2 | 3 |
| | | CFW700A16POT2 | 16 | 4 | 5 | 13 | 3 | 3 | 13 | 3 | 3 |
| | | CFW700B24POT2 | 24 | 5.5 | 7.5 | 20 | 5.5 | 5 | 20 | 5.5 | 5 |
| | | CFW700B28POT2 | 28 | 7.5 | 10 | 24 | 5.5 | 7.5 | 24 | 5.5 | 7.5 |
| | | CFW700B33POT2 | 33.5 | 9.2 | 10 | 28 | 7.5 | 10 | 28 | 7.5 | 10 |
| | | CFW700C45POT2 | 45 | 11 | 15 | 36 | 9.2 | 10 | 36 | 9.2 | 10 |
| | | CFW700C54POT2 | 54 | 15 | 20 | 45 | 11 | 15 | 45 | 11 | 15 |
| | | CFW700C70POT2 | 70 | 18.5 | 25 | 56 | 15 | 20 | 56 | 15 | 20 |
| | | CFW700D86POT2 | 86 | 22 | 30 | 70 | 18.5 | 25 | 70 | 18.5 | 25 |
| 220-230 V | 30 | CFW700D0105T2 | 105 | 30 | 40 | 86 | 22 | 30 | 86 | 22 | 30 |
| | | CFW700E0142T2 | 142 | 37 | 50 | 115 | 30 | 40 | 115 | 30 | 40 |
| | | CFW700E0180T2 | 180 | 55 | 60 | 142 | 37 | 50 | 142 | 37 | 50 |
| | | CFW700E0211T2 | 211 | 55 | 75 | 180 | 55 | 60 | 180 | 55 | 60 |

Motor Voltages 380 V and 460 V

| Power supply | Model | Normal Duty (ND) | IEC | | NEMA | | Heavy Duty (HD) | IEC | | NEMA | | | |
|---------------|-------|------------------|-------------------|------|-------------------|-----|-----------------|-------------------|------|-------------------|------|------|------|
| | | | 50 Hz 380 V 415 V | | 60 Hz 440 V 460 V | | | 50 Hz 380 V 415 V | | 60 Hz 440 V 460 V | | | |
| | | | A | kW | HP | HP | | A | kW | HP | HP | | |
| 380-480 V | 30 | CFW700A03P6T4 | 3.6 | 1.5 | 2 | 2 | 3.6 | 1.5 | 2 | 2 | 3.6 | 1.5 | 2 |
| | | CFW700A05P0T4 | 5 | 2.2 | 3 | 3 | 5 | 2.2 | 3 | 3 | 5 | 2.2 | 3 |
| | | CFW700A07P0T4 | 7 | 3 | 4 | 3 | 5.5 | 2.2 | 3 | 3 | 5.5 | 2.2 | 3 |
| | | CFW700A10P0T4 | 10 | 4 | 7.5 | 5 | 10 | 4 | 7.5 | 5 | 10 | 4 | 7.5 |
| | | CFW700A13P5T4 | 13.5 | 5.5 | 10 | 7.5 | 11 | 4 | 7.5 | 7.5 | 11 | 4 | 7.5 |
| | | CFW700B17P0T4 | 17 | 7.5 | 12.5 | 10 | 13.5 | 5.5 | 10 | 7.5 | 13.5 | 5.5 | 10 |
| | | CFW700B24P0T4 | 24 | 11 | 15 | 15 | 19 | 9.2 | 12.5 | 10 | 19 | 9.2 | 12.5 |
| | | CFW700B31P0T4 | 31 | 15 | 20 | 20 | 25 | 11 | 15 | 15 | 25 | 11 | 15 |
| | | CFW700C38P0T4 | 38 | 18.5 | 30 | 25 | 33 | 15 | 25 | 20 | 33 | 15 | 25 |
| | | CFW700C45P0T4 | 45 | 22 | 30 | 30 | 38 | 18.5 | 30 | 25 | 38 | 18.5 | 30 |
| | | CFW700C58P5T4 | 58.5 | 30 | 40 | 40 | 47 | 22 | 30 | 30 | 47 | 22 | 30 |
| | | CFW700D70P5T4 | 70.5 | 37 | 50 | 50 | 61 | 30 | 50 | 40 | 61 | 30 | 50 |
| | | CFW700D88P0T4 | 88 | 45 | 75 | 60 | 73 | 37 | 60 | 50 | 73 | 37 | 60 |
| | | CFW700E0105T4 | 105 | 55 | 75 | 75 | 88 | 45 | 75 | 60 | 88 | 45 | 75 |
| | | CFW700E0142T4 | 142 | 75 | 100 | 100 | 115 | 55 | 75 | 75 | 115 | 55 | 75 |
| | | CFW700E0180T4 | 180 | 90 | 150 | 150 | 142 | 75 | 100 | 100 | 142 | 75 | 100 |
| CFW700E0211T4 | 211 | 110 | 175 | 150 | 180 | 90 | 150 | 150 | 180 | 90 | 150 | | |

