

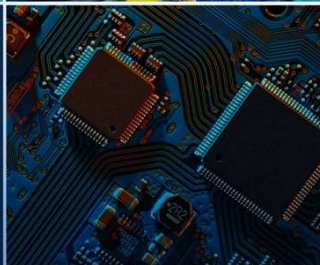
CFW900 Overview



Driving efficiency and sustainability



Class: CFW901
Version: 12.2024



Automation Training

Agenda



- Product Features
- Installation



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Welcome to our overview of the CFW900, We explore the CFW900's exceptional features and installation process.

Product Features



- Mini-USB connection
- Built In Modbus communication.
- Built in 2-port Ethernet connection
- Micro-SD card slot
- Built-in DC link reactors
- STO and SS1 functions
- Intelligent Thermal Management
- PC software WPS
- Built-in PLC functions (SoftPLC)



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The CFW900 frequency inverter is a high-performance product designed for speed and torque control of three-phase induction and PM motors. Lets start by going over a few key features of the drive!

Product Features



USB Type-B mini connection

Galvanically isolated from high voltages inside the inverter (not isolated from the protective earth).

Connect the laptop in the same protective earth of the inverter to avoid damages to the USB port.



MICRO-USB



MINI-USB



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The CFW900 uses a standard Mini USB cable that is easily available. Please make sure you are using a Mini and not a Micro! If you force a micro USB cable in the port, you will break it.

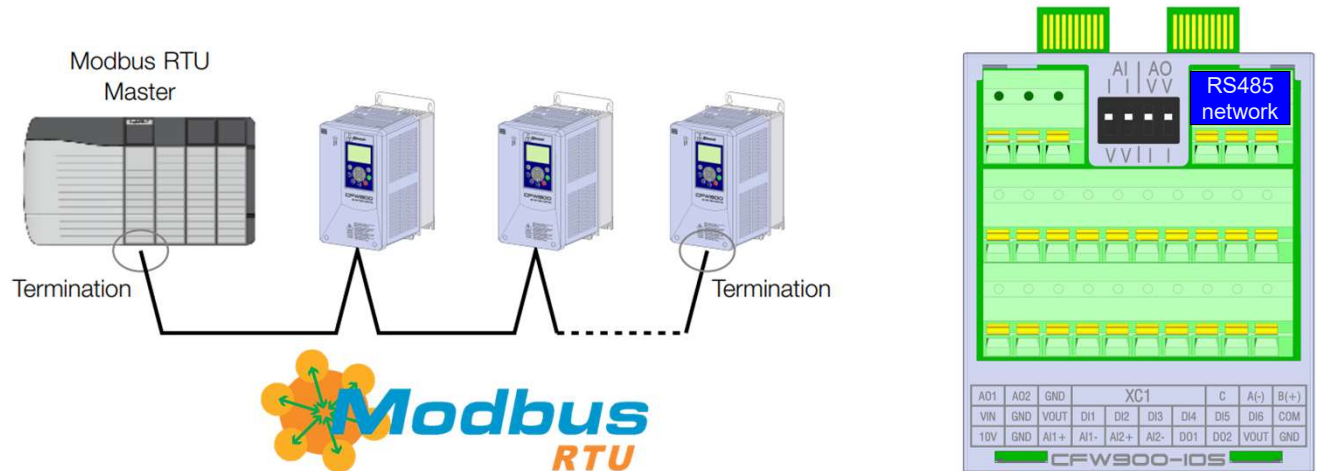
The USB Mini Cable should be a shielded USB cable. Cables without shield may cause communication errors.

Product Features



Modbus Support

- Built in Modbus RTU Support



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The CFW900 is equipped with Modbus RTU, a widely-used protocol among many PLC manufacturers for device communication. This feature is integrated into the IO card and can be connected using the three wires located at the top right of the card, as shown to the right. We will delve into the details of this card later in the video.

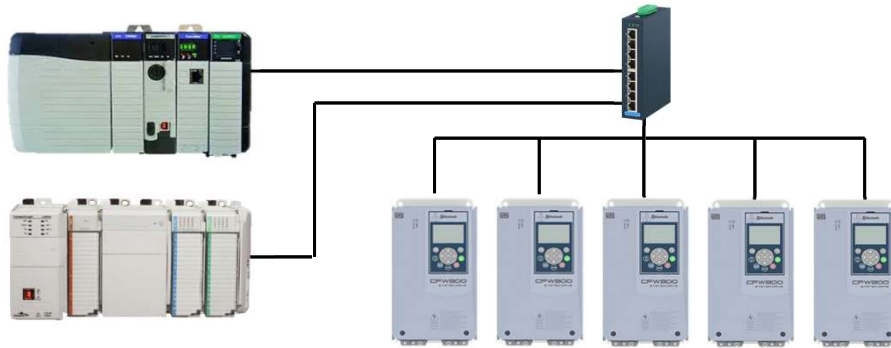
Product Features



2-Ethernet Ports

- Built In Ethernet IP Support
- Built In Modbus TCP Support

EtherNet/IP™

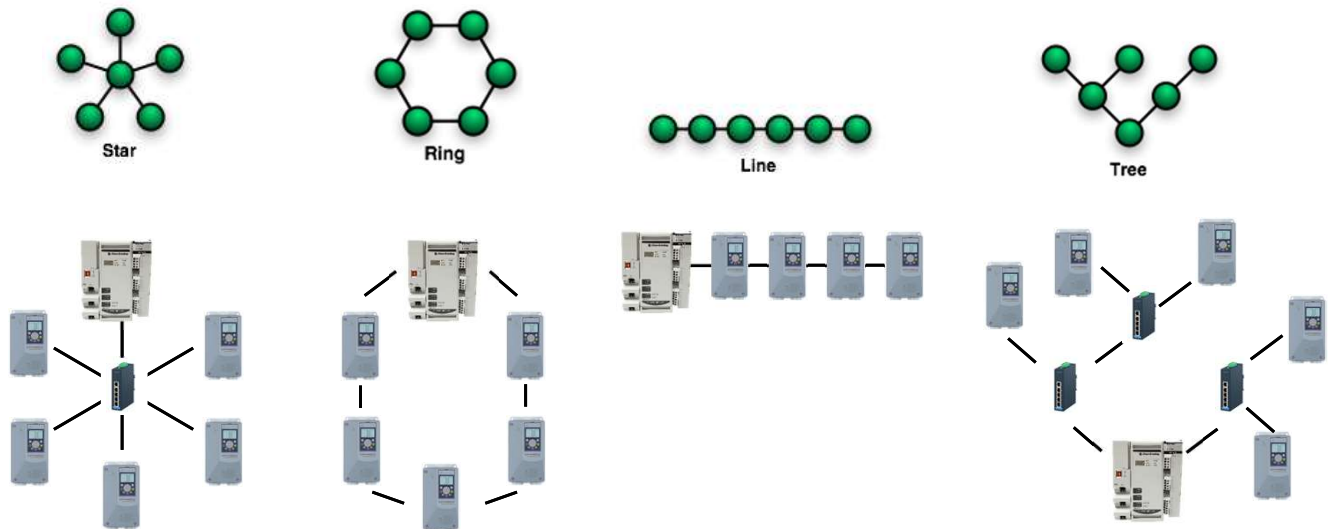


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The CFW900 can be seamlessly integrated into Ethernet networks, without the need for additional modules. This is thanks to its two Ethernet ports that support EtherNet IP and Modbus-TCP communication.

