

MW500-G2

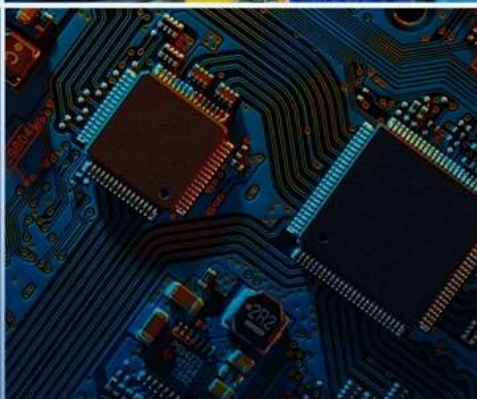
The Decentralized Drive



Driving efficiency and sustainability



Class: MW501
Date: 01/2025



Automation Training

MW500-G2 - THE DECENTRALIZED DRIVE



APPLICATIONS

Pumps

Compressors

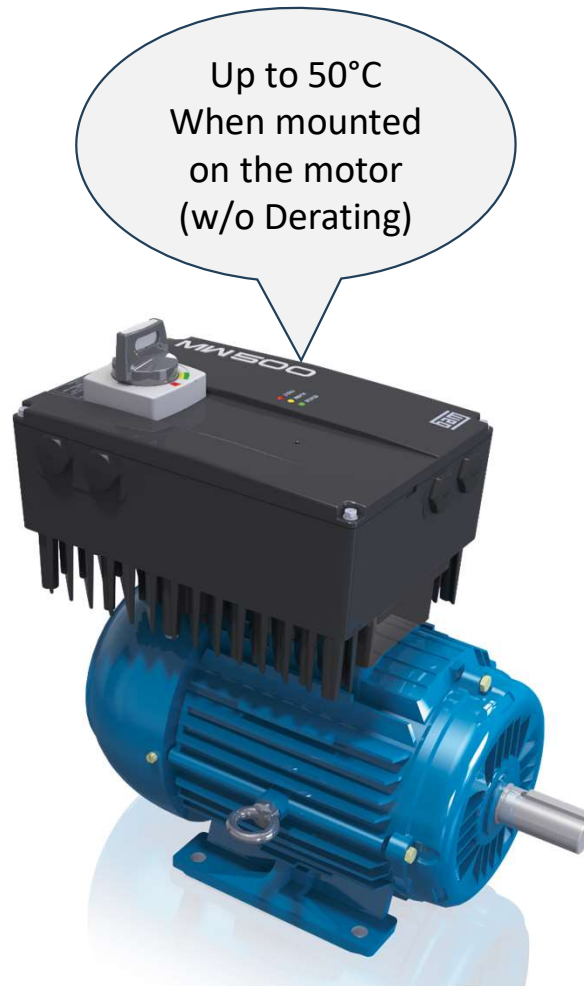
Fans

Extruders

Mixers

Conveyors

General Machines



MW500-G2 - THE DECENTRALIZED DRIVE



FEATURES

- Power Ratings:
 - 0.5 to 2 HP @ 3/230VAC, 1/230VAC supply
 - 0.5 to 10 HP @ 3/460VAC, 3/460VAC Supply
- Three frames: Frame - A, B, & C
- NEMA4X / IP66 Encl., suitable Indoor and outdoor use (Not in direct sunlight)
- Suitable for applications where the drive is exposed to dust, moisture & water jets.
- Humidity: 5% to 90% non-condensing
- HD (Heavy Duty, 150% for one Minute, every ten minutes) overload class.
- No External cooling Fan
- Mounting: Suitable for Motor Mounting or Wall mounting with optional wall mounting kit
- Operating temperature:
 - Wall Mounting: From 0°C (32°F) to 40 °C (104°F) without current derating.
 - Self Ventilated Motor mounting: From 0°C (32°F) to 50 °C (122°F) without current derating.
- Built-in braking IGBT.
- Built-in Category-2 RFI filter.
- Models with or without disconnect switch.



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FEATURES

- Control modes: Scaler (V/F) control, VVW, VVW PM (voltage vector control for permanent magnet motors) & Vector control (Sensorless and with encoder). VVW PM (voltage vector control for permanent magnet motors) - suitable for fan, Pump and compressor; not recommended for application which requires fast dynamic response or precise torque control – Dynamometers, overhead cranes, hoists, elevators, CNC machines.
- Modbus RTU / BACnet communication (Standard)
- Conformal Coating as standard 3C2 Classified
- STO and SS1 operational safety functions via Safety Module, CFW500-SFY2
- Accessory Flash Memory (external memory module)
- Fieldbus: Modbus-RTU, Modbus-TCP, CANopen, DeviceNet, Ethernet-IP, Profibus-DP and ProfiNet-IO
- Same plug-in modules as the CFW500 drives.
- SoftPLC storage in the Control Board.
- Compatible with the CFW500 Advanced Text keypad (HMI-01).
- Compatible with WLP & WPS.
- Future Firmware upgrade using WPS.



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FEATURES



PULSE TRAIN INPUT / OUTPUT

- With this option, a pulse train signal can be read by the VFD and interpreted as a speed reference. It can be used on Master/Slave applications.
- All the plug-in modules accept pulse train signal on DI2/DO2.
- Operation range: 10 Hz up to 20 kHz.



