DATASHEET
Variable Speed Drives

Main Features

Reference	: CFW500E39P0T4DB20G2
Product code	: 15577211
Product reference	: CFW500 G2
Accessory module (control)	: CFW500-IOS

Basic data

Power supply	: 380-480 V
Input minimum-maximum voltage	: 323-528 V
Number of phases	
- Input	: 3
- Output	: 3

Supply voltage range	380-480 V	
Overload cicle	Normal Overload (ND)	Heavy Overload (HD)
Rated current	45 A	39 A
Overload current for 60 sec	49,5 A	58,5 A
Overload current for 3 sec	67,5 A	78,0 A

Maximum applicable motor:

Voltage/Frequency	Power (HP/kW) [1]	
	Normal Overload (ND)	Heavy Overload (HD)
380V / 50Hz	Not applicable	25 / 18.5
380V / 60Hz	Not applicable	25 / 18.5
400V / 50Hz	Not applicable	25 / 18.5
400V / 60Hz	Not applicable	25 / 18.5
440V / 50Hz	Not applicable	30 / 22
440V / 60Hz	Not applicable	30 / 22
460V / 60Hz	Not applicable	30 / 22
480V / 60Hz	Not applicable	30 / 22

Accessory module (control)	: CFW500-IOS
Dynamic braking [2]	: Standard with braking
External electronic suply 24Vcc	: Not available
Safety Stop	: Prepared to use the safety module (G2)
Internal RFI filter	: Without filter
External RFI filter	: Not available
Link Inductor	: No
Memory card	: Not included in the product
USB port	: Only with plug-in
Line frequency	: 50/60Hz
Line frequency range (minimum - maximum)	: 48-62 Hz
Phase unbalance	: Less or equal to 3% of input rated line voltage
Transient voltage and overvoltage	: Category III
Single-phase input current [3]	: Not applicable
Three-phase input current [3]	: 47,6 A
Typical input power factor	: 0.75
Displacement factor	: 0.98
Rated efficiency	: ≥ 97%
Maximum connections (power up cycles - on/off) per hour	: 10 (1 each 6 minutes)
DC power supply	: Allow
Standard switching frequency	: 5 kHz
Selectable switching frequency	: 2.5 and 15 kHz
Real-time clock	: Not available
Copy Function	: Yes, by MMF or plug-in or alphanumeric HMI

Dissipated power:

Mounting type	Overload	
	ND	HD
Surface	650 W	650 W
Flange	Not applicable	Not applicable

Source available to the user

Output voltage	: 24 Vcc
Maximum capacity	: 150 mA

Control/performance data

Power supply	: Switched-mode power supply
Control method - induction motor	: V/f, VVW, Sensorless, Encoder and VVW PM
Encoder interface	: Only with plug-in
Control output frequency [5]	: 0-500 Hz

Control/performance data

Frequency resolution	: 0,015 Hz
V/F Control	
- Speed regulation	: 1% of rated speed
- Speed variation	: 1:20
VVW Control	
- Speed regulation	: 1% of rated speed
- Speed variation	: 1:30
Sensorless vector control	
- Speed regulation	: 0,5% of rated speed
- Speed variation	: 1:100
Vector control with Encoder	
- Speed regulation	: 0,1% of nominal speed
- Speed variation	: Up to 0 rpm

Analog Inputs

Quantity (standard)	: 1
Levels	: 0-10V, 0-20mA and 4-20mA
Impedance for voltage input	: 100 kΩ
Impedance for current input	: 500 Ω
Function	: Programmable
Maximum allowed voltage	: 30 Vcc

Digital inputs

Quantity (standard)	: 4
Activation	: Active low and high
Maximum low level	: 5 V (low) e 15 V (high)
Minimum high level	: 9 V (low) e 20 V (high)
Input current	: 4.5 mA
Maximum input current	: 5.5 mA
Function	: Programmable
Maximum allowed voltage	: 30 Vcc

Analog outputs

Quantity (standard)	: 1
Levels	: 0 to 10V, 0 to 20mA and 4 to 20mA
RL for voltage output	: 10 kΩ
RL for current output	: 500 Ω
Function	: Programmable

Digital outputs

Quantity (standard)	: 1 NO/NC relay and 1 transistor
Maximum voltage	: 240 Vca and 24 Vcc
Maximum current	: 0.5 A and 150 mA
Function	: Programmable

Communication

- Modbus-RTU (with accessory: Any plug-in module)
- Modbus/TCP (with accessory CFW500-CEMB-TCP)
- Profibus DP (with accessory: CFW500-CPDP)
- Profibus DPV1 (with accessory: CFW500-CPDP)
- Profinet (with accessory CFW500-CEPN-IO)
- CANopen (with accessory: CFW500-CCAN)
- DeviceNet (with accessory: CFW500-CCAN)
- EtherNet/IP (with accessory CFW500-CETH-IP)
- EtherCAT (Not available)
- BACnet (CFW500 G2 / CFW501 G2 / MW500 G2 with accessory: Any plug-in module)