WEG has AOIs for the CFW900. This allows the CFW900 to easily be integrated with a Rockwell Compaq Logics or Control Logics PLC.

Ethernet/IP Protocol



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Lets discuss the various network configurations supported by The CFW900.

Firstly, we have the Star Network. This is the most common network when people talk about networking. All the devices go back to a single switch.

Next, we have the Ring Network. This setup provides redundancy, allowing the network to continue operating even if one connection is lost. For example, if the connection between Drive A and Drive B is disrupted, the network will reroute to maintain operation for both drives.

The CFW900 also supports the Line Network configuration, where drives are connected in series. This is particularly useful for long conveyor systems.

Additionally, we have the Tree Network. This configuration can incorporate multiple line and star networks.

It's important to note that while the CFW900 does not natively support a ring within a tree configuration due to its two-port limitation, there are adapters available from companies like Hirschmann that can enable this functionality

I

Product Features



Micro-SD card slot

- Settings backup;
- Copy/Paste settings between different inverters.

Requirements:

- Type: Industrial-grade operation temp.: $-40 \dots 185$ °F
- Maximum size: 32 Gb (not included)
- File system format: FAT32

Kingston SDCIT2



SanDisk XI



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The CFW900 is equipped with a Micro-SD card slot, which facilitates settings backup and the ability to copy and paste settings between different inverters. This feature is particularly useful for replacing a drive or for large installations where the same drive is repeatedly installed, such as in a panel shop.

When connecting or disconnecting the Micro-SD card, it is crucial to first turn off the inverter and wait for the capacitors to discharge to ensure safety.

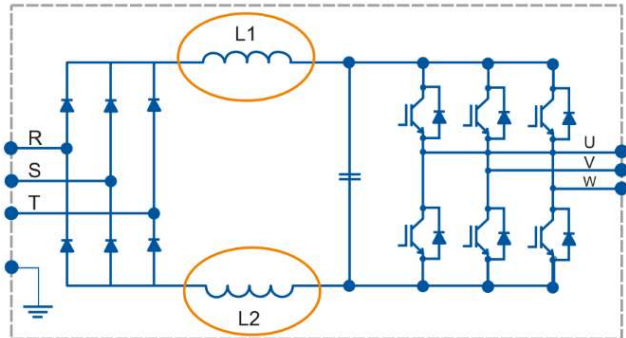
Product Features



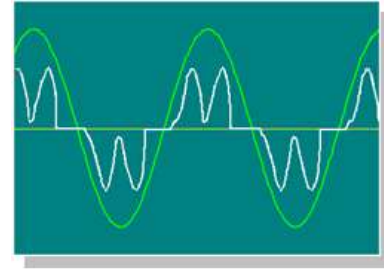
Built-in DC link reactors

The built-in reactors located in the DC bus allow to install the inverter on any supply without minimum impedance restriction.

They comply with IEC61000 parts 3-2 and 3-12 regarding the low order line current harmonics.



Input current with DC link reactors



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Our CFW900 drive includes built-in reactors on the DC bus, eliminating the need for external line reactors. These built-in reactors meet IEC requirements and are equivalent to a 5% load reactor.

Additionally, in inverters with a three-phase power supply, the Total Harmonic Distortion current (THDi) is maintained at less than 42% when operating with an output current between 75% and 100% of the nominal current (ND).

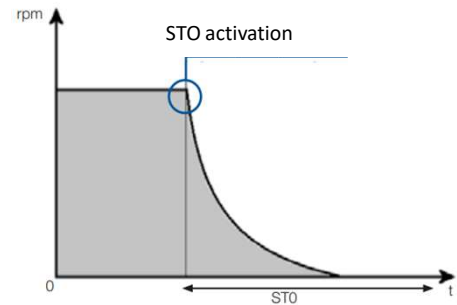
These features ensure that our drive not only complies with international standards but also provides efficient and reliable performance in various applications

Product Features



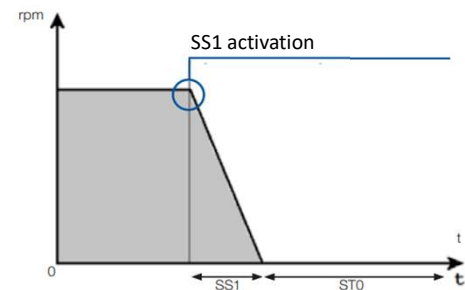
Safe torque-off (STO)

The “Safe Torque-off” function is a basic safety function integrated in CFW900. This function prevents the inverter from generating torque on the motor as well as the unintentional or unexpected starting if the STO function is enabled.



Safe Stop (SS1)

The “Safe Stop” function first enables the ramp motor deceleration and, after the programmed time, automatically activates the STO function.



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The CFW900 includes essential safety functions to ensure secure operation.

Firstly, the Safe Torque-Off (STO) function is integrated into the CFW900. This function prevents the inverter from generating torque on the motor and prevents unintentional or unexpected starting when the STO function is enabled.

Additionally, the Safe Stop (SS1) function is designed to first enable ramp motor deceleration. After the programmed time, it automatically activates the STO function.

Both of these safety functions are in accordance with IEC 60204-1 standards, ensuring compliance with international safety requirements.

Product Features



Smart Thermal Management

- Automatic adjustment of the switching frequency. Keeps the motor running in adverse conditions of higher temperature.
- Reduces the need for VSD oversizing for applications with occasional operation at high temperatures.
- Protection of the VSD components, increasing the service life.
- Heatsink fan turns on and off automatically, ensuring efficient airflow through the cabinet and lower power consumption.



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The CFW900 features a unique thermal management function, allowing it to operate efficiently in environments with varying temperatures. This integrated system enables the Variable Speed Drive (VSD) to measure ambient temperature and adjust its switching frequency accordingly. This versatility makes the CFW900 suitable for a wide range of industrial applications.

One of the key benefits of this thermal management function is that it reduces the need for VSD oversizing in applications that occasionally operate at high temperatures. This not only protects the VSD components but also extends their service life.

Additionally, the heatsink fan in the CFW900 turns on and off automatically, ensuring efficient airflow through the cabinet and reducing power consumption.