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FEATURES



- Braking IGBT

The product coding brings DB on it, which is available for all frame sizes as standard.

- Disconnect Switch

Easy and safe machine maintenance for your load and motor, models with and without DS.

- FI Filter

It reduces electromagnetic interference. By using C2 in the coding, the VFD will comply with the IEC 61800 standard.

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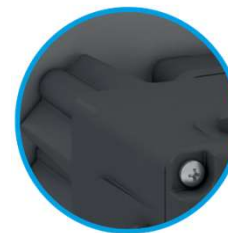
HIGHLIGHTS



Connector IP66/NEMA 4X
Special connector for remote
Keypad (M8)



Analog Potentiometer Built-In
No need for keypad to operate



Fins Instead of Fan
Reduce maintenance cost



Remote Keypad
Simple and intuitive



LED Indicators
Status indication



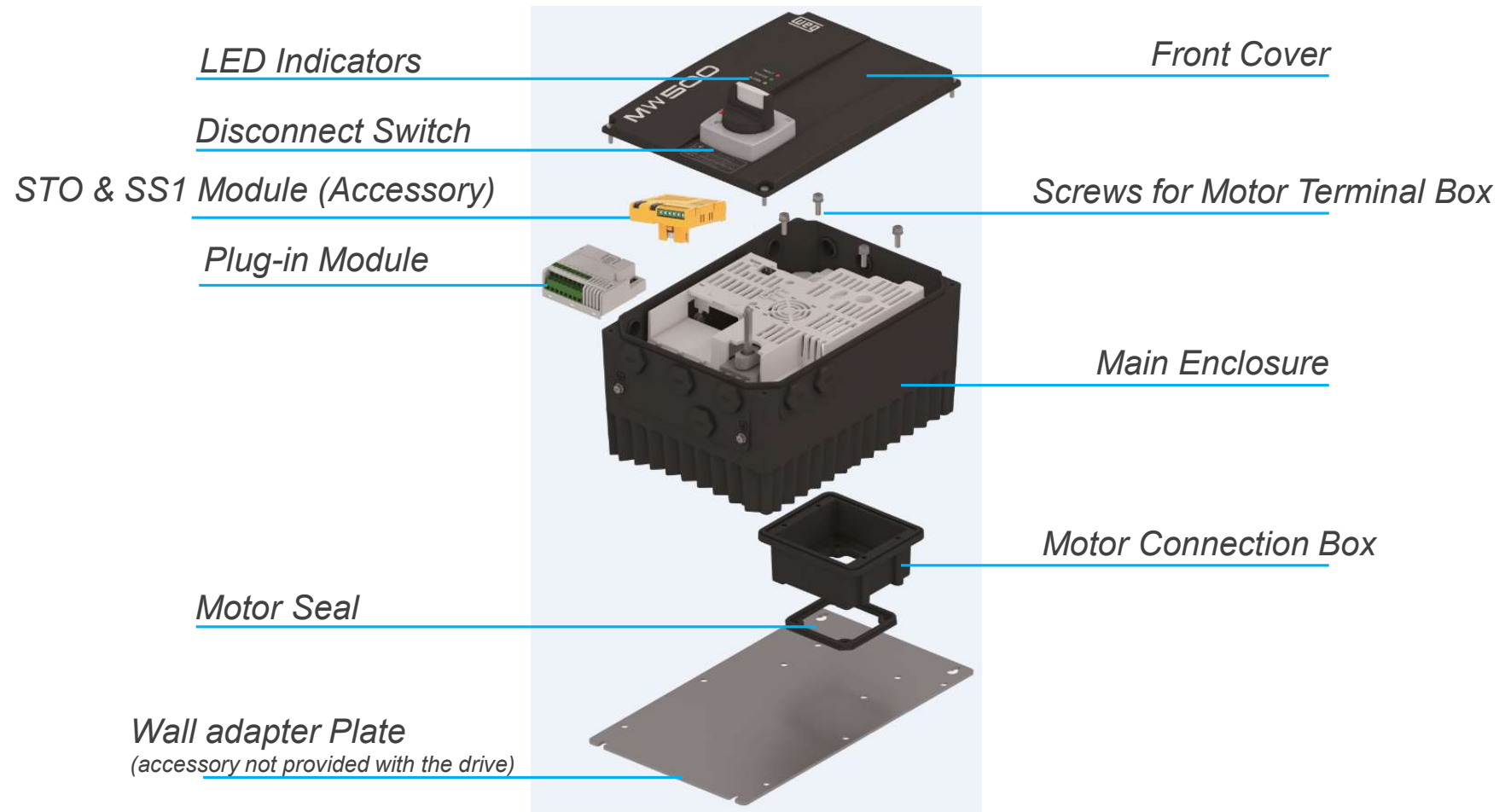
**Disconnect switch Built-In
(Optional)**
Easy and safe machine
maintenance



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SIMPLICITY



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MECHANICAL SIZING TABLE FOR MOTOR MOUNTING

NEMA Motors

MW500 Drive			NEMA Motor Frame (WEG W22 Motor)				
MW500 Drive Model	Frame Size	Terminal Box (mm)	143T/145T	182T/184T	213T/215T	254T/256T	284T/286T
			56 x 56	70 x 70		110 x 110	
MW500A...56...	A	56 x 56	Yes	With "MW500-KAIM-A70"		No	
MW500B...56...	B	56 x 56	Yes	With "MW500-KAIM-B70"		No	
MW500C...	C	70 x 70 110 x 110	No	Yes		Yes	



