#### Motors

Automation

Energy Transmission and Distribution

#### Coatings

# CFW500 - AOI

# Configuration



#### Driving efficiency and sustainability





# WEG CFW500 AOI Configuration

# Prerequisites

## **Exclusions**

This document does not go into detail of setting up a controller in RSLOGIX/STUDIO 5000.

The connection and configuration of the IP network is beyond the scope of this document.

All non-communication specific parameters on the CFW500 are excluded from the configuration requirements of this document.

# System Components

This document assumes that the following components are available and configured:

- ControlLogix or CompactLogix PLC controller running version 20 (or higher) firmware
- 10/100 or faster ethernet network with IP connectivity and IP addresses for both the PLC and CFW500

# **EDS** Installation

Begin by adding the EDS file for the CFW500 if it is not already in the project.



From inside Logix Designer, go to Tools -> EDS Hardware Installation Tool



Rockwell Automation's Device	Wizard		×
	Welcome to Rockwell Automation's Device Wizard	2	
	The Device Wizard allows you to:		
	- register devices.		
	- unregister a device.		
	- change the graphic images associated with a device.		
	- create a device description file from an unknown device.		
	<ul> <li>upload device description file(s) stored in a device.</li> </ul>		
	To continue click Next		
		Next >	Cancel

#### Click Next >

Rockwell Automation's Device Wizard		×
<b>Options</b> What task do you want to complete?		
<ul> <li>Register a device description file(s).</li> <li>This option will add a device(s) to our database.</li> </ul>		
<ul> <li>Unregister a device. This option will remove a device that has been registered by a Device Description File from our database.</li> </ul>		
C Create a device description file. This option creates a new device description file that allows our software to recognize your device.		
Upload device description file(s) from the device. This option uploads and registers the device description file(s) stored in the device.		
	< Back Next >	Cancel

Click Next >

### **CFW500 AOI Configuration**



••	
Rockwell Automation's Device Wizard	×
Registration Device Description file(s) will be added to your system for use in Rockwell Automation applications.	
<ul> <li>Register a single device description file</li> </ul>	
C Register a directory of device description files 🛛 🗌 Look in subfolders	
Named	
Browse	
if there is an icon file (.ico) with the same name as the file(s) you are registering	
Then this image will be associated with the device.	
To perform an installation test on the file(s), click Next	
< Back Next > Canc	el

Click Browse ...

Select a Device description file			×
← → ✓ ↑ 🔒 > This PC → Local Disk (C:) → EDS files → wegcfw500_enetip_eds	ٽ ~	Search wegcfw500_enetip_eds	م
Organize 🔻 New folder		▼	?
<ul> <li>Projects</li> <li>WEG</li> <li>This PC</li> <li>3D Objects</li> <li>Desktop</li> <li>Documents</li> <li>Downloads</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> <li>Local Disk (C:)</li> </ul>			
- Notwork V			
File name: eip_cfw500_v31x.eds		✓ EDS Files (*.eds)	$\sim$
		Open Cance	

#### Browse to where the downloaded eds file is located and click Open

Rockwell Automation's Device Wizard	×
Registration Device Description file(s) will be added to your system for use in Rockwell Automation applications.	<b>V</b>
Register a single device description file	
C Register a directory of device description files 🛛 🗌 Look in subfolders	
Named:	
C:\EDS files\wegcfw500_enetip_eds\eip_cfw500_v31x.eds Browse	
If there is an icon file (ico) with the same name as the file(s) you are registering then this image will be associated with the device. To perform an installation test on the file(s), click Next	
< Back Next > Can	cel

#### CF\

500 AOI Configuration	шед	www.weg.ne
Rockwell Automation's Device Wizard	×	
Device Description File Installation Test Results This test evaluates each Device Description File for errors in the device description file. This test does not guarantee Device Description File validity.		
⊡-唱 Installation Test Results		
i i c:\eds files\wegcfw500_enetip_eds\eip_cfw500_v31x.eds		
View file		
< <u>B</u> ack	Cancel	

