

EtherCAN / EtherCANopen Gateway

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anny Clients in Realtime Communication and Control



History

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Initial version	l					<u> </u>

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1 Introduction

The EtherCAN ARM9 Gateway provides two CAN interfaces and connects decentralized CAN or CANopen networks with the classic Ethernet network. The TCP / IP protocol is used for Ethernet communications, while the CAN bus supports both, the "traditional" CAN (CAN Layer 2) or CANopen.

2 Device Scheme







For the setup of the gateway, the following requirements must be fulfilled:

- ✓ PC with a recent web browser (tested with Firefox and Chrome)
- ✓ connection to an Ethernet network
- ✓ Power supply 24V

For initial commissioning of EtherCAN ARM9 gateways, connect the device to an Ethernet network and provide power to the device.

4 Configuration via Webinterface

The EtherCAN ARM9 device can be configured via a recent web browser. When using factory defaults, the device has the IP address **192.168.199.22**.

The following section provides an overview of the configuration of the EtherCAN ARM9 device via a web browser.

2atei <u>B</u> earbeiten <u>A</u> nsicht <u>G</u>	<u>Chronik Lesezeichen Extras H</u> ilfe			-	0		X
EtherCAN	+						
	me.cgi?session=5500b46f-a13f-4a45-9499-6405i 🛡 🕻	🖞 🔡 - Google		Ê	+	^	=
Meistbesucht 🊻 Erste Sch	ritte						
	EtherCAN Config	uration					
Welcome	Welcome.						
Basic configuration	You can use the navigation bar on the left p	part of the screen to select the	e				
Date/Time	different configuration areas.						
CANopen server							
CAN server							
CAN logging							
SD Card							
Config. management							
Loqout							
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4.1 Basic Settings

4.1.1 General concepts

When making changes to the settings via the web interface, most of the changes will be active immediately. Nevertheless, the changes are not saved to persistent memory unless explicitly requested via "Config. Management" menu entry. This twostep process allows testing of new settings without touching a well-known configuration until all required settings are tested. The user will get a hint that additional saving is required in every configuration menu where this general concept applies:

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tei <u>B</u> earbeiten <u>A</u> nsicht	<u>Chronik Lesezeichen Ex</u> tras <u>H</u> ilfe						300 300
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	EtherCAN CAN	open Server C	onfiguratio	n			
<u>Welcome</u> Basic configuration Date/Time	Configuration chang CANopen server was resta Don't forget to <u>save the cor</u>	ed rted using the new se figuration to storage!	ettings.		Int This con CAI diff	o Box page allows figuration of the lopen server erent can inter	the he for the rfaces.
CANopen server CAN server CAN logging					por Reg 061 Tel. Hor	GmbH ensburger Sti 32 Halle/Saale +49 0345 777 hepage	r. 7b e 7550
<u>SD Card</u> Config. management					E-M	ail Support	
		10.110.0044					

4.1.2 Login to the web interface

To access the web interface of the device, enter <u>http://192.168.199.22</u> into a browser and the following login page will be shown:

EtherCAN	(+	
	ogin.cgi ♥ C (S + Google ritte EtherCAN Configuration	♪☆ 自 ♣ 余 :
Nelcome	Login	Info Box
Basic configuration Date/Time	User: admin Password:	Please login with username and password to configure the device.
CAN server	Daten absenden	port GmbH Regensburger Str. 7b 06132 Halle/Saale
SD Card Config. management		Tel. +49 0345 777550 Homepage E-Mail Support

Please ensure, that the setup of the PC allows the connection to 192.168.199.0 network via setting the correct IP address/subnet of you PC Ethernet interface.

By entering the login information for "User" and "Password", the user has the possibility to configure the gateway in accordance with its requirements. When using factory defaults, the following settings apply:

User: admin Password: admin

The password can be changed using the "Basic configuration" page.



After login, the following browser interface is shown to the user:

FahrenCAN						
EtherCAN	(T		_			
🔵 🛞 192.168.199.22/welco	me.cgi?session=5500b46f-a13f-4a45-9499-6405 🔍 C 🛛 🚷 🗸	Google 🔎	☆	≜ 1	•	Ξ
Meistbesucht 🎁 Erste Sch	ritte					
	EtherCAN Configuration	n				
Velcome	Welcome.					
Basic configuration	You can use the navigation bar on the left part of the	screen to select the				
Date/Time	different configuration areas.					
CANopen server						
CAN server						
CAN logging						
SD Card						
Config. management						
Logout						

4.1.3 Basic configuration

The basic configuration allows to enter basic settings of the device:

