CFW300

Variable Speed Drive

CFW300
EASY DRIVE

The CFW300 ***variable speed drive is a high-performance VSD*** for three-phase induction motors, ideal for applications on machines or equipment that require precise control and easy operation.
It features compact size, contactor-style electrical instalation, selectable WEG vector control (VVW) or scalar control (V/F), built-in operating interface (HMI), SoftPLC, free WPS programming software and plug-in accessories that may be added to provide extended functionalities, making it a ***flexible solution of excellent cost effectiveness.***

CONVENIENCE ALL THE TIME

Select
- Rated output current from 1.6 to 15.2 A, (0.25 HP / 0.18 kW to 5 HP / 3.7 kW) 100-127 V or 200-240 V
- 4 PNP or NPN digital inputs, 1 relay output 0.5 A / 250 V ac, 1 analog input 0-10 V dc / 4-20 mA
- 3C2 coating class (IEC 60721-3-3) on the internal circuits
- RoHS, UL, CE, IRAM[1)]
- Energy savings

Install and Program
- Easy installation
- Flash Memory Module (accessory)

Operate
- Built-in operating interface (HMI)
- Vector (VVW) or scalar (V/F) control modes
- SoftPLC

Monitor
- WPS software
- RS485, RS232, CANopen, Profibus-DP, USB, Encoder, Infrared, Input and Output Expansion, RFI Filter

Note: it is certification. See the sales department of WEG Automation.

- Single-phase and three-phase power supply or via DC link
- Built-in inputs and outputs in the standard version
- Greater protection for aggressive environments
- Lead-free, international certificates
- High performance and efficiency
- Power supply on top and output to the motor in the bottom
- Used to copy the original setting of the CFW300 and download it to other devices, with the VSD off
- Status information of the CFW300 is easily viewed on the screen
- Built-in software resource, equivalent to a small PLC
- Programable modes
- Online monitoring, programming and configuration of the CFW300
- Extra functionality expansion accessories

- Ideal for machine or small device applications
- 2 slots for function expansion via accessories
- Standard, no extra cost
- Green product, contributing to the environmental preservation
- Ideal for pumps and fans
- Easy and intuitive installation with less wiring inside the electrical panel
- Less configuration time
- Simple operation, configurable displays, Remote operating interface (accessory)
- Use on simple or complex applications
- It customizes and integrates the CFW300 to the application
- Easy and intuitive environment, free software
- Flexibility according to the application requirements

Flexibility

Flash Memory Module (CFW300-MMF Accessory)
Downloads the original parameter setting to several other CFW300 variable speed drives, even when they are turned off

Slots for network communication and accessibility module

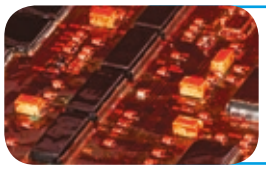
2 Slots for Function Expansion with Accessories

Slots for input and output (I/O) expansion modules

RFI Filter (CFW300-KFA / B Accessory)
Category C2 or C3 to reduce the electromagnetic interference level

Easily Removable Fan

Remote Operating Interface (HMI) (CFW300-KHMIR Accessory)



Greater Protection for Aggressive Environments
Standard Class 3C2 coating on the internal circuits of all versions, according to IEC 60721-3-3, ensures greater protection for environments with corrosive chemicals

Applications

Machines and Equipment

Packaging machines, ice-cream machines, mixers, kneading machines, conveyor belts, wood processing, car wash

Opening/Closing of Gates

Automatic condo or home garage gates, elevator doors, industry or condo vehicle barriers