There should be a green checkmark. Click Next >

Rockwell Automation's Device Wizard	×
Change Graphic Image You can change the graphic image that is associated with a device.	
Change icon  Product Types  AC Drive Device  CFW500	
< <u>Back</u> <u>Next</u> > C	ancel

Click Next >



Rockwell Automation's Device Wizard		×
Final Task Summary This is a review of the task you want to complete.		
You would like to register the following device. CFW500		
	< <u>B</u> ack <u>N</u> ext >	Cancel

Click Next >



Rockwell Automation's Device	Wizard	×
	You have successfully completed the Device Wizard.	
	This is the list of errors that were detected.	
The Contract of Contract Contract of Co		
	Prote 1	
	Finish	

**Click Finish** 

- Acceleration Ramp 1
- Deceleration Ramp 1

#### Create the Ethernet/IP Device

	ne, 1756-A4 N2T EN2T	
i	New Module Discover Modules Paste Print	Ctrl+V

In the device tree, right click on the Ethernet bus that will contain the CFW500 and click New Module....

Enter Search Text for Module Ty	Clear Filters		Show Filters ≯
Catalog Number	Description	Vendor	Category ^
1420-V1P-ENT	Powermonitor 500	Rockwell Autom	PowerMonitor 50(
0001_0073_010D	48MS-SN1PF1-M2	Rockwell Autom	Rockwell Automa
0001_0073_010E	48MS-SN1PF2-M2	Rockwell Autom	Rockwell Automa
0005_007B_0030	SP600	Rockwell Autom	DPI to EtherNet/I
0005_007B_0038	SP600 ER 400V	Rockwell Autom	DPI to EtherNet/I
0005_007B_0039	SP600 ER 200V	Rockwell Autom	DPI to EtherNet/I
0005_007B_003A	SP600 ER 600V	Rockwell Autom	DPI to EtherNet/I
0005_007B_0060	Liquiflo 2.0	Rockwell Autom	DPI to EtherNet/I
0005_007F_0027	MD60	Rockwell Autom	MDI to EtherNet/
0005_007F_0028	MD65	Rockwell Autom	MDI to EtherNet/
100-1167-001	SynapSense Industrial Gateway	Panduit Corporat	Communication
1305-ACDrive-EN1	1305 AC Drive via 1203-EN1	Rockwell Autom	Drive
1336E-IMPACTDrive-EN1	1336 IMPACT Drive via 1203-EN1	Rockwell Autom	Drive
10000 DE LICIIDada EN11	1000 DELLO IL D202, 22- 1000 EN1	D==1=II A. ±===	▶
671 of 671 Module Types Found	1		Add to Favorites

In the Select Module Type dialog box, enter in "CFW500" in the search field



Select	Module	Туре
		· · · · · ·

	Clear Fi	Iters	Show Filters ≯
Catalog Number	Description	Vendor	Category
CFW500	CFW500	WEG	AC Drive Device
٢			>

There should be an entry matching the above screenshot.

шед

Selec	Select Module Type					
Cat	talog Module Discovery Fav	orites				
	CFW500		Clear Filters		Show Filters ≯	
	Catalog Number	Description		Vendor	Category	
	CFW500	CFW500		WEG	AC Drive Device	
	<				>	
	1 of 672 Module Types Found				Add to Favorites	
	Close on Create			Create	Close Help	p:

#### Highlight the CFW500 and click Create

New Module		×
j⊷ General*	General	
General <sup>™</sup> Connection Module Info Internet Protocol Port Configuration	General         Type:       CFW500 CFW500         Vendor:       WEG         Parent:       EN2T         Name:       VFD1         Description:       Image: Private Network:         192.168.1.       Image: Private Network:         Image: Private Network:       192.168.1.         Image: Private Network:       Image: Private Network:         Image: Priva	÷ 2 . 126
	Module Definition	
	Revision: 3.010	
	Electronic Keying: Compatible Module	
	Connections: Exclusive Owner Change	
Status: Creating	OK Cancel	Help



Give the CFW500 a Name and IP address. Before clicking on OK, click on the Change ... button in the module definition.