Product Features



WPS (WEG Programming Suite)

- Parameters, alarms/faults and events backup
- Inverter programming and monitoring
- Oriented start-up
- Trend function



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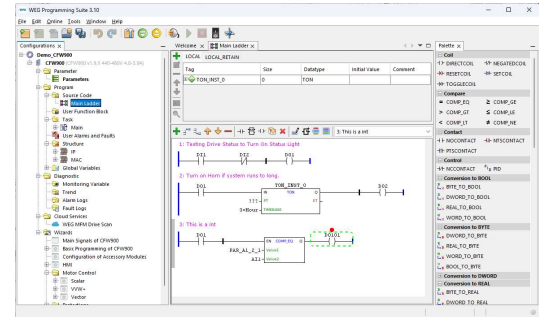
The WEG Programming Suite is an essential tool for optimizing the performance, reliability, and ease of use of Variable Frequency Drives. Its comprehensive features, including parameters backup, inverter programming, oriented start-up, and trend analysis, make it an invaluable asset for any VFD application. There is no cost to mobile or desktop version.

Product Features



Built-in PLC functions (SoftPLC)

- Reduce hardware costs.
- Programming in “Ladder Language” using the WPS.
- PLC, Mathematical and Control Blocks
- On-line transfer and monitoring of the software application.
- Transfer of the application password restriction.



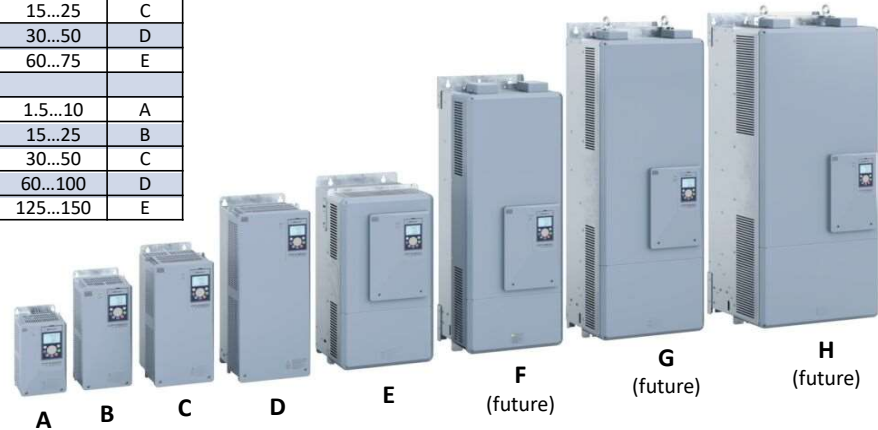
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The CFW900 has built-in PLC functionality. This offers a cost-effective, versatile, and secure solution for advanced control and automation. SoftPLC reduces the need for additional hardware components, leading to cost savings and simplified system architecture. By leveraging these features, you can optimize your system's performance and reliability.

Available Models



Input Voltage	Normal Duty (ND)		Heavy Duty (HD)		Frame Size
	Current (A)	Motor (HP)	Current (A)	Motor (HP)	
200...240 V ~2	4.6...10	1.5...3	4.6...10	1.5...3	A
200...240 V ~3	4.6...19	1.5...7.5	4.6...16	1.5...5	A
200...240 V ~3	26...45	10...15	22...35	7.5...10	B
200...240 V ~3	56...80	20...30	47...70	15...25	C
200...240 V ~3	110...150	40...60	92...124	30...50	D
200...240 V ~3	172...250	75...100	150...211	60...75	E
380...480 V ~3	2.8...17	2...10	2.4...17	1.5...10	A
380...480 V ~3	26...39	15...30	21...33	15...25	B
380...480 V ~3	50...74	40...60	40...62	30...50	C
380...480 V ~3	96...146	75...125	75...124	60...100	D
380...480 V ~3	172...242	150...200	146...190	125...150	E



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The CFW900 offers several frame size options. Currently, it is available in the sizes A to E, with frames F and G expected to be released in late 2024. With size H being released in late 2025. The WEG catalog has a comprehensive list of the currently available sizes.

Available Models



- Centrifuges
- Compressors
- Conveyors
- Crushers
- Extruders
- Fans / Blowers
- Mills
- Mixers
- Presses
- Pumps
- And Many More



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The CFW is versatile and can be utilized in a wide range of applications. However, it particularly excels in scenarios that require advanced communication, process control, or efforts to reduce complexity.

Technical Specifications



Control modes

- **Scalar (V/f):** The simplest control mode. Speed regulation in open loop or with slip compensation. It allows multi-motor operation.
- **Vector Sensorless:** Control oriented by the rotor flux. Without speed sensor on the motor; able to drive standard motor. High control dynamics.
- **Vector with Encoder:** Control oriented by the rotor flux. Speed and torque control up to 0 rpm. High static and dynamic performance.
- **VVW+ (Voltage Vector WEG Pluss):** More accurate than the V/f. It automatically adjusts to the line variations and load variations. It does not present fast dynamic response.

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The CFW900 offers four distinct control modes, each with its own set of benefits. Let's explore these options in detail.

Scalar control mode, is the simplest control option available. It provides speed regulation in an open loop or with slip compensation. One of the key advantages of this mode is its ability to control multiple motors with a single drive, making it a versatile choice for various applications.

Vector Sensorless control mode is oriented by the rotor flux and does not require a speed sensor on the motor. It is capable of driving standard motors and provides high control dynamics, making it suitable for applications requiring precise speed and torque control.

Vector with Encoder control mode is also oriented by the rotor flux but includes a speed sensor. This mode offers exceptional speed and torque control, even down to 0 r-p-m. It provides both high static and dynamic performance, making it ideal for applications demanding the highest level of precision and control. Voltage Vector WEG Plus control mode offers more accuracy compared to the scalar mode. It automatically adjusts to line and load variations, ensuring stable performance. However, it does not provide a fast dynamic response. This mode is commonly used in regions with poor power quality, although it is less prevalent in the United States. Voltage Vector WEG Plus uses stator current measurement, stator resistance obtained via a self-tuning routine, and motor nameplate data to estimate output voltage and slip compensation. This results in better speed

regulation and higher torque capacity at low speeds, particularly under 5 Hz, compared to V/f. Additionally, it offers simpler and easier adjustments than vector sensorless control.

Each of these control modes offers unique advantages, allowing you to select the most appropriate option based on your specific application requirements.

