Addendum to the CFW320 Frequency Inverter User

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ATTENTION!

- This addendum covers the itens:
  - CFW320B05P6T4...
  - CFW320B07P6T4...
  - CFW320C08P3T4...
  - CFW320C11P0T4...
  - CFW320C14P0T4...
- For the models listed in this addendum, the parameter P296 is set to "6" (6 = 440 / 460 Vac or 594 / 621 Vdc).
- The currents considered in these models are according to "Range 2".
- Use this addendum together with the CFW320 user and programming manuals, available for download on the website: **www.weg.net**.

1 TERMINOLOGY

Table 1.1: Available options for each field of the nomenclature according to the rated current and voltage of the inverter

Frame Size	Rated Current	Nº of Phases	Rated Voltage	Brake
B	05P6 = 5.6 A	T = three-phase power supply or DC power supply	4 = 380...480 Vac or 513...650 Vdc	NB
	07P6 = 7.6 A			
C	08P3 = 8.3 A			
	11P0 = 11.0 A			
	14P0 = 14.0 A			
B	05P6 = 5.6 A			DB
	07P6 = 7.6 A			
C	08P3 = 8.3 A			
	11P0 = 11.0 A			
	14P0 = 14.0 A			

NOTE!

- 400 V Line: Models with power supply of 380 to 480 Vac or 513 to 650 Vdc (T4).

Table B.1: (a) and (b) List of models of CFW320 series, main electrical specifications

(b) 400 V Line

Inverter	Number of Input Phases	Power Supply Rated Voltage (Y)	Frame Size	Output Rated Current		Maximum Motor [HP/kW]	Maximum Motor @ UL	Power Wire Size	Grounding Wire Size	Dynamic Braking			
				Range 1 (1), (2)	Range 2 (1), (3)					Maximum Current	Minimum Recommended Resistor	Braking rms Current	Power Wire Size for +BR and BR Terminals
				[Arms]		[HP/kW]		mm² (AWG)		(Imax) [A]	[Ohm]	[Arms]	mm² (AWG)
CFW320B05P6T4NB20	3	380...480 Vac / 513...650 Vdc	B	6.5	5.6	4 / 3	-	1.5 (16)	2.5 (14)	Dynamic braking not available			
CFW320B07P6T4NB20	3	380...480 Vac / 513...650 Vdc	B	8.2	7.6	5.5 / 4.0	5 / 3.7	2.5 (14)	2.5 (14)				
CFW320C08P3T4NB20	3	380...480 Vac / 513...650 Vdc	C	10.0	8.3	6 / 4.5	-	2.5 (14)	2.5 (14)				
CFW320C11P0T4NB20	3	380...480 Vac / 513...650 Vdc	C	12.0	11.0	7.5 / 5.5		4.0 (12)	4.0 (12)				
CFW320C14P0T4NB20	3	380...480 Vac / 513...650 Vdc	C	15.0	14.0	10 / 7.5		4.0 (10)	4.0 (10)				
CFW320B05P6T4DB20	3	380...480 Vac / 513...650 Vdc	B	6.5	5.6	4 / 3	-	1.5 (16)	2.5 (14)	11.8	68	8.3	2.5 (14)
CFW320B07P6T4DB20	3	380...480 Vac / 513...650 Vdc	B	8.2	7.6	5.5 / 4.0	5 / 3.7	2.5 (14)	2.5 (14)	11.8	68	8.3	2.5 (14)
CFW320C08P3T4DB20	3	380...480 Vac / 513...650 Vdc	C	10.0	8.3	6 / 4.5	-	2.5 (14)	2.5 (14)	20.5	39	14.5	4.0 (10)
CFW320C11P0T4DB20	3	380...480 Vac / 513...650 Vdc	C	12.0	11.0	7.5 / 5.5		4.0 (12)	4.0 (12)	20.5	39	14.5	4.0 (10)
CFW320C14P0T4DB20	3	380...480 Vac / 513...650 Vdc	C	15.0	14.0	10 / 7.5		4.0 (10)	4.0 (10)	20.5	39	14.5	4.0 (10)

Notes:
(1) Ranges 1 and 2 only for 400 V Line.
(2) Range 1: Grid supply voltage: 380-400-415 Vac (513-540-560 Vdc).
(3) Range 2: Grid supply voltage: 440-460-480 Vac (594-621-650 Vdc).