IEC Motors

MW500 Drive			IEC Motor Frame (WEG W22 Motor)							
MW500 Drive Model	Frame Size	Terminal Box (mm)	71	80	90	100	112		132	160 180
			56 x 56				70 x 70			110 x 110
MW500A...56...	A	56 x 56	Yes				With "MW500-KAIM-A70"		No	No
MW500B...56...	B	56 x 56	Yes				With "MW500-KAIM-B70"			No
MW500C...	C	70 x 70 110 x 110	No				Yes			Yes

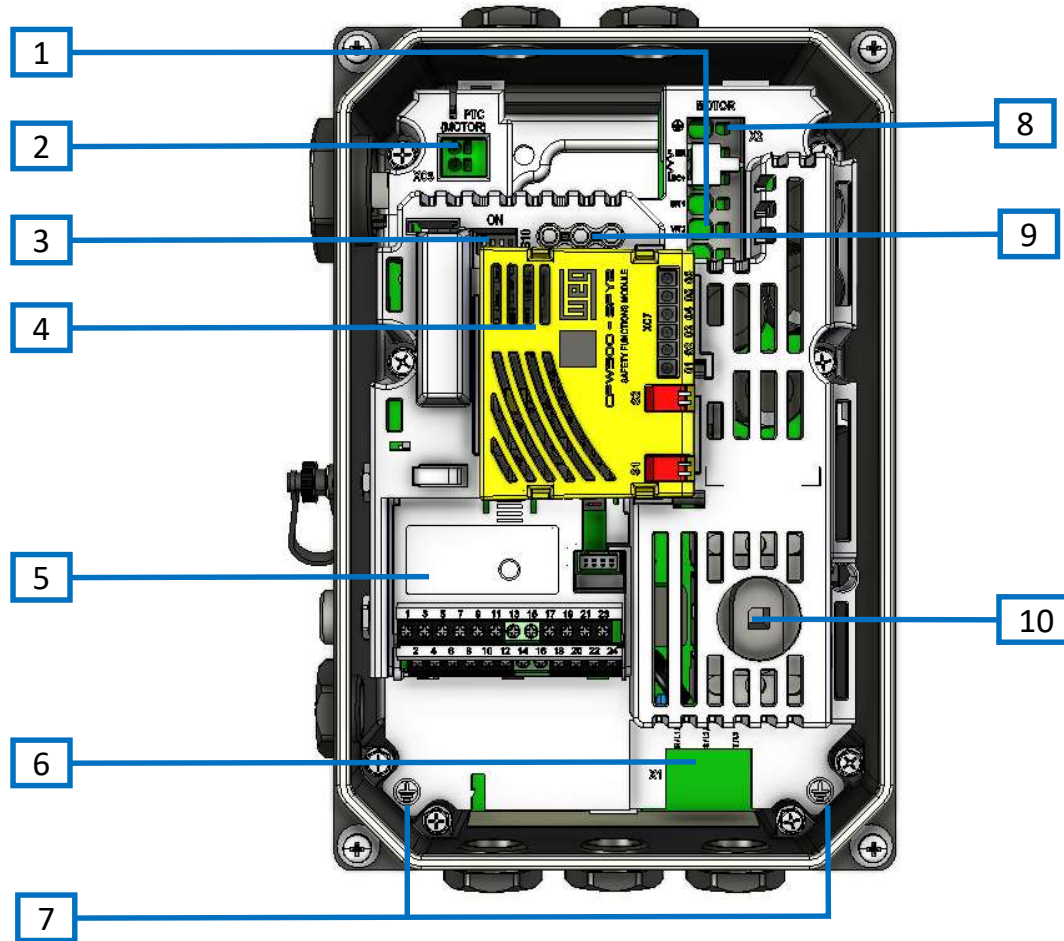
Note: Motor frame size for W22 series:

- Standard Efficiency (IE1)
- High Efficiency (IE2)
- Premium Efficiency (IE3)

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CONNECTIONS, FRAME-A



1. Motor cable connection
2. Motor PTC input
3. S10 dip-switches
4. Optional STO & SS1 Module (CFW500-SFY2)
5. Plug-in module slot
6. Power supply connection
7. Grounding points
8. DBR connection
9. LED indicators
10. DS handle connection