Motor Voltages 500 V and 600 V

| Power supply | Model | Normal Duty (ND) | IEC | | NEMA | | Heavy Duty (HD) | IEC | | NEMA | | |
|--------------|-------|------------------|-------------------|------|-------------|-----|-----------------|-------------------|-----|-------------|------|-----|
| | | | 50 Hz 525 V 575 V | | 60 Hz 575 V | | | 50 Hz 525 V 575 V | | 60 Hz 575 V | | |
| | | | A | kW | HP | HP | | A | kW | HP | HP | |
| 500-600 V | 30 | CFW700B02P9T5 | 2.9 | 1.5 | 2 | 2 | 2.7 | 1.5 | 2 | 2.7 | 1.5 | 2 |
| | | CFW700B04P2T5 | 4.2 | 2.2 | 3 | 3 | 3.8 | 2.2 | 2 | 3.8 | 2.2 | 2 |
| | | CFW700B07P0T5 | 7 | 4 | 5 | 5 | 6.5 | 4 | 5 | 6.5 | 4 | 5 |
| | | CFW700B10P0T5 | 10 | 5.5 | 7.5 | 7.5 | 9 | 5.5 | 7.5 | 9 | 5.5 | 7.5 |
| | | CFW700B12P0T5 | 12 | 7.5 | 10 | 10 | 10 | 5.5 | 7.5 | 10 | 5.5 | 7.5 |
| | | CFW700B17P0T5 | 17 | 11 | 15 | 15 | 17 | 11 | 15 | 17 | 11 | 15 |
| | | CFW700D22P0T5 | 22 | 15 | 20 | 20 | 19 | 11 | 15 | 19 | 11 | 15 |
| | | CFW700D27P0T5 | 27 | 18.5 | 25 | 25 | 22 | 15 | 20 | 22 | 15 | 20 |
| | | CFW700D32P0T5 | 32 | 22 | 30 | 30 | 27 | 18.5 | 25 | 27 | 18.5 | 25 |
| | | CFW700D44P0T5 | 44 | 30 | 40 | 40 | 36 | 22 | 30 | 36 | 22 | 30 |
| | | CFW700E53P0T5 | 53 | 37 | 50 | 50 | 44 | 30 | 40 | 44 | 30 | 40 |
| | | CFW700E63P0T5 | 63 | 45 | 60 | 60 | 53 | 37 | 50 | 53 | 37 | 50 |
| | | CFW700E80P0T5 | 80 | 55 | 75 | 75 | 66 | 45 | 60 | 66 | 45 | 60 |
| | | CFW700E0107T5 | 107 | 75 | 100 | 100 | 90 | 55 | 75 | 90 | 55 | 75 |
| | | CFW700E0125T5 | 125 | 90 | 125 | 125 | 107 | 75 | 100 | 107 | 75 | 100 |
| | | CFW700E0150T5 | 150 | 110 | 150 | 150 | 122 | 90 | 100 | 122 | 90 | 100 |

