Connecting to a WAGO Fieldbus Coupler via Ethernet/IP (IP scanner)

Hardware

- 1x WAGO fieldbus coupler 750-352/000-001
- 1x digital input terminal 750-401
- 1x digital output terminal 750-504
- 1x end terminal 750-600

Requirements for the Wago controller

- Issue the IP address (e.g. using the tool WAGO Ethernet Settings).
- Activate output variables (e.g. using the tool WAGO Ethernet Settings Ethernet/IP).
- Procure the manual for the fieldbus coupler.
- Download the current EDS file for the device from the WAGO website.

Requirements for CODESYS

- Install the Wago EDS file via Tools Device Repository... Install...
- Create a standard project and define your own device (e.g. CODESYS Control Win V3) Scan the network and select the device.
- Insert an Ethernet adapter, an Ethernet/IP scanner and a Wago fieldbus coupler in the project.



Settings on the Ethernet adapter

• Define the network interface to be used.

The March and and a second second				
Untitled1.project* - CODESYS				
Ele Edit View Broject Build Online Debug Tools Window Help				
□ = = = = = = = = = = = = = = = = = = =	《[[미의 데 미 왕] @ [第]	T		
Peninar – B. M	(all estimate as Val Basics 1			
Verified 1	Ethernet X M Device			•
Device (CODESYS Control Win V3) Device (CODESYS Control Win V3)	General	Interface: LAN-Verbindung		
= O Application	Ethernet Device Parameters	a line of the order of the order	\bigcirc	
- 👔 Ubrary Manager		 Ose Operating System Settings 		
- PLC_PRG (PRG)	Status	 Change Operating System Settings 		
Task Configuration Set Disconnect/OTask	Ethernet Device I/O Mapping	IP Address 192 . 168 . 📴 . 62		
EtherNet_JP_Scanner.IOCyde	Teformation	Subnet Mask 255 . 255 . 248 . 0		
BNPScannerServiceTask	an officiation	Default Gateway 192 . 168 . 100 . 1		
DeterNet_JP_Scanner.ServiceCyde				
E - ∰ MainTask				
- @ PLC_PRG				6
EtherNet IP Scanner (EtherNet/IP Scanner)				
WAGO_750_352020_000_Ethernet_STD (WAGO 750-352020-000 Ethernet-STD)				
	Messanes - Total 0 error(s), 0 warning(s)	2 messane(s)		
	Devices	 O error(s) • 0 war 	ning(s) 🔮 2 message(s) 🔀	* * *
	Description	Project	Object	Posit
	Oreated task 'ENIPScannerIOTask'.			
	O Created task 'ENIPScannerServiceTas	K.		
к — — — — — — — — — — — — — — — — — — —				
Services POUs B Modules	4			
			Last build: O 0 • 0 Precomple:	Current user: (nobody)

Settings on the device

Tab General

• Enter the IP address of the device.

The option Check Major Revision can be deactivated in order to avoid errors.

Listified project* - CODSVS				
Contribution of Codests				
Ble Edit View Broject Build Online Debug Iools Window Help				
"] ☞ 🖬 🌒 ⊷ ⇔ ୬ 🦄 📽 ☓ 🖬 % 🖓 👘 🗇 6° (⊞) 🧐 🧐 →	= 색 [대의 데 데 외 후 [第]	π '		
evices v P	🗙 📝 Ethernet 🍸 Device	EtherNet_IP_Scanner / 1 WAGO_750_3	52020_000_Ethernet_STD x	
On Unblied1				
Device (CODESYS Control Win V3)	General	Address Settings		
PLC Logic				
O Application	Connections	IP Address: 192 , 168 , 99 , 222	EtherNet/IP	
Library Manager	Assamblias			
PLC_PRG (PRG)	Assentances			
Image: Task Configuration	User-Defined Parameters	Electronic Keying		
US ENIPScanneriOTask		Keying Options		
emernet_pr_scanner.IOCycle	EtherNet/IP Parameters	Compatibility Check		
 BritiscannerserviceTask 		Strict Identity Check		
Contented P_scamer.serviceCyce	EtherNet/IP I/O Mapping	Charle Davies Tune 12		
- go Harriask	Ontor	Check Device Type 32		
E. (III Ethemat (Ethemat)	Scalus	Check Vendor Code 40		
B Etherhiet 12 Scanner (Etherhiet/ID Scanner)	Information	Check Product Code 352	 Disable this point if 	
W460 750 352020 000 Ethemet STD (W460 750 352020 000 Ethemet/STT		Chark Mator Paulsion	you are not sure	
(1) https://www.com/com/com/com/com/com/com/com/com/com/	/	encounterport temport		
		Check Minor Revision 1		
		Burkers data therefore		
		Restore default values		
	Messages - Total 0 error(s), 0 warning(s),	2 message(s)		+ I
	Devices	 O error(s) O warning(s) 	2 message(s) X	
	Description	Project	Object	
	Oreated task 'ENIPScannerIOTask'.			
	Oreated task 'ENIPScannerServiceTas	<i>k</i> .		
=				
The state and the state of the	·			

Tab Connections

• Through the EDS file a standard connection is created with the connection path 20 04 2C 65 2C 68.