📧 Module Definitio	n			×
Revision: 3 ~ 010 -				
Electronic Keying:	Electronic Keying: Compatible Module ~			~
Connections:				
Name			Size	
Exclusive Owner		Input:	4	SINT
		Output:	4	
				SINT
				DINT
				REAL
	_			
OK		Canc	el	Help

#### Change the type to INT

Module Definition*				
Revision: 3 ~ 010				
Electronic Keying: Compatible Module 🗸				~
Connections:				
Name			Size	
Exclusive Owner		Input:	8	INT
Exclusive Owner		Output:	6	
OK Cancel Help				

The Input and output size should be set to 8 and 6 respectively. Click OK





RSLogix	5000 >	<
	These changes will cause module data types and properties to change. Data will be set to default values unless it can be recovered from the existing module properties. Verify module properties before Applying changes.	
	Change module definition?	
	Yes No	

Click Yes

At this point, no other changes are required. However, changing the RPI can be done, if the need arises.

Once satisfied with the settings, Click OK



There should now be an instance of the CFW500 in the device tree



👸 Import Add-	On Instruction			×
Look in:	CFW500	~	G 🤌 📂 🛄 -	
Quick access	Name ি CFW500.L5X	^	Date modified 7/1/2024 11:39 AM	Type RSLoi
Desktop				
Libraries				
This PC				
Setwork	<		_	>
	File name:		~	mport
	Files of type:	RSLogix 5000 XML Files (*.L5X)	$\sim$	Cancel
	Files containing:	Add-On Instruction	~	Help
	Into:	Add-On Instructions	~	

Select the appropriate add-on instruction (CFW500.L5X) and click Import....



Import Configuration	Import Configuration X				
	A A Find/Replace				
Import Content:					
- Add-On Instructions Configure	e Add-On Instruction Properties				
Import Na Parameters and Local Tags	ame: CFw/500				
B Routines Operation	n: Create 🗸 🗋				
Errors/Warnings     Final Nar	me: CFW500 V Properties				
Descripti	ion: WEG AOI CFW500				
	v				
Revision	x v1.0 Release				
Revision	Note:				
Vendor:					
< >					
		24			
		UK Cancel Help			
Ready					

Review the proposed changes and click OK



There should now be this add-on instruction in the project.

#### **AOI Usage** CFW 900 4 0 K > Favorites Add-On Alarms <u> (</u>Bit <u>(</u> Timer/Counter Input/Output Compare • **д х** 眙 **E**. 陽 🖽 🎛 abcd ab cd <ab> ab... е ndler 0 е е (End) gs e rams / Phases

On an empty rung of ladder, add an instance of the newly imported add-on instruction by clicking on the Add-On bar and clicking the CFW500 symbol



	CEWE00		
e			]
e	WEGACIC/WS00	-	Cata Constanting Excellent
e	CFW300	<u> </u>	(sts_connection_Faulted)
e	ConnectionFaulted	· · ·	-(sts_Faulted)
е		~	(sts_Local)
е	Inputs	2	<pre></pre> (sts_Connection_Ready)—
е	Outputs	2	<pre>_(sts_ConfigMode)—</pre>
е	cmd_DriveEnable	77	(sts_Ready)
е	cmd_NetCtrl	??	-(sts_ST0)
е	ctg_RampSelect	77	-(sts_QuickStop)-
е	cmd_Fauit_Reset	77	<pre>(sts_Ctrl_from_net)</pre>
е	cmd_QuickStop	??	(sts_Ramp2_Selected)-
е	cmd_RunForward	??	(sts_RunCommand)
е	cmd_RunReverse	??	-(sts_RunningForward)
е	cmd_JogForward	??	-(sts_RunningReverse)
е	cmd_JogReverse	??	-(sts_JoggingForward)
е	set_Speed_Reference	?	-(sts_JoggingReverse)
е		??	-(sts_FailedToStart)
е	cfg_FaiToStartDelay	??	-(sts_FailedToStop)
е	cfg_FailToStopDelay	??	-(sts_FireMode)
е	val_RealSpeed	??	-(sts_PID_Auto)
е	val_FaultCode	??	-(sts_Alarm)
е	val_OutputCurrent	??	-(sts_STO_Fault)
е	val_OutputFreq	??	-(AutoFaultResetExceed)
е	val_OutputVoltage	??	
е	val_OutputTorque	??	
е	set_Accel	?	
е		??	
е	set_Decel	?	
е		??	
е	cfg_AutoFaultResetNum	??	
е	Signature	ID: 5D38	DGDB
е	- Ognatare		
е			

