

Power supply capacity

- Suitable for use in circuits capable of delivering not more than 30.000 Arms symmetrical (200 V, 480 V or 600 V), when protected by fuses as specified in Table 5.

9.3.2 Dynamic Braking

NOTE!

The dynamic braking is available from frame size B for the CFW500. For installation information, refer to item 3.2.3.4 Dynamic Braking of the user's manual, available for download on the website: www.weg.net.

9.3.3 Output Connections

ATTENTION!

The inverter has an electronic motor overload protection that must be adjusted according to the driven motor. When several motors are connected to the same inverter, install individual overload relays for each motor.

The motor overload protection available in the CFW500 is in accordance with the UL508C standard. Note the following information:

1. Trip current equal to 1.2 times the motor rated current (P0401).
2. When parameters P0156, P0157 and P0158 (Overload current at 100 %, 50 % and 5 % of the rated speed, respectively) are manually set, the maximum value to meet the condition 1 is 1.1 x P0401.

ATTENTION!

If a disconnect switch or a contactor is installed at the power supply between the inverter and the motor, never operate it with the motor turning or with voltage at the inverter output.

The characteristics of the cable used to connect the motor to the inverter, as well as its interconnection and routing, are extremely important to avoid electromagnetic interference in other equipment and not to affect the life cycle of windings and bearings of the controlled motors.

Keep motor cables away from other cables (signal cables, sensor cables, control cables, etc.), according to Item 9.3.6 Cable Separation Distance.

Connect a fourth cable between the motor ground and the inverter ground.

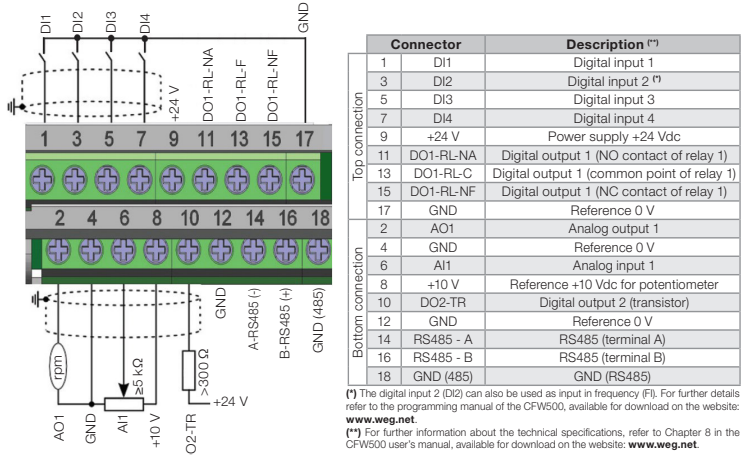
9.3.4 Grounding Connections

DANGER!

- The inverter must be connected to a protection grounding (PE).
- Use grounding wiring with a gauge at least equal to that indicated in Table 5.
- The maximum tightening torque of the grounding connections is of 1.7 N.m (15 lbf.in).
- Connect the grounding points of the inverter to a specific grounding rod, or specific grounding point or to the general grounding point (resistance $\leq 10 \Omega$).
- The reuter conductor that powers up the inverter must be solidly grounded; however, this conductor must not be used to ground the inverter.
- Do not share the grounding wiring with other equipment that operate with high currents (e.g. high power motors, soldering machines, etc.).

9.3.5 Control Connections

The control connections (analog input/output, digital input/output and interface RS485) must be performed according to the specification of the connector of the plug-in module connected to the CFW500. Refer to the guide of the plug-in module in the package of the product. The typical functions and connections for the CFW500-IOS standard plug-in module are shown in Figure 5.