Dimension, Weight and Temperature

| Model | Frame size | NEMA1 | | | IP20 / IP21 | | | Maximum surrounding air temperature with no derating °C (°F) _ ND/HD | Weight kg (lb) | Braking IGBT | | | | | | | | | | |
|---------------|----------------|-------------------|----------------|----------------|----------------|----------------|----------------|--|------------------|-----------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------|
| | | Dimension mm (in) | | | | | | | | | | | | | | | | | | |
| | | H | W | D | H | W | D | | | | | | | | | | | | | |
| CFW700A06POS2 | A | 305 (12.02) | 145 (5.71) | 227 (8.94) | 247 (9.73) | 145 (5.71) | 227 (8.94) | 50 (122)_ND/HD | 50 (122)_ND/HD | 6.3 (13.9) | Standard | | | | | | | | | |
| CFW700A07POS2 | | | | | | | | 50 (122)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700A10POS2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700A06POB2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700A07POB2 | | | | | | | | 50 (122)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700A07POT2 | | | | | | | | 50 (122)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700A10POT2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700A13POT2 | | | | | | | | 45 (113)_ND | 45 (113)_ND | | | | | | | | | | | |
| CFW700A16POT2 | | | | | | | | 50 (122)_HD | 50 (122)_HD | | | | | | | | | | | |
| CFW700B24POT2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B28POT2 | B | 351 (13.82) | 190 (7.46) | 227 (8.94) | 293 (11.53) | 190 (7.46) | 227 (8.94) | 45 (113)_ND/HD | 40 (104)_ND/HD | 10.4 (22.9) | Standard | | | | | | | | | |
| CFW700B33POT2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700C45POT2 | | | | | | | | 50 (122)_ND/HD | 45 (113)_ND | | | | | | | | | | | |
| CFW700C54POT2 | C | 448.1 (17.64) | 220 (8.67) | 293 (11.52) | 378 (14.88) | 220 (8.67) | 293 (11.52) | 50 (122)_ND/HD | 50 (122)_ND/HD | 20.5 (45.2) | Standard | | | | | | | | | |
| CFW700C70POT2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700D86POT2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700D105T2 | D | 550 (21.63) | 300 (11.81) | 305 (12.00) | 504 (19.84) | 300 (11.81) | 305 (12.00) | 50 (122)_ND/HD | 50 (122)_ND/HD | 32.6 (71.8) | Standard | | | | | | | | | |
| CFW700E0142T2 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700E0180T2 | E | 735 (28.94) | 335 (13.2) | 358 (14.1) | 620 (24.4) | 335 (13.2) | 358 (14.1) | 45 (113)_ND/HD | 45 (113)_ND/HD | 650 (143.3) | Optional | | | | | | | | | |
| CFW700E0211T2 | | | | | | | | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700A03P6T4 | A | 305 (12.02) | 145 (5.71) | 227 (8.94) | 247 (9.73) | 145 (5.71) | 227 (8.94) | 50 (122)_ND/HD | 50 (122)_ND/HD | 6.3 (13.9) | Standard | | | | | | | | | |
| CFW700A05P0T4 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700A07P0T4 | | | | | | | | 45 (113)_ND | 40 (104)_ND | | | | | | | | | | | |
| CFW700A10P0T4 | | | | | | | | 50 (122)_HD | 50 (122)_HD | | | | | | | | | | | |
| CFW700A13P5T4 | | | | | | | | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700B17P0T4 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B24P0T4 | | | | | | | | B | 351 (13.82) | | | 190 (7.46) | 227 (8.94) | 293 (11.53) | 190 (7.46) | 227 (8.94) | 50 (122)_ND/HD | 40 (104)_ND | 10.4 (22.9) | Standard |
| CFW700B31P0T4 | | | | | | | | | | | | | | | | | 50 (122)_ND/HD | 45 (122)_HD | | |
| CFW700C38P0T4 | | | | | | | | | | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | |
| CFW700C45P0T4 | | | | | | | | C | 448.1 (17.64) | | | 220 (8.67) | 293 (11.52) | 378 (14.88) | 220 (8.67) | 293 (11.52) | 50 (122)_ND/HD | 50 (122)_ND/HD | 20.5 (45.2) | Standard |
| CFW700C58P5T4 | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700D70P5T4 | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700D88P0T4 | D | 550 (21.63) | 300 (11.81) | 305 (12.00) | 504 (19.84) | 300 (11.81) | 305 (12.00) | 50 (122)_ND/HD | 50 (122)_ND/HD | 32.6 (71.8) | Standard | | | | | | | | | |
| CFW700E0105T4 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700E0142T4 | E | 735 (28.94) | 335 (13.2) | 358 (14.1) | 620 (24.4) | 335 (13.2) | 358 (14.1) | 45 (113)_ND/HD | 45 (113)_ND/HD | 65.0 (143.3) | Optional | | | | | | | | | |
| CFW700E0180T4 | | | | | | | | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700E0211T4 | | | | | | | | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | |
| CFW700B02P9T5 | B | 351 (13.82) | 190 (7.46) | 227 (8.94) | 293 (11.53) | 190 (7.46) | 227 (8.94) | 50 (122)_ND/HD | 50 (122)_ND/HD | 10.4 (22.9) | Standard | | | | | | | | | |
| CFW700B04P2T5 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B07P0T5 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B10P0T5 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B12P0T5 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700B17P0T5 | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | | | | | | | | | | |
| CFW700D22P0T5 | | | | | | | | D | 550 (21.63) | | | 300 (11.81) | 305 (12.00) | 504 (19.84) | 300 (11.81) | 305 (12.00) | 50 (122)_ND/HD | 50 (122)_ND/HD | 32.6 (71.8) | Standard |
| CFW700D27P0T5 | | | | | | | | | | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | |
| CFW700D32P0T5 | | | | | | | | | | | | | | | | | 50 (122)_ND/HD | 50 (122)_ND/HD | | |
| CFW700D44P0T5 | | | | | | | | E | 735 (28.94) | | | 335 (13.2) | 358 (14.1) | 675 (26.57) | 335 (13.2) | 358 (14.1) | 45 (113)_ND/HD | 45 (113)_ND/HD | 65.0 (143.3) | Optional |
| CFW700E53P0T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700E63P0T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700E80P0T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700E0107T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700E0125T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |
| CFW700E0150T5 | 45 (113)_ND/HD | 45 (113)_ND/HD | | | | | | | | | | | | | | | | | | |

