Motors | Automation | Energy | Transmission & Distribution | Coatings

CFW700

Variable Speed Drives

CFW-700

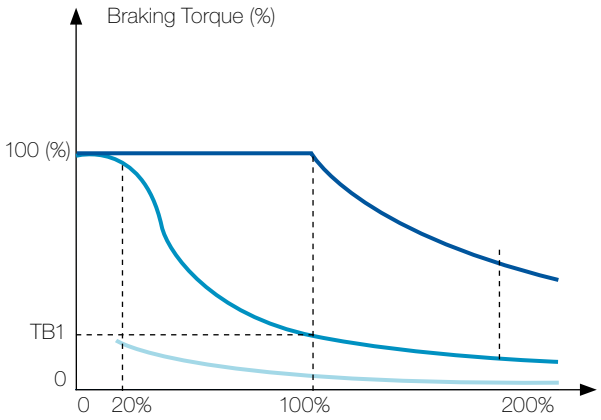
Designed for controlling squirrel cage three-phase induction motors the new CFW700 is a general purpose drive that gives costumers the flexibility needed for the control of applications ranging from simple speed control to more demanding ones as torque control. Since it is included on its control the CFW700 features Sensor less and Closed loop control as standard feature (factory built). Another outstanding characteristic we could not leave behind is that by using the internal micro PLC (SoftPLC factory built), more sophisticated applications like overhead cranes, PCP (Progressive Cavity Pump), pump jack and many more can be implemented.

Technology

Vectrue Technology® - WEG VARIABLE SPEED DRIVE CONTROL TECHNOLOGY

- Four control modes in one drive, Linear and adjustable V/f, VVW (Voltage Vector WEG), Sensorless Vector and closed loop Vector. (Encoder interface factory built)
- Sensorless vector control allows for high torque and quick response in open loop, even at low speeds.
- Self-tuning function automatically matches VSD with motor – load when on Sensorless, VVW and closed loop Vector mode.
- Through adjustable V/f control it is possible to adjust a quadratic V/f curve and that implies energy saving when quadratic torque loads (e.g.: centrifugal pumps and fans) are being driven.

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 some installation criteria has to be considered due to their heat dissipation.
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 given below 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).

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

Left soft-key: function defined by display

FWD/REV Selection

Local / Remote Selection

Key for scrolling through menus and perameters and for modfying perameter content

Star Key

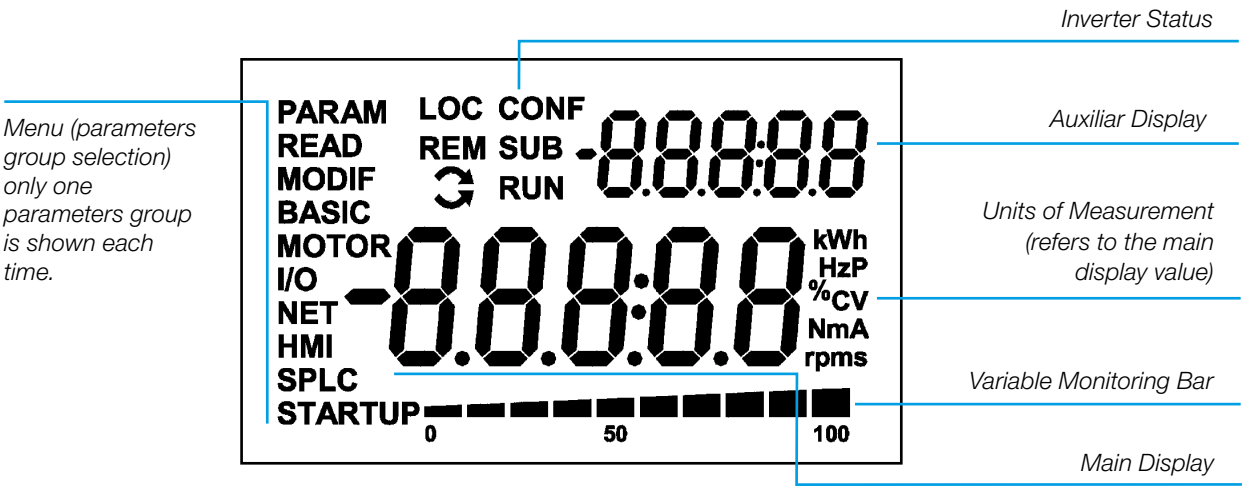
Stop Key

JOG Key

Remote Keypad

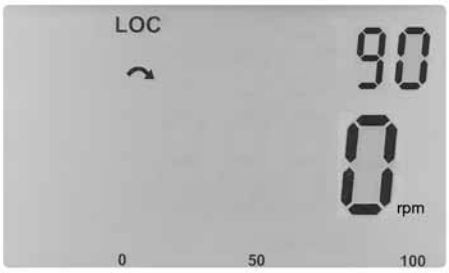
The Keypad can be remote assembled by using this configuration, degree of protection IP56 can be achieved.