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PLUG-IN MODULES

MW500 Plug-in Module	INPUTS		OUTPUTS			Infrared	Encoder	USB	RS232 (Modbus RTU)	RS485 (Modbus RTU)	CANopen/ DeviceNet	Profibus-DP / DP V1	Modbus TCP	ProfiNet I/O	EtherNet I/P	Power Supply	
	Digital	Analog	Analog	Relay	Transistor											10V	24V
CFW500-IO ¹	4	1	1	1	1	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-IOD	8	1	1	1	4	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-IOAD	6	3	2	1	3	-	-	-	-	1	-	-	-	-	-	1	1
CFW500-IOR / CFW500-IOR-B	5	1	1	4	1	1	-	-	-	1	-	-	-	-	-	1	1
CFW500-ENC	5	1	1	3	1	-	1	-	-	1	-	-	-	-	-	1	1
CFW500-CUSB	4	1	1	1	1	-	-	1	-	1	-	-	-	-	-	1	1
CFW500-CRS232	4	1	1	1	1	-	-	-	1	1	-	-	-	-	-	-	1
CFW500-CRS485-B	4	2	1	2	1	-	-	-	-	2	-	-	-	-	-	1	1
CFW500-CCAN	2	1	1	1	1	-	-	-	-	1	1	-	-	-	-	1	1
CFW500-CPDP	2	1	1	1	1	-	-	-	-	1	-	1	-	-	-	-	1
CFW500-CPDP2	2	1	1	1	1	-	-	-	-	1	-	1	-	-	-	-	1
CFW500-CEMB-TCP	2	1	1	1	1	-	-	-	-	1	-	-	1	-	-	-	1
CFW500-CEPN-IO	2	1	1	1	1	-	-	-	-	1	-	-	-	1	-	-	1
CFW500-CETH-IP	2	1	1	1	1	-	-	-	-	1	-	-	-	-	1	-	1
CFW500-CETH2	2	1	-	-	1	-	-	-	-	1	-	-	1	-	1	-	-

NOTES:

1) The MW500 drive comes standard with "CFW500-IO" Module. To use any of the above-listed optional modules, the CFW500-IO module needs to be removed from the drive. In that case, the number of I/Os will depend on the I/O or communication module being used.



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PLUG-IN MODULES

Step by Step

1 - Remove cover →



2 - Insert accessory →



3 - Close cover →



Simple!

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STO & SS1 SAFETY MODULE

Step by Step

1 - Remove cover →



CFW500-SFY2



2 - Insert accessory →



3 - Close cover →



Simple!

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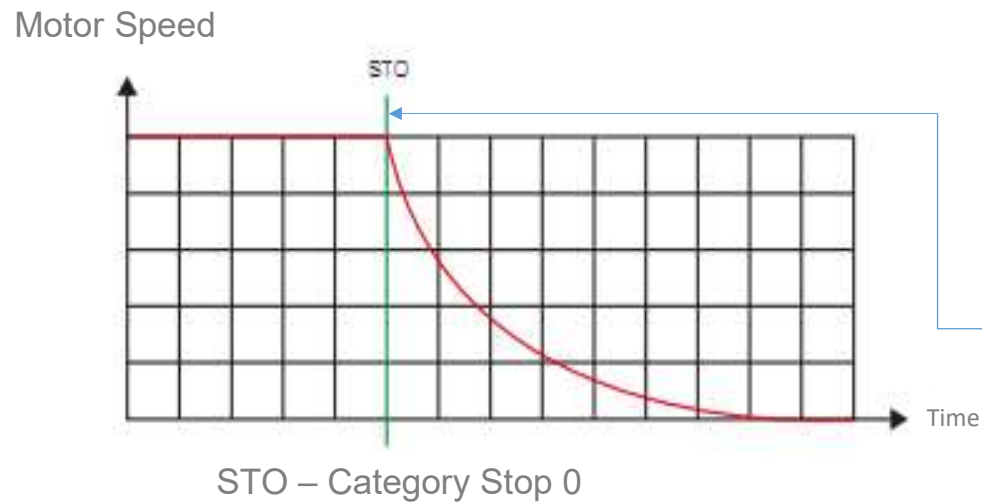


STO & SS1 SAFETY MODULE

STO – Safe Torque off

Once activated, STO immediately switches off the drive output to the motor, by means of disabling the supply of torque-generating energy.

STO is also used to prevent unexpected startups of machinery or for emergency stops, fulfilling stop category 0 (IEC 60204-1).



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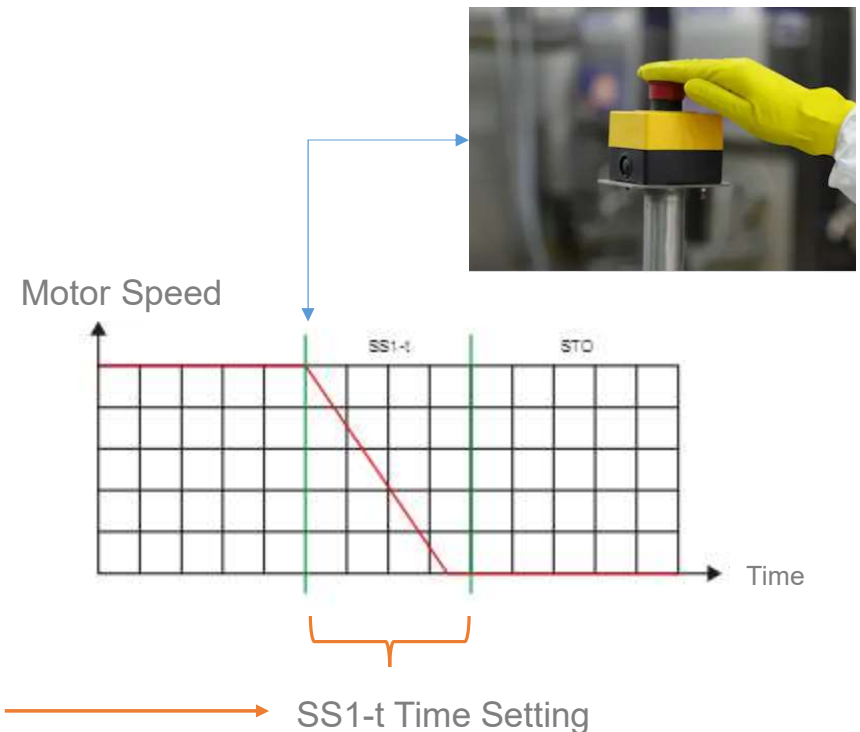


