

DATASHEET

Variable Speed Drives



Main Features

Product coding : CFW300A01P1T4NB20
 Product code : 14146770
 Reference : CFW300

Basic data

Power supply : 380-480 V
 Input minimum-maximum voltage : 323-528 V
 Input phases : Three-phase
 - In : 3
 - Out : 3

	Range 1	Range 2
	380-415 V	440-480 V
Duty cycle	Heavy (HD)	Heavy (HD)
Rated current (HD)	1.1	1,1 A
Overload current for 60 s (HD)	1,7 A	1,7 A
Single-phase input current (HD) [1]	Not applicable	Not applicable
Three-phase / DC input current (HD) [1]	1,3 A	1,3 A

Maximum applicable motor:

Voltage/Frequency	Normal Overload (ND)	Heavy Overload (HD)
380V / 50Hz	Not applicable	0,5 / 0,37
380V / 60Hz	Not applicable	0,5 / 0,37
400V / 50Hz	Not applicable	0,5 / 0,37
400V / 60Hz	Not applicable	0,5 / 0,37
440V / 50Hz	Not applicable	0,5 / 0,37
440V / 60Hz	Not applicable	0,5 / 0,37
460V / 60Hz	Not applicable	0,5 / 0,37
480V / 60Hz	Not applicable	0,5 / 0,37

Dynamic braking [3] : Standard without braking
 External RFI filter : CFW300-KFA-T4
 Link Inductor : No
 Memory card : Not included in the product
 USB port : Yes, by CFW300-CUSB
 Line frequency : 50Hz
 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
 Typical input power factor : 0,83
 Displacement factor : 0,98
 Rated efficiency : $\geq 97\%$
 Maximum connections (power up cycles - on/off) per hour : 10 (1 each 6 minutes)
 DC power supply : Not allow
 Switching frequency [4]: : 5 kHz
 Selectable switching frequency : 2,5 and 15 kHz
 Real-time clock : Not available
 COPY Function : Yes, by CFW100-CFW300-MMF
 Dissipated power [5]: : 26 W

Source available to the user

Output voltage : 10 Vdc
 Maximum capacity : 50 mA

Control/performance data

Power supply : Switched-mode power supply
 Control method - induction motor : V/f (escalar) and VVW
 Encoder interface : Available with CFW300-IOAENC
 Control output frequency : 0-400 Hz
 Frequency resolution : 0.1 Hz

V/F Control

- V/F speed regulation - induction motor : 1% of rated speed
 - V/F speed variation - induction motor : 1:20
 VVW Control
 - VVW speed regulation - induction motor : 1% of rated speed
 - VVW speed variation - induction motor : 1:30
 Sensorless vector control
 - SLV speed regulation - induction motor : Not applicable

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V/F Control

- SLV speed variation - induction motor : Not applicable
- Vector control with Encoder
- ENC speed regulation - induction motor : Not applicable

Analog Inputs

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

Digital inputs

- Digital inputs - Quantity (standard) : 4
- Activation : Active low and high
- DI maximum low level : 5 V (low) and 10 V (high)
- DI minimum high level : 10 V (low) and 20 V (high)
- Input current : 11 mA
- Maximum input current DI : 20 mA
- Function : Programmable
- Maximum allowed voltage : 30 Vcc

Analog outputs

- Analogic outputs - Quantity (standard) : Only with plug-in
- Levels : Not applicable
- RL for voltage output : Not applicable
- RL for AO current output : Not applicable
- Function : Not applicable

Digital outputs

- Digital outputs - Quantity (standard) : 1 NO/NC relay
- Maximum voltage : 250 Vac
- Maximum current DO - transistor : 0.5 A
- Function : Programmable

Communication

- Modbus-RTU (with accessory: CFW300-CRS485; CFW300-CRS322, CFW300-CUSB or CFW300-CBLT)
- Modbus/TCP (Not available)
- Profibus DP (with accessory: CFW300-CPDP)
- Profibus DPV1 (with accessory: CFW300-CPDP)
- Profinet (Not available)
- CANopen (with accessory: CFW300-CCAN)
- DeviceNet (with accessory: CFW300-CCAN)
- EtherNet/IP (Not available)
- EtherCAT (Not available)
- Bluetooth (with accessory: CFW300-CBLT)
- BACnet (Not available)

Available protection

- Output phase-phase overcurrent/Short
- Not applicable
- Under/Overvoltage in power
- Heat sink overtemperature
- Motor overload
- Not applicable
- Fault/External alarm
- Programming error
- CPU or memory failure

Operation interface (HMI)

- Availiability : Included in the product
- HMI installation : Fixed HMI
- Number of HMI buttons : 4
- Display : Numeric LCD
- Indication accuracy : 10% of rated current
- 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 CFW300-KHMIR
- Remote HMI frame : Not applicable
- Remote HMI degree of protection : IP54

Ambient conditions

- Enclosure : IP20

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Ambient conditions

Degree of pollution (EN50178 and UL508C or UL61800-5-1) : 2
 Temperature around the inverter: of 0 °C / 32 °F to 40 °C / 104 °F. For temperatures above the specified is necessary to apply current reduction of 2 % per °C of 40 (104) to 50 °C (122 °F).
 Relative humidity: 5% to 95% without condensation.

Sustainability policies

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

Dimensions and weight

- Size : A
 - Height : 157.9 mm / 6.2 in
 - Width : 70 mm / 2.76 in
 - Depth : 148.4 mm / 5.8 in
 - Weight : 0,8 kg / 1.8 lb

Mechanical Installation

Mounting position : Surface or DIN rail
 Fixing screw : M4
 Tightening torque : 2 N.m / 1.48 lb.ft
 Allows side-by-side assembly : Yes, without derating
 Minimum spacing around the inverter:
 - Top : 15 mm / 0.59 in
 - Bottom : 40 mm / 1.57 in
 - Front : 30 mm / 1.18 in
 - Minimum spacing around inverter : Not applicable

Electrical connections

Cable gauges and tightening torques:

	Recommended cable gauge	Recommended tightening torque
Power	1,5 mm ² (16 AWG)	0,8 N.m / 0,6 lb.ft
Braking	Not applicable	0,8 N.m / 0,6 lb.ft
Grounding	2,5 mm ² (14 AWG)	0.8 N.m / 0.6 lb.ft
Control	0,5 to 1,5 mm ² (20 to 14 AWG)	0.4 N.m

Additional especifications

SoftPLC : Yes, incorporated
 Maximum breaking current : Not available
 Minimum resistance for the brake resistor : Not available
 Recommended fuse : FNH000-20K-A
 Recommended circuit breaker [6] : MPW40-3-D016

Standards

Safety	- Not applicable - 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. - 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.

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Standards

	- EN 61000-4-6 - Electromagnetic compatibility (EMC)- Part 4: Testing and measurement techniques - Section 6: Immunity to conducted disturbances, induced by radio-frequency fields. - With external filter only
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. - EN 60529 e UL 50

Certifications

- 1) Considering minimum impedance of 1%;
- 2) 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;
- 3) Braking resistor is not included;
- 4) For operation with a switching frequency above nominal, apply derating to the output current (refer to the user manual).
- 5) Surface mounting, HD overload.
- 6) Only for electrical circuit protection. For protection of inverters, use aR fuses indicated.
- 7) Only with external filter.