Allows for showing 3 variables at once through three viewing modes

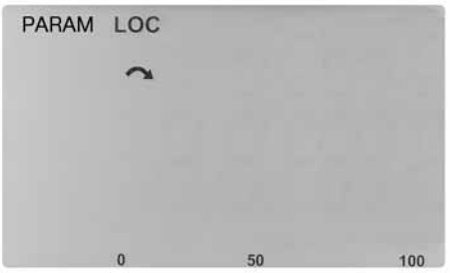


Viewing Modes

Monitoring Mode



Programming Mode



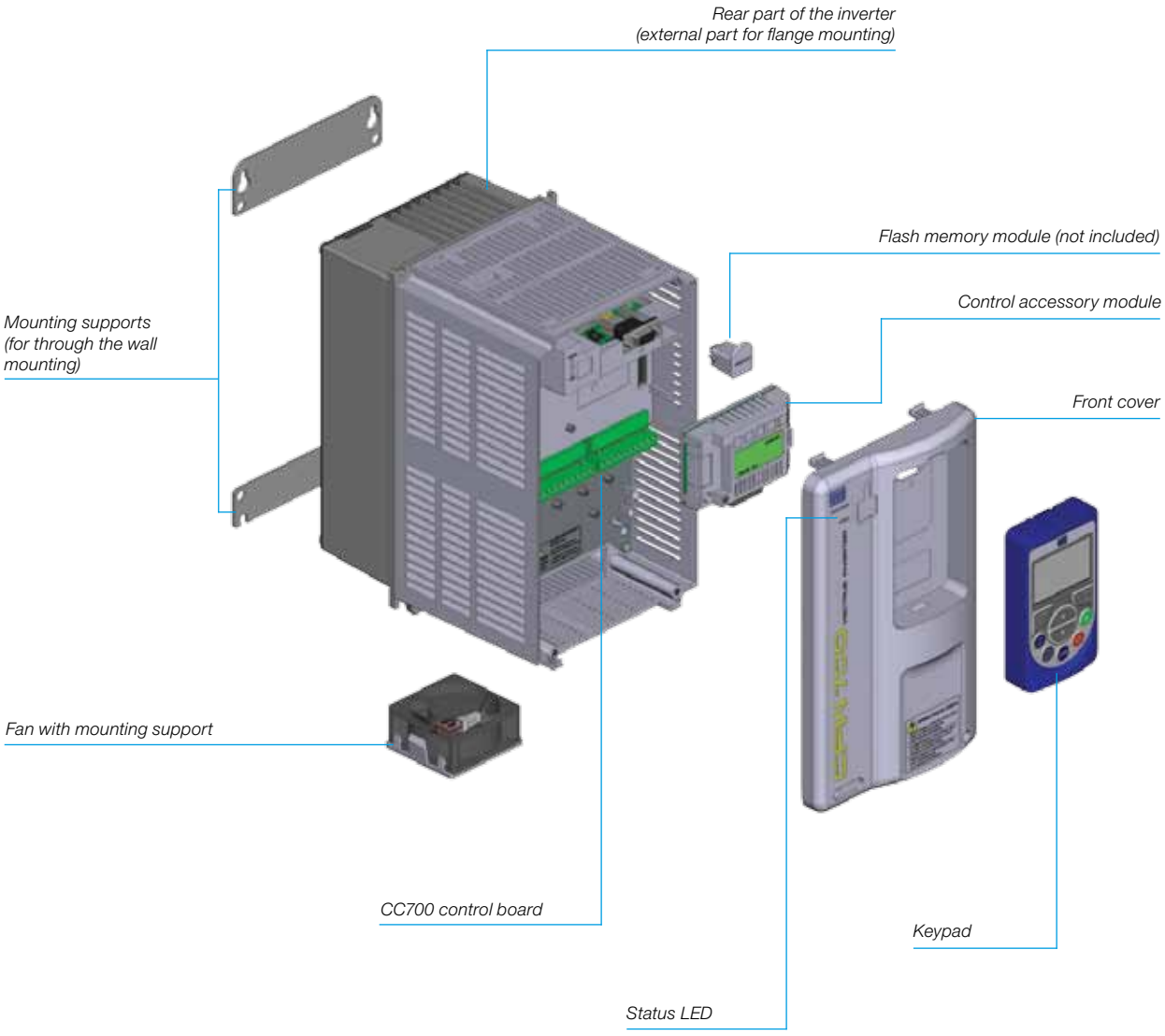
Simplicity

The new CFW700 was designed based on the plug and 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.

