isCAN USB

MANUAL





CERTIFICATE OF CONFORMITY

according to EC Directive 2014/30/EU (electromagnetic compatibility) from February 26, 2014.

We hereby declare, that the device indicated below in its design and construction, is in conformity with the essential safety and health requirements of the EC Directive 2014/30/EU. Changes or modifications not approved by Thorsis Technologies void the validity of the declaration.

CHANGES OR MODIFICATIONS NOT APPROVED BY THORSIS TECHNOLOGIES VOID THE VALIDITY OF THE DECLARATION.

STANDARDS USED: EN 61326-1:2013

Device type	Order number
isCAN USB	11300-0201

Manufacturer Thorsis Technologies GmbH Oststr. 18 39114 Magdeburg

Germany

Magdeburg, 2023-01-31

Dipl.-Inf. Michael Huschke, General Manager

UK DECLARATION OF CONFORMITY

Thorsis Technologies GmbH declares as manufacturer under sole responsibility, that the products down in the list complies with the requirements of following UK legislation:

- S.I. 2019/1246 The Product Safety, Metrology and Mutual Recognition Agreement (Amendment)(EU Exit) regulations 2019
- S.I. 2020/852 The Product Safety and Metrology (Amendment)(EU Exit) regulations 2020
- S.I. 2016/1091The Electromagnetic Compatibility Regulations 2016
- S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Device type	Order number
isCAN USB	11300-0201

CHANGES OR MODIFICATIONS NOT APPROVED BY THORSIS TECHNOLOGIES VOID THE VALIDITY OF THE DECLARATION.

STANDARDS USED: EN 61326-1:2013 CERTIFICATION: NONE

Manufacturer

Thorsis Technologies GmbH Oststr. 18 39114 Magdeburg Germany

Magdeburg, January 31, 2023

Dipl.-Inf. Michael Huschke, General Manager



Table of Content

1.	ISCAN USB
1.1	Technical details
1.2	Delivery content
2.	INSTALLATION AND COMMISSIONING
2.1	Installation of the driver software
2.2	Installation of the hardware
2.2.1	Channel assignment
2.3	Configuration and commissioning
2.3.1	Add a device
2.3.2	Add an Empty-Slot
2.3.2	Removal of a device
2.4	Test Software: isCAN Test 12
3.	IS PLORER - A CANOPEN CONFIGURATION TOOL
4.	ISCAN SERVER – AN OPC SERVER FOR CAN AND CANOPEN (OPTIONAL)
3.	DOCUMENT HISTORY

1. isCAN USB

The CAN dongle isCAN USB with the universal USB interface grants a fast access to any CAN/CANopen based network. The isCAN USB interface standard type supports the CAN specification 2.0A (11 bit ID) and 2.0B (29 bit ID).

It is connected with a 9 pin D-Sub connector according to the CiA specification DS-102. LED's indicate the actual working condition. The opto-isolated interface supports a transmission speed of up to 1 MBit/s.



1.1 Technical details

CE-Certificate	isCAN USB
Interface	USB
Controller	CY7C68014A, Asic SJA1000
Identifier length	11/29 Bit
Transmission rate	10 kbit/s – 1 Mbit/s (CAN)
Driver software	Windows XP, Vista, Windows 7, 8, 10 and 11
	isCAN/CANopen Comm DTM,
	isCAN/CANopen server (OPC),
Available software	RP1210 Interface-Dll with J1939-support and ISO15765-2 support
	SAE J2534-1 Driver Dll (Passthru API)
	API interface DII with examples in C/C++ and C# source code

1.2 Delivery content

CAN-USB-Interface "isCAN USB", Driver-, Configuration- and Testsoftware; Documentation in german and english on CD.

2. Installation and commissioning

2.1 Installation of the driver software

The driver software must be installed before connecting the device. Otherwise, the operating system can not find the interface to the associated driver.

The driver software package isCAN Multidriver contains a Dynamic Link Library (DLL) which allows the access to the firmware under the operating systems Windows XP, Vista and Windows 7, 8, 10 and 11. The actual operating system is detected automatically by the driver DLL.

The configuration of the interface can be done with the configuration software isCAN Driver Configurator which is installed into the Thorsis directory of the Start Menu.