					~
192.168.199.22/basic.cgi?session=c3	e91a6f-6ed3-4aef-8e20-d0fbd4b387f3		2 12	∎ ♦	n
Meistbesucht M Erste Schritte					
	EtherCAN Basic Co	nfiguration			
Welcome	IP Configuration			Info Box	ĸ
Basic configuration	IP Address: 192.168.199.22			This page al configuratio	llows the
Date/Time	Netmask: 255.255.255.0			settings like gateway an	IP addres
CANopen server	Gateway: 192.168.199.1			port GmbH	
CAN server	DNS Server: 192.168.199.1			Regensburg 06132 Halle	ger Str. 7b /Saale
CAN logging	Hostname: EtherCAN9			Tel. +49 034	15 777550
SD Card	Access data (web interface)			Homepage E-Mail Supp	ort
Config. management	User: admin				
Loqout	Password:				
	Daten absenden				
	(a) and OmbH 20				
	(c) port GmbH 20	19			

The basic configuration page allows the setting of

• **IP address:** The IP address where the device is reachable. This address applies to the web interface and to CAN(open) server as well





- Gateway: IP address of the gateway to be used for contacting IP addresses outside of its own subnet
- **DNS server:** The IP address of the DNS server which can resolve logical addresses.
- **Hostname:** The hostname of the device.
- User/Password: Username and password of the web interface.

4.1.4 Date/Time

The internal clock of the device can be set either manually or via central time servers using the NTP protocol. Two public NTP servers are setup by default but not activated.

When NTP servers are used, please ensure to set a proper DNS server and default gateway in the "Basic configuration" menu for internet access, otherwise public servers are not reachable. Also ensure that a possible firewall allows access to UDP port 123.

EtherCAN	+	
192.168.199.22/ntptime.cgi Meistbesucht M Erste Schritte	'session==3e91a6f-6ed3-4aef-8e20-d0fbd41 ⊽ C 8 ▼ Google	♪ ☆ 自 ♣ 斋
	EtherCAN Time Configuration	
Welcome Basic configuration Date/Time CANlopen server CAN longing SD Card	Automatic time settings Enable NTP clock sync NTP-Server 1: ptbime1.ptb.de NTP-Server 2: ptbime2.ptb.de Manual time settings	Info Box This page allows the configuration of date and time settings. port GmbH Regensburger Str. 7b 06132 Halle/Saale Tel. +49 0345 777550 Homepage E-Mail Support
<u>Config. management</u>	Date (DD.MM.YV) 01.01.1970 Time (Mit.HH.SS 01.07.33 Daten absenden	
	(c) port GmbH 2014	

4.1.5 SD Card

The SD Card menu shows the current state of the SD Card that can be used for logging CAN data. It also allows the release of the SD Card from the system.



4.1.6 Configuration Management

The "Configuration Management" menu allows the loading and saving of configurations to/from the flash memory. It also allows the installation of the license data for the CANopen Server if not already delivered via the factory defaults.

<u>D</u> atei <u>B</u> earbeiten <u>A</u> nsicht <u>C</u> hronik	Lesezeichen Extras Hilfe	
EtherCAN	+	
• 192.168.199.22/configman.c	gi?session=c3e91a6f-6ed3-4aef-8e20-d0fbd4b387 ▼ C 600/e 👂 🛧	
Mestbesucht III eiste Schnite	EtherCAN Configuration Management	
Welcome	Firmware Version	Info Box
Basic configuration	Current version: 1.0.0RC1	This page allows loading and saving the
Date/Time	Configuration State	permanent storage.
CANopen server	Current configuration: Not saved yet	port GmbH Regensburger Str. 7b
CAN server	Configuration Actions	06132 Halle/Saale
CAN logging	Save configuration to flash	Tel. +49 0345 777550 Homepage
Config. management	Codd cathory defaults	E-Mail Support
Logout	Licence Manager	
	Current license: None	
	CANopen Server license file: Durohsuchen	
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A configuration can be stored or loaded via the "Configuration Actions" section. There is also the possibility to load the factory defaults. The "Configuration State" entry shows whether the current configuration was already saved to the persistent storage.



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When uploading a new licence please ensure that the licence file name is set as provided. Some browser add additional information to a file for example if downloaded twice

(licence_0644_V53.dat becomes licence_0644_V53 (1).data when downloading a second time) which leads to an invalid license file.

4.2 CANopen Server

4.2.1 Introduction

The CANopen Server implements the protocol CiA 309-3 that allows the access of CANopen networks via TCP.

In addition to the CANopen server contained in this device, port provides a graphical user interface (CANopen Device Monitor) to communicate with CANopen devices using the CANopen server. Please see <u>CANopen Device Monitor</u> for further details.

The following section only describes the setup of the CANopen Server via the web interface. For a detailed description of functionality and the communication protocol, please consult the document "CANopen Gateway Server DS309-3 User Manual".

Depending on the type of ordered device, there may be no license installed on the device. In that case the CANopen server runs in demo mode with limited bitrate and restricted node id. To check whether a license is installed, please consult the "Config. Management" menu or the "CANopen server" page. A license can be purchased via service@port.de

4.2.2 Configuration

The CANopen server can be simply configured via a web interface.