Technical Features

Main parts

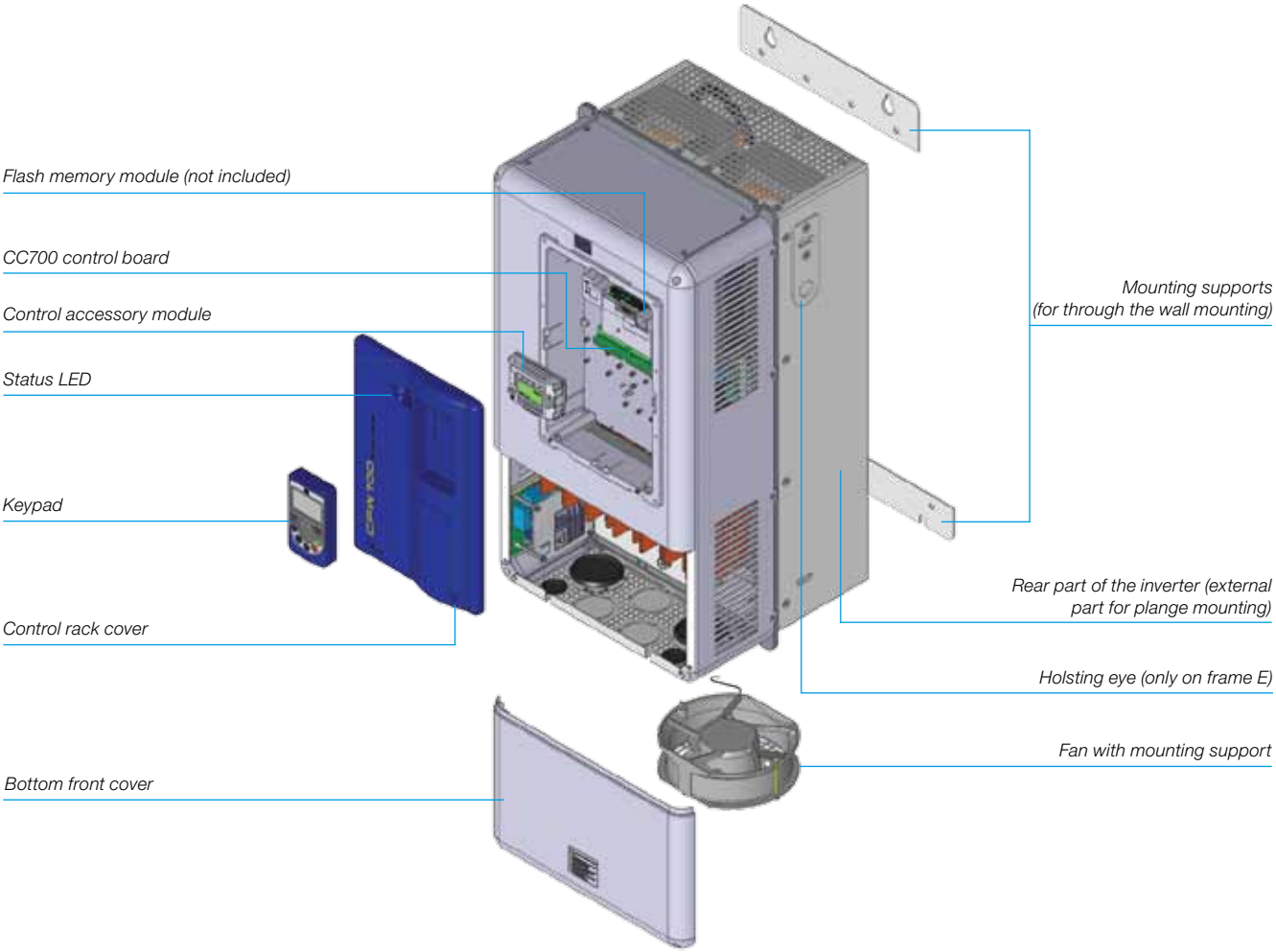
Frames A, B and C



Technical Features

Main parts

Frames D and E

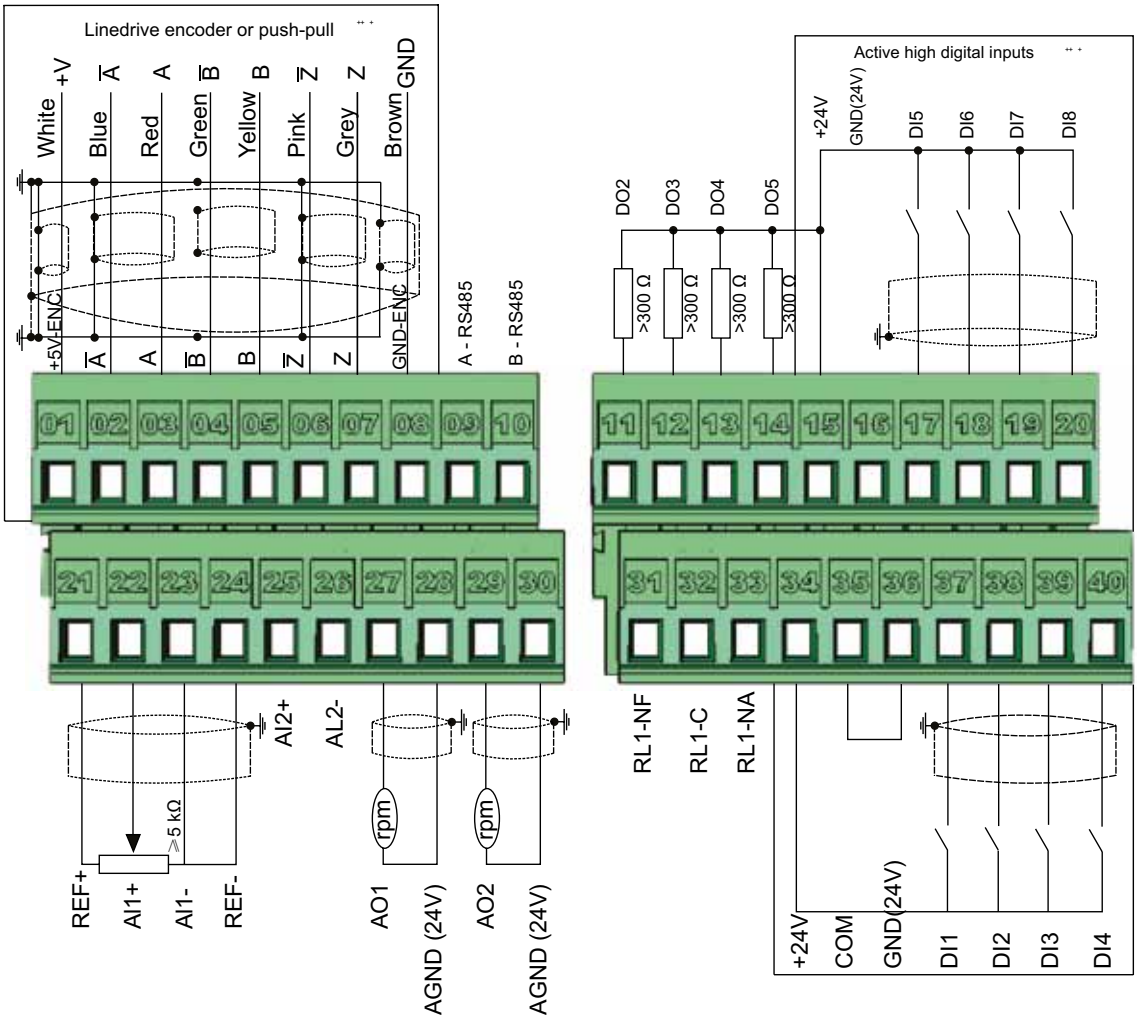


Technical Features

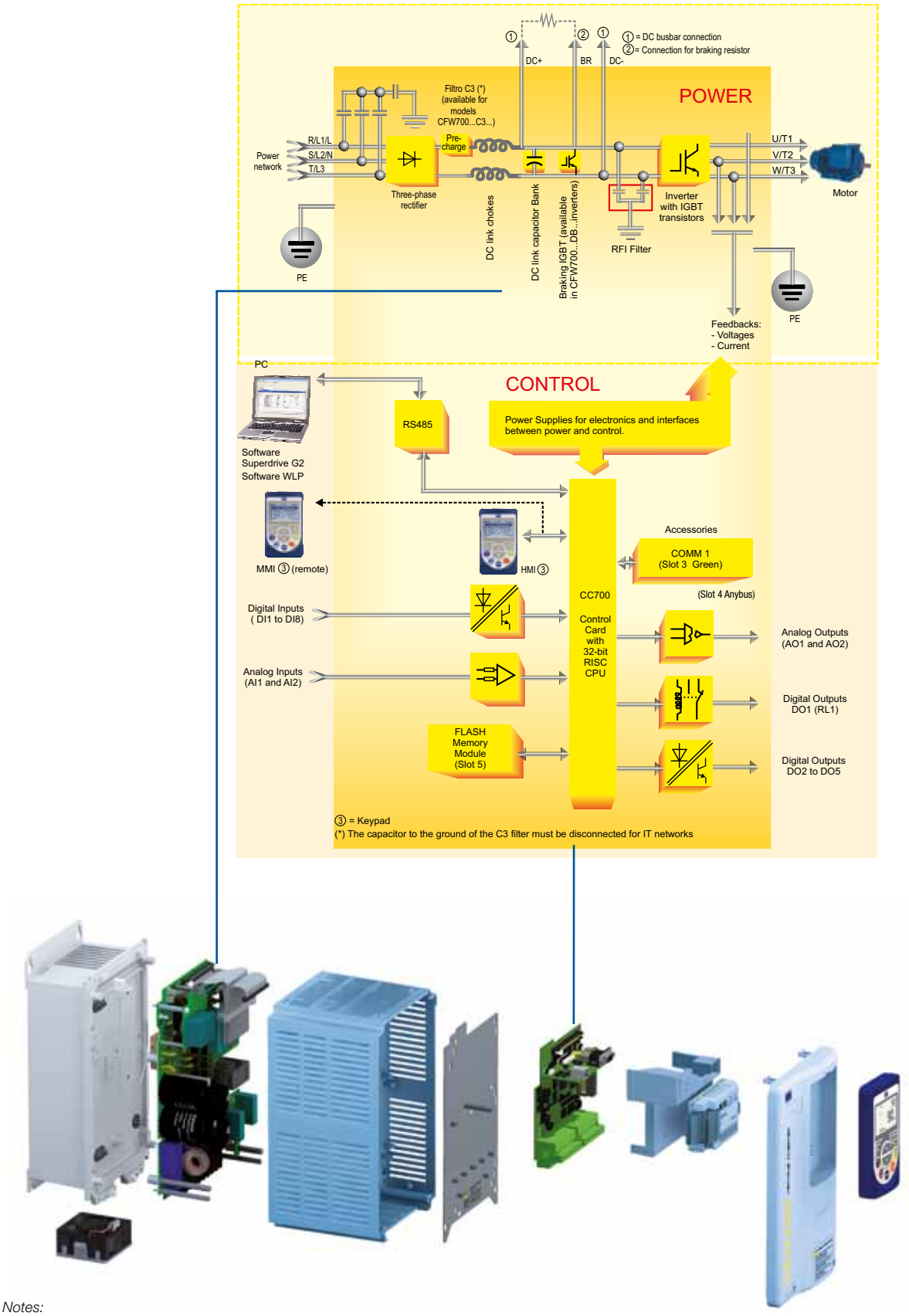
- 1.1 to 2.2kW - 1.5 to 3HP
  200-240V - Single-phase
- 1.1 to 55kW - 1.5 to 75HP
  220-240V - Three-phase
- 1.5 to 132kW - 2 to 175HP
  380-480V - Three-phase

- Very compact product gives flexibility for lack of space when panel mounted
- High accuracy and reliability for speed and torque control
- Hardware robustness

Control Terminal



Technical Features



Notes:

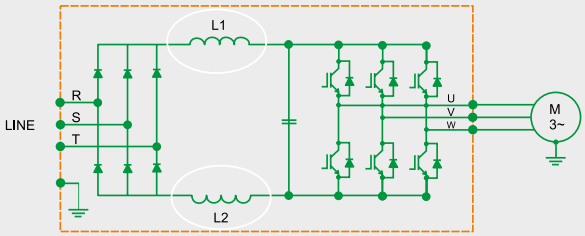
1)Diode type rectifier bridge
2) Standard for frame sizes A to D
3)RFI filter factory built for frame size E

Technical Features

Integrated options for the product

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



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(5Vcc)