Installation process:

- Login as administrator.
- Insert the installation CD-ROM.
- The setup starts with an autoroutine; proceed according to the instructions displayed on the screen. Should Autorun be disabled on your machine, run the setup.exe on the installation CD.
- The installation is done in the standard program directory of the target machine under C:\Program Files\Thorsis\isCAN Multidriver\

2.2 Installation of the hardware

The Interface can be connected to the CAN/CANopen network with its D-Sub 9 pin connector directly.

With the integrated USB cable the interface can be connected with the PC/notebook.

Two LEDs indicate the actual operation mode. The green LED indicates that the CAN controller is powered up and running.

It is switched on as soon as a software application initializes the adapter and starts communication on the CAN bus.

The red LED indicates an error condition on the CAN bus by flashing three times.



2.2.1 Pin assignment

The signals are routed to pin 2 and pin 7 of the D-Sub connector.





2 — CAN low 3 — Ground 7 — CAN high

2.3 Configuration and Commissioning



To ease the task of hardware configuration the configuration software isCAN Driver Configurator is provided. It is installed in the Start Menu. This simple dialog based program allows the easy addition and removal of the CAN interfaces. It also checks the available resources of the system. Each device is assigned to a certain number which enables the software to address the device. Empty devices can be included in order to allow gaps in the enumeration of devices.

While the configuration software is running the device drivers of the hardware are stopped. All applications requiring access to the devices should be terminated before the start of the configuration software. After the termination of the configuration software the device drivers are started again. The new parameters are available at once for all PCI and USB interfaces.

2.3.1 Add a device

💮 isCAN Driver Configuration	×
Devices Devices isCAN Driver Configuration Device 0 (USB-Device)	Device: USB-Device
	Serial No. 3000 Search attached device
Add Remove	
Info	OK Cancel

Add Device	×
Select device type	ок
C Empty-Slot	Cancel

Please press the button ______, choose the device type you would like to add. Press OK, then make your settings.

Every isCAN USB adapter is identified by a serial number. This number ensures that the software is communicating with the correct hardware in case that there are more adapters attached to the PC simultaneously. The number is printed on a label located at the bottom of the isCAN USB device.

Enter the serial number and confirm the settings by clicking OK. The configuration software can also detect the serial number automatically by searching for all isCAN USB devices attached to the PC.



2.3.2 Add an Empty Slot

🐨 isCAN Driver Configuration	×
Devices isCAN Driver Configuration Device 0 (USB-Device) E Device 1 (Empty) Device 2 (USB-Device) Device 3 (USB-Device)	Device: USB-Device Serial No. 3000 Search attached device
Add Remove	OK Cancel

The empty device does not contain any resources. It serves as a substitute for device numbers not assigned. Using this devices enables a free enumeration of devices by inserting empty devices between the real ones.

Add Device	×
Select device type	
C PCI	
C PCMCIA	
C USB	ΠΚ
C NetCube	
Empty-Slot	Cancel

2.3.3 Removal of a device

Mark the device you wish to remove and press the button ______

2.4 Test Software: isCAN Test

The correct operation of isCAN interfaces which have been added with the isCAN Driver Configurator can be checked with the help of the test program isCAN Test. It is installed in the Thorsis folder of the Start Menu.

The following functions are provided by the application:

- Choice of configured interfaces (isCAN USB, isCAN PCI)
- Baudrate settings
- Transmisson of messages
- Display of received messages

💮 isCAN T	est	>	<
Device: Transmit – MsgID: Ox123	USB: 5742 💌 Data:	1 Mbit/s 125 kBaud 250 kBaud 500 kBaud 800 kBaud 1 Mbit/s Y	
🔲 rem. F	Req.	Transmit	
Receive MsgID:	Data:		
		Exit	

3. isPlorer

For users of CANopen devices, the driver software includes a CANopen configuration software "isPlorer". This software enables simple configuration tasks for CANopen field devices such as reading or writing parameters, changing the node ID and bit rate or resetting parameters to factory default.