	Happy Clients in Realtime Communication and Control	
Qatei Bearbeiten Ansicht EtherCAN (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*) (*)	Chronik Lesezeichen Extras Hilfe + m4d.cgi?session=c3e91a6f-6ed3-4aef-8e20-d0fbd ⊽ C 8 - Google ♀	 ☆ 自 ↓ 余
Welcome Basic configuration Date:Time CANopen server CAN Locating SD Card Config. managements Locout	EtherCAN CANopen Server Configuration	Info Box This page allows the configuration of the CANopen server for it different can interface port GmbH Regensburger Str. 7b 06132 Halle/Saale Tel. +49 0345 777550 Homeage E-Mail Support

Node ID, bitrate and TCP Server port can be set individually for each CAN interface. Bitrate settings for all services running on the same CAN interface must be equal. So the settings for CANopen Server, CAN Server and CAN logging must be the same on a CAN interface.

4.3 CAN Server

4.3.1 Introduction

The CAN Server implements a CAN-to-TCP gateway which allows monitoring of CAN-based communication via TCP connection.

In addition to the CAN Server contained in this device, port provides a graphical user interface (CANReport) to communicate with CAN devices using the CAN server. Please see <u>CAN-report</u> for further details.

The following section only describes the setup of the CAN Server via the web interface. For a detailed description of functionality and the communication protocol, please consult the document "CANserver Horch Reference Manual".

4.3.2 Configuration

The CAN Server can be simply configured via the "CAN server" menu.

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	happy chents in Reardine Communication and	Control				
atei <u>B</u> earbeiten <u>A</u> nsicht <u>C</u> hror	ik <u>L</u> esezeichen E <u>x</u> tras <u>H</u> ilfe				E	X
EtherCAN	+					
€ @ 192.168.199.22/horch.cgi?s	ession=5500b46f-a13f-4a45-9499-64058c9d9∃ マ C 8 - Goo	ogle 🔎	☆	ê	+ 🏦	Ξ
Meistbesucht 111 Erste Schritte						
		122				_
	EtherCAN CAN Server Configura	ition				
Welcome	CAN1			Info	Box	
Basic configuration	Enable			This p config	age allows guration of t	the he
Date/Time				CAN s	server for the	ne
CANopen server	Bitrate 135 kbs/			interfa	aces.	
CAN server	CAN2			Reger	SmbH nsburger St	r. 7b
CAN logging	Enable			06132	2 Halle/Saak	
SD Card	CAN2			Home	49 0345 777	550
Confin management	TCP			<u>c-mai</u>	<u>r Support</u>	
Conniq, management						
Logout	POIT. 1363					
Loqout	Port, 1383 Bitrate 125 kbit/s 👻					
Logout	Port 1363 Bitrate 125kb⊮s ↓ Daten absenden					

For each CAN interface the TCP server port and the bitrate can be set individually. Bitrate settings for all services running on the same CAN interface must be equal. So the settings for CANopen Server, CAN Server and CAN logging must be the same on a CAN interface.

4.4 CAN logging

The device offers the logging of CAN message to a SD Card. The configuration of the logging can be set up via the "CAN logging" page.

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Meistbesucht M Erste Schritte		
	EtherCAN Logging Configurat	ion
Welcome	CAN1	Info Box
Basic configuration Date/Time	Enable CAN1 Logging	This page allows the configuration of logging services of the Entercont
CANopen server	Bitrate 125 kbit/s 🗸	port GmbH
CAN server	Size of	Regensburger Str. 7b 06132 Halle/Saale
XAN logging	MB: 10	Tel. +49 0345 777550
SD Card	CAN2	E-Mail Support
<u>Config. management</u> Logout	Enable CAN2 Logging	
	Bitrate 125 kbit/s 🗸	
	logfile in	
	Daten absenden	
	Log-Files	

For each CAN interface, bitrate and logfile size can set individually. Bitrate settings for all services running on the same CAN interface must be equal. So the settings for CANopen Server, CAN



Server and CAN logging must be the same on a CAN interface.

The logfile size determines the size of each individual log file. After reaching this size threshold, a new logfile is created on the SD Card. When there is no more space available on the SD Card. The oldest logfile is deleted and replace by a new file.

The filenames use the following pattern:

can<1|2>_<NUM>.log

So logfiles for CAN1 interface start with can1 followed by the number of log file e.g. can1_0.log for the first logfile aso.

Logfiles can be downloaded individually or as a zip archive containing all logfiles via the web interface. The data is stored on the SD Card as text files in the root directory and thus can be read by other devices such as a PC. Before removing a SD Card form a running system, please release the card via the SD Card menu otherwise the file system may be damaged.

5 Firmware update

The firmware of the device can be update via a SD Card. For a detailed description of a firmware update, please consult the document "EtherCAN ARM9 Firmware Upgrade".

6 Service and Support

In case of technical question please contact our support via support@port.de .