- 5V Line drive or push pull types can be used

RS-485 port Embedded

- Modbus-RTU communication protocol ready

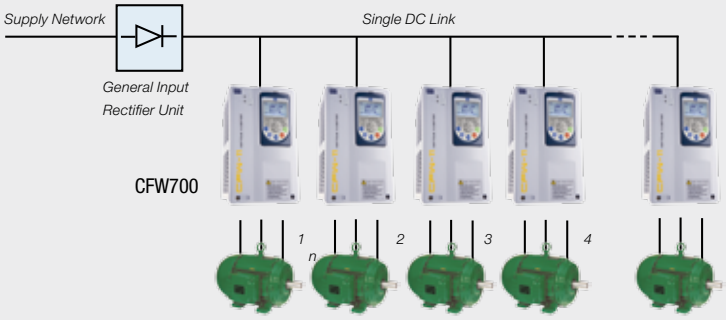
I/Os capability

- 8 Digital Inputs / 5 Digital Outputs
- 2 Analog Inputs / 2 Analog Outputs

Common Dc bus Connection

Very known in multi motors application the possibility for feeding CFW700 (AC drive) with DC voltage gives flexibility to the product as well as brings the benefit for 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

- The possibility for monitoring heat sink and inside air temperature ensures 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 avoids 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 rotation direction.
- ***Control options for DC bus regulation*** Prevents the drive from tripping when short deceleration time is required, very demanded 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.