Single-Phase Power Supply

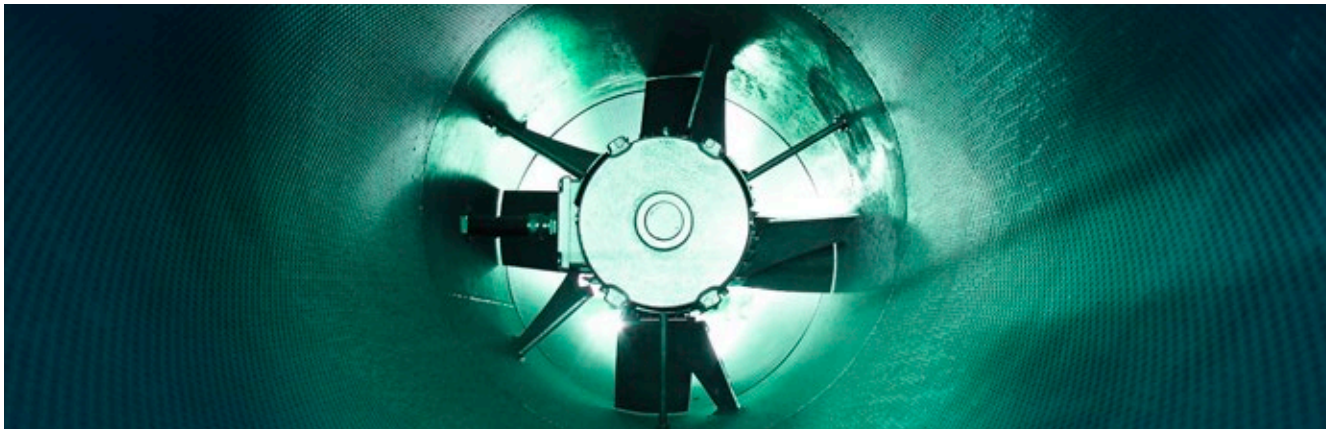
100-127 V or 200-240 V single phase power supply to feed a 230 V three-phase induction motor

Industry

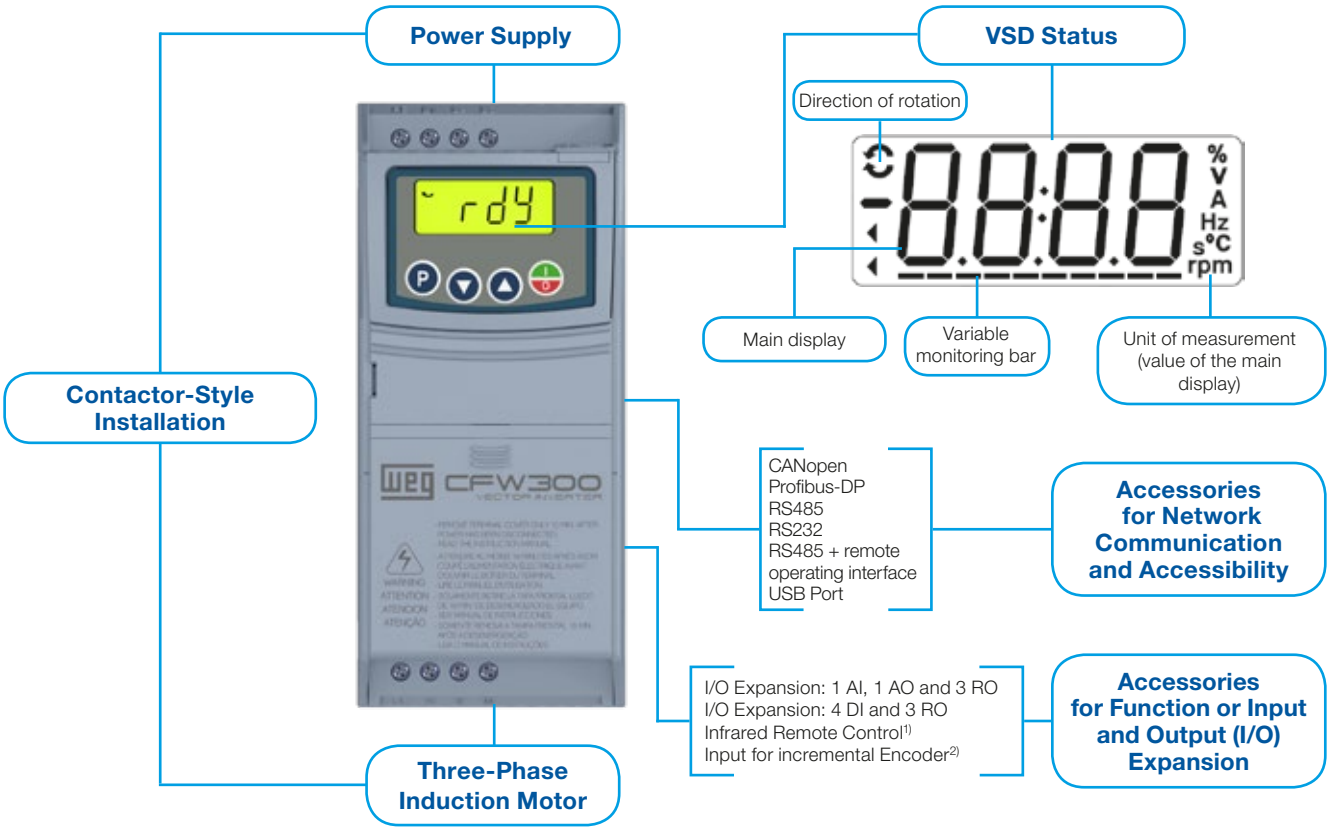
Fans, exhausters, centrifugal pumps, granulators, conveyor belts, palletizers, stirrers, mixers, process dosing pumps