Technical Specifications



Slot-X module

Digital inputs (isolated)

- Activated by 24V or GND
- DI5 and DI6: encoder input function

Digital outputs (**not isolated**)

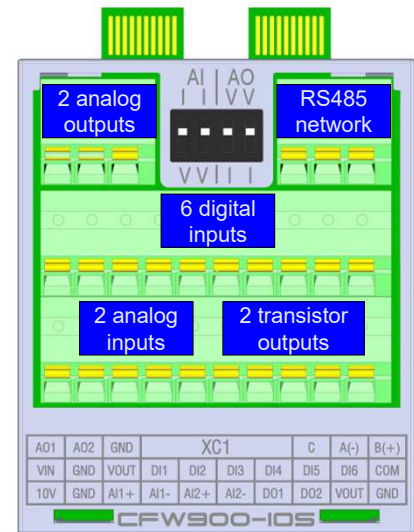
- Maximum voltage: 24 V_{DC}
- Maximum load: 40mA

Analog inputs (**not isolated**):

- Differential inputs, 11bits + sign
- -10...10V or 0...20mA

Analog outputs (**not isolated**):

- 0...10V or 0...20mA, 12 bits



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Let's take a closer look at the control data for the Slot-X module of the CFW900 drive. This module is equipped with various input and output options to ensure versatile and efficient control.

The module features six isolated digital inputs that can be activated by either 24V or GND. Notably, DI5 and DI6 can function as encoder inputs, providing additional flexibility for your control needs.

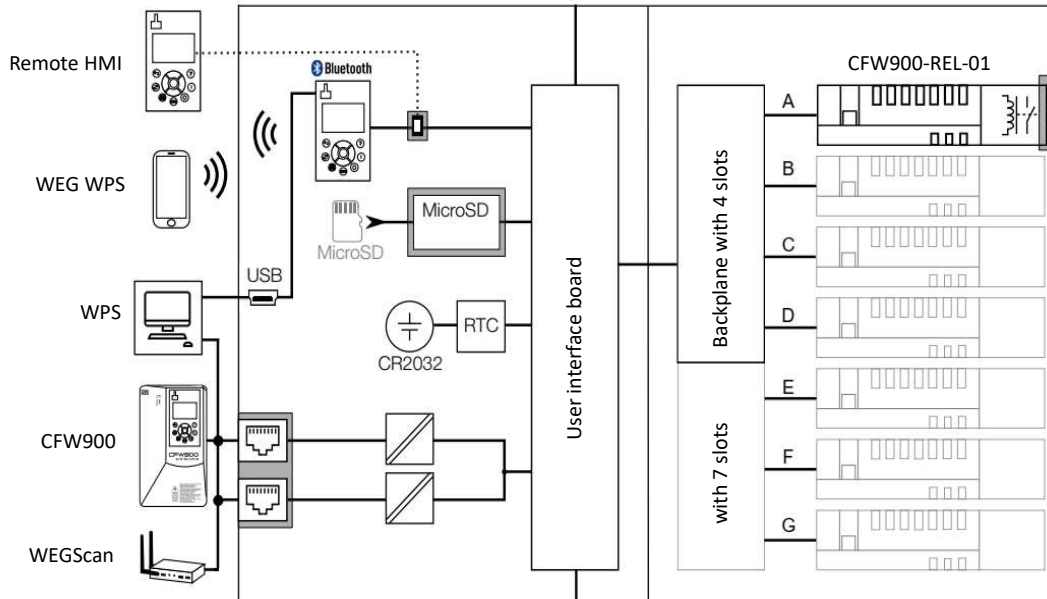
The module includes two digital outputs that are not isolated. These outputs have a maximum voltage of 24 VDC and can handle a maximum load of 40mA.

The two analog inputs on this module support a range of -10 to 10V or 0 to 20mA.

Similarly, the two analog outputs offer a range of 0 to 10V or 0 to 20mA with a resolution of 12 bits. This ensures accurate analog signal output for various applications.

The removable nature of this IO card simplifies the wiring process, making it more convenient and efficient.

Accessories



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Now, let's discuss some important features of the CFW900 drive.

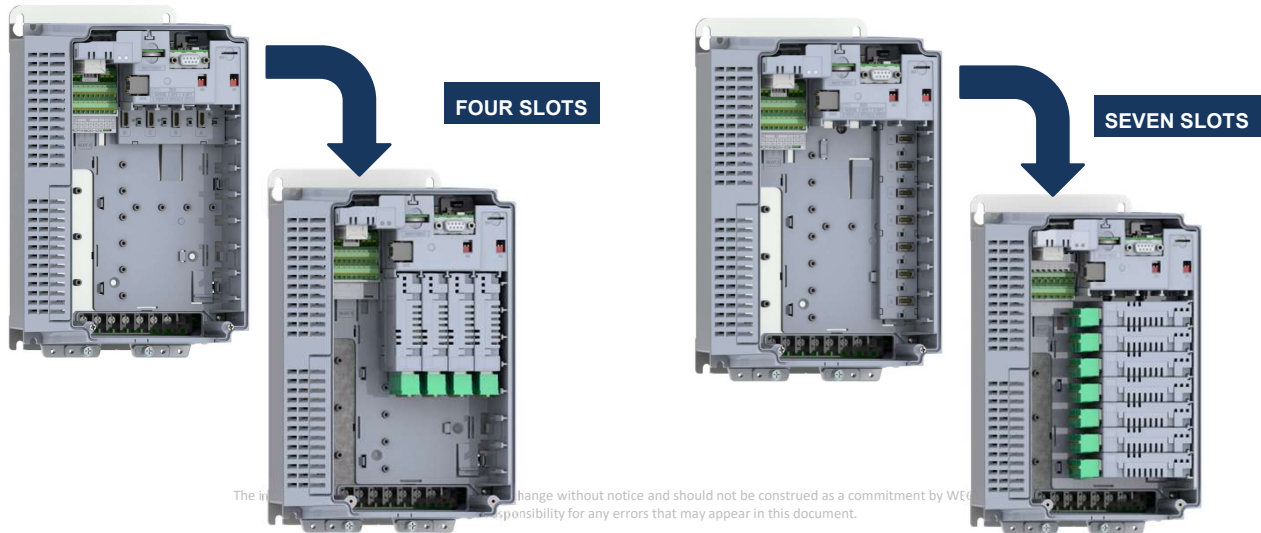
Included with the drive is a relay output card that provides 3 relay outputs. This feature enhances the drive's capability to interface with other control systems and devices.

The CFW900 drive uses a common CR2032 battery, which is easy to replace. You can find this battery at most retail stores, including Walmart. This ensures that maintaining the drive is straightforward and cost-effective.

Accessories



- 4 Slots with the possibility of expansion to 7 Slots.
- Position for accessory modules is not fixed, allowing the installation of more modules of the same type.



The CFW900 drive comes with 4 slots as standard. However, if you need more, you can use an adapter to expand to 7 slots. This flexibility allows you to customize the drive to meet your specific needs.

Accessories



Remote HMI

- Cables from 1 to 10 meters



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The drive supports a remote Human-Machine Interface, allowing for convenient monitoring and control outside the cabinet where the drive is located. This can be particularly useful to enable the operator to use the HMI outside the cabinet without putting on PPE.