Table B.3: (a) and (b) Fuses and circuit breakers specifications for protection according to UL standard

(a) AC Power Supply

Inverter	Frame Size	AC Power Supply													
		Maximum Voltage	Input Phases	Fuse (UL Class J, 600 V)			Type E Self Protected Motor Controller (3)								Cabinet Minimum Dimensions (H x W x D)
				Fuse Current	SCCR (1)		WEG Model (4),(5)		UL Type E Line Side Terminal (6)	Trip Signaling Block (6)	Current Limiter (7)	SCCR (1)			
					Standard Fault	High Fault						Standard Fault	High Fault		
		[Vac]	-	[A]	[kA]	[kA]	[A]	WEG	WEG	WEG	WEG	[kA]	[kA]	[mm (in)]	
CFW320B05P6T4NB20	B	480Y / 277 V (2)	3	20	5	-	10	MPW40-3-U010	LST25	TSB-22	-	5	65	298 x 105 x 238 (11.8 x 4.2 x 9.4)	
CFW320B07P6T4NB20	B			25	5	-	16	MPW40-3-U016			-	5	65		
CFW320C08P3T4NB20	C			20	5	-	16	MPW40-3-U016			-	5	65	320 x 135 x 245 (12.6 x 5.4 x 9.7)	
CFW320C11P0T4NB20	C			25	5	-	25	MPW40-3-U025			CLT 32 (8)	5	65 (8)		
CFW320C14P0T4NB20	C			30	5	-	25	MPW40-3-U025			CLT 32 (8)	5	65 (8)		
CFW320B05P6T4DB20	B			20	5	-	10	MPW40-3-U010			-	5	65	298 x 105 x 238 (11.8 x 4.2 x 9.4)	
CFW320B07P6T4DB20	B			25	5	-	16	MPW40-3-U016			-	5	65		
CFW320C08P3T4DB20	C			20	5	-	16	MPW40-3-U016			-	5	65	320 x 135 x 245 (12.6 x 5.4 x 9.7)	
CFW320C11P0T4DB20	C			25	5	-	25	MPW40-3-U025			CLT 32 (8)	5	65 (8)		
CFW320C14P0T4DB20	C			30	5	-	25	MPW40-3-U025			CLT 32 (8)	5	65 (8)		

(b) DC Power Supply

Inverter	Frame size	DC Power Supply							
		Maximum Voltage	Fuse (UL Class J)		Fuse (Semiconductor Type)		SCCR (1)		Cabinet Minimum Dimensions (H x W x D)
			Fuse Current	Fuse Voltage	Fuse Current	Ferraz Shawmut (MERSEN) (700 Vdc)	Standard Fault	High Fault	
		[Vdc]	[A]	[V]	[A]	Fuse Model	[kA]	[kA]	[mm (in)]
CFW320B05P6T4NB20	B	650 V	-	-	35	A70QS35-4	5	-	298 x 105 x 238 (11.8 x 4.2 x 9.4)
CFW320B07P6T4NB20			-	-	35	A70QS35-4	5	-	
CFW320C08P3T4NB20	C		-	-	35	A70QS35-4	5	-	320 x 135 x 245 (12.6 x 5.4 x 9.7)
CFW320C11P0T4NB20			-	-	35	A70QS35-4	5	-	
CFW320C14P0T4NB20			-	-	35	A70QS35-4	5	-	
CFW320B05P6T4DB20	B		-	-	35	A70QS35-4	5	-	298 x 105 x 238 (11.8 x 4.2 x 9.4)
CFW320B07P6T4DB20			-	-	35	A70QS35-4	5	-	
CFW320C08P3T4DB20	C		-	-	35	A70QS35-4	5	-	
CFW320C11P0T4DB20			-	-	35	A70QS35-4	5	-	320 x 135 x 245 (12.6 x 5.4 x 9.7)
CFW320C14P0T4DB20			-	-	35	A70QS35-4	5	-	

