

# tinCAN161

Intelligent PC/CAN Interface

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<b>1</b>	<b>Introduction</b> .....	<b>5</b>
1.1	Overview .....	5
1.2	Performance features .....	5
1.3	Block diagram .....	6
1.4	Support .....	7
1.5	Returning hardware.....	7
<b>2</b>