STO & SS1 SAFETY MODULE

SS1-t – Safe Stop 1 (Time controlled)

Different than STO safety function, which, when active, must promptly ensure that there is no torque energy at the VFD output, the SS1-t will wait a predefined delay time before performing the STO, in order to allow the VFD to impose a deceleration ramp to the motor before removing the torque generating energy.

The SS1-t is especially useful in applications where loads need to be decelerated (forced break) before torque is removed from the motor.



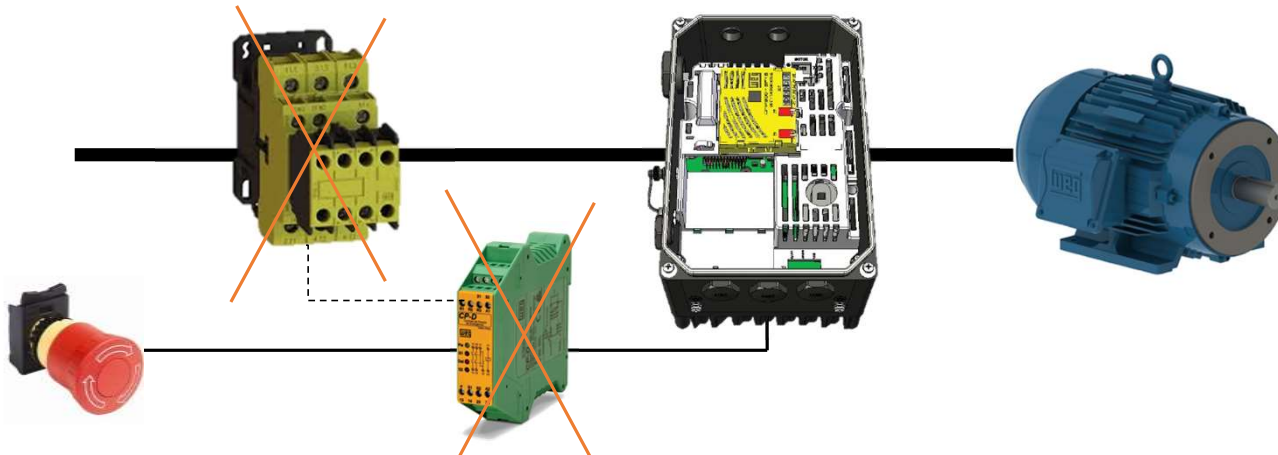
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STO & SS1 SAFETY MODULE

Main Benefits of using MW500 with Safety Module

- Safety functions integrated into the MW500 drive, making it easier to comply with the machine and application safety requirements.
- Less components, no need for additional wiring, saving space and installation costs.
- Easier installation, commissioning and maintenance.
- No electromechanical components, meaning faster responses and a higher degree of productivity.
- Due to the high safety performance level of SIL3 / PLe, the MW500 with the Safety module may avoid external safety relays for cables and emergency pushbuttons monitoring.



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MEMORY CARD – CFW500-MMF

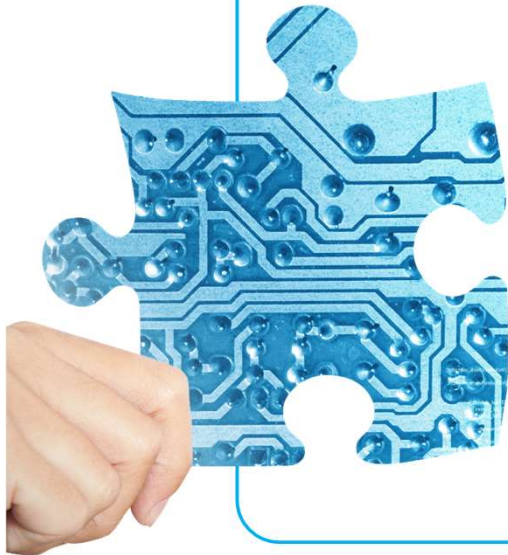


- Allows for download of drive parameters and PLC code (SoftPLC)
- Power supplied by internal batteries (3xAAA)
- There is no need to power up the VFD to use it
- Dip Switch selection to download/upload parameters and user program from/to MMF to/from the drive
- Password to access user program written in the Soft PLC
- Compatible with all plug-in modules
- LEDs for Status & Fault indications.