For the correct connection of the control, use:

1. Gauge of the cables: 0.5 mm² (20 AWG) to 1.5 mm² (14 AWG).
2. Maximum torque: 0.5 N.m (4.50 lbf.in).
3. Wiring of the plug-in module connector with shielded cable and separated from the other wiring (power, command in 110 V / 220 Vac, etc), according to Item 9.3.6 Cable Separation Distance.
4. Relays, contactors, solenoids or coils of electromechanical brake installed close to the inverters may occasionally generate interference in the control circuitry. To eliminate this effect, RC suppressors (with AC power supply) or freewheel diodes (with DC power supply) must be connected in parallel to the coils of these devices.
5. When using the external HMI, the cable that connects to the inverter must be separated from the other cables in the installation, keeping a minimum distance of 10 cm.
6. When using analog reference (AI1) and the frequency oscillates (problem of electromagnetic interference), interconnect the GND of the connector of the plug-in module to the inverter grounding connection.

9.3.6 Cable Separation Distance

Table 3: Cable separation distance		
Inverter Output Rated Current	Length of the Cable(s)	Minimum Separation Distance
$\leq 24 \text{ A}$	$\leq 100 \text{ m}$ (330 ft)	$\geq 10 \text{ cm}$ (3.94 in)
	$> 100 \text{ m}$ (330 ft)	$\geq 25 \text{ cm}$ (9.84 in)
$\geq 28 \text{ A}$	$\leq 30 \text{ m}$ (100 ft)	$\geq 10 \text{ cm}$ (3.94 in)
	$> 30 \text{ m}$ (100 ft)	$\geq 25 \text{ cm}$ (9.84 in)

10 PREPARATION AND POWERING UP

DANGER!

Always disconnect the general power supply before making any connection.

1. Check if the power, grounding and control connections are correct and firm.
2. Remove all materials left from the inside of the inverter or drive.

3. Check if the motor connections and if the motor current and voltage match the inverter.
4. Mechanically uncouple the motor from the load. If the motor cannot be uncoupled, be sure that the turning in any direction (clockwise or counterclockwise) will not cause damages to the machine or risk of accidents.
5. Close the covers of the inverters or drive.
6. Measure the voltage of the input power supply and check if it is within the permitted range, as presented in Chapter 11 TECHNICAL SPECIFICATIONS.
7. Power up the input: close the disconnecting switch.
8. Check the success of the powering up:
The display of the HMI indicates:



10.1 Startup

10.1.1 V/f Control Type (P0202 = 0)

Step	Indication on the Display/Action	Step	Indication on the Display/Action
1	<ul style="list-style-type: none">■ Monitoring mode■ Press the key ENTER/MENU to enter 1st level of programming mode	2	<ul style="list-style-type: none">■ The PARAM group is selected, press the keys or until selecting the STARTUP group
3	<ul style="list-style-type: none">■ When the STARTUP group is selected■ Press the key ENTER/MENU	4	<ul style="list-style-type: none">■ The parameter "P0317 - Oriented Start-up" is then selected, press the ENTER/MENU to get into the parameter content
5	<ul style="list-style-type: none">■ Change the parameter P0317 to "1 - Yes", by using the key	6	<ul style="list-style-type: none">■ If necessary, press ENTER/MENU to modify the content of "P0202 - Control Type" for P0202 = 0 (V/f)
7	<ul style="list-style-type: none">■ When the desired value is reached, press ENTER/MENU to save the modification■ Press the key for the next parameter	8	<ul style="list-style-type: none">■ If necessary, modify the content of "P0401 - Motor Rated Current"■ Press the key for the next parameter
9	<ul style="list-style-type: none">■ If necessary, modify the content of "P0402 - Motor Rated Speed"■ Press the key for the next parameter	10	<ul style="list-style-type: none">■ If necessary, modify the content of "P0403 - Motor Rated Frequency"■ Press the key for the next parameter
11	<ul style="list-style-type: none">■ To end the Start-up routine, press the key BACK/ESC■ To return to the monitoring mode, press the key BACK/ESC again		

11 TECHNICAL SPECIFICATIONS

11.1 Power Data

- Power Supply:
- Voltage Tolerance: -15 % to +10 % of nominal voltage.
 - Frequency: 50/60 Hz (48 Hz to 62 Hz).
 - Phase imbalance: $\leq 3 \%$ of the rated phase-to-phase input voltage.
 - Overvoltage according to Category III (IEC/EN 61010/UL 508C).
 - Transient voltage according to Category III.
 - Maximum of 10 connections (power up cycles - ON/OFF) per hour (1 every 6 minutes).
 - Typical efficiency: $\geq 97 \%$.