Notes:
(1) A minimum line impedance might be required to avoid inverter damages and assure its expected useful life. Refer to Item 3.2.3.2 Power Supply Reactance of the CFW320 user manual.
(2) CFW320 inverter models of 400 V Line (with rated voltage of 380 Vac...480 Vac) are UL listed only for use on Wye connected electrical distribution systems (380Y/220 V to 480Y/277 V systems). They are not UL listed for use on Delta/Delta systems, Delta corner ground, or high-impedance ground systems (IT system), on the voltages of 380-480 V.
(3) Manual Self-Protected (Type E) Combination Motor Controller, UL listed for 200 - 240 V and 480Y/277 V systems. Not UL listed for use on 480 V Delta/Delta systems, corner ground, or high-impedance ground systems (IT system).
(4) For other ratings of MPW Motor Protector Circuit Breaker applied as a Type E Motor Controller, see the documentation available at **www.weg.net**.
(5) Largest WEG Type E Combination Motor Controller recommended.
(6) MPW motor protector accessories required for Type E Motor Controller.
(7) For Standard Fault Current Level, the CLT32 accessory is not required. For High Fault Current Level, the CLT32 accessory is required for 65 kA in the models indicated by notes (7) and (8).
(8) For these models, CLT32 accessory is required for 65 kA (without CLT32 current limiter, the SCCR maximum is 50 kA).

Table B.4: *(a) and (b) Input and output currents, overload currents, carrier frequency, surrounding air temperature and power losses specifications*

(b) 400 V Line

Inverter	Output Rated Current		Overload Currents		Rated Carrier Frequency	Nominal Inverter Surrounding Temperature	Input Rated Current		Overload Input Current		Inverter Power Losses
	Range 1 (1), (2)	Range 2 (1), (3)	Range 1 (1), (2)	Range 2 (1), (3)			Range 1 (1), (2)	Range 2 (1), (3)	Range 1 (1), (2)	Range 2 (1), (3)	Surface Mounting
	(Inom)		1 min		(fsw)	Side-By-Side IP20	[Arms]		1 min		[W]
	[Arms]		[Arms]		[kHz]	[°C / °F]			[Arms]		
CFW320B05P6T4NB20	6.5	5.6	9.8	8.4	5	40 / 104	7.8	6.7	11.7	10.1	91
CFW320B07P6T4NB20	8.2	7.6	12.3	11.4	5		9.8	9.1	14.8	13.7	111
CFW320C08P3T4NB20	10.0	8.3	15.0	12.5	5		12.0	10.0	18.0	14.9	140
CFW320C11P0T4NB20	12.0	11.0	18.0	16.5	5		14.4	13.2	21.6	19.8	164
CFW320C14P0T4NB20	15.0	14.0	22.5	21.0	2.5		18.0	16.8	27.0	25.2	172
CFW320B05P6T4DB20	6.5	5.6	9.8	8.4	5		7.8	6.7	11.7	10.1	91
CFW320B07P6T4DB20	8.2	7.6	12.3	11.4	5		9.8	9.1	14.8	13.7	111
CFW320C08P3T4DB20	10.0	8.3	15.0	12.5	5		12.0	10.0	18.0	14.9	140
CFW320C11P0T4DB20	12.0	11.0	18.0	16.5	5		14.4	13.2	21.6	19.8	164
CFW320C14P0T4DB20	15.0	14.0	22.5	21.0	2.5		18.0	16.8	27.0	25.2	172

Notes:
(1) Ranges 1 and 2 only for 400 V Line.
(2) Range 1: Grid supply voltage: 380-400-415 Vac (513-540-560 Vdc).
(3) Range 2: Grid supply voltage: 440-460-480 Vac (594-621-650 Vdc).