The Add-On requires a tag to be created. Create this tag by typing a name in the CFW500 field and rightclicking and selecting <u>N</u>ew "Tag"

Шер

CEW500			
WEG AOI CFW500			
CFW500	Drive1	-(sts Connection Faulted)-	
ConnectionFaulted	? ??	<u>N</u> ew "Drive1"	Ctrl+W
Inputs Outputs	3 %	Cu <u>t</u> Instruction	Ctrl+X
cmd_DriveEnable	?? 🗈	Copy Instruction	Ctrl+C
cmd_NetCtrl	??	Paste	Ctrl+V
ctg_RampSelect	22		
cmd_QuickStop	??	Delete Instruction	Del
cmd_RunForward	??	<u>A</u> dd Ladder Element	Alt+Ins
cmd_RunReverse cmd_logForward	?? ??	Edit Main Operand Description	Ctrl+D
cmd_JogReverse	??		
set_Speed_Reference	?	Save Instruction Defaults	
ofo EaiToStartDelay	22	Clear Instruction Defaults	
cfg_FaiToStopDelay val RealSpeed	?? ??	R <u>e</u> move Force	
val_FaultCode	??	Go To	Ctrl+G
val_OutputFreq	??	Instruction Help	F1
val_OutputVoltage	??		
set_Accel	? 🕀	Remove Parameter	
ant Devel	?? 🗈	Remove All Unknown Parameters	5
set_Decei	22	Onen Instruction Levie	
cfg_AutoFaultResetNum	??	Open instruction Logic	
Sionatu	re ID:	Open Instruction Definition	
cignate		Properties	Alt+Enter

#### **CFW500 AOI Configuration**

New Tag		×
Name:	Drive1	Create 🛛 🔻
Description:	^	Cancel
		Help
	~	
Usage:	<normal> ~</normal>	
Туре:	Base ~ Connection	
Alias For:	~	
Data Type:	CFw500	
Scope:	🕞 MainProgram 🗸 🗸	
External Access:	Read/Write ~	
Style:	~	
Constant		
🗌 Open Confi	iguration	

Give any appropriate description and scope (the tag can be either program or controller scoped)



CFW500-		7
WEG AOI CFW500		
CFW500	Drive1	-(sts_Connection_Faulted)-
ConnectionFaulted	?	-(sts_Faulted)
	??	-(sts_Local)
Inputs	?	-(sts_Connection_Ready)-
Outputs	?	-(sts_ConfigMode)
cmd_DriveEnable	??	-(sts_Ready)
cmd_NetCtrl	??	-(sts_STO)
cfg_RampSelect	??	-(sts_QuickStop)
cmd_Fault_Reset	??	-(sts_Ctrl_from_net)
cmd_QuickStop	??	-(sts_Ramp2_Selected)
cmd_RunForward	??	-(sts_RunCommand)
cmd_RunReverse	??	-(sts_RunningForward)
cmd_JogForward	??	-(sts_RunningReverse)
cmd_JogReverse	??	-(sts_JoggingForward)
set_Speed_Reference	?	-(sts_JoggingReverse)
	??	-(sts_FailedToStart)
cfg_FailToStartDelay	??	-(sts_FailedToStop)
cfg_FailToStopDelay	??	-(sts_FireMode)
val_RealSpeed	??	-(sts_PID_Auto)
val_FaultCode	??	-(sts_Alarm)
val_OutputCurrent	??	-(sts_STO_Fault)
val_OutputFreq	??	-(AutoFaultResetExceed)-
val_OutputVoltage	??	
val_OutputTorque	??	
set_Accel	?	
	??	
set_Decel	?	
	??	
cfg_AutoFaultResetNum	??	
Signature ID: 5D38D6DB		