Stores or Homes

Swimming pool or whirlpool bathtub pumps



Easy to Use

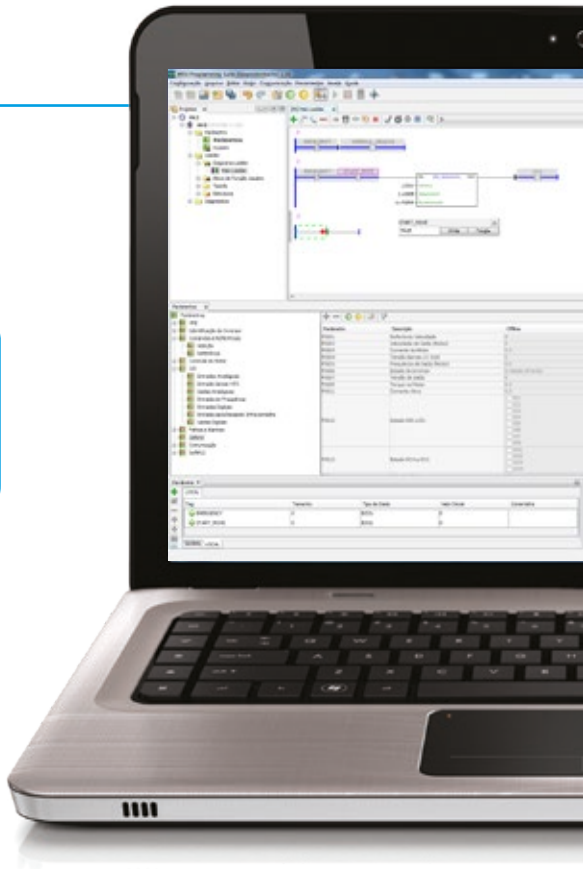


Notes: I/O = Inputs and Outputs; AI = Analog Input, AO=Analog Output, RO = Relay Output, DI = Digital Input.
1) Included in the CFW300-IOADR accessory.
2) Included in the CFW300-IOAENC accessory.

USB Connection
(with CFW300-CUSB accessory)

WPS Software

SoftPLC
It is a software resource added to the CFW300 which allows the user to implement and debug logic projects equivalent to a small PLC (Programmable Logic Controller), customizing and integrating the CFW300 to the application. The free WLP programming software is available on: *www.weg.net*.