12 CONSIDERED STANDARDS

Table 4: Considered standards	
Safety standards	<ul style="list-style-type: none">■ UL 508C - power conversion equipment.■ Note: Suitable for Installation in a compartment handling conditioned air.■ UL 840 - insulation coordination including clearances and creepage distances for electrical equipment.■ IEC/EN 61800-5-1 - safety requirements electrical, thermal and energy.■ EN 50178 - electronic equipment for use in power installations.■ IEC/EN 60204-1 - safety of machinery. Electrical equipment of machines. Part 1: general requirements.■ Note: for the machine to comply with this standard, the manufacturer of the machine is responsible for installing an emergency stop device and equipment to disconnect the input power supply.■ IEC/EN 60146 (IEC 146) - semiconductor converters.■ IEC/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 (EMC) standards	<ul style="list-style-type: none">■ IEC/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.■ IEC/EN 61000-4-2 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 2: electrostatic discharge immunity test.■ IEC/EN 61000-4-3 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 3: radiated, radio-frequency, electromagnetic field immunity test.■ IEC/EN 61000-4-4 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 4: electrical fast transient/burst immunity test.■ IEC/EN 61000-4-5 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 5: surge immunity test.■ IEC/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 construction standards	<ul style="list-style-type: none">■ EN 60529 - degrees of protection provided by enclosures (IP code).■ UL 50 - enclosures for electrical equipment.■ IEC/EN 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 3m4.

13 CERTIFICATIONS

Certifications ^(*)	Notes
UL e cUL	E184430
CE	
IRAM	
C-Tick	
EAC	

(*) For updated information on certifications, please contact WEG.