Soft PLC

The new CFW700 incorporates PLC functionalities by means of a factory built micro PLC named Soft PLC. This extra tool gives more flexibility to the product as well as allows the user for developing his own application through a RS-485 port available at the control terminal. The Soft PLC 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.

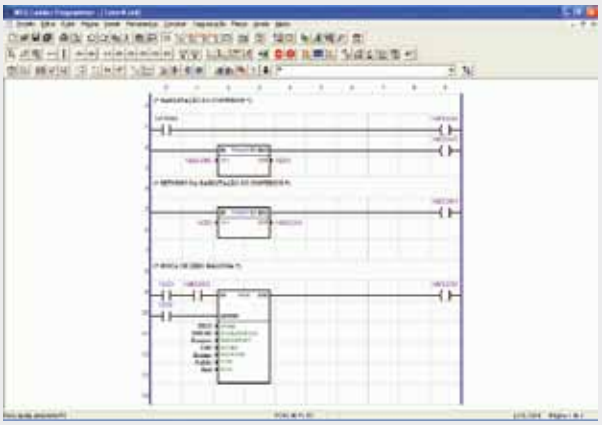
Free of charge Software

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
- RS-485 connection with the drive
- 49 user parameters can be individually accessed allowing for creation of a variety of applications.

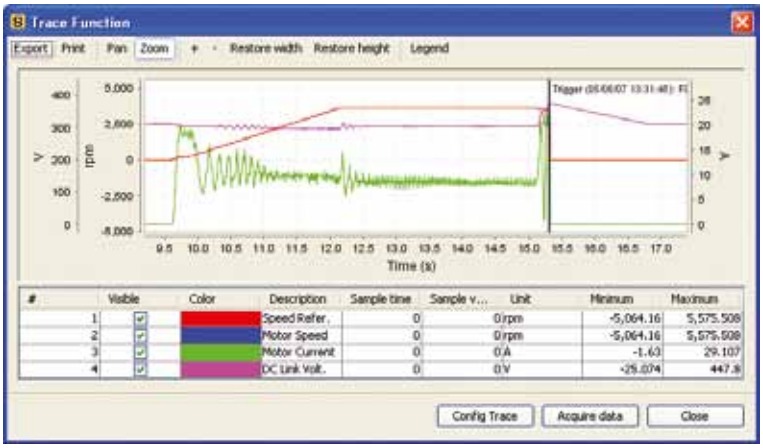


Software superdrive G2

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.



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. IP 56 degree of protection.

Communication Modules

CAN-01 (CANopen and DeviceNet)

Profibus DP-01 (Profibus DP-V1)

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 Soft PLC applicative can also be store into this memory.

[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

Note:
1) The shielded cable kit for frame Sizes D and E is included to the standard version.
2) 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

(X) Standard
(-) NA

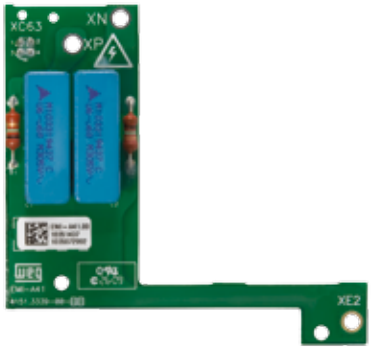
Standard	Accessory	Composition
NEMA Type 1	KN1A-02	Conduit kit frame size A
	KN1B-02	Conduit kit frame size B
	KN1C-02	Conduit kit frame size C
	KN1E-01	Top cover size E models 105 and 142
	KN1E-02	Top Cover + Conduit kit size E models 180 and 211
IEC	KIP21A-01	Top cover kit frame size A
	KIP21B-01	Top 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 24Vcc
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-954-1 and IEC 62061, category III)
With this option when the safety circuit is tripped by external causes the IGBT firing circuit is deactivated, thus removing power from VSD output.
(pending certification).

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.
- Possibility of 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.
- Possibility of safety and maintenance signaling and alarms of pressurization system.
- Provides startup system control of other compressor units with an increased efficiency of the pressurization system.

Paper and Cellulose / Wood

- Precise speed and torque control.
- Flexible hardware programming and confguration, making applications where syncronism is required easier.
- Possibility to be integratet 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 and Petrochemical

- Highly reliable and robust.
- Plug-and-play system for additional modules, ensuring greater flexibility in adapting to existing systems.
- 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.

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 proper way how 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 to be used 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 Voltage 220V and 230V

Power Supply		Model	Normal Duty (ND)	IEC	NEMA	Heavy Duty (HD)	IEC	NEMA
				50Hz 220V 230V	60Hz 230V		50Hz 220V 230V	60Hz 230V
			A	kW	HP	A	kW	HP
200-240 V	1Ø	CFW700A06P0S2	6	1.1	1.5	5	1.1	1
		CFW700A07P0S2	7	1.5	2	7	1.5	2
		CFW700A10P0S2	10	2.2	3	10	2.2	3
	1/3Ø	CFW700A06P0B2	6	1.1	1.5	5	1.1	1
		CFW700A07P0B2	7	1.5	2	7	1.5	2
	3Ø	CFW700A07P0T2	7	1.5	2	5.5	1.1	1
		CFW700A10P0T2	10	2.2	3	8	1.5	2
		CFW700A13P0T2	13	3	3	11	2.2	3
		CFW700A16P0T2	16	4	5	13	3	3
		CFW700B24P0T2	24	5.5	7.5	20	5.5	5
		CFW700B28P0T2	28	7.5	10	24	5.5	7.5
		CFW700B33P0T2	33.5	9.2	10	28	7.5	10
		CFW700C45P0T2	45	11	15	36	9.2	10
		CFW700C54P0T2	54	15	20	45	11	15
		CFW700C70P0T2	70	18.5	25	56	15	20
		CFW700D86P0T2	86	22	30	70	18.5	25
		CFW700D0105P0T2	105	30	40	86	22	30
220-230V	3Ø	CFW700E0142P0T2	142	37	**50**	115	30	40
		CFW700E0180P0T2	180	55	60	142	37	50
		CFW700E0211P0T2	211	55	75	180	55	60