Next the Connection Faulted, Inputs, Outputs, set\_Speed\_Reference, set\_Accel, and set\_Decel need to be populated as follows:

CFW5	00	
WEG AOI CFW500		
CFW500	Drive1	-(sts_Connection_Faulted)-
ConnectionFaulted VFD1	:I.ConnectionFaulted	-(sts_Faulted)
	0 🗧	-(sts_Local)
Inputs	VFD1:I.Data	-(sts_Connection_Ready)
Outputs	VFD1:0.Data	-(sts_ConfigMode)
cmd_DriveEnable	?? 🗲	-(sts_Ready)
cmd_NetCtrl	?? 🗲	-(sts_ST0)
cfg_RampSelect	?? 🗲	-(sts_QuickStop)
cmd_Fault_Reset	?? 🗲	-(sts_Ctrl_from_net)
cmd_QuickStop	?? 🗲	-(sts_Ramp2_Selected)
cmd_RunForward	?? 🗲	-(sts_RunCommand)
cmd_RunReverse	?? 🗲	-(sts_RunningForward)
cmd_JogForward	?? 🗲	-(sts_RunningReverse)
cmd_JogReverse	?? 🗲	-(sts_JoggingForward)
set_Speed_Reference	SpeedRef	-(sts_JoggingReverse)
	??	-(sts_FailedToStart)
cfg_FailToStartDelay	?? 🗲	-(sts_FailedToStop)
cfg_FailToStopDelay	?? 🗲	-(sts_FireMode)
val_RealSpeed	?? 🗲	-(sts_PID_Auto)
val_FaultCode	?? 🗲	-(sts_Alarm)
val_OutputCurrent	?? 🗲	-(sts_STO_Fault)
val_OutputFreq	?? ←	-(AutoFaultResetExceed)
val_OutputVoltage	?? ←	
val_OutputTorque	?? 🗲	
set_Accel	Accel	
	??	
set_Decel	Decel	
	??	
ctg_AutoFaultResetNum	7? 🗲	
L	Signature ID: 5D38D6DB	,

SpeedRef, Accel, and Decel are REAL tags to be created.

### AOI Parameter Description

#### InOut Parameters

Parameter	Туре	Description
Inputs	INT[8]	Input Assembly from CFW500
Outputs	INT[6]	Output Assembly to CFW500

#### Input Parameters

Parameter	Туре	Description
Cfg_FailToStartDelay	DINT	Time in seconds before faulting
		on fail to start if VFD does not
		start when commanded
		Set to 0 to disable
Cfg_FailToStopDelay	DINT	Time in seconds before faulting
		on fail to stop if VFD does not
		stop when commanded
		Set to 0 to disable
ConnectionFaulted	BOOL	From CFW500 Ethernet Module.





		1 = Connection is faulted
		0 = Connection is OK
cfg_RampSelect	BOOL	1 = Ramp 2 (P0102/P0103)
		0 = Ramp 1 (P0100/P0101)
cmd_DriveEnable	BOOL	1 = Enable operation of VFD
		0 = Disable operation of VFD
cmd_Fault_Reset	BOOL	1 = Send Reset Fault Signal to
		VFD
		0 = No action
cmd_JogForward	BOOL	1 = Jog Forward
		0 = No Action / Stop
cmd_JogReverse	BOOL	1 = Jog Reverse
		0 = No Action / Stop
cmd_NetCtrl	BOOL	1 = Remote (Ethernet) control
		0 = Local (Other) control
cmd_QuickStop	BOOL	1 = Quick stop
		0 = No Quick Stop (must be 0 to
		run)
cmd_RunForward	BOOL	1 = Run Forward
		0 = Stop
cmd_RunReverse	BOOL	1 = Run Reverse
		0 = Stop
set_Speed_Reference	REAL	Speed Setpoint (0-100%)
set_Accel	REAL	Acceleration Ramp 1 Setpoint
		(0.1-999.0) in Seconds
set_Decel	REAL	Deceleration Ramp 1 Setpoint
		(0.1-999.0) in Seconds
cfg_AutoFaultResetNum	DINT	Maximum number of tries that
		AOI will send fault reset
		command while being
		maintained