Main Resources

- V/F, quadratic V/F or VVW vector control
- Password to protect the settings
- Engineering units (V, A, Hz, rpm, s, ºC, %, etc.)
- Backup of all parameters (via software WPS, memory card or internal memory of the CFW300)
- Switching frequency selecting according to the application requirements
- Speed reference via electronic potentiometer (EP)
- Speed reference by frequency input signal
- Multispeed with up to eight programmable speeds
- Slip compensation
- Manual or automatic torque boost (V/F scalar mode) or self-tuning (VVW vector mode)
- 2 acceleration/deceleration ramps and emergency deceleration
- “S” type ramp
- DC braking
- Internal dynamic braking (only at frame size B)
- Infrared control (via CFW300-IOADR accessory)
- PID controller to control processes in closed loop (via software WPS)
- Flying start / ride through
- Skip frequency or frequency ranges
- Overload and overtemperature protection on the motor and on the IGBTs
- Overcurrent protection
- DC link voltage supervision
- Self-diagnosis alarm
- Fault log
- SoftPLC programming via free WLP software
- Fan control

Much+

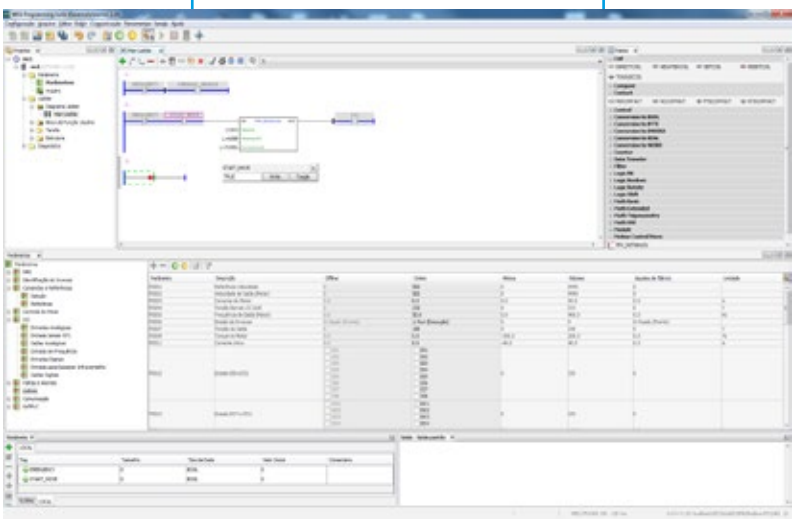
Much more advantages

The CFW300 replaces direct online starters or star-delta starters:

- Electric energy savings
- Precise speed control
- Protection and improved lifetime for the electric motor
- Diagnosis and fault log
- Easy to use and install
- Flexible, allowing the installation of accessories for the application (Plug & Play)

Easy and intuitive environment

Free at www.weg.net



Coding

Inverter / smart code	Model identification				Internal dynamic braking (IGBT)	Protection degree	Hardware version	Software version
	Size	Rated output current	Number of phases	Rated voltage				
CFW300	A	01P6	S	2	NB	20		
	See availability in the following table							
	NB = without dynamic braking (IGBT) DB = with dynamic braking (IGBT)							
	20 = IP20							
	Hx = special hardware							
	Sx = special software							

Note: for versions with special hardware (Hx) and software (Sx), contact WEG Automation sales department or your sales representative.

Available Options

Size	Rated output current	Number of phases	Rated voltage	Internal dynamic braking (IGBT)
A	01P6 = 1.6 A	S = single-phase power supply	1 = 110-127 V	NB
	02P6 = 2.6 A			
	04P2 = 4.2 A			
	06P0 = 6.0 A			
	01P6 = 1.6 A		2 = 200-240 V	
	02P6 = 2.6 A			
	04P2 = 4.2 A			
	06P0 = 6.0 A			
	07P3 = 7.3 A			
	01P6 = 1.6 A	T = three-phase power supply		
	02P6 = 2.6 A			
	04P2 = 4.2 A			
	06P0 = 6.0 A			
	07P3 = 7.3 A			
	01P6 = 1.6 A	D = DC power supply	3 = 280-340 V dc	
	02P6 = 2.6 A			
	04P2 = 4.2 A			
	06P0 = 6.0 A			
	07P3 = 7.3 A			
B	10P0 = 10.0 A	B = single-phase or three-phase or DC power supply	2 = 200-240 V or 280-340 V dc	DB
	15P2 = 15.2 A	T = three-phase or DC power supply		