Table B.5: *Conducted and radiated emission levels, and additional information*

Inverter Model (1)		Carrier Frequency	Conducted Emission – Maximum Motor Cable Length		Radiated Emission (1)
		fsw [kHz]	Category C3	Category C2	Category
400 V Line (T4)	CFW320C08P3T4XX20 (2), (3)	5	10 m (394 in)	5 m (197 in)	C3
	CFW320C11P0T4XX20 (2), (3)	5	10 m (394 in)	5 m (197 in)	
	CFW320C14P0T4XX20 (2), (3)	2.5	15 m (591 in)	10 m (394 in)	

Notes:
(1) For all models, use the ferrite available with the RFI filter accessory on the motor cables (according to Table 6.1 of the CFW320 user manual).
(2) Where there is an "X", it is assumed as any corresponding value of Table 2.2 of the CFW320 user manual.
(3) For frame sizes B and C models of 400 V Line, use the second ferrite available with the RFI filter accessory on the power supply cables (according to Table 6.1 of the CFW320 user manual).

Table B.6: *(a) and (b) Specification of the output current as a function of the switching frequency for the CFW320*

(b) 400 V Line

Inverter Model		2.5 KHz		5.0 KHz		10.0 KHz		15.0 KHz	
		Range 1 (1)	Range 2 (2)	Range 1 (1)	Range 2 (2)	Range 1 (1)	Range 2 (2)	Range 1 (1)	Range 2 (2)
400 V Line (T4)	CFW320B05P6...	6.5 A	5.6 A	6.5 A	5.6 A	4.6 A	3.9 A	3.3 A	2.8 A
	CFW320B07P6...	8.2 A	7.6 A	8.2 A	7.6 A	4.9 A	4.6 A	3.3 A	3.0 A
	CFW320C08P3...	10.0 A	8.3 A	10.0 A	8.3 A	7.0 A	5.8 A	5.0 A	4.2 A
	CFW320C11P0...	12.0 A	11.0 A	12.0 A	11.0 A	8.3 A	7.7 A	6.0 A	5.5 A
	CFW320C14P0...	15.0 A	14.0 A	12.0 A	11.0 A	8.3 A	7.7 A	6.0 A	5.5 A

Notes:
(1) Range 1: Grid supply voltage: 380-400-415 Vac (513-540-560 Vdc).
(2) Range 2: Grid supply voltage: 440-460-480 Vac (594-621-650 Vdc).

Table B.7: *Line and load reactors for the CFW320*

Inverter Model	Application (2), (3)	Reactor Model (1)	Number of Phases	Rated Current (Inr)	Thermal Current (Ith)	Rated Inductance (Ln)	Overload Current	Overload Inductance	Winding Material	Voltage Class	Temperature Class	Certification
		WEG	-	[A]	[A]	[uH]	[A]	[uH]	[-]	[kV]	[-]	[-]
CFW320B05P6T4	Line and / or Load	REA-CFW-07P9-T4-2-01862	3	7.9	8.7	1862	11.9	931	Aluminum	1.1	F - 155°C	CE
CFW320B07P6T4		REA-CFW-10P0-T4-2-01471		10.0	11.0	1471	15.0	736				
CFW320C08P3T4		REA-CFW-12P2-T4-2-01205		12.2	13.4	1205	18.3	603				
CFW320C11P0T4		REA-CFW-14P6-T4-2-01007		14.6	16.1	1007	21.9	504				
CFW320C14P0T4		REA-CFW-18P3-T4-2-00804		18.3	20.1	804	27.5	402				

Notes:
(1) Voltage drop of 2 % and frequency of 50 Hz.
(2) Evaluate the recomended reactor according to Item 3.2.3.2 Power Supply Reactance of the CFW320 user manual.
(3) Load Reactors are recommended for motor cable length >100 m. However, several other issues such as additional current through the motor cables or filter capacitances, voltage drop on motor cables and filter, bearings lifetime, radiofrequency emissions, etc, may influence the Reactor dimensioning. A complete analysis of the impact of these issues must be additionally carried out and may impact the dimensioning of the inverter, motor, motor filter, among others. For further information, contact WEG.