Accessories



I/O's expansion

CFW900-IOAI-01

3 analog inputs
2 analog outputs (isolated)

CFW900-TEMP-01

6 PTC/PT100/PT1000 temperature inputs

CFW900-IOD-01

8 digital inputs (isolated)
8 digital outputs (isolated)

CFW900-ENC-01

Incremental encoder input Interface for 5 or 12 V_{DC}, 310 kHz, with repeater

CFW900-REL-01

3 digital relay outputs

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Let's explore the expansion options available for the CFW900 drive, which enhance its versatility and adaptability for various applications. You can add additional analog inputs and outputs for precise control and monitoring.

Expand with extra isolated digital inputs and outputs for robust connections.

Add relay output modules to interface with external devices.

Expand with temperature input modules for accurate monitoring.

Add encoder input interfaces for precise position and speed feedback.

These options make the CFW900 drive highly adaptable for various applications.

Accessories



Network communication

CFW900-CCAN-W

CAN interface module (CANopen, DeviceNet)

CFW900-CDP-N

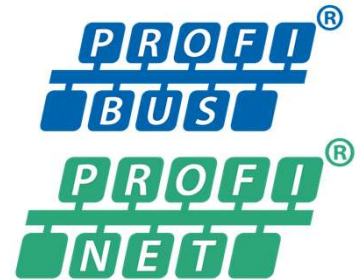
Profibus DP-V1 Interface Module

CFW900-CPN-IRT

Profinet IRT Interface Module 2-Port

CFW900-CECAT-N

EtherCAT Interface Module 2-Port



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In addition to the built-in Ethernet, the CFW900 drive offers several additional communication options to enhance connectivity and integration. You can add modules for Can Open, DeviceNet, ProfiBus, ProfiNet, and EtherCAT. These options ensure that the drive can seamlessly integrate into various industrial networks, providing flexibility and robust communication capabilities for your applications.

Environment



- Altitude: 0...1000 m (0...3300 ft.)
 - **1%** derating in the nominal current for every 100 m (330 ft.) over 1000 m, limited to 4000 m (13200 ft.);
 - **1.1%** derating in the maximum voltage for every 100 m (330 ft.) over 2000 m (6600 ft.), limited to 4000 m (13,200 ft.).
- Humidity: 5...95% (non-condensing). Avoid sea spray.
- Avoid installation in excessive vibration.
- Frames A, B, C and D: -10...50 °C (14...122 °F)
 - **2%** derating in the nominal current for every 1 °C (or 1,11% every 1°F) over 50 °C, limited to 60 °C (140 °F).
- Frame size E: -10...45 °C (14...113 °F)
 - **2%** derating in the nominal current for every 1 °C (or 1,11% every 1°F) over 45 °C, limited to 60 °C (140 °F).

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Let's discuss the environmental considerations for the CFW900 drive. The drive experiences altitude derating above 100 meters. For every 100 meters above this threshold, there is a 1% reduction in nominal current. However, this is typically not a concern for most installations. Temperature derating varies by frame size. For most sizes, derating begins at temperatures above 122°F. This ensures the drive operates efficiently and reliably even in higher temperature environments. These considerations help maintain the optimal performance and longevity of the CFW900 drive.

Mechanical Installation



Positioning and fixing



Surface mounting



Flange mounting
with IP55

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Let's discuss the mounting options available for the CFW900 drive, which are designed to optimize heat management and protection.

For surface mounting, the drive offers I-P-20 or NEMA1 ratings for frames A, B, and C when equipped with the top cover. Additionally, an I-P-21 kit is available for frame D, providing enhanced protection against touch and condensation.

The flange mounting option is rated I-P-54. This ensures robust protection against dust and water spray, making it ideal for heat reduction more demanding environments.

These mounting options allow you to effectively manage heat and ensure the drive's reliability in various installation scenarios.

Mechanical Installation



Inverter clearances



Frame size	A mm (in)	B mm (in)	C mm (in)	D mm (in)	Index of Protection
A	25 (1)	25 (1)	10 (0.4)	0	IP20
				30 (1.2)	IP21
B	40 (1.6)	45 (1.8)	10 (0.4)	0	IP20
				30 (1.2)	IP21
C, D	110 (4.3)	130 (5.1)	10 (0.4)	0	IP20
				30 (1.2)	IP21
E	150 (6)	250 (10)	20 (0.8)	0	IP20
				30 (1.2)	IP21



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The spacing requirements for the CFW900 drive are determined by frame size and IP rating.

The gap needed around the drive varies by frame size, but the side-to-side gap only varies according to IP protection.

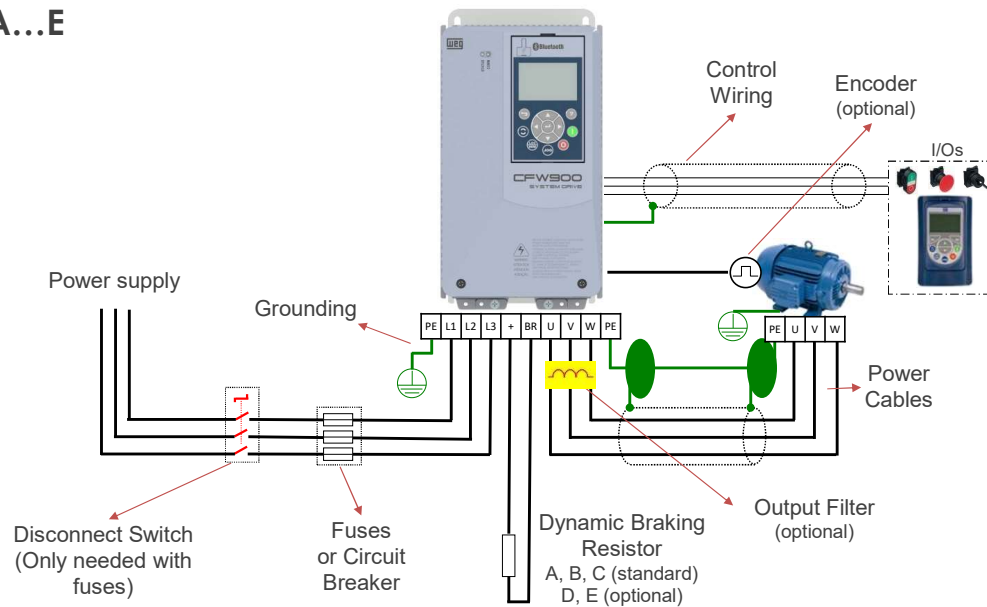
For IP20 installations, the CFW900 drive allows for 0 stack spacing. This means you can fit more drives in a smaller space, optimizing your installation area without compromising performance.

When using the IP21 kit, a 1.2 inch gap is required between the drives to ensure proper ventilation and protection. This setup is essential for maintaining the drive's reliability in environments where additional protection is needed.