Available protection

- Output phase-phase overcurrente/Short
- Overcurrent/Short circuit phase-ground
- Under/Overvoltage in power
- Heat sink overtemperature
- Motor overload
- IGBT's modules overload
- Fault/External alarm
- Programming error

Operation interface (HMI)

Avaliability	: Included in the product
HMI installation	: Fixed HMI
Number of HMI buttons	: 9
Display	: Numeric LCD
Indication accuracy	: 5% of rated current

Operation interface (HMI)

Speed resolution	: 0,1 Hz
Standard HMI degree of protection	: IP20
HMI battery type	: Not applicable
HMI battery life expectancy	: Not applicable
Remote HMI type	: Accessory
Remote HMI frame	: Not applicable
Remote HMI degree of protection	: IP54

Ambient conditions

Enclosure	: IP20
Pollution degree	: 2 (EN50178 and UL508C)

Temperature around the inverter: of -10 °C / 14 °F to 50 °C / 122 °F. For temperatures above the specified is necessary to apply current reduction of 2 % per °C of 50 (122) o 60 °C (140 °F).

Relative humidity: 5% to 95% without condensation.

Altitude: up to 1000 m (3281 ft) under normal conditions. Of 1000 m (3281 ft) to 4000 m (13123 ft) reduce the current in 1% for each 100 m above (0,3% for each 100 ft above) of 1000 m (3281 ft). Reduce the maximum voltage (240 V for models 200...240 V, 480 V for models 380...480 V and 600 V for models 500...600 V) in 1,1% for each 100 m above (0,33% for each 100 ft above) of 2000 m.

Sustainability policies

RoHS	: Yes
Conformal Coating	: 3C2 (IEC 60721-3-3:2002)

Dimensions and weigth

- Size	: E
- Height	: 350 mm / 13.8 in
- Width	: 220 mm / 8.66 in
- Depth	: 191.5 mm / 7.5 in
- Weight	: 10 kg / 22 lb

Mechanical Installation

Mounting position	: Surface
Fixing screw	: M6
Tightening torque	: 4.5 N.m / 3.32 lb.ft
Allows side-by-side assembly	: No
Minimum spacing around the inverter:	
- Top	: 110 mm / 4.33 in
- Bottom	: 130 mm / 5.12 in
- Front	: 50 mm / 1.97 in
- Between inverters (IP20)	: 40 mm / 1.57 in

Electrical connections

Cable gauges and tightening torques:

	Recommended cable gauge	Recommended tightening torque
Power	10.0 mm² (6 AWG)	3.05 N.m / 2.2 lb.ft
Braking	10.0 mm² (8 AWG)	3.05 N.m / 2.2 lb.ft
Grounding	10.0 mm² (6 AWG)	0.5 N.m / 0.37 lb.ft
Control	0.5 to 1.5 mm² (20 to 14 AWG)	0,5 N.m / 0.37 lb.ft

SoftPLC	: Yes, incorporated
Maximum breaking current	: 78.0 A
Minimum resistance for the brake resistor	: 8.6 Ω
Recommended aR fuse [6]	: FNH00-80K-A
Recommended circuit breaker [6]	: MPW80i-3-U050
Disconnect switch	: Not applicable
Motor coupling box	: Not applicable

Standards

Safety	- 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. Note: To have a machine in accordance with that standard, the manufacturer of the machine is responsible for the installation of an emergency-stop device and a network switching equipment. - EN 60146 (IEC 146) - Semiconductor converters. - EN 61800-2 - Adjustable speed electrical power drive systems - Part 2: General requirements - Rating specifications for low voltage adjustable frequency AC power drive systems.
Electromagnetic Compatibility	- 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.

Standards

	- CISPR 11 - Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement. - EN 61000-4-2 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test. - EN 61000-4-3 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio-frequency, electromagnetic field immunity test. - EN 61000-4-4 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transient/burst immunity test. - EN 61000-4-5 - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test. - EN 61000-4-6 - Electromagnetic compatibility (EMC)- Part 4: Testing and measurement techniques - Section 6: Immunity to conducted disturbances, induced by radio-frequency fields.
Mechanical Construction	- EN 60529 - degrees of protection provided by enclosures (IP code). - UL 50 - enclosures for electrical equipment. - IEC 60721-3-3 - classification of environmental conditions - part 3: classification of groups of environmental parameters and their severities - section 3: stationary use at weather protected locations level 3m4.

Certifications
UL, CE, RCM, CS/IRAM, EAC, UKCA and RoHS
CHINA

Notes
1) Motor power is orientative, valid for standard WEG Motors of IV poles. The correct sizing must be done according to the nominal current of the motor used, which must be less than or equal to the rated output current of the inverter;
2) Braking resistor is not included;
3) Considering minimum line impedance of 1%;
4) For more information, refer to the user manual of CFW500 G2;
5) All images are merely illustrative.
6) For operation with switching frequency above nominal, apply derating to the output current (refer to the user manual).