Specification

Standard Version

Reference	Power supply (V)		Frame size	Rated output current (A)	Maximum applicable motor[1]		
					Power supply (V)	Power rating	
						(HP)	(kW)
CFW300A01P6S1NB20	Single-phase	110-127	A	1.60	220	0.25	0.18
CFW300A02P6S1NB20				2.60		0.50	0.37
CFW300A04P2S1NB20				4.20		1.00	0.75
CFW300A06P0S1NB20				6.00		1.50	1.32
CFW300A01P6S2NB20	Single-phase	200-240	A	1.60	220	0.25	0.18
CFW300A02P6S2NB20				2.60		0.50	0.37
CFW300A04P2S2NB20				4.20		1.00	0.75
CFW300A06P0S2NB20				6.00		1.50	1.32
CFW300A07P3S2NB20				7.30		2.00	1.50
CFW300B10P0B2DB20			B	10.00		3.00	2.20
CFW300A01P6T2NB20	Three-phase	200-240	A	1.60	220	0.25	0.18
CFW300A02P6T2NB20				2.60		0.50	0.37
CFW300A04P2T2NB20				4.20		1.00	0.75
CFW300A06P0T2NB20				6.00		1.50	1.32
CFW300A07P3T2NB20				7.30		2.00	1.50
CFW300B10P0B2DB20			B	10.00		3.00	2.20
CFW300B15P2T2DB20				15.2		5.00	3.70
CFW300A01P6D3NB20	Link DC	280-340 V dc	A	1.6	220	0.25	0.18
CFW300A02P6D3NB20				2.6		0.50	0.37
CFW300A04P2D3NB20				4.2		1.00	0.75
CFW300A06P0D3NB20				6.0		1.50	1.32
CFW300A07P3D3NB20				7.3		2.00	1.50
CFW300B10P0B2DB20			B	10.0		3.00	2.20
CFW300B15P2T2DB20				15.2		5.00	3.70

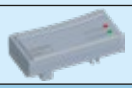
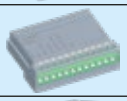
Notes: 1) The power values for the maximum applicable motor shown in the table above are reference values and valid for WEG three-phase, four-pole induction motors with power supply of 220 V. The proper sizing of the CFW300 must be determined as a function of the rated current of the used motor.

2) Designed for exclusive industrial or professional use.

Specification

The CFW300 has inputs and outputs in the standard version and allows installing Plug & Play accessories, which makes flexible and increases its capacity to adapt to the requirements of different applications.
In the front part there are two slots: the upper slot, can be used to connect with network communication or accessibility, and the lower slot, which can be used for input and output (I/O) expansion, incremental encoder input or infrared remote control kit.

Accessories

Reference	Description	Illustrative images
Upper slot - network communication and accessibility		
CFW300-CRS485	RS485 communication module	
CFW300-CUSB	USB communication module (2 m cable included)	
CFW300-CRS232	RS232 communication module	
CFW300-CCAN	CANopen or DeviceNet communication module	
CFW300-CPDP	Profibus-DP communication module	
CFW300-CBLT	Bluetooth communication module	
Lower slot - input and output (I/O) expansion		
CFW300-IOAR	1 analog input, 1 analog output and 3 relay outputs	
CFW300-IODR	4 digital inputs and 3 relay outputs	
CFW300-IOAENC	1 analog input, 2 analog outputs and input for incremental encoder	
CFW300-IOADR	1 NTC input, 3 relay outputs and 1 input for infrared sensor (infrared sensor, NTC and remote control with battery included)	
Remote operating interface (HMI)		
CFW300-KHMIR	Kit with remote HMI (CFW300-CRS485 + 3 m cable included)	
Flash memory		
CFW300-MMF	Flash memory module (1 m cable included)	
RFI filter		
CFW300-KFA[1)]	RFI filter kit CFW300 frame size A	
CFW300-KFB[1)]	RFI filter kit CFW300 frame size B	

Note: 1) For single-phase power supply voltage only.