Electrical Installation



Frames A...E



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Power factor correction capacitors are not necessary at the input of the drive. This simplifies the installation process and reduces the need for additional components.

A contractor is not needed before the drive to meet safety requirements. The CFW900 drive has a built-in Safe Torque Off function, which ensures safety without the need for an external contactor.

Shielded wiring is recommended for control wiring and motor cables.

Frame sizes A, B, and C come standard with dynamic braking resistor support. This is an optional addition for sizes D and E.

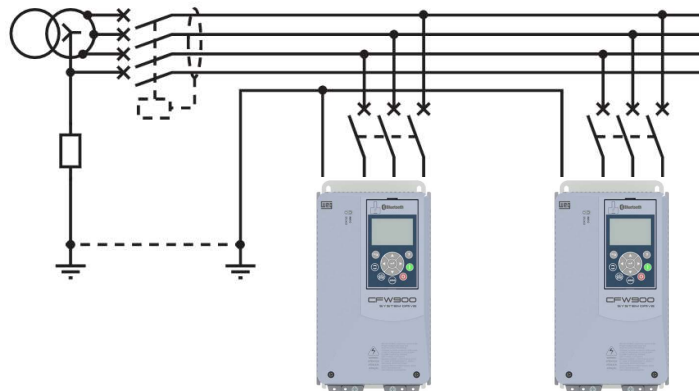
These features streamline the installation and enhance the safety and efficiency of the CFW900 drive.

Electrical Installation



IT network (IE: Grounding System)

Transformer neutral point are not connected to the ground or connected by high impedance resistor.



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Let's discuss the Isol -Terre, or IT network, earthing system. This type of electrical distribution system is either not connected to the earth or has a very high-impedance connection. While this is uncommon in the USA, there are specific areas, such as parts of Florida, where it is used.

If you encounter this power system, it's important to refer to the manual for specific instructions. There are certain screws in the CFW900 drive that need to be removed to properly disconnect the ground. This ensures the drive operates correctly within an IT network.

Understanding these requirements is crucial for maintaining safety and functionality in installations using Isol -Terre systems.

Electrical Installation



Fuses

The recommended fuses at the input are fast-action type class J for UL panels and aR for IEC panels.



INSTALLATION AND CONNECTION

Table 3.7: Fuse specifications as per IEC standard

Model	Maximum Short-Circuit Current of the Power Supply (kA)	Panel	Type J Fuses		High Speed Fuses		
			Fuse Rating (A)	Recommendation	Fuse Rating (A)	Recommendation	
CFW900A002	5	No	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A003				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A004				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A005				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A006				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A007				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A008				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A009				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A010				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A011				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A012	10	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A013				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A014				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A015				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A016				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A017				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A018				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A019				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A020				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A021				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A022	15	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A023				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A024				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A025				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A026				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A027				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A028				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A029				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A030				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A031				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A032	20	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A033				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A034				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A035				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A036				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A037				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A038				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A039				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A040				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A041				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A042	30	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A043				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A044				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A045				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A046				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A047				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A048				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A049				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A050				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A051				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A052	40	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A053				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A054				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A055				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A056				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A057				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A058				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A059				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A060				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A061				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A062	60	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A063				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A064				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A065				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A066				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A067				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A068				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A069				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A070				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A071				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A072	100	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A073				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A074				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A075				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A076				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A077				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A078				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A079				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A080				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A081				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A082	150	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A083				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A084				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A085				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A086				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A087				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A088				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A089				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A090				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A091				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A092	250	Yes ¹⁾	Any Type J 400 A	30	Motor A70G10.4	30	Motor A70G10.4
CFW900A093				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A094				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A095				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A096				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A097				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A098				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A099				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A100				30	Motor A70G10.4	30	Motor A70G10.4
CFW900A101				30	Motor A70G10.4	30	Motor A70G10.4

¹⁾ If panel with a maximum size of 1.5 times the size of the fuseholder.
²⁾ Minimum panel dimensions (depth x height x width): 800x1000x600 mm (31.5x39.3x23.6 in).
³⁾ Minimum panel dimensions (depth x height x width): 800x1000x500 mm (31.5x39.3x19.7 in).
⁴⁾ Minimum panel dimensions (depth x height x width): 800x1300x500 mm (31.5x51.2x19.7 in).
⁵⁾ Minimum panel dimensions (depth x height x width): 800x2000x600 mm (31.5x78.7x23.6 in).

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For those installing the CFW900 drive, it's important to refer to the user manual for a complete list of recommended fuses. When using fuses in a UL panel, J fuses are required.

Electrical Installation



Inverse-time circuit breaker

Can be used instead of fuses, in circuits with short-circuit current (I_{SC}) no more than 65 kA (480 V).