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COMMUNICATIONS



CAN Interface [Accessory Plug-In]

- CANopen and DeviceNet communication available
- No communication speed limitation (1 Mbps)
- Configuration similar to CFW11 drives

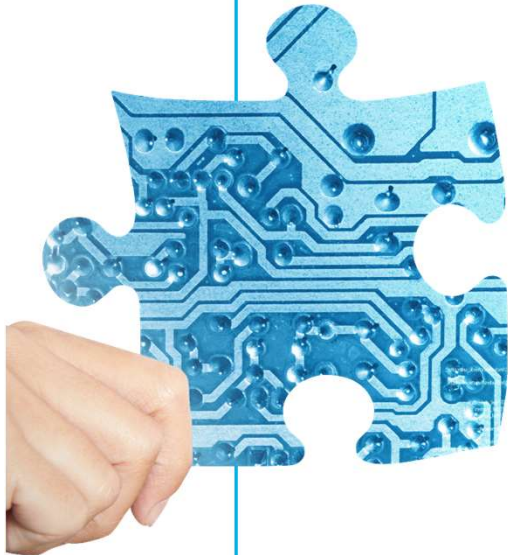
Profibus DP Interface [Accessory Plug-In]

- Profibus DP available
- No communication speed limitation (12 Mbps)
- Configuration similar to CFW11 drives

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COMMUNICATIONS



Ethernet – IP [Single or Dual Port; Accessory Plug-In]

- Allows up to 14 input and output words for cyclic data communication
- No communication speed limitation (10 or 100 Mbps)

Profinet - IO [Accessory Plug-In]

- Allows up to 14 input and output words for cyclic data communication
- No communication speed limitation (10 or 100 Mbps)

Modbus - TCP [Single or Dual Port; Accessory Plug-In]

- The server provides up to 4 simultaneous Modbus TCP connections
- No communication speed limitation (10 or 100 Mbps)

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NON-TEXT REMOTE KEYPAD: CFW500-HMIR

- Intuitive and easy to use keypad (functionalities and parameters similar to CFW500/11 series).
- Reading of three variables at the same time.
- Indication of engineering units and status of the VFD.
- 5 Digits resolution with 126 segments.
- Requires Remote keypad cable “CFW500-CCHMIR0xM” (“x” represents the cable lengths in meters) OR MW500-CCHMIR02M.
- IP54 Protection Rating.



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ADVANCED TEXT ALPHANUMERIC REMOTE KEYPAD: HMI-01



- Same as CFW11 Keypad.
- Graphic display with backlight.
- Soft Keys for easy operation.
- Parameters in the form of menus.
- Real-time clock (RTC).
- Copy/Paste Function.
- Language selection: English, Spanish and Portuguese
- Connected to RS485 serial Port and uses MW500 24VDC Power Supply.
- IP54 Protection Rating.

Requires

- Remote Keypad cable: CFW500-CCHMIR0xM ("x" represents the cable lengths in meters) or MW500-CCHMIR02M
- Mounting frame kit: CFW500-RHMIF

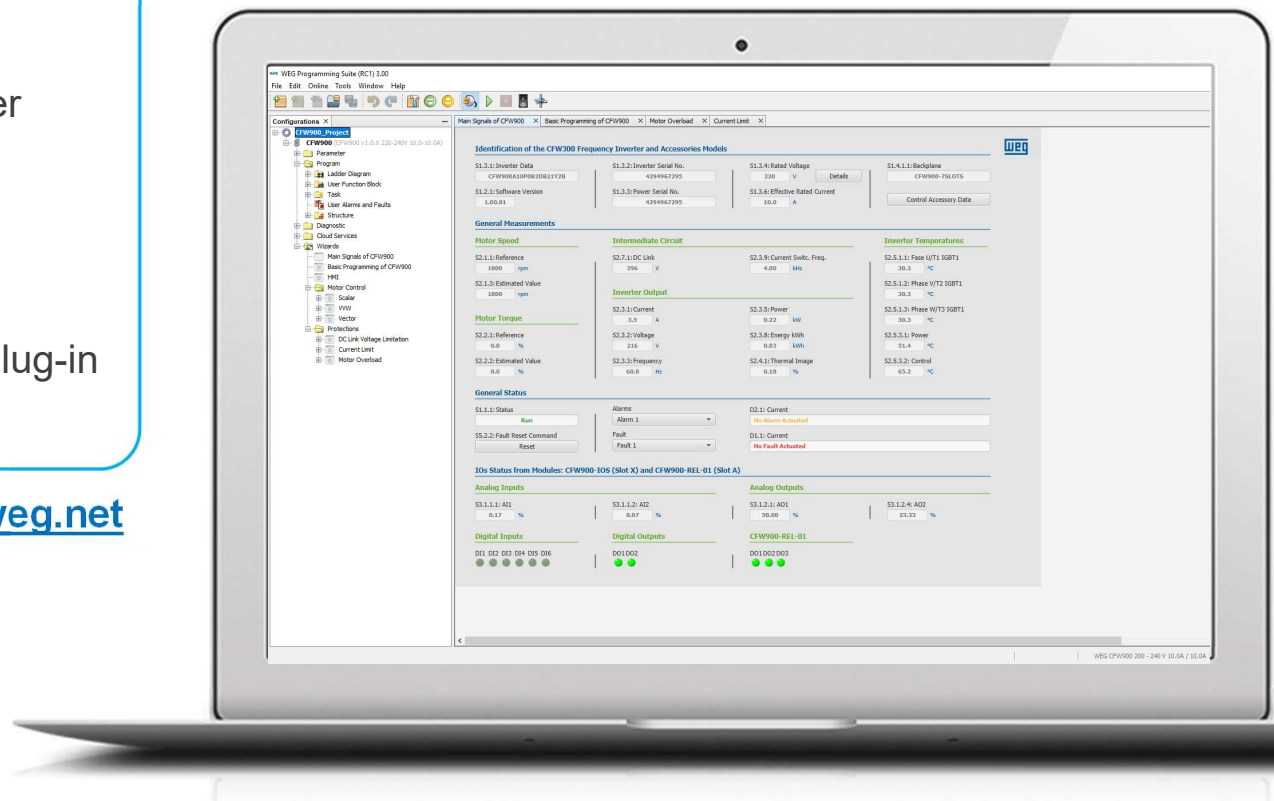
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WPS (WEG PROGRAMMING SUITE) SOFTWARE FOR PC