Specification

Configuration of the Plug-In Modules[6)]

Reference	Slots[5)]	Inputs		Outputs		USB[4)]	Bluetooth	Infrared sensors and NTC[3)]	Encoder[2)]	Fieldbus communication			
		Analog	Digital	Analog	Digital / relay					RS485	RS232	CANopen	Profibus-DP
CFW300-CRS485	Upper slot	-	-	-	-	-	-	-	-	1	-	-	-
CFW300-CRS232		-	-	-	-	-	-	-	-	-	1	-	-
CFW300-CCAN		-	-	-	-	-	-	-	-	-	-	1	-
CFW300-CPDP		-	-	-	-	-	-	-	-	-	-	-	1
CFW300-CUSB		-	-	-	-	1	-	-	-	-	-	-	-
CFW300-CBLT		-	-	-	-	-	1	-	-	-	-	-	-
CFW300-IOAR	Lower slot	1	-	1	3	-	-	-	-	-	-	-	-
CFW300-IODR[1)]		-	4	-	3	-	-	-	-	-	-	-	-
CFW300-IOAENC		1	-	2	-	-	-	-	1	-	-	-	-
CFW300-IOADR		1	-	-	3	-	-	1	-	-	-	-	-

Notes: 1) Configurable isolated digital inputs (NPN or PNP).
2) Incremental encoder (A/A - B/B), power supply of +5 V @ 100 mA for the encoder, maximum frequency of 400 kHz.
3) Remote control and battery included.
4) USB cable included.
5) Allows 1 plug-in module on the upper slot (network communication or accessibility) and 1 plug-in module on the lower slot (input/output expansion).
6) The standard version of the CFW300 already features 4 PNP or NPN digital inputs (configurable), 1 analog input 0-10 V dc / 4-20 mA and 1 relay output 0.5 A / 250 V ac.

Dimmensions

Rear view

Front view

Side view

Dimmensions without Filter

Frame size	H mm (in)	W mm (in)	D mm (in)	Weight kg (lb)
A	157.9 (6.22)	70.0 (2.76)	148.4 (5.84)	0.90 (1.98)
B	198.9 (8.08)	70.0 (2.76)	158.4 (6.24)	1.34 (2.95)

Note: tolerance: +/-1.0 mm (+/-0.039 in).

Dimmensions with RFI Filter

Frame size	H mm (in)	W mm (in)	D mm (in)	Weight kg (lb)
A	196.0 (7.72)	70.0 (2.76)	190.1 (7.48)	1.30 (2.86)
B	237.0 (9.33)	70.0 (2.76)	200.1 (7.88)	1.80 (3.96)