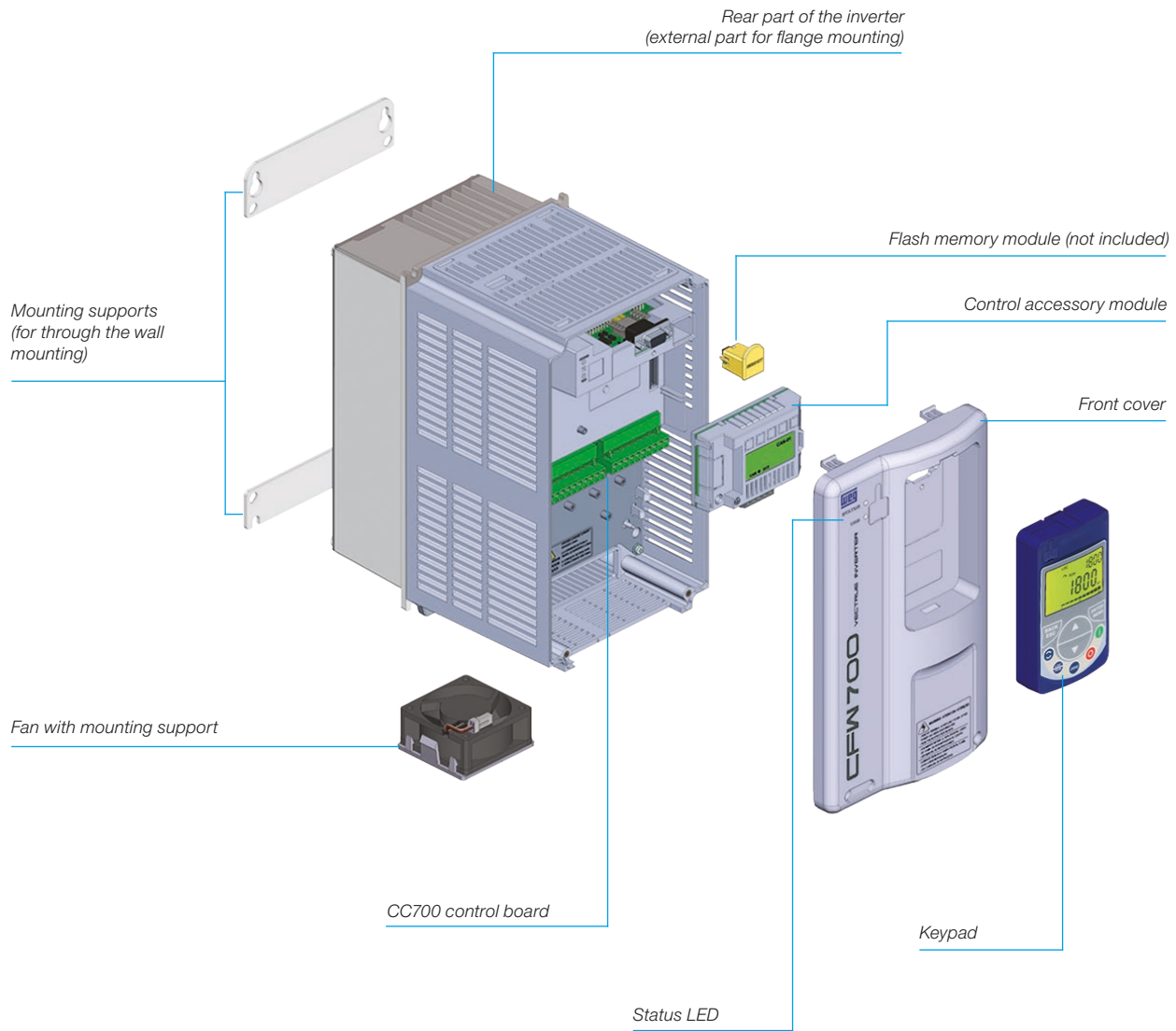
Note: weight data is for the VSD as IP20 enclosure, if IP21 and NEMA1 kits are being added the total weight will change. Consult the user manual for additional information.