Programm Hardware Optionen	Ansicht	r					
🛅 🕖 🥔 🤚 🚟 🗰 🗘	8						
🚚 isPlorer	Node ID	Vendor-ID	Product co	Revi	sion	Serial num	Mfg Device Na
🖻 📾 CAN Device 3	⊡ •4	0x300005A	48	1.3		2882400018	LTM1
CANopen	9	0x0	0	0.0		0	750-307
	13	0-126	10050000	1.0		42936	JCMu
	P 14	Objektverzei	chnis	1.3		2882400018	LTM1
	Kommunikation						
		SDO					
		NMT	>	>	Stop No	ode	
		LSS)	•	Pre-Op	erational	
		EDC Data: last			Start No	ode	
	EDS-Datei laden			Reset N	ode		
	Eigenschaften		Reat Communication				
	Reset Communication						

Before starting the software, you should connect the isCAN USB Interface to your PC. After starting isPlorer, the device appears on the left in a tree view together with the CAN connection associated with the device.

The device is initialized by double-clicking or selecting the "Initialize..." menu item from the context menu.

After initialization of the hardware, the isPlorer displays a list of all connected CANopen devices. By using the context menu the user can access different configuration functions and commands for example:

- Setting node ID or bit rate via LSS (if supported by the CANopen device)
- Setting the NMT state
- Reading objects via SDO protocol

If an EDS file of a CANopen device is available, the user can access all parameters of the object directory. The user can also configure all communication parameters such as COB-IDs, Node guarding, Heartbeat or define the PDO mapping.

object dictionary	^	object type:	VAR	
i ∰∾ MandatoryObjects			0.0005	
🔄 · OptionalObjects		index:	UX2005	
🖻 - ManufacturerObjects		sub indev:	11	
🕀 Area of identification		Sub Index.	<u> </u>	
⊕ Area of statistic, totals		access type:	rw	
			LUNCIONE	D10
. Area 2 of faults history		data type:	UNSIGNE	DIP
⊕ Area of monitoring		default value:	200	
Area for configuration		derdam rande.	1200	
- largest Sub-Index supported		min value:	200	
Uperating mode register				
- Motor transition timeout		max value:	65000	
LIMH inputs setting		200		
The supplier of facility frequents		200		
Meter temp foult threshold		🔲 show hex		1.63-
Motor temp radii (niesnoid				write
Motor temp warning threshold °C				
Banid cucle lock out timeout	~			Close

Node-ID 14: LTM1		×
ErrorControl SD0 Receive PD0 0 Receive PD0 1 Receive PD0 2 Receive PD0 3 Transmit PD0 0 Transmit PD0 1 Transmit PD0 2 Transmit PD0 3	PDO SYNC ✓ invalid ■ RTR allowed COB-ID: 0x28E transmission type sy SYNC cycles: 1 Inhibit time: 0 Event timer: 0 YNC start value: SD0 A	Mapping 29-bit ID nchronous (c ▼ x 100µs ms Abort
	Apply	Close

PDO Mapping - Transmit PDO 0				
🔽 use B	EDS information			
nr	Object	Length		
1	Area of monitoring - System status register 1 16			
2	Area of monitoring - System status register 2 16			
3	Area of monitoring - Logic inputs status 16			
4	Area of monitoring - Logic outputs status 16			
-				
Add	d Edit Delete	Apply Cancel		

4. isCAN Server

Optionally an OPC server is available for the isCAN USB. It allows to access CAN data from external software. This OPC server can both access the data of CANopen devices (using the SDO protocol) and assign individual CAN messages to the OPC items created according to their message ID. A configurator is available for this assignment, in which the user can define all OPC items as required.



For definition of CANopen parameters, the user configures the index and the subindex as well as the datatype. For configuration of PDOs or basic CAN messages the user needs to configure the CAN message identifier instead of the index and subindex.

5. Document History

Version	Date	Description		
1.0	09.05.2017	initial version		
1.1	02.24.2020	new graphics & images		
1.2	04.17.2023	added UK Conformity Assessed marking		
1.3	03.22.2024	Content expansion		

© last change 20. September 2024



Thorsis Technologies GmbH Oststr. 18 39114 Magdeburg Germany TEL +49 391 544 563-1000 Fax +49 391 544 563-9099 info@thorsis.com www.thorsis.com