Table 1.8: Circuit breaker specifications as per I.E. and IEC standards

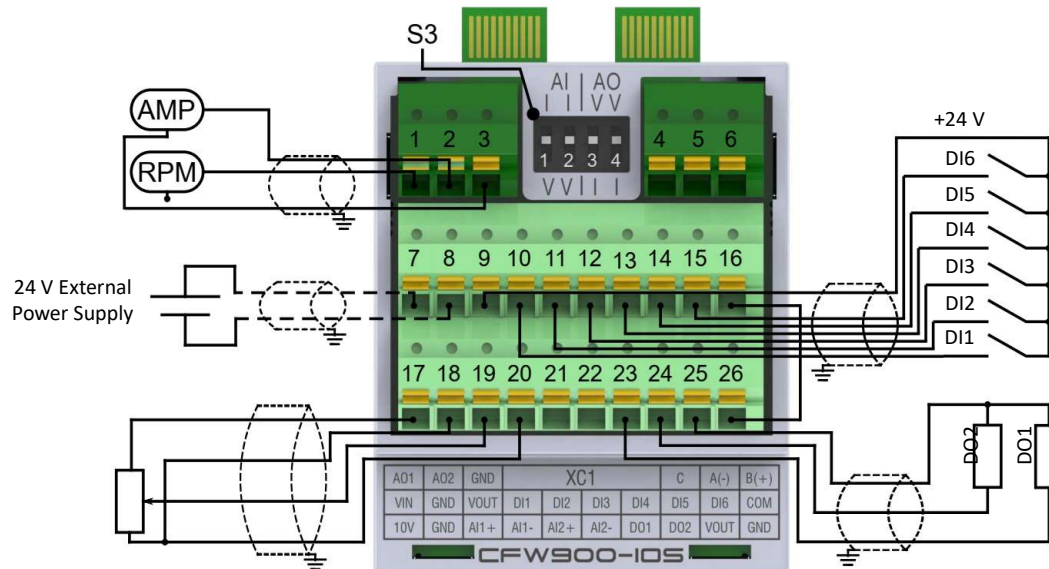
Model	Maximum Short-Circuit Current of the Power Supply (kA)	Maximum Circuit Breaker Rating (kA)	UL (CB type)	IEC (ACB type)	Minimum Power (kW) & Voltage (kV) (see p. 2)
CFW0000P002	15	15	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P003	25	25	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P004	35	35	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P005	45	45	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P006	55	55	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P007	65	65	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P008	75	75	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P009	85	85	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P010	95	95	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P011	105	105	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P012	115	115	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P013	125	125	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P014	135	135	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P015	145	145	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P016	155	155	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P017	165	165	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P018	175	175	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P019	185	185	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P020	195	195	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P021	205	205	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P022	215	215	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P023	225	225	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P024	235	235	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P025	245	245	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P026	255	255	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P027	265	265	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P028	275	275	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P029	285	285	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P030	295	295	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P031	305	305	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P032	315	315	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P033	325	325	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P034	335	335	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P035	345	345	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P036	355	355	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P037	365	365	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P038	375	375	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P039	385	385	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P040	395	395	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P041	405	405	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P042	415	415	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P043	425	425	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P044	435	435	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P045	445	445	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P046	455	455	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P047	465	465	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P048	475	475	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P049	485	485	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P050	495	495	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P051	505	505	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P052	515	515	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P053	525	525	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P054	535	535	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P055	545	545	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P056	555	555	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P057	565	565	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P058	575	575	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P059	585	585	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P060	595	595	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P061	605	605	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P062	615	615	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P063	625	625	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P064	635	635	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P065	645	645	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P066	655	655	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P067	665	665	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P068	675	675	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P069	685	685	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P070	695	695	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P071	705	705	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P072	715	715	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P073	725	725	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P074	735	735	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P075	745	745	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P076	755	755	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P077	765	765	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P078	775	775	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P079	785	785	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P080	795	795	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P081	805	805	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P082	815	815	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P083	825	825	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P084	835	835	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P085	845	845	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P086	855	855	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P087	865	865	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P088	875	875	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P089	885	885	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P090	895	895	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P091	905	905	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P092	915	915	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P093	925	925	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P094	935	935	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P095	945	945	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P096	955	955	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P097	965	965	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P098	975	975	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P099	985	985	UL9439-1 P100-3A	ACB1000-P100-3	
CFW0000P100	995	995	UL9439-1 P100-3A	ACB1000-P100-3	

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A circuit breaker can be used instead of fuses in circuits with short-circuit currents up to 65 kA at 480 Volts. This makes it a versatile and reliable choice for various applications. The tested combination listings are in the user manual.

Electrical Installation

Control wiring



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Shown is the typical control wiring diagram for the CFW900 module. This diagram illustrates the P-N-P wiring configuration, which can also be adapted for N-P-N wiring if needed.

It's crucial to ensure that all control wiring is run separately from power cables to avoid interference and maintain signal integrity.

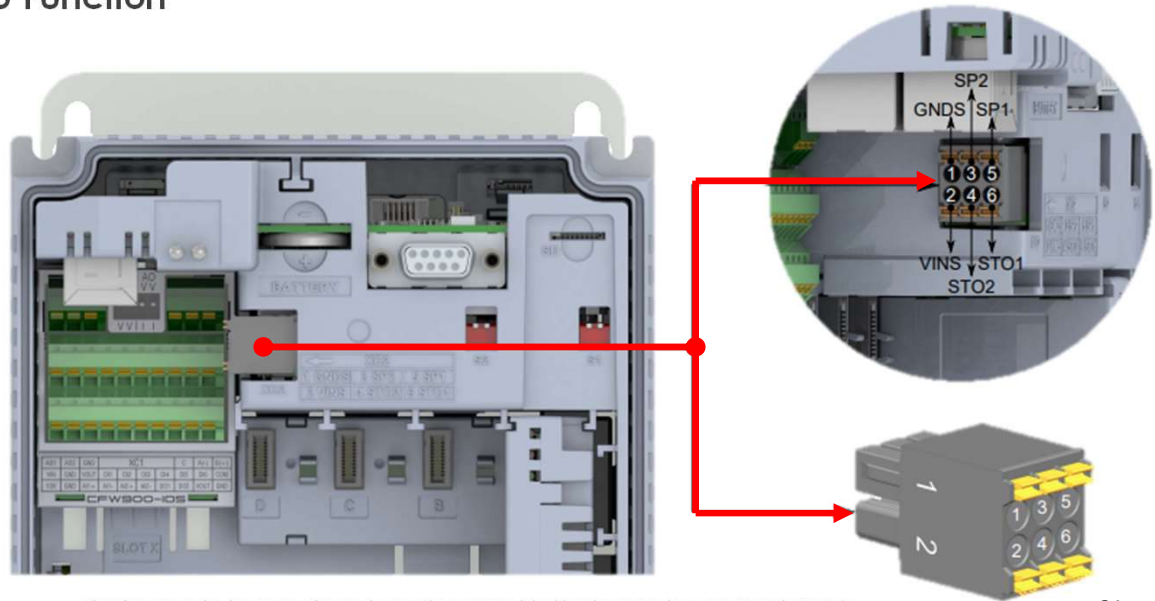
For digital inputs, use shielded cables that are grounded at only one point and kept separate from other command cabling operating at 110 volts or higher. Similarly, analog signals should also use shielded cables, grounded at a single point, and isolated from other command cabling.

Network cables must be separated from other command cabling to prevent cross-talk and ensure reliable communication. Lastly, motor R-T-D cables should be shielded to protect against electromagnetic interference.

Electrical Installation



Safe Stop Function



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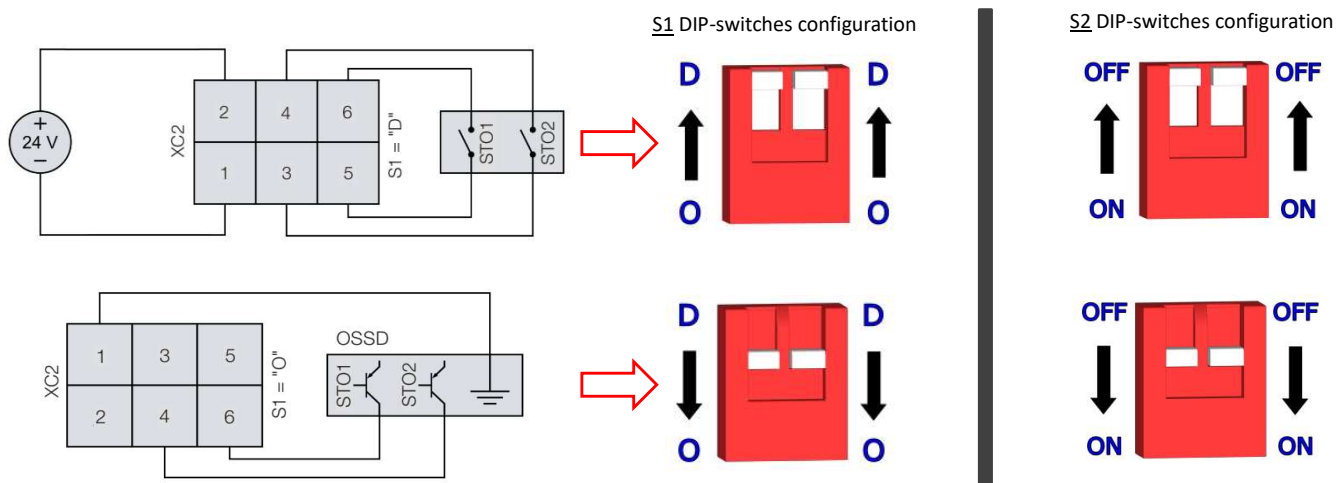
31

This shows that the Safe Torque Off and Safe Stop wiring are facilitated through a removable connection within the drive. This design allows for easy maintenance and quick disconnections..