14 LIST OF MODELS CFW500 SERIES

Table 5: List of models of CFW500 series, main electrical specifications																		
Inverter	Number of Input Phases	Power Supply Rated Voltage	Frame Size	Output Rated Current	Maximum Motor	Recommended Fuse			Circuit Breaker	Power Wire Size	Grounding Wire Size	Dynamic Braking						
						I²t [A²s]	Current [A]	Recommended WEG aR Fuse				Maximum Current (I _{max}) [A]	Recommended Resistor [Ω]	Braking rms Current [A]	Power Wire Size for DC+ and BR Terminals			
[Vrms]	[Arms]	[HP/ kW]	[A]	[A]	[A]	WEG	mm² (AWG)	mm² (AWG)										
CFW500A01P6S2	1		A	1.6	0.25/0.18	373	20 ⁽¹⁾	FNH00-20K-A	5.5	MPW18-3-D063	1.5 (16)	2.5 (14)	Dynamic braking not available					
CFW500A02P6S2				2.6	0.5/0.37	373	20 ⁽¹⁾	FNH00-20K-A	9.0	MPW18-3-U010	1.5 (16)	2.5 (14)						
CFW500A04P3S2				4.3	1/0.75	373	25 ⁽¹⁾	FNH00-25K-A	13.5	MPW18-3-U016	1.5 (16)	2.5 (14)						
CFW500A07P0S2				7.0	2/1.5	800	40 ⁽¹⁾	FNH00-40K-A	25	MPW40-3-U025	4.0 (12)	4.0 (12)						
CFW500B07P3S2	1		B	7.3	2/1.5	450	40 ⁽¹⁾	FNH00-40K-A	25	MPW40-3-U025	2.5 (14)	4.0 (12)	10	39	7	2.5 (14)		
CFW500B10P0S2				10	3/2.2	450	63 ⁽¹⁾	FNH1-63K-A	32	MPW40-3-U032	4.0 (12)	4.0 (12)	15	27	11	2.5 (14)		
CFW500A01P6B2				1.6	0.25/0.18	680	20 ⁽¹⁾	FNH00-20K-A	5.5/2.5 ⁽¹⁾	MPW18-3-D063 / MPW18-3-D025 ⁽¹⁾	1.5 (16)	2.5 (14)	Dynamic braking not available					
CFW500A02P6B2				2.6	0.5/0.37	680	20 ⁽¹⁾	FNH00-20K-A	9.0/4.0 ⁽¹⁾	MPW18-3-U010 / MPW18-3-U004 ⁽¹⁾	1.5 (16)	2.5 (14)						
CFW500A04P3B2	1/3		A	4.3	1/0.75	680	25/20 ^{(1) (2)}	FNH00-25K-A / FNH00-20K-A ⁽¹⁾	14/6.3 ⁽¹⁾	MPW18-3-U016 / MPW18-3-D063 ⁽¹⁾	1.5 (16)	2.5 (14)	Dynamic braking not available					
CFW500B07P3B2				7.3	2/1.5	450	40/20 ^{(1) (2)}	FNH00-40K-A / FNH00-20K-A ⁽¹⁾	25/12 ⁽¹⁾	MPW40-3-U025 / MPW18-3-U016 ⁽¹⁾	2.5/1.5 (14/16) ⁽¹⁾	4.0 (12)					10	39
CFW500B10P0B2				10	3/2.2	450	63/25 ^{(1) (2)}	FNH1-63K-A / FNH00-25K-A ⁽¹⁾	32/16 ⁽¹⁾	MPW40-3-U032 / MPW18-3-U016 ⁽¹⁾	4.0/2.5 (12/14) ⁽¹⁾	4.0 (12)	15	27	11	2.5 (14)		
CFW500A07P0T2				220...240		A	7.0	2/1.5	680	20 ⁽¹⁾	FNH00-20K-A	10	MPW18-3-U010	1.5 (16)	2.5 (14)	Dynamic braking not available		
CFW500A09P6T2	9.6	3/2.2	1250				25 ⁽¹⁾	FNH00-25K-A	16	MPW18-3-U016	2.5 (14)	2.5 (14)						
CFW500B16P0T2	16	5/3.7	1000				40 ⁽¹⁾	FNH00-40K-A	25	MPW40-3-U025	4.0 (12)	4.0 (12)	20	20	14	4.0 (12)		
CFW500C24P0T2	24	7.5/5.5	1000				63 ⁽¹⁾	FNH00-63K-A	40	MPW40-3-U040	6.0 (10)	4.0 (12)	26	15	13	6.0 (10)		
CFW500D28P0T2	28	10/7.5	2750			63 ⁽¹⁾	FNH00-63K-A	40	MPW40-3-U040	10 (8)	10 (8)	38	10	18	10 (8)			