Motor Voltage 380V and 460V

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

Dimensions, Weight and Temperature

Model	Frame Size	NEMA 1			IP20 / IP21			IP20	NEMA 1 / IP21	Weight kg (lb)	Braking IGBT
		Dimensions mm (in)						Maximum Surronding Air Temperature with no derating °C (°F) _ ND/HD			
		H	W	D	H	W	D				
CFW700A06P0S2	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
CFW700A07P0S2								50 (122)_ND/HD	45 (113)_ND/HD		
CFW700A10P0S2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700A06P0B2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700A07P0B2								50 (122)_ND/HD	45 (113)_ND/HD		
CFW700A07P0T2								50 (122)_ND/HD	45 (113)_ND/HD		
CFW700A10P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700A13P0T2								45 (113)_ND 50 (122)_HD	45 (113)_ND 50 (122)_HD		
CFW700A16P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700B24P0T2	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)	
CFW700B28P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700B33P0T2								50 (122)_ND/HD	45 (113)_ND 50 (122)_HD		
CFW700C45P0T2	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)	
CFW700C54P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700C70P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700D86P0T2	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)	
CFW700D0105P0T2								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700E0142P0T2	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
CFW700E0180P0T2		828.9 (32.63)						45 (113)_ND/HD	45 (113)_ND/HD		
CFW700E0211P0T2								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 50 (122)_HD	40 (104)_ND 50 (122)_HD		
CFW700A10P0T4								45 (113)_ND/HD	45 (113)_ND/HD		
CFW700A13P5T4								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700B17P0T4	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)	
CFW700B24P0T4								50 (122)_ND/HD	40 (104)_ND 45 (122)_HD		
CFW700B31P0T4								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700C38P0T4	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)	
CFW700C45P0T4								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700C58P5T4								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700D70P5T4	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)	
CFW700D88P0T4								50 (122)_ND/HD	50 (122)_ND/HD		
CFW700E0105T4	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
CFW700E0142T4								45 (113)_ND/HD	45 (113)_ND/HD		
CFW700E0180T4		828.9 (32.63)						45 (113)_ND/HD	45 (113)_ND/HD		
CFW700E0211T4								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.

Mounting Considerations

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

Standard Installation

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.

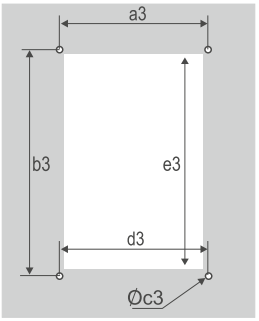
Note: For side by side assembly option check user manual for further operating temperature details.

Mounting Considerations / Panel Assembly

Surface Installation

Flange Mounting

(IP-54 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)

Coding

Product and Series	Model Identification				Braking [1]	Degree of Protection [1]	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	4	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 * Check table " enclosures " at chapter " Accessories ".								
	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 EN 954-1 / ISO 13849-1, category 3								
	Blank = with no External Power supply board W1 = Control circuit is supplied through an external 24V power supply								

(1) To know what models have this options in the standard product the table below shall be checked
(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 = 6.0A	B = single/three phase power supply	2 = 200...240V	DB	20, 21 or N1	Blank
	07P0 = 7.0A					
A	06P0 = 6.0A	S = single phase power supply	2 = 200...240V	DB	20, 21 or N1	C3
	07P0 = 7.0A					
	10P0 = 10A					Blank or C3
A	07P0 = 7.0A	S = three phase power supply	2 = 200...240V	DB	20, 21 or N1	Blank or C3
	10P0 = 10A					
	13P0 = 13A					
	16P0 = 16A					
B	24P0 = 24A					
	28P0 = 28A					
	33P5 = 33.5A					
C	45P0 = 45A					
	54P0 = 54A					
	70P0 = 70A					
D	86P0 = 86A				21 or N1	
	0105 = 105A					
E	0142 = 142A		2 = 220...230V	NB or DB	20 or N1	C3
	0180 = 180A					
	0211 = 211A					
A	06P0 = 6.0A	B = single/three phase power supply	2 = 200...240V	DB	20, 21 or N1	Blank
	07P0 = 7.0A					
A	06P0 = 6A	S = single phase power supply	2 = 200...240V	DB	20, 21 or N1	C3
	07P0 = 7.0A					
	10P0 = 10A					Blank or C3
A	3P6 = 3.6A	T = three phase power supply	4 = 380...480V	DB	20, 21 or N1	Blank or C3
	05P0 = 5.0A					
	07P0 = 7.0A					
	10P0 = 10A					
	13P5 = 13.5A					
B	17P0 = 17A					
	24P0 = 24A					
	31P0 = 31A					
C	38P0 = 38A					
	45P0 = 45A					
	58P5 = 58.5A					
D	70P5 = 70.5A				21 or N1	
	88P0 = 88A					
E	0105 = 105A			NB or DB	20 or N1	C3
	0142 = 142A					
	0180 = 180A					
	0211 = 211A					

