

# USB-to-CAN compact

## Intelligent PC/CAN Interface

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# 1 Introduction

## 1.1 Overview

Congratulations on your purchase of the IXXAT PC/CAN interface USB-to-CAN compact or USB-to-CAN compact RJ45, a high-quality electronic component developed and manufactured according to the latest technological standards.

This manual is intended to familiarize you with your interface. Please read this manual before beginning with the installation.

## 1.2 Features

- According to USB specification version 2.0
- "Hot-plug" compatible (plug-in during operation of computer)
- Power supply via USB
- Infineon 16 bit microcontroller with 24MHz clock
- CAN controller PHILIPS SJA1000 with 24 MHz clock
- CAN bus interface according to ISO 11898-2, optional galvanic isolation
- 128 Kbyte RAM
- 512 Kbyte Flash

# 2 Installation

## 2.1 Software installation

A driver is required to operate the interface. For installation of the CAN driver VCI under Windows, please refer to the VCI installation manual.

## 2.2 Hardware installation

The USB-to-CAN compact can be plugged in and unplugged during operation of the PC (Hot-plug compatible). It is recommended to install the VCI software before plugging in for the first time.

# 3 Connections and displays

## 3.1 Pin allocation

### 3.1.1 USB connector

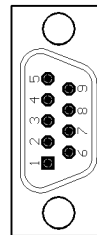
The USB connector is designed as a type "A" connector. Pin allocation is according to the USB standard.

### 3.1.2 CAN bus connector

#### 3.1.2.1 USB-to-CAN compact

The USB-to-CAN compact has a bus interface according to ISO 11898-2. The signals of the bus interface are connected to the 9-pin Sub-D connector (see table 3-1). The bus interface can be galvanically isolated from the CAN bus as an option.

Pin Nr.	Signal
1	-
2	CAN-Low
3	GND
4	-
5	-
6	-
7	CAN-High
8	-
9	-



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Table 3-1: Pin allocation of the Sub-D CAN bus connector

### **3.1.2.2 USB-to-CAN compact RJ45**

The USB-to-CAN compact RJ45 has a bus interface according to ISO 11898-2. The signals of the bus interface are connected to the 9-pin Sub-D connector (see table 3-2). The bus interface can be galvanically isolated from the CAN bus as an option.

<b>Pin Nr.</b>	<b>Signal</b>
1	CAN-High
2	CAN-Low
3	GND
4	-
5	-
6	-
7	GND
8	-

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**Table 3-2: Pin allocation of the RJ45 CAN bus connector**

## **3.2 Displays**

The USB-to-CAN interface has two 2-colored LEDs. One LED is allocated to the USB bus, the other to the CAN bus.

If the USB LED is lit green, communication with the interface via the USB port is possible. If communication is not possible, the USB LED is lit red.

The CAN LED flashes green with every message received or transmitted without error. If the CAN controller is in "Error warning" or "Error passive" mode, the LED flashes red with every message. If the CAN controller is in "Bus off" mode, the LED is permanently lit red.

## **3.3 CAN bus termination**

There is no bus termination resistor for the CAN bus assembled on the USB-to-CAN compact.

# 4 Appendix

## 4.1 Support

For more information on our products, FAQ lists and installation tips, please refer to the support section of our website (<http://www.ixxat.de>), which also contains information on current product versions and available updates.

If you have any further questions after studying the information on our website and the manuals, please contact our support department. The support section on our website contains the relevant forms for your support request. In order to facilitate our support work and enable a fast response, please provide precise information on the individual points and describe your question or problem in detail.

If you would prefer to contact our support department by phone, please also send a support request via our website first, so that our support department has the relevant information available.

## 4.2 Returning hardware

If it is necessary to return hardware to us, please download the relevant RMA form from our homepage and follow the instructions on this form. In the case of repairs, please also describe the problem or fault in detail on the RMA form. This will enable us to carry out the repair quickly.