### **Output Parameters**

Parameter	Туре	Description
sts_ConfigMode	BOOL	1 = VFD in Config Mode
		0 = VFD in Operation Mode
sts_Connection_Faulted	BOOL	Goes high when connections
		interrupted. If "Run" signal is
		set, it must be reset before this
		will clear
		1 = Connection has been faulted
		from VFD to PLC
		0 = Connection OK
sts_Connection_Ready	BOOL	1 = Connection from VFD to PLC
		is established

#### **CFW500 AOI Configuration**



Of W300 ACT Configuration		
sts_Ctrl_from_net	BOOL	1 = VFD controlled remotely
		(PLC)
		0 = VFD controlled locally
sts_Faulted	BOOL	1 = VFD Fault, connection fault,
		or failedToStart/Stop Fault
		0 = No faults
sts_FailedToStart	BOOL	1 = VFD failed to start in time
		allotted
		0 = Normal
sts_FailedToStop	BOOL	1 = VFD failed to stop in time
		allotted
		0 = Normal
sts FireMode	BOOL	1 = Drive Operating in Fire
_		Mode
sts PID Auto	BOOL	1 = PID in Automatic Mode
		0 = PID in Manual Mode
sts Local	BOOL	1 = Local
		0 = Remote
sts QuickStop	BOOL	1 = Quick stop commanded
		0 = No Ouick stop commanded
sts Ramp2 Selected	BOOL	1 = Ramp 2 rates selected
		0 = Ramp 1 rates selected
sts Ready	BOOL	1 = VED is ready to operate
		(states Ready Enabled or
		(states neady, Enabled, or
		$\Omega = VED$ is not ready to operate
sts BunCommand	BOOL	1 = Commanded to run
		$\Omega = Not commanded to run$
sts RunningForward	BOOL	1 = Running forward
		0 = Not running forward
sts RunningReverse	BOOL	1 = Running reverse
		0 = Not running reverse
sts STO	BOOL	1 = Safe Torque Off is active
303_310		$\Omega = Safe Torque Off is not active$
sts STO Fault	BOOL	$1 = \Delta \Omega I$ is preventing running
	DOOL	due to STO trip until
		cmd_RunEorward/Reverse
		shows a rising edge
		0 = Normal Operation
val FaultCode		Eault code 1 from VED
val_raultour		
		VED
i val UutoutVoltage	I KEAL	Uutput voltage in Volts from





AutoFaultResetExceed	BOOL	Indicates when the maximum
		number of automatic fault
		clears has been exceeded.
		Set cmd_Fault_Reset to 0 to
		reset and allow fault clear to
		resume.
		1 = Max number of fault clears
		reached. Fault Reset Disabled
		0 = Under threshold for
		automatic fault clears. Fault
		Reset Allowed.

## CFW500 Parameter Requirements

The following parameters must be set in the CFW500:

Parameter	Setting
P0105	5
P0220	10
P0222	11
P0226	9
P0227	4
P0228	5
P0820	9
P0821	49
P0822	3
P0823	5
P0824	7
P0825	403
P0835	100
P0836	101
P0837	169
P0838	170

 WEG's scope of solutions is not limited to the products and solutions presented in this brochure.
 Contact WEG for information on additional products and solutions.

For WEG's worldwide operations visit our website

## www.weg.net





info-us@weg.net

O Duluth, GA

US.CFW500.A0I.Configuration Information contained hearin is subject to change without notice.