

Data Sheet CODESYS EtherCAT Master SL

Configurator, protocol stack and diagnostics for EtherCAT, fully integrated in the IEC 61131-3 development system

Product description

Integrated EtherCAT master support in the IEC 61131-3 development system

EtherCAT is a powerful real-time Ethernet fieldbus system with an open protocol. With its short cycle times, low jitter values and different network topologies, the system is standard in many industrial automation application today.

The EtherCAT master integration in the IEC 61131-3 development system CODESYS comprises

- an integrated configurator for the master and the connected slaves
- a portable protocol stack in form of a CODESYS library
- · a runtime system component for direct access to the Ethernet interface
- diagnostics functionality in the Development System and possibility to monitor the process through the IEC 61131-3 application
- optional support of EtherCAT gateway modules to other fieldbus systems such as IO-Link, Profibus or the like

Advantages of the seamless integration:

One tool with an integrated infrastructure for PLC programming and fieldbus coniguration:

- Simple configuration
- Fewer sources of error
- Fast engineering

More information

A device description and configurator for the EtherCAT Master are available for integration in a CODESYS project according to physical configuration.

Architecture:

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wices 👻 🕈 🗙	EtherCAT_Master X							•)		L6731_PB_Mast	×		
Machine I	Master EtherCAT I/O Mapping Status Information DP-Parameter							eters Profibus	DP I/O Ma	pping Stat	tus Information		
Device (CODESYS Control Win V3) Device (CODESYS Control Win V3)	Autoconfig Master/Slaves EtherCAT NIC Setting				Ether CAT.					sses Station addres	_		Mode Auto clear mode
Library Manager	Destination Address (MAC) FF-FF-FF-FF 🕑 Broadcast 🕑 Enable Redundancy								Automatic startup				
Task Configuration	Source Address (MAC) 44-1E-A1-CD-E9-61 Browse								eters				
EtherCAT_Master	Network Name [Device [NPF_{9CAB53E0-8DFA-46FE-B6AB-B8DAA0C119FB}								Baud	rate [k8its/s]:	1500,00	•	Use defaults
🖻 🍪 MainTask	 Select network by MAC 	() s	elect networ	k by Name					Para	meter	Value	Unit	Description
DIC_PRG									T_SL			Bit	Slot time
EtherCAT_Master (EtherCAT Master)	Destination Address (MAC) FF-FF-FF-FF-FF									_SDR	11	Bit	Minimum station delay re
🖹 🍈 EK1100 (EK1100 EtherCAT Coupler (2A E				F-FF-FF Broadcast					max. T_SDR		150	Bit	Maximum station delay re
EL 1008 (EL 1008 8Ch. Dig. Input 24V,	Source Address (MAC)	08-11-96-60	-8A-7C	Brows	e				T_QU	I	0	Bit	Quiet time
EL 1008_1 (EL 1008 8Ch. Dig. Input 2 EL 2024 (EL 2024 4Ch. Dig. Output 24	Network Name	(Device (NPF	{D0953D71-	1D37-4524-6	3F1C-836860F7	7893}		-	•				1
EL6731 (EL6731 PROFIBUS DP Maste EL6731_PB_Master (EL6731-PB Master)													
B 3S_CIFX_DP_Slave (3S CIF	Slave Process Data EtherCAT	I/O Mapping	Status I	formation									
In_16_Byte (In 16 Byte)	Channels												
Out_16_Word (Out 16 V	Variable		Mapping	Channel	Address	Type	Unit	Desc	ription	1			
* 🕤 EL6224 (EL6224 (IO Link Master))	- 🍫 xInSw0		***	Input	%DX0.0	BIT		Input					
EL7041 (EL7041 1Ch. Stepper motor - 🐂 xinSw1			***	Input	%DX0.1	BIT		Input					
	- 🍫 xInSw2		***	Input	%EX0.2	BIT		Input					
	- 🍫 xInSw3		****	Input	%DX0.3	BIT		Input					
	- * Application.PLC_PRG.xInSensor0		*	Input	96-DX0-4	BIT		Input					
	Annlication.PI C. PRG.xInSensor1		**	Innut	RLDX0.5	BIT		Innut					*
	Input							Reset mappin	9 E	Always	updatevariables		
	IEC Objects												
	Variable	Mapping	Type	1									
•	- @ EL1008	Wapping	ETCSlave										
Devices	*												

Supported functionality:

- Different bus topologies (line, star, ring)
- Hot-Connect
- Bus diagnostics: in the configurator and by the PLC application
- Network scan: Recogize and insert connected slaves
- EtherCAT redundancy: for systems with two physical Ethernet interfaces
- Supported layer 7 protocols:
 - CoE (CANopen / CAN application layer over EtherCAT) / SDO Communication
 - EoE (Ethernet over EtherCAT)
 - SoE (Servodrive over EtherCAT)
 - FSoE (Safety over EtherCAT or Fail Safe over EtherCAT)
 - FoE (File over EtherCAT)
 - VoE (Vendor over EtherCAT)
- Support for MDP (modular device profile) slaves
- · Several function blocks for use in application

Functionality Configurator:

- Semi-automatic configuration of the master or configuration in the expert mode
 - ⇒ comprehensive configuration options
- Configuration of the slaves with EtherCAT XML files (ESI)
 - \Rightarrow Flexible configuration of the process image and of the device-specific parameters
- Support of third party EtherCAT stacks
 - ⇒ Export of EtherCAT XML files possible (ENI)
- Configuration of sync units
- Configuration of PDOs (process data)
- Configuration of startup parameters for CoE and SoE
- Configuration of EoE slaves
- Online view of CoE objects and support for SDOinfo upload
- Online view for diagnosis history
- Online view for firmware download and EEprom read and write functionality

Supported Network Cards:

Systems with Linux:

Via RAW sockets: all network cards

Systems with Windows and CODESYS Control Win:

With PCAP interface (wincap): all network cards

- Systems with Windows and CODESYS Control RTE (Real-time SoftPLC)
 - Realtek 8139 (CmpRTL81x9Mpd)

Realtek RTL8139 and compatible Ethernet-Controller, as well 8100/8110

- Realtek 8169 (CmpRTL8169Mpd)
 Realtek 8169/810, RTL8111B / RTL8111D
- Intel EtherExpressPro1000 (CmpEt1000Drv)
 Intel 82541, 82547, 82567,82571, 82573, 82574, 82583V, i210, i217-LM etc.
- Intel EtherExpress PRO/100 (CmpEt100Drv)
 Intel 82551, 82557, 82559, 82559, 82558, 82557, 82550
- Other system platforms:
 - Adaptation of the runtime system component required

General information

Manufacturer:

3S-Smart Software Solutions GmbH Memminger Strasse 151 87439 Kempten Germany

Support:

https://support.codesys.com

Item: CODESYS EtherCAT Master SL Item number: 2303000018 Sales:

CODESYS Store https://store.codesys.com

Included in delivery:

License key

System requirements and restrictions

Programming System	CODESYS Development System V3.5.4.0 or higher				
Runtime System	CODESYS Control V3.5.4.0 or higher				
	Note: Use the project "Device Reader" to find out the supported				
Supported Platforms/ Devices	features of your device. "Device Reader" is available for free in the				
	CODESYS Store.				
Additional Requirements	SysEthernet				
Restrictions	-				
	License activation optional on CODESYS Runtime Key or				
Licensing	CODESYS Soft Key (free of charge component of CODESYS				
	Controls)				
Required Accessories	Optional: CODESYS Runtime Key				

Note: Not all CODESYS features are available in all territories. For more information on geographic restrictions, please contact sales@codesys.com.

Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.