### 4.3 Technical specifications

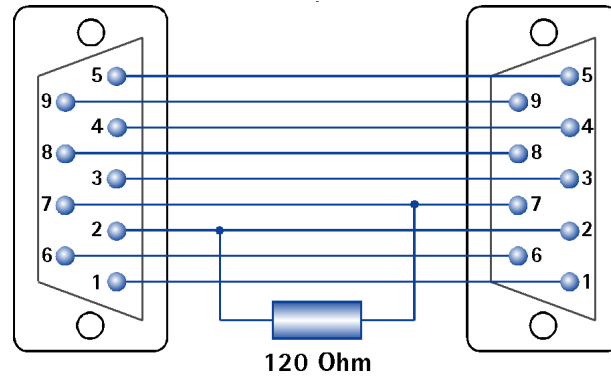
USB-Interface:	Version 2.0 (Full Speed)
Microcontroller:	Infineon C161U, 24 MHz
RAM / Flash:	128 kByte / 512 kByte
CAN-Controller:	Philips SJA1000
CAN Transceiver:	Texas Instruments SN65HVD251
ESD-Protection CAN-Bus:	12kV (Human Body Model)
Max. number of CAN Nodes:	120
Galvanic isolation:	1000 V DC between CAN1, CAN2 and internal logic
CAN Signal delay:	with galvanic isolation typically 50 ns
Housing material:	ABS-plastics
Dimensions:	80 X 45 X 20 mm
Weight:	approx. 100 g
Operating temperature range:	0 - 50°C
Storage temperature range:	-40°C - +85°C
Power supply:	via USB
Power consumption:	typically 250 mA max. 400 mA
Protection class:	IP40
Relative humidity:	10 – 95 %, non-condensing
Device security:	CSA/UL 60950-00 Class 3862 10, 3862 90

### 4.4 Accessories

#### CAN bus termination resistor

For CAN-Bus termination there is a Sub-D9 feed through connector with internal 120 Ohm resistor available.

Ordering number: 1.04.0075.03000

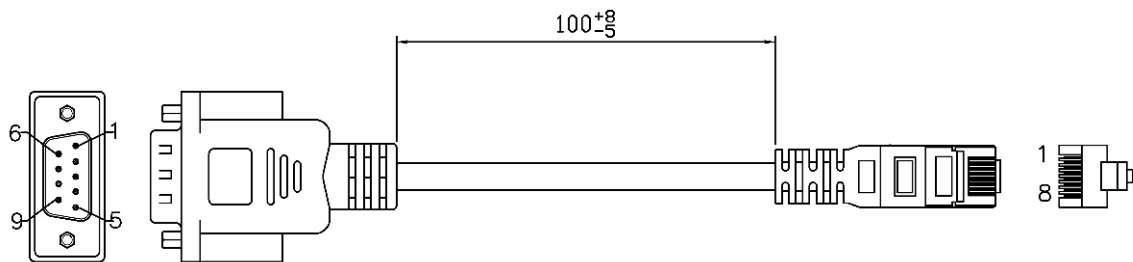


Picture A-1: Connections of the CAN bus termination resistor

#### Cable adapter RJ45 to Sub-D9M

For the USB-to-CAN compact RJ45 there is an cable adapter RJ45 to Sub-D9M available. The length of the cable is 100 mm.

Ordering number: 2.09.0000.00952



Picture A-2: Cable adapter RJ45 to Sub-D9M

## 4.5 Note on disposal of used devices

This product is subject to the ElektroG (electrical and electronic equipment act) and is to be disposed of in accordance with this act. The products of IXXAT that are subject to the ElektroG are devices for exclusive commercial use and are marked with the symbol of the crossed out garbage can.



Based on the B2B regulation, disposal is governed separately in the Terms of Sale of IXXAT in accordance with § 10 para. 2 clause 3 of the Electrical and Electronic Equipment Act (ElektroG) in the version of 16.03.2005.

When products supplied by IXXAT are no longer used, the customer is obliged to dispose these products at his/her own expense. It is to be noted that, unlike privately used devices (B2C), they may not be disposed of at the collection centers of public disposal contractors (e.g. municipal recycling centers). The statutory regulations for disposal are to be complied with.

If products delivered were passed on to third parties, the customer is obliged to take back the delivered products at his/her expense when no longer used and to correctly dispose of them in accordance with the statutory regulations or to impose these obligations on the third parties.

The Terms of Sale and their supplements as well as further information on the disposal of used devices can be downloaded from [www.ixxat.com](http://www.ixxat.com).

### 4.6 Declaration of conformity

IXXAT Automation declares

that the product: USB-to-CAN compact

with the article numbers: 1.01.0087.10100  
1.01.0087.10200

and USB-to-CAN compact RJ45

with the article numbers: 1.01.0088.10100  
1.01.0088.10200

do comply with the EC directives 2004/108/EC.

Applied harmonized standards in particular:

EN 55022:2006 + A1:2007

EN 55024:1998 + A1:2001 + A2:2003

23.08.2011, Dipl.-Ing. Christian Schlegel , Managing Director



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## **4.7 FCC Compliance**

### **Declaration of conformity**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

### **Class A digital device instructions:**

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.