- Ladder programming language
- Real-time graphical monitoring
- Drive Parameter setting, parameter backup
- Fault, alarm and event log
- VFD firmware update
- Communication with MW500 via plug-in module RS232, RS485 or USB

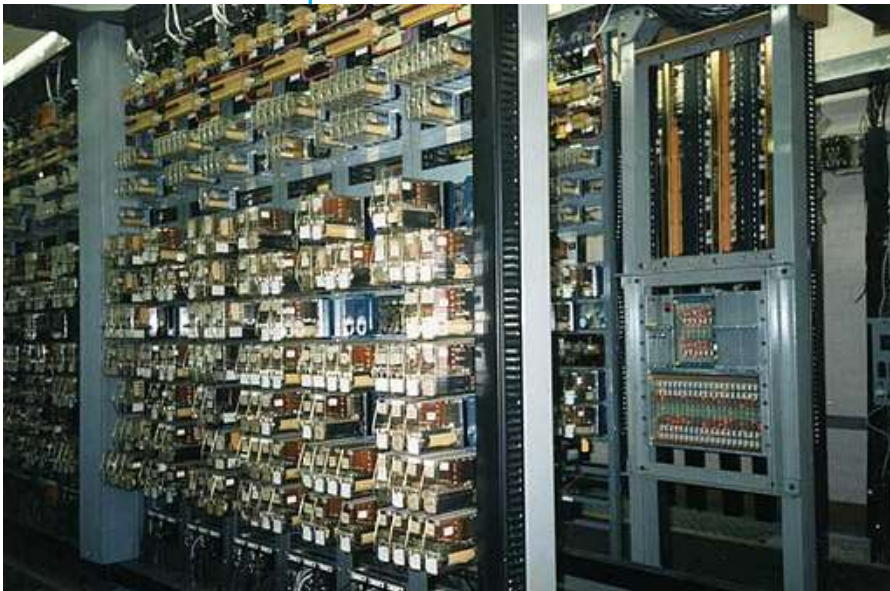
Free software! Download at: www.weg.net



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SOFTPLC FUNCTION



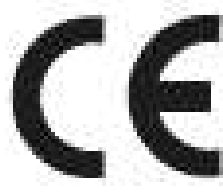
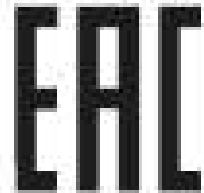
- SoftPLC: PLC functions built in the VFD.
- Programmable through WLP/WPS software, WPS is recommended for the SoftPLC program.
- Memory Capacity: 8k bytes (user program), 7788 bytes for the PLC code and 404 bytes to parameters
- Online user program transferring and monitoring via plug-in module RS232, RS485 or USB.
- Ladder language programming.
- 50 configurable user parameters.
- Access to all MW500 parameters, I/Os and keypad.