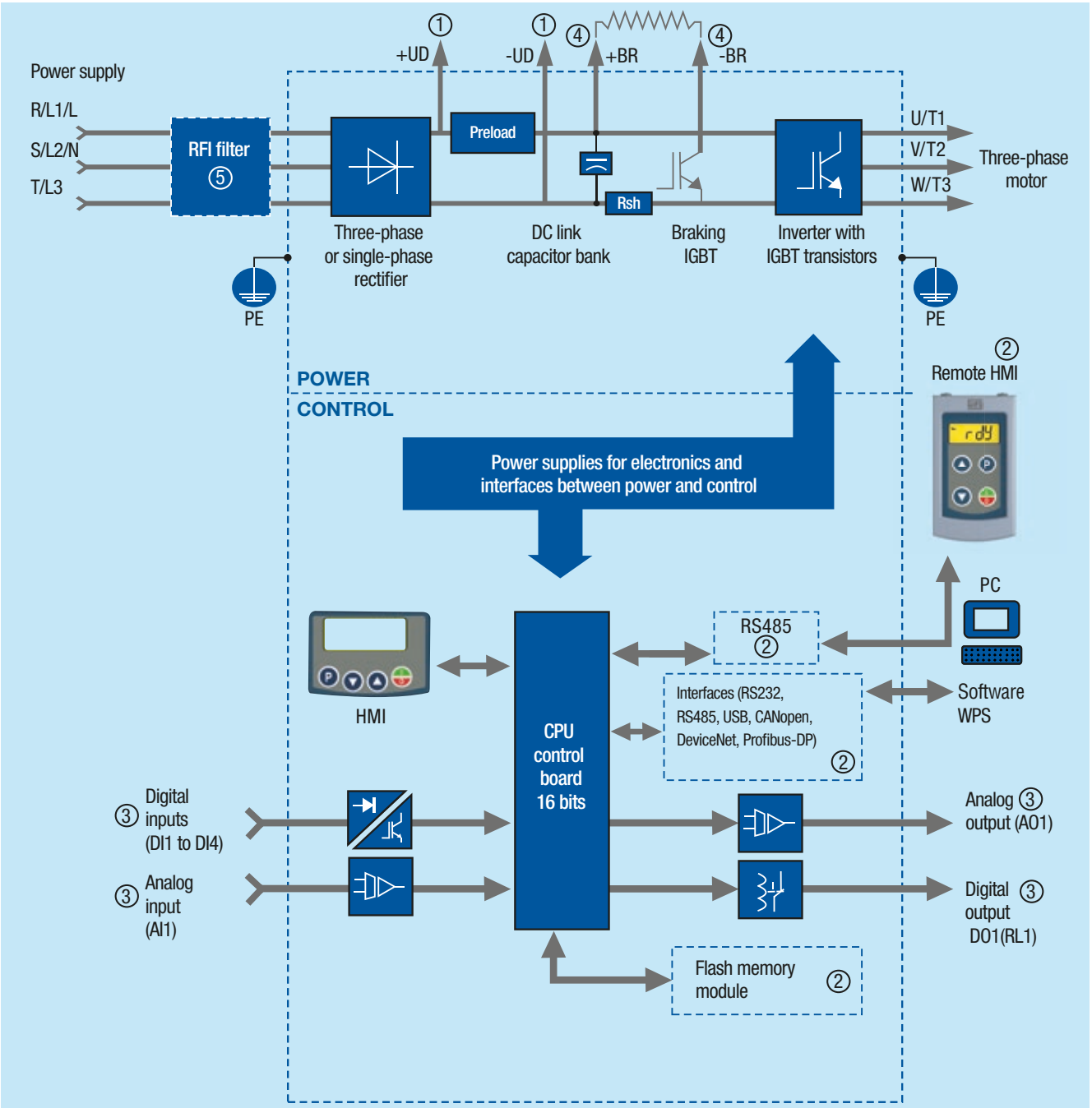
Note: tolerance: +/-1.0 mm (+/-0.039 in).