Technical Data

Voltage and Rating Features	Voltage	Single Phase	200-220Vac (+10%-15%)
		Three Phase	200-220Vac (+10%-15%)
			380-480Vac (+10%-15%)
	Power	Single Phase	1.5 to 3HP (1.1 to 2.2kW)
		Three Phase	1.5 to 75HP (1.1 to 55kW)
			2 to 175HP (1.5 to 110kW)
	Frequency	50...60Hz (+/-2%_48 to 63Hz)	
	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 3.4x motor rated frequency (P0403). The rated frequency is programable up to 300Hz (V/Hz) and 120Hz(vector mode). Switching Frequency data must be observed for speed limits.	
	Switching Frequency	Standard: 5kHz (A,B,C D frames)	
		2.5kHz for all 380V models frame E	
		2.5kHz for frame E 220V models 142/180Amps(ND)	
		2.5kHz for frame E 220V model 211Amps(ND/HD)	
		5kHz for frame E 220V models 142/180Amps(HD)	
		Available options for 2.5/5/10kHz(check for derating)	
	Overload	Normal Duty(ND)	110% for 1min every 10min 150% for 3s every 10min
		Heavy Duty(HD)	150% for 1min every 10min 200% for 3s every 10min
		Aceleration	0 to 999s
		Deceleration	0 to 999s
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...60ºC for frames A, B, C and D (up to 45°C without derating for models 13A and 24A/200...240V, 7 and 10A/380...480V 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 1000 meters with no derating	
		Up to 4000 meters with current reduction of 1% for each 100 meters above 1000 meters	
Braking Methods	Dynamic Braking	Available as standard for frame sizes A,B,C and D. 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	
Performance	V/f	Speed Control	Regulation: 1% of rated speed
			Speed Variation range 1:20
	Voltage Vector VVW		Regulation: 1% of rated speed
			Speed Variation range 1:30
	Sensorless Vector		Regulation: 0.5% of rated speed
	Vector with Encoder (Encoder Interface built-in)		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 12bits analog input
		Torque Control	Range: 10 to 180%
			Regulation: +/-5% of rated torque
	Sensorless Vector		Range: 20 to 180%
			Regulation: +/-10% of rated torque (above 3Hz)%
I/Os	Inputs	Digital	8 x isolated bidirectional 24V
		Analog	2 x +/-10V, 11bits + signal(differencial) or 0/4...20mA, 11bits(differencial)
			Impedance: 400kΩ for voltage signal / 500Ω for current signal
	Output	Relay	1 x relay NO/NC contact(240Vac/1A)
			4 x open drain (24V/200mA)
		Analog	2 x 0...10V or 0/4...20mA, 11 bits (not isolated from inverter ground)
	24V power supply capacity	500mA (available for the user, including I/Os)	

Technical Data

Communication	Modbus-RTU	RS-485 built-in (Available at the control terminals)
		RS-485 built-in / Superdrive and WLP communication
	DeviceNet	CAN-01 (slot 3)
	CANopen	CAN-01 (slot 3)
	Profibus DP	PROFIBUS DP-01 (slot 3)
Safety Standards	UL 508C Power conversion equipment	
	UL 840 Insulation coordination including clearences and creepage distances for electrical equipment	
	EN61800-5-1 - 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 resposible forthe installation of na emergency shutdown device and na equipment for power disconnection.	
	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 A.C. power drive systems	
Mechanical Construccion Standards Eletromagnetic Compatibility Standards (EMC)	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 specifc test methods.	
	EN 55011 - Limits and methods of measurement of radio disturbance characteristics of undustrial, scientific and medical(ISM) radio-frequency equipment.	
	CISPR 11 - Industrial, scientifc and medical (ISM) radio-frequency equipment – Eletromagnetic disturbance characteristics - Limits and methods of measurement.	
	EN 61000-4-2 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Eletrostatic discharge immunity test.	
	EN 61000-4-3 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic feld 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.	
Protections	Overcurrent / Short Circuit	
	Under / Overvoltage in the power section	
	Phase Loss	
	VSD thermal Overload (IGBTs, rectifier and in the eletronics)	
	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

ARGENTINA
WEG EQUIPAMIENTOS ELECTRICOS S.A.
(Headquarters San Francisco-Cordoba)
Sgo. Pampiglione 4849
Parque Industrial San Francisco
2400 - San Francisco
Phone: +54 (3564) 421484
Fax: +54 (3564) 421459
info-ar@weg.net
www.weg.net/ar

AUSTRALIA
WEG AUSTRALIA PTY. LTD.
3 Dalmore Drive
Carribean Park Industrial Estate
Scoresby VIC 3179 - Melbourne
Phone: 61 (3) 9765 4600
Fax: 61 (3) 9753 2088
info-au@weg.net
www.weg.net/au

BELGIUM
WEG BENELUX S.A.
Rue de l'Industrie 30 D,
1400 Nivelles
Phone: + 32 (67) 88-8420
Fax: + 32 (67) 84-1748
info-be@weg.net
www.weg.net/be

CHILE
WEG CHILE S.A.
Los Canteros 8600
La Reina - Santiago
Phone: (56-2) 784 8900
Fax: (56-2) 784 8950
info-cl@weg.net
www.weg.net/cl

CHINA
WEG (NANTONG) ELECTRIC MOTOR MANUFACTURING CO., LTD.
No. 128# - Xinkai South Road,
Nantong Economic &
Technical Development Zone,
Nantong, Jiangsu Province.
Phone: (86) 0513-85989333
Fax: (86) 0513-85922161
info-cn@weg.net
www.weg.net/cn

COLOMBIA
WEG COLOMBIA LTDA
Calle 46A N82 - 54
Portería II - Bodega 7 - San Cayetano II - Bogotá
Phone: (57 1) 416 0166
Fax: (57 1) 416 2077
info-co@weg.net
www.weg.net/co

DENMARK
WEG SCANDINAVIA DENMARK
Sales Office of WEG Scandinavia AB
Anelysparken 43B
True
8381 Tilst – Denmark
Phone: +45 86 24 22 00
Fax : +45 86 24 56 88
info-se@weg.net
www.weg.net/se