Free software! Download at: www.weg.net

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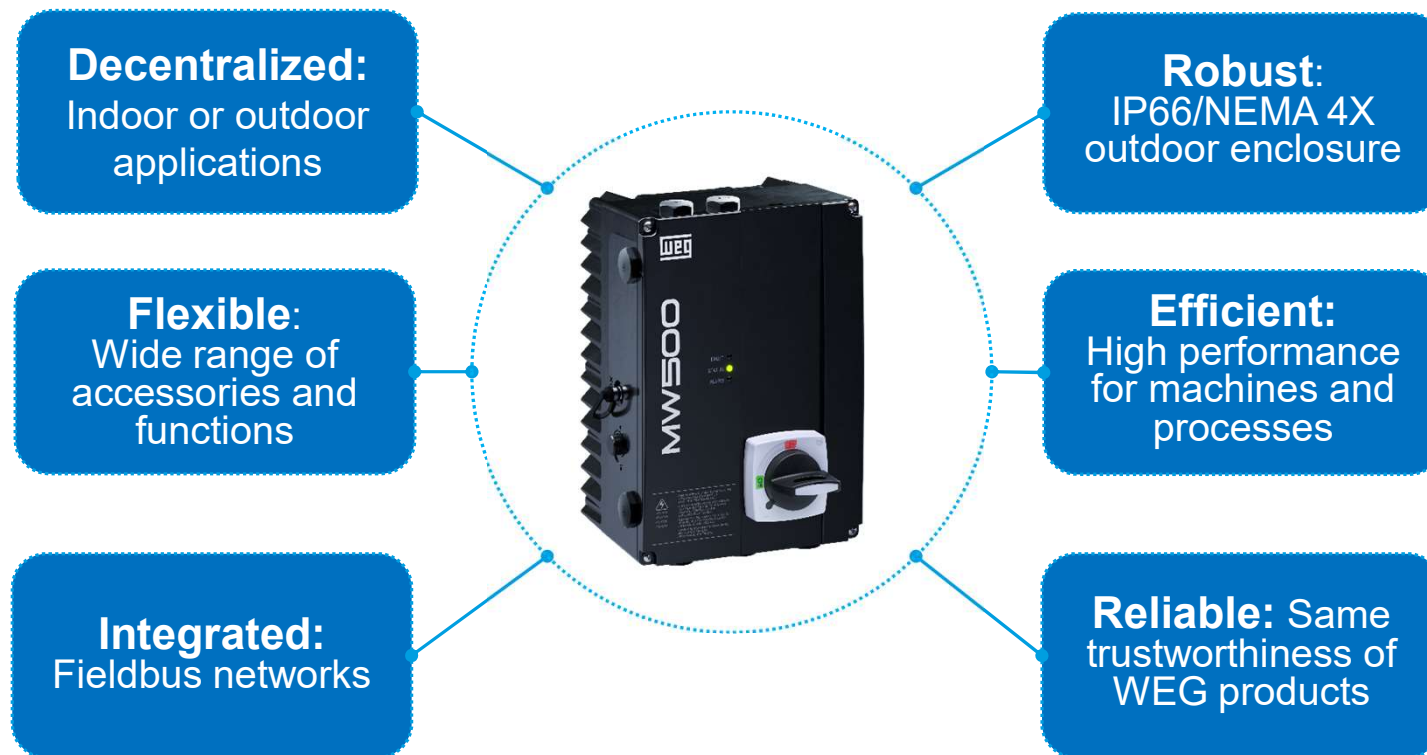
CERTIFICATIONS



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MARKET POSITIONING



MW500-G2 - THE DECENTRALIZED DRIVE



MARKET POSITIONING

Flexible: Wide range of accessories and functions

Plug-in module

Advantages:

- The optional communication network and I/O modules are fast and easily installed, allowing adaptation of the standard VFD to each application.

Benefits:

- Time saving, standardization and optimized costs according to the necessity.

Flash memory module

Advantages:

- Within seconds, it is possible to download the SoftPLC program and parameters setup from a MW500 to others without powering them up.

Benefits:

- Fast, easy and reliable programming for manufacturers that produce machines in large scale.

MW500-G2 - THE DECENTRALIZED DRIVE



MARKET POSITIONING

Flexible: Wide range
of accessories and
functions

SoftPLC

Advantages:

- Built-in PLC (SoftPLC), allowing the VFD, motor and application to work in an interactive way. It allows the user to implement customized logic and applications.

Benefits:

- It eliminates the necessity for an external PLC, reducing costs, optimizing space, and simplifying the system.

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MARKET POSITIONING

Efficient: High performance for machines and processes

Functions to streamline operation and performance

Advantages:

- PID: process control.
- Sleep: disables the VFD automatically.
- Flying start: allows the starting of a motor that is running freely, accelerating it from the speed at which it is running.
- Ride through: keeps the VFD in operation during voltage dips.

Benefits:

- Energy saving.
- It allows fast operating response of the machine and prevents occasional mechanical breakdowns.
- It prevents machine stoppage and downtime.

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MARKET POSITIONING

Robust:
IP66/NEMA 4X
outdoor enclosure

Increasing the
ruggedness and
durability

Advantages:

- Complete protection against contact with internal live parts, avoiding the entrance of dust or water coming from jets.

Benefits:

- Panel not required, reducing the installation costs.

MW500-G2 - THE DECENTRALIZED DRIVE



MARKET POSITIONING

Reliable: Same
trustworthiness of
WEG products

WEG quality

Advantages:

- 100% of the VFDs are tested with load at the factory under rated conditions.
- Protection against ground fault, short circuit, over temperature and others.
- Thermal protection of IGBTs based on manufacturer curve.
- Conformal Coating (Tropicalization) as Standard. Classified as 3C2 according to IEC 60721-3-3.

Benefits:

- High reliability.
- It prevents damage to the inverter, which can be caused by adverse situations, normally external factors.
- VFD lifetime is extended: protection against chemically active substances related to contamination from the atmosphere.

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MARKET POSITIONING

Integrated:
Fieldbus
networks

Communication
networks

Advantages:

- CANopen, DeviceNet, Profbus-DP, Modbus-RTU, Modbus-TCP, Ethernet I/P (single or Dual Port) and Profinet I/O.

Benefits:

- Full integration with process network.

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MARKET POSITIONING

Decentralized:
Indoor or outdoor
applications

Motor or wall
assembly

Advantages:

- The MW500 can be assembled on a wall or by using the terminal box coupling directly over the W22 or W21 motors.

Benefits:

- It makes the commissioning easy, saving space and cabling, in other words, reducing the cost of all installations.

MW500-G2 - THE DECENTRALIZED DRIVE



MARKET POSITIONING

Decentralized:
Indoor or outdoor
applications

MW500
Assembled on
Gear Motors

- Space saving & flexible solution
- Increased ruggedness
- Cost saving on cables
- Reduced Installation costs
- Easy commissioning
- Panel not required





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Thank you for your
time and attention.



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