Technical Features

Main Parts

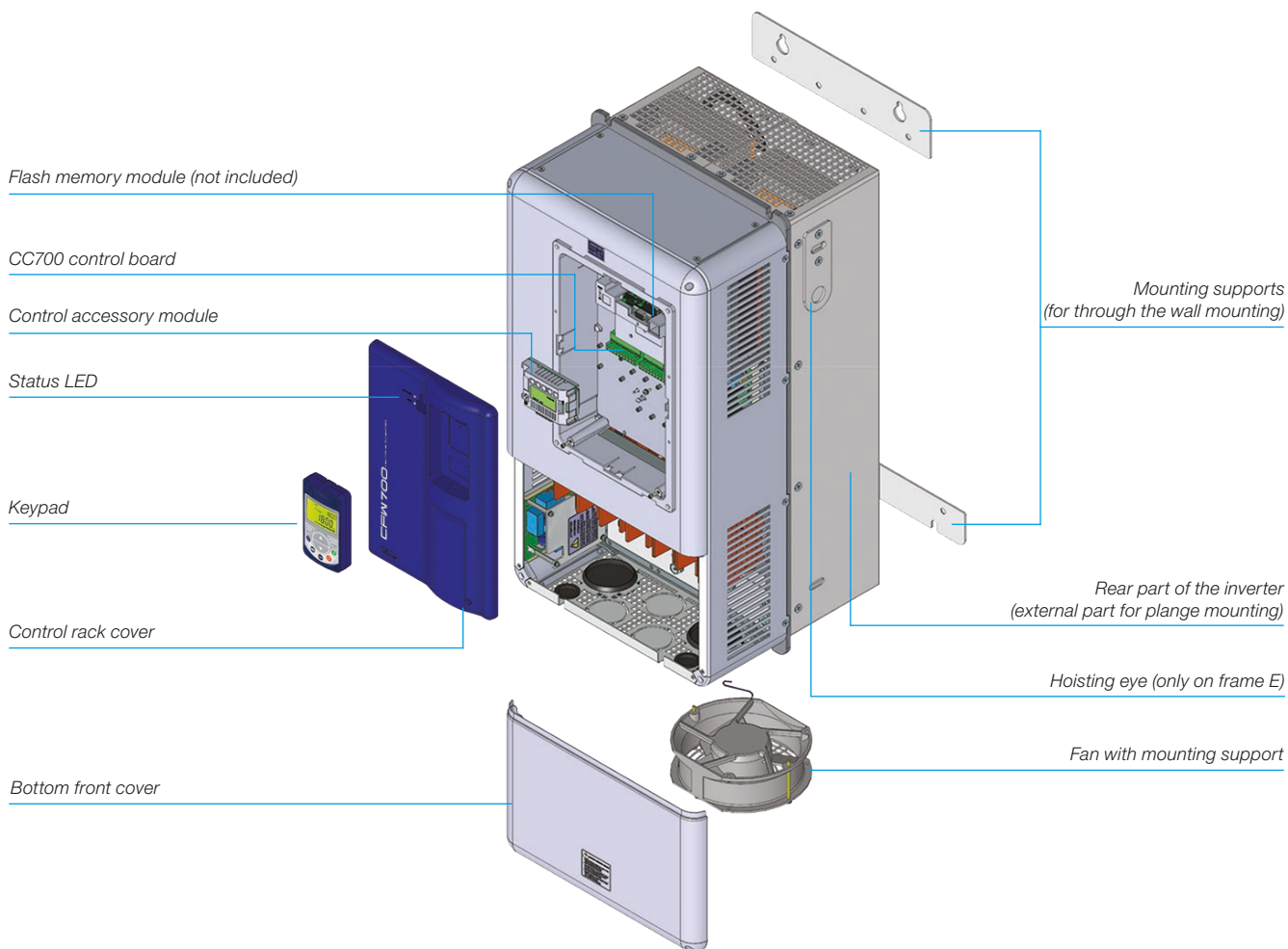
Frames A, B and C



Technical Features

Main Parts

Frames D and E



Mounting Considerations

Standard Installation

Innovative design allows the CFW700 to be assembled in three different ways.



| Frame size | Minimum mounting clearance with top cover fitted in | | | |
|------------|---|------------|-----------|-----------|
| | A mm (in) | B mm (in) | C mm (in) | D mm (in) |
| A | 25 (0.98) | 25 (0.98) | 10 (0.39) | 30 (1.18) |
| B | 40 (1.57) | 45 (1.77) | 10 (0.39) | 30 (1.18) |
| C | 110 (4.33) | 130 (5.12) | 10 (0.39) | 30 (1.18) |
| D | 110 (4.33) | 130 (5.12) | 10 (0.39) | 30 (1.18) |
| E | 100 (3.94) | 250 (9.84) | 20 (0.78) | 80 (3.15) |

Side by Side Installation

The possibility for installing CFW700 series with no space in between allows for panel space saving.



Note: for side by side assembly option check user manual for further operating temperature details.

Mounting Considerations / Panel Assembly

Surface Installation

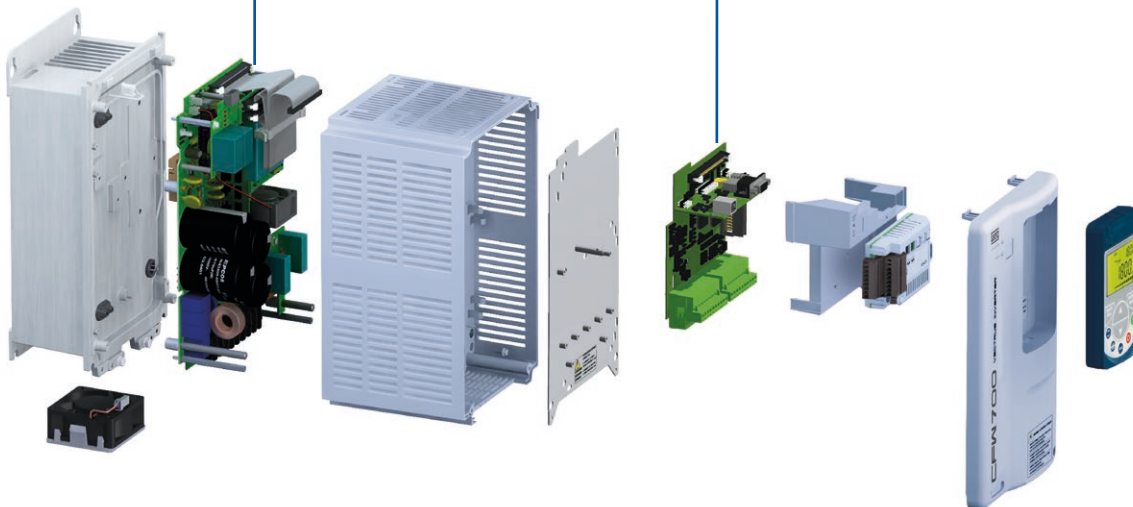
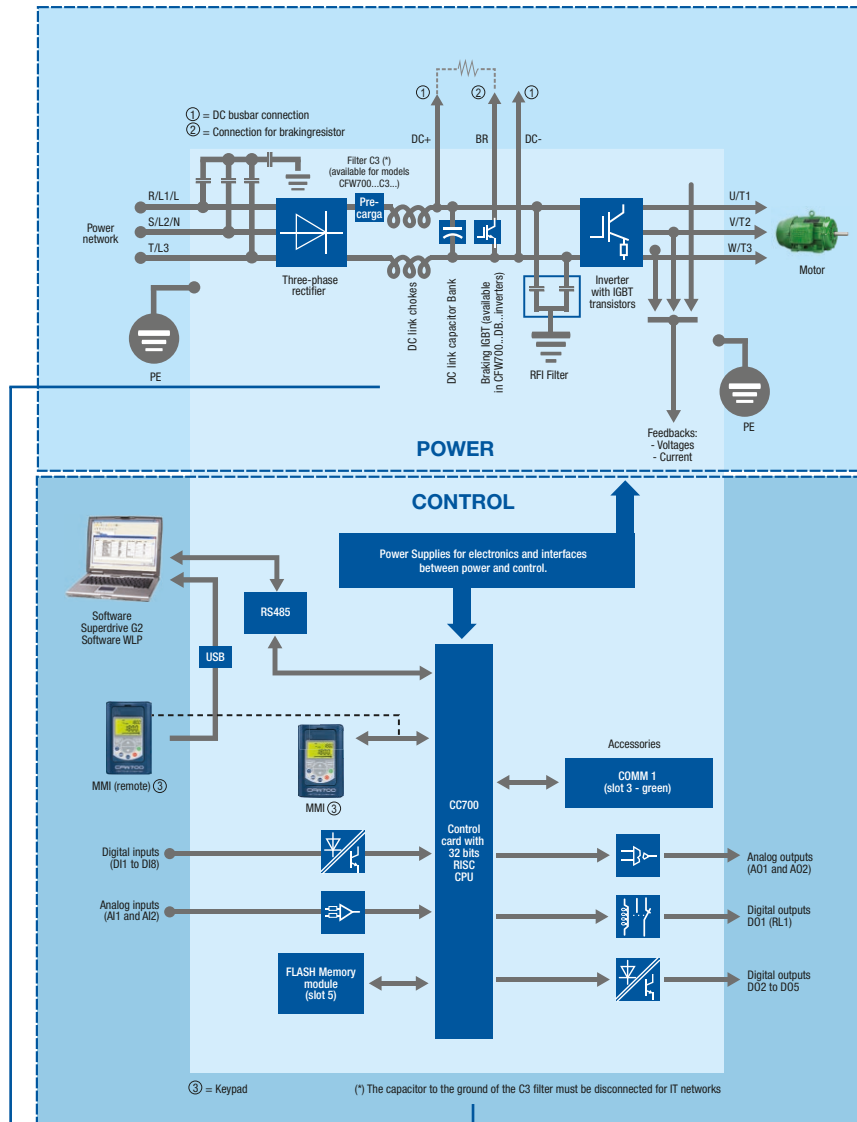


Flange Mounting (IP54 Rated When Mounting the Heatsink Outside the Enclosure)



| Frame size | a2 mm (in) | b2 mm (in) | c2 (M) | a3 mm (in) | b3 mm (in) | c3 (M) | d3 mm (in) | e3 mm (in) |
|------------|---------------|---------------|-----------|---------------|---------------|-----------|---------------|---------------|
| A | 115 (4.53) | 250 (9.85) | M5 | 130 (5.12) | 240 (9.45) | M5 | 135 (5.32) | 225 (8.86) |
| B | 150 (5.91) | 300 (11.82) | M5 | 175 (6.89) | 285 (11.23) | M5 | 179 (7.05) | 271 (10.65) |
| C | 150 (5.91) | 375 (14.77) | M6 | 195 (7.68) | 365 (14.38) | M6 | 205 (8.08) | 345 (13.59) |
| D | 200 (7.88) | 525 (20.67) | M8 | 275 (10.83) | 517 (20.36) | M8 | 285 (11.23) | 485 (19.10) |
| E | 200 (7.8) | 650 (25.6) | M8 | 275 (10.8) | 635 (25) | M8 | 315 (12.40) | 615 (24.21) |

Technical Features



Notes: 1) Diode type rectifier bridge;
 2) Standard for frame sizes A to D;
 3) RFI filter factory built for frame size E.

Coding

| Product and series | Model identification | | | | Braking | Degree of protection | Conducted emission level ¹⁾ | Safety stop ²⁾ | External power supply for control |
|--------------------|--|---------------|---------------|---------------|---------|----------------------|--|---------------------------|-----------------------------------|
| | Frame size | Rated current | No. of phases | Rated voltage | | | | | |
| CFW700 | A | 03P6 | T | 2 / 4 / 5 | NB | 20 | C3 | Y1 | W1 |
| CFW700 | Check table below | | | | | | | | |
| | NB = braking IGBT not available DB = braking IGBT available | | | | | | | | |
| | 20 = IP20 21 = IP21 (not available for frame size E) N1 = NEMA1 enclosure <i>Note: check table enclosures at chapter Accessories.</i> | | | | | | | | |
| | Blank = with no RFI filter C3 = according to category 3 of IEC 61800-3 standard | | | | | | | | |
| | Blank = with no STO function Y1 = with STO function according to ISO 13849-1, category 3 | | | | | | | | |
| | Blank = with no external power supply board W1 = control circuit is supplied through an external 24 V power supply | | | | | | | | |

Notes: 1) Frame size E comes equipped with RFI filter as standard.
2) This option is not available for models frame size A with the option for NEMA1.

| Frame sizes | Output current (ND) | Input | Power supply voltage | Braking | Degree of protection | Conducted emission level | | | | | |
|-------------|---------------------|-------------------------------------|----------------------|----------|----------------------|--------------------------|--|--|----------|----------|----|
| A | 06P0 = 6.0 A | B = single/three-phase power supply | 2 = 200...240 V | DB | 20, 21 or N1 | Blank | | | | | |
| | 07P0 = 7.0 A | | | | | | | | | | |
| A | 06P0 = 6.0 A | S = single-phase power supply | 2 = 200...240 V | DB | 20, 21 or N1 | C3 | | | | | |
| | 07P0 = 7.0 A | | | | | Blank or C3 | | | | | |
| | 10P0 = 10 A | | | | | | | | | | |
| A | 07P0 = 7.0 A | S = three-phase power supply | 2 = 200...240 V | DB | 20, 21 or N1 | Blank or C3 | | | | | |
| | 10P0 = 10 A | | | | | | | | | | |
| | 13P0 = 13 A | | | | | | | | | | |
| | 16P0 = 16 A | | | | | | | | | | |
| B | 24P0 = 24 A | | | | | | | | | | |
| | 28P0 = 28 A | | | | | | | | | | |
| | 33P5 = 33.5 A | | | | | | | | | | |
| C | 45P0 = 45 A | | | | | | | | | | |
| | 54P0 = 54 A | | | | | | | | | | |
| | 70P0 = 70 A | | | | | | | | | | |
| D | 86P0 = 86 A | | | | | | | | | 21 or N1 | |
| | 0105 = 105 A | | | | | | | | | | |
| E | 0142 = 142 A | | 2 = 220...230 V | NB or DB | 20 or N1 | C3 | | | | | |
| | 0180 = 180 A | | | | | | | | | | |
| A | 0211 = 211 A | | | | | | | | | | |
| | 06P0 = 6.0 A | B = single/three-phase power supply | 2 = 200...240 V | DB | 20, 21 or N1 | Blank | | | | | |
| A | 07P0 = 7.0 A | S = single-phase power supply | 2 = 200...240 V | DB | 20, 21 or N1 | C3 | | | | | |
| | 06P0 = 6 A | | | | | Blank or C3 | | | | | |
| | 10P0 = 10 A | | | | | | | | | | |
| A | 3P6 = 3.6 A | T = three-phase power supply | 4 = 380...480 V | DB | 20, 21 or N1 | Blank or C3 | | | | | |
| | 05P0 = 5.0 A | | | | | | | | | | |
| | 07P0 = 7.0 A | | | | | | | | | | |
| | 10P0 = 10 A | | | | | | | | | | |
| | 13P5 = 13.5 A | | | | | | | | | | |
| 17P0 = 17 A | | | | | | | | | | | |
| B | 24P0 = 24 A | | | | | | | | | | |
| | 31P0 = 31 A | | | | | | | | | | |
| | 38P0 = 38 A | | | | | | | | | | |
| C | 45P0 = 45 A | | | | | | | | | | |
| | 58P5 = 58.5 A | | | | | | | | | | |
| | 70P5 = 70.5 A | | | | | | | | | | |
| D | 88P0 = 88 A | | | | | | | | | 21 or N1 | |
| | 0105 = 105 A | | | | | | | | | | |
| E | 0142 = 142 A | | | | | | | | NB or DB | 20 or N1 | C3 |
| | 0180 = 180 A | | | | | | | | | | |
| | 0211 = 211 A | | | | | | | | | | |
| | | | | | | | | | | | |

Coding

| Frame sizes | Output current (ND) | Input | Power supply voltage | Braking | Degree of protection | Conducted emission level | |
|-------------|---------------------|------------------------------|----------------------|---------|----------------------|--------------------------|----|
| B | 2P9 = 2.9 A | T = three-phase power supply | 5 = 500...600 V | DB | 20 | Blank | |
| | 4P2 = 4.2 A | | | | | | |
| | 7P0 = 7 A | | | | | | |
| | 10P0 = 10 A | | | | | | |
| | 12P0 = 12 A | | | | | | |
| 17P0 = 17 A | | | | | | | |
| D | 22P0 = 22 A | | | NB | 20 | | N1 |
| | 27P0 = 27 A | | | | | | |
| | 32P0 = 32 A | | | | | | |
| | 44P0 = 44 A | | | | | | |
| E | 53P0 = 53 A | | | 20 | C3 | | |
| | 63P0 = 63 A | | | | | | |
| | 80P0 = 80 A | | | | | | |
| | 0107 = 107 A | | | | | | |
| | 0125 = 125 A | | | | | | |
| | 0150 = 150 A | | | | | | |

Technical Data

| | | | |
|-----------------------------|---|--|-----------------------------|
| Voltage and rating features | Voltage | Single-phase | 200-220 V ac (+10%-15%) |
| | | Three-phase | 200-220 V ac (+10%-15%) |
| | | | 380-480 V ac (+10%-15%) |
| | | | 500-600 V ac (+10%-15%) |
| | Power | Single-phase | 1.5 to 3 HP (1.1 to 2.2 kW) |
| | | Three-phase | 1.5 to 75 HP (1.1 to 55 kW) |
| | | | 2 to 150 HP (1.5 to 110 kW) |
| | | | 2 to 175 HP (1.5 to 110 kW) |
| Frequency | 50...60 Hz (+/-2%_48 to 63 Hz) | | |
| Displacement factor | Greater than 0.98 | | |
| Efficiency | Greater than 0.97 | | |
| Power factor | 0.94 for three-phase input at nominal conditional 0.70 for single-phase input at nominal conditional | | |
| Control | Frequency range | 0 to 3.4 x rated motor frequency (P0403). The rated motor frequency is programmable from 0 Hz to 300 Hz in the V/F and VVV modes and from 30 Hz to 120 Hz in the vector mode. Maximum output frequency limit according to the switching frequency: - 125 Hz (switching frequency = 1.25 kHz) - 250 Hz (switching frequency = 2.5 kHz) - 500 Hz (switching frequency ≥ 5 kHz) | |
| | Switching frequency | Standard: 5 kHz (A, B, C e D frames) | |
| | | 2.5 kHz for all 380 V models frame E | |
| | | 2.5 kHz for frame E 220 V models 142/180 Amps (ND) | |
| | | 2.5 kHz for frame E 220 V model 211 Amps (ND/HD) | |
| | | 5 kHz for frame E 220 V models 142/180 Amps (HD) | |
| | Available options for 2.5/5/10 kHz (check for derating) | | |
| Overload | Normal Duty (ND) | 110% for 1 min every 10 min 150% for 3 s every 10 min | |
| | Heavy Duty (HD) | 150% for 1 min every 10 min 200% for 3 s every 10 min | |
| | Acceleration | 0 to 999 s | |
| | Deceleration | 0 to 999 s | |
| Environment | Temperature | -10 to 50 °C (14 to 122 °F) for most of models. For operating temperature of each model the table Dimensions, Weight and Temperature shall be checked. -10...60 °C for frames A, B, C and D (up to 45 °C without derating for models 13 A and 24 A/200...240 V, 7 and 10 A/380...480 V and up to 50 °C without derating for the other models) and -10...55 °C for frame E (up to 45 °C without derating). If derating has to be considered have 2% current reduction for each °C above the specific operating temperature | |
| | Humidity | 5 to 90% with no condensation | |
| | Altitude | 0 to 1,000 meters with no derating Up to 4,000 meters with current reduction of 1% for each 100 meters above 1,000 meters | |
| Braking methods | Dynamic braking | Available as standard for frame sizes A, B, C and D for 460 V and D for 600 V. For frame size E "DB" models has to be used. An extra resistor must be fitted in for dynamic braking capability | |
| | Optimal Braking® | There is no need for braking resistor | |
| | DC braking | DC current applied to motor | |

Technical Data

| | | | |
|--|--|--|--|
| Performance | V/F | Speed control | Regulation: 1% of rated speed |
| | Voltage vector VVV | | Speed variation range 1:20 |
| | | | Regulation: 1% of rated speed |
| | Sensorless vector | | Speed variation range 1:30 |
| | Vector with encoder (encoder interface built-in) | Regulation: 0.5% of rated speed | |
| | | Speed variation range 1:100 Regulation: +/- 0.1% of rated speed with digital reference (keypad, serial fieldbus, multispeed) Regulation: +/- 0.2% of rated speed with 12 bits analog input | |
| Sensorless vector | Torque control | Range: 10 to 180% | |
| | | Regulation: +/-5% of rated torque | |
| | | Range: 20 to 180% Regulation: +/-10% of rated torque (above 3 Hz)% | |
| I/Os | Inputs | Digital | 8 x isolated bidirectional 24 V |
| | | Analog | 2 x +/-10 V, 11 bits + signal (differential) or 0/4...20 mA, 11 bits (differential) Impedance: 400 kΩ for voltage signal / 500 Ω for current signal |
| | Output | Relay | 1 x relay NO/NC contact (240 V ac / 1 A) 4 x open drain (24 V/200 mA) |
| | | Analog | 2 x 0...10 V or 0/4...20 mA, 11 bits (not isolated from inverter ground) |
| | 24 V power supply capacity | 500 mA (available for the user, including I/Os) | |
| Connectivity | USB | USB in the display / SuperDrive and WLP communication | |
| | Modbus-RTU | RS485 built-in / SuperDrive and WLP communication | |
| Communication protocols | Modbus-RTU | RS485 built-in (available at the control terminals) | |
| | DeviceNet | CAN-01 (slot 3) | |
| | CANopen | CAN-01 (slot 3) | |
| | Profibus-DP | Profibus-DP-V1 (slot 3) | |
| Safety standards | UL 508C Power conversion equipment | | |
| | 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. In order to have a machine in conformity with this regulation, the machine builder is responsible for the installation of an emergency shutdown device and an equipment for power disconnection. | | |
| | EN 60146 (IEC 146) - Semiconductor converters. | | |
| Mechanical construction standards electromagnetic compatibility standards (EMC) | EN 61800-2 - Adjustable speed electrical power drive systems - Part 2: General requirements - Rating specifications for low voltage adjustable frequency A.C. power drive systems | | |
| | EN 60529 - Degrees of protection provided by enclosures (IP code). | | |
| | UL 50 - Enclosures for electrical equipment | | |
| | 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 - 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. | | |
| Protections | EN 61000-4-6 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 6: Immunity to conducted disturbances, induced by radio-frequency fields. | | |
| | Overcurrent / short circuit | | |
| | Under / overvoltage in the power section | | |
| | Phase Loss | | |
| | VSD thermal overload (IGBTs, rectifier and in the electronics) | | |
| | Motor thermal overload | | |
| | Braking resistor overload | | |
| | IGBTs overload | | |
| | Motor overload | | |
| | Fault / external alarm | | |
| | CPU failure | | |
| | Phase-to-ground short circuit at the output | | |
| | Failure at the heatsink fan | | |
| | Motor overspeed | | |
| Wrong connection of encoder wiring | | | |

WEG Worldwide Operations