WAGO_750_352020_000_Ethe	ernet_STD X							
General								Ē
	Connection Name	RPI (ms)	O->T Size (Bytes)	T->O Size (Bytes)	Config#1 Size (Bytes)	Config#2 Size (Bytes)	Connection Path	L
Connections	- 1. class1 - exclusive owner	10	5	6			20 04 2C 65 2C 68	L
Assemblies								1

From the Wago manual (WAGO Assembly Instances) it can be seen that 0x65 (101) in the connection path means the following: 0x65 (101) for **a** nalog and digital output data Since we are only using a digital output terminal, you need to change this value to 0x66 (102): 0x66 (102) for digital output data Also, change the value 0x68 (104) for analog and digital input data with status byte to 0x69 (105) for digital input data with status byte. This produces the following connection path: 20 04 2C 66 2C 69 To be able to change the connection path you have to delete the existing connection and add a new one. Set the new connection to generic connection (freely configurable) and the settings for the connection path to user -defined path. In addition, make the following settings:

Edit connection	
Connection Path Settings	ОК
generate path automatically	
Configuration Assembly	Cancel
Class ID 16# 4 Instance ID 16# 0	Attribute ID 16#3
Consuming Assembly (0>T)	
Class ID 16#4 Instance ID 16#0	Attribute ID 16#3
Producing Assembly (T>0)	
Class ID 16# 4 Instance ID 16# 0	Attribute ID 16#3
o user-defined path	
Generic Parameters	
Connection Path 20 04 2C 66 2C 69	
Trigger Type Cyclic 💌	RPI (ms) 10 (m)
Transport Type Exclusive Owner	Timeout Multiplier 4
Scanner to Target (Output)	Target to Scanner (Input)
0>T Size (Bytes)	T>0 Size (Bytes) 2
Config#1 Size (Bytes) 0	
Config#2 Size (Bytes) 0	1x Digital input and 1x status byte
Connection Type Point to Point	Connection Type Point to Point
Fixed/Variable Fixed 💌	Fixed/Variable Fixed 🔹
Transfer Format 32 Bit Run/Idle 🔻	Transfer Format 32 Bit Run/Idle 💌
Inhibit Time (ms) 0	Inhibit Time (ms) 0

Tab Ethernet/IP I/O mapping

• So that the values from the bus are displayed without variable connection, set updating to Activated 2 (always in the bus cycle task).

	Find		Filter Show all			•		
Connections	Variable	Mapping	Channel	Address	Туре	Unit	Description	
onnectrona.	B- 1		Generic AssemblyParam0	%180	BYTE			
ssemblies	B- *		Generic AssemblyParam1	%IB1	BYTE			
			Generic AssemblyParam0	%Q80	BYTE			
ser-Defined Parameters								
therNet/IP Parameters								
eneriteigar t arannecera								
therNet/IP I/O Mapping								
and the second se								
catus								
information								
						Re	eset mapping	Always update variables: Enabled 2 (always in bus cycle task)
	IEC Objects							
		Mapping	Туре					
	Variable							
	Variable	. 🍫	RemoteAdapter					

Loading the project to the controller and starting it

Bat Yew Broket Brid Online Benn Dools Window Heis S III ABI w cv X III III × IAA 124 IIII III - C'IIII III 124 → ■ 43	ାମ ବାଧ୍ୟ ଏ ଓ I ବା ଲୋକ	n*											
5 * 7 <u>X</u>	1 WAGO_750_332020_000_Ethernet_STD X												
(Attled) (Attled) (Attled) (Attled)	General	Find		Filter Show all									
B Pictude Pictude		Maria Maria	14	(hand			C	P	11-12		_		
- O Application (run)	Connections	variable	Mapping	Channel	Address	type	Current varue	Prepared value	Unit Le	scaption			
💼 Library Manager				Generic AssemblyParam0	%280	BYTE	1						
PLC_PRG (PRG)	Assembles	1.1		Generic AssentityParam1	76201	BYTE	0						
🖻 🧱 Task Configuration	the state of the sector			Generic AssentoryParamo	16000	0000	3						
- 😓 EXPScamerIOTask	AND AND AND AN ADDRESS			811	96000.0	8000	12015						
EtherNet_P_Scamer.IOCycle	EtherNet/32 Parameters			847	-5000.1	800	FALSE						
😑 🤀 DNPScannerServiceTask				843	300.2	8000	FALSE						
Etherhiet_IP_Scanner.ServiceCycle	EtherNet/3P L/D Mapping			013	36000.4	8000	FALSE						
🖹 🚯 MainTask				GHS	56000.5	800	PALSE						
d) PLC_PRG	Status			815	54000.6	800	FALSE						
🕾 🧿 🛐 Efremet (Efremet)				847	54000.7	800	FALSE						
E 😳 🗐 Et stiet_P_Scamer (Etherliet/IP Scamer)	Information							1					
 - G- jii W4G0_790_352020_000_Ethernet_STD (W4G0 750-352020-000 Ethernet-STD) 		Reset mapping Always updats variables: Enabled 2 (diversis in bus cycle task)											
		IEC Objects											
		Variable	Mapping	Type									
	- 9 W460_750_352020 🍾 RemoteAdepter												
		°g = Create new variable °g = Mapto existing variable											
	Messages - Total () ennr(p), () warringb), Smessage(p)												
	luid		• 0 error(s) 🖲 0 v	warning(s) 💿 5 message(s)	×								
	Description		Project		Objec	t			Position				
	penerate disbal initializations												
	generate code initialization												
	cenerate relocations												
	Size of generated code: 412212 byte												
	Size of global data: 98801 bytes												
	Total allocated memory size for code	and											
	Memory area 0 contains Data, Input,	Ou											
	(
to the Designed	Mercanes - Tatal Derror (C) - Derror	del Compensi	and a strange a										