CFW500D33P0T2	33	12.5/9.2	2750			80 ⁽¹⁾	FNH00-80K-A	50	MPW65-3-U050	10 (8)	10 (8)	45	8.6	22	10 (8)			
CFW500D47P0T2	47	15/11	2750			100 ⁽¹⁾	FNH00-100K-A	65	MPW65-3-U065	10 (8)	10 (8)	45	8.6	22	10 (8)			
CFW500E56P0T2	56	20/15	6600			125 ⁽¹⁾	FNH00-125K-A	80	MPW80-3-U080	16 (6)	16 (6)	95	4.7	48	16 (6)			
CFW500A01P0T4	3		A			1.0	0.25/0.18	450	20 ⁽¹⁾	FNH00-20K-A	1.6	MPW18-3-D016	1.5 (16)	2.5 (14)	Frenagem reostática não disponível			
CFW500A01P6T4						1.6	0.5/0.37	450	20 ⁽¹⁾	FNH00-20K-A	2.5	MPW18-3-D025	1.5 (16)	2.5 (14)				
CFW500A02P6T4						2.6	1.5/1.1	450	20 ⁽¹⁾	FNH00-20K-A	4.0	MPW18-3-U004	1.5 (16)	2.5 (14)				
CFW500A04P3T4						4.3	2/1.5	450	20 ⁽¹⁾	FNH00-20K-A	6.3	MPW18-3-D063	1.5 (16)	2.5 (14)				
CFW500A06P1T4			6.1	3/2.2	450	20 ⁽¹⁾	FNH00-20K-A	10	MPW18-3-U010	1.5 (16)	2.5 (14)	6	127	4.5	1.5 (16)			
CFW500B02P6T4			2.6	1.5/1.1	450	20 ⁽¹⁾	FNH00-20K-A	4.0	MPW18-3-U004	1.5 (16)	2.5 (14)	6	127	4.5	1.5 (16)			
CFW500B04P3T4			4.3	2/1.5	450	20 ⁽¹⁾	FNH00-20K-A	6.3	MPW18-3-D063	1.5 (16)	2.5 (14)	8	100	5.7	2.5 (14)			
CFW500B06P5T4			6.5	3/2.2	450	20 ⁽¹⁾	FNH00-20K-A	10	MPW18-3-U010	1.5 (16)	2.5 (14)	16	47	11.5	2.5 (14)			
CFW500B10P0T4			10	5/3.7	1000	25 ⁽¹⁾	FNH00-25K-A	16	MPW18-3-U016	2.5 (14)	2.5 (14)	24	33	14	6.0 (10)			
CFW500C14P0T4			C	14	7.5/5.5	1000	35 ⁽¹⁾	FNH00-35K-A	20	MPW40-3-U020	4.0 (12)	4.0 (12)	24	33	14	6.0 (10)		
CFW500C16P0T4				16	10/7.5	1000	35 ⁽¹⁾	FNH00-35K-A	25	MPW40-3-U025	4.0 (12)	4.0 (12)	24	33	14	6.0 (10)		
CFW500D24P0T4				24	15/11	1800	60 ⁽¹⁾	FNH00-63K-A	40	MPW65-3-U040	6.0 (10)	6.0 (10)	34	22	21	10 (8)		
CFW500D31P0T4	31	20/15		1800	60 ⁽¹⁾	FNH00-63K-A	50	MPW65-3-U050	10 (8)	10 (8)	48	18	27	10 (8)				
CFW500E39P0T4	E	39	25/18.5	2100	80 ⁽¹⁾	FNH00-80K-A	50	MPW65-3-U050	10 (8)	10 (8)	78	8.6	39	10 (8)				
CFW500E49P0T4		49	30/22	13000	100 ⁽¹⁾	FNH00-100K-A	65	MPW65-3-U065	10 (8)	10 (8)	78	8.6	39	10 (8)				
CFW500C01P7T5		1.7	1/0.75	495	20 ⁽¹⁾	FNH00-20K-A	2.5	MPW18-3-D025	1.5 (16)	2.5 (14)	1.2	825	0.6	1.5 (16)				
CFW500C03P0T5		3.0	2/1.5	495	20 ⁽¹⁾	FNH00-20K-A	4	MPW18-3-U004	1.5 (16)	2.5 (14)	2.6	392	1.3	1.5 (16)				
CFW500C04P3T5	C	4.3	3/2.2	495	20 ⁽¹⁾	FNH00-20K-A	6.3	MPW18-3-D063	1.5 (16)	2.5 (14)	4	249	2	1.5 (16)				
CFW500C07P0T5		7.0	5/3.7	495	20 ⁽¹⁾	FNH00-20K-A	10	MPW18-3-U010	2.5 (14)	2.5 (14)	6	165	3	1.5 (16)				
CFW500C10P0T5		10	7.5/5.5	495	25 ⁽¹⁾	FNH00-20K-A	16	MPW18-3-U016	2.5 (14)	2.5 (14)	9	110	4.5	1.5 (16)				
CFW500C12P0T5		12	10/7.5	495	25 ⁽¹⁾	FNH00-20K-A	16	MPW18-3-U016	2.5 (14)	2.5 (14)	12.2	82	6.1	1.5 (16)				