Electrical Installation



Safe Stop Function



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The two diagrams illustrate different wiring options for the CFW900's Safe Stop Function.

The top drawing on the left shows a traditional contact layout, while the bottom option represents the transistor configuration.

To properly configure the S-T-O for your specific installation, you need to set the S1 DIP switches before energization. Here, 'D' stands for 'dry contact' and 'O' stands for 'OSSD'. This ensures that the drive is correctly set up for the type of contact being used.

Next, the S2 DIP switches control access to the programming mode of the STO. These switches allow you to select the internal safety function to be used and define

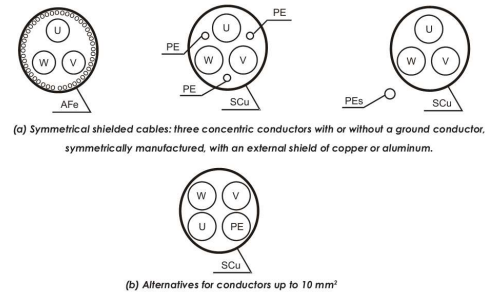
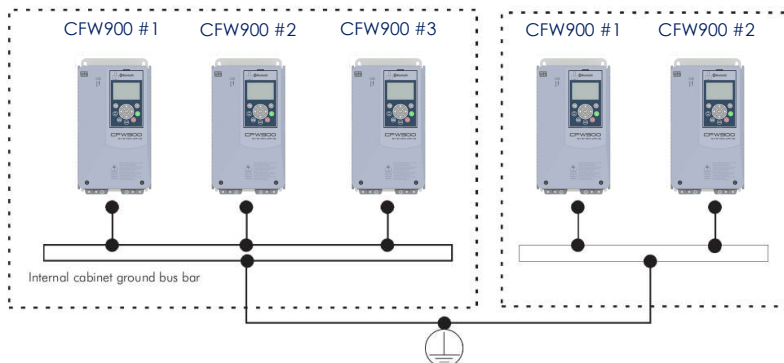
the delay time in the case of S-S-1.

Electrical Installation



Grounding

- Shielded cables are recommended.;
- Ground the inverters on the panel ground bar;
- Panels must be grounded locally.



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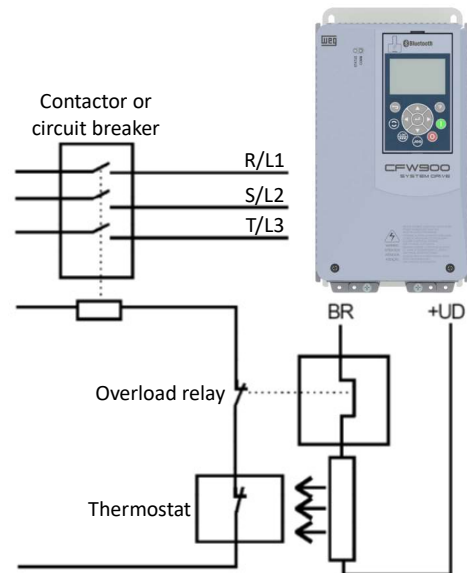
Let's discuss the grounding essentials for the CFW900 to ensure safe and reliable operation. Firstly, it is highly recommended to use shielded cables. These cables help minimize electrical interference, ensuring the integrity of your signals. Secondly, it's crucial to remember that the neutral cable must not be used as a ground. This practice is essential to prevent potential electrical hazards. Next, all inverters should be securely grounded to the panel's ground bar. This step is vital for maintaining safety and preventing electrical faults. Lastly, ensure that all panels are grounded locally. Adhering to local grounding codes is necessary to comply with safety standards and enhance the overall reliability of your installation.

Electrical Installation



Dynamic braking resistor

- Connect at +UD and BR;
- Use twisted cables.



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Let's discuss the option of connecting a braking resistor to the CFW900, which can be essential for applications requiring rapid deceleration.

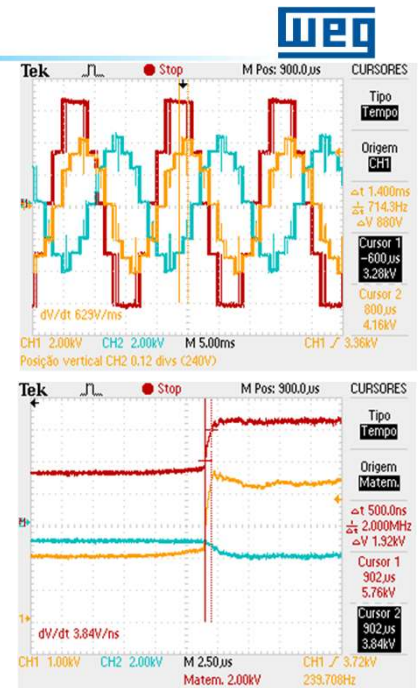
As shown on this slide, you have the ability to connect a braking resistor at the + UD and BR terminals.

When installing the braking resistor, it is important to use twisted cables to minimize electromagnetic interference and ensure reliable operation.

Electrical Installation

Output filter

- The CFW900 includes an output filter for up to 200M.
- An output filter is necessary for installations with output cables between 200 and 500 m. For installations with longer cables, or for use with motors that do not support PWM, it is recommended to use special filters (dV/dt or sinusoidal).



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The CFW900 includes an output filter that supports cable lengths up to 200 meters. The drive's advanced software makes this possible, trimming individual pulse peaks to maintain signal integrity over extended distances. While this feature works with any motor, it's important to note that WEG provides a warranty only when used with WEG motors.

An output filter is necessary to ensure optimal performance for installations with output cables between 200 and 500 meters. In cases where cable lengths exceed 500 meters or when using motors that do not support Pulse Width Modulation, specialized filters, such as sinusoidal filters, are recommended to maintain system reliability and efficiency.

By following these guidelines, you can ensure that your CFW900 operates effectively across various installation scenarios.



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time and attention.



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