Technical Specifications

Power data	Power supply	Voltage tolerance: 200-240 V (-15% to + 10%) Frequency: 50/60 Hz (48 Hz to 62 Hz) Phase unbalance: ≤3% of the rated phase-phase input voltage Overvoltages according to category III (EN 61010/UL 508C) Transient voltages according to category III Maximum of 10 connections per hour (1 every 6 minutes) Typical efficiency: ≥97% Classification of chemically active substances: 3C2 level Classification of mechanical conditions (vibration): 3M4 level Acoustic noise level: <60 dB
Installation and connection	Environment conditions	Surrounding temperature: 0 ºC to 50 ºC - IP20 For higher temperatures than the specifications above, it is necessary to apply 2% of current derating for each Celcius degree, limited to an increase of 10 ºC Air relative humidity: 5% to 95% non-condensing Maximum altitude: up to 1,000 m - rated conditions 1,000 m to 4,000 m - 1% of current derating for each 100 m above 1,000 m (above the sea level) Protection degree: 2 (according to EN 50178 and UL 508C), with non-conductive pollution Condensation must not cause conduction of the accumulated residues
Control	Method	- V/F (scalar) - V/F (quadratic) - VVW: voltage vector control - PWM SVM (Space Vector Modulation)
	Output frequency	0 to 400 Hz, resolution of 0.1 Hz
Performance	V/F Control	Speed regulation: 1% of the rated speed (with sleep compensation) Speed variation range: 1:20
	Vector control (VVW)	Speed regulation: 1% of the rated speed Speed variation range: 1:30
Inputs[1)]	Analog	1 isolated input: 0 to 10 V or 0 to 20 mA or 4 to 20 mA Linearity error ≤0.25% Impedance: 100 kΩ for voltage input, 500 Ω for current input Programmable functions Maximum in the inputs: 30 V dc
	Digital	4 isolated inputs. Programmable functions: - Active high (PNP): maximum low level of 10 V dc minimum high level of 20 V dc - Active low (NPN): maximum low level of 5 V dc minimum high level of 10 V dc Maximum input voltage of 30 V dc Input current: -11 mA Maximum input current: -20 mA
Outputs[1)]	Relay	1 relay with NO/NC contact Maximum voltage: 250 V ac Maximum current of 0.5 A Programmable functions
	Power supply	10 V dc power supply maximum capacity: 50 mA
Safety	Protection	Overcurrent/phase-phase short circuit Under/overvoltage at the power supply Motor overload Overtemperature on the power module (IGBTs) External fault/alarm Programming error
Operating interface (HMI)	Built-in	4 keys: run/stop, increment, decrement and LCD Display setting Accuracy: - Current: 5% of the rated current - Speed resolution: 0.1 Hz
Communication	Fieldbus communication	RS485, RS232, CANopen, DeviceNet, Profibus-DP, Bluetooth or USB Port (via plug-in modules)
Protection degree	IP20	Frame sizes A and B

Note: 1) Available in the standard version.

Block Diagram



① *DC power supply connection available for specific models only (size A) and available frame size B*
② *Available as accessory*
③ *Number of Inputs/Outputs depends on the I/O expansion accessory*
④ *Braking resistor connection (frame size B)*
⑤ *Available as accessory only in models single-phase*

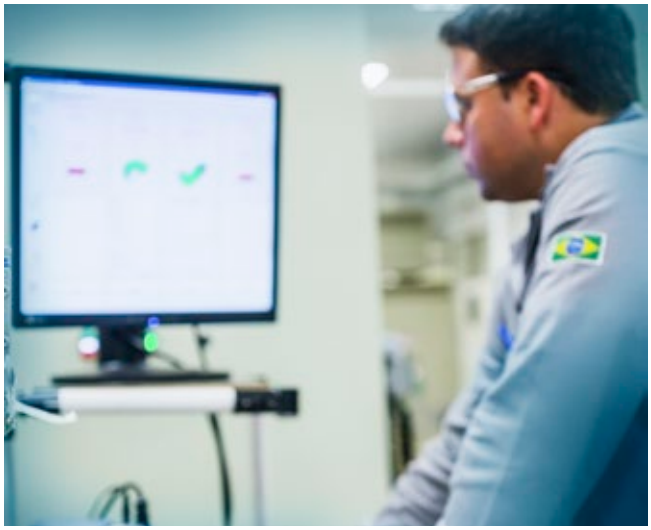
Global presence is essential, as much as understanding your needs.

Global Presence

With more than 30.000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our ***CFW300 variable speed drives*** is the right choice for your application and business, assuring safety, efficiency and reliability.

- ***Availability*** is to have a global support network
- ***Partnership*** is to create solutions that suit your needs
- ***Competitive edge*** is to unite technology and innovation



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