FRANCE
WEG FRANCE SAS
ZI de Chenes – Le Loup
13 Rue du Morellon – BP 738
38297 Saint Quentin Fallavier
Phone: +33 (0) 4 74 99 11 35
Fax: +33 (0) 4 74 99 11 44
info-fr@weg.net
www.weg.net/fr

GERMANY
WEG GERMANY GmbH
Industriegebiet Türnich 3
Geigerstraße 7
50169 Kerpen-Türnich
Phone: +49 (0)2237/9291-0
Fax: +49 (0)2237/9292-200
info-de@weg.net
www.weg.net/de

GHANA
ZEST ELECTRIC GHANA LIMITED - WEG Group
15, Third Close Street Airport Residential Area, Accra PMB CT 175, Cantonments
Phone: 233 30 27 664 90
Fax: 233 30 27 664 93
info@zestghana.com.gh
www.zestghana.com.gh

INDIA
WEG ELECTRIC (INDIA) PVT. LTD.
#38, Ground Floor, 1st Main Road, Lower Palace Orchards,
Bangalore – 560 003
Phone(s): +91-80-4128 2007
+91-80-4128 2006
Fax: +91-80-2336 7624
info-in@weg.net
www.weg.net/in

ITALY
WEG ITALIA S.R.L.
V.le Brianza 20 - 20092 - Cinisello Balsamo - Milano
Phone: (39) 02 6129-3535
Fax: (39) 02 6601-3738
info-it@weg.net
www.weg.net/it

JAPAN
WEG ELECTRIC MOTORS JAPAN CO., LTD.
Yokohama Sky Building 20F,
2-19-12 Takashima,
Nishi-ku, Yokohama City,
Kanagawa, Japan 220-001
Phone: (81) 45 440 6063
info-jp@weg.net
www.weg.net/jp

MEXICO
WEG MEXICO, S.A. DE C.V.
Carretera Jorobas-Tula Km. 3.5,
Manzana 5, Lote 1
Fraccionamiento Parque Industrial - Huehuetoca,
Estado de México - C.P. 54680
Phone: + 52 (55) 5321 4275
Fax: + 52 (55) 5321 4262
info-mx@weg.net
www.weg.net/mx

NETHERLANDS
WEG NETHERLANDS
Sales Office of
WEG Benelux S.A.
Hanzepoort 23C
7575 DB Oldenzaal
Phone: +31 (0) 541-571080
Fax: +31 (0) 541-571090
info-nl@weg.net
www.weg.net/nl

PORTUGAL
WEG EURO - INDÚSTRIA ELÉCTRICA, S.A.
Rua Eng. Frederico Ulrich
Apartado 6074
4476-908 - Maia
Phone: +351 229 477 705
Fax: +351 229 477 792
info-pt@weg.net
www.weg.net/pt

RUSSIA
WEG RUSSIA
Russia, 194292, St. Petersburg,
Prospekt Kultury 44, Office 419
Phone: +7(812)363-21-72
Fax: +7(812)363-21-73
info-ru@weg.net
www.weg.net/ru

SOUTH AFRICA
ZEST ELECTRIC MOTORS (PTY) LTD. WEG Group
47 Galaxy Avenue, Linbro Business Park - Gauteng Private Bag X10011 - Sandton, 2146
Johannesburg
Phone: (27-11) 723-6000
Fax: (27-11) 723-6001
info@zest.co.za
www.zest.co.za

SPAIN
WEG IBERIA S.L.
Avenida de la Industria,25
28823 Coslada - Madrid
Phone: (34) 916 553 008
Fax : (34) 916 553 058
info-es@weg.net
www.weg.net/es

SINGAPORE
WEG SINGAPORE PTE LTD
159, Kampong Ampat,
#06-02A KA PLACE.
Singapore 368328.
Phone: +65 6858 9081
Fax: +65 6858 1081
info-sg@weg.net
www.weg.net/sg

SWEDEN
WEG SCANDINAVIA AB
Box 10196
Verkstadgatan 9
434 22 Kungsbacka
Phone: (46) 300 73400
Fax: (46) 300 70264
info-se@weg.net
www.weg.net/se

UK
WEG ELECTRIC MOTORS (U.K.) LTD.
28/29 Walkers Road
Manorside Industrial Estate
North Moons Moat - Redditch
Worcestershire B98 9HE
Phone: 44 (0)1527 596-748
Fax: 44 (0)1527 591-133
info-uk@weg.net
www.weg.net/uk

UNITED ARAB EMIRATES
WEG MIDDLE EAST FZE
JAFZA – JEBEL ALI FREE ZONE
Tower 18, 19th Floor,
Office LB 18 1905
P.O. Box 262508 - Dubai
Phone: +971 (4) 8130800
Fax: +971 (4) 8130811
info-ae@weg.net
www.weg.net/ae

USA
WEG ELECTRIC CORP.
6655 Sugarloaf Parkway,
Duluth, GA 30097
Phone: 1-678-249-2000
Fax: 1-770-338-1632
info-us@weg.net
www.weg.net/us

VENEZUELA
WEG INDUSTRIAS VENEZUELA C.A.
Avenida 138-A
Edificio Torre Banco Occidental de Descuento, Piso 6 Oficina 6-12
Urbanizacion San Jose de Tarbes
Zona Postal 2001
Valencia, Edo. Carabobo
Phone(s): (58) 241 8210582
(58) 241 8210799
(58) 241 8211457
Fax: (58) 241 8210966
info-ve@weg.net
www.weg.net/ve

WEG Equipamentos Elétricos S.A.
International Division
Av. Prefeito Waldemar Grubba, 3000
89256-900 - Jaraguá do Sul - SC - Brazil
Phone: 55 (47) 3276-4002
Fax: 55 (47) 3276-4060
www.weg.net

Cod: 50030009 | Rev: 01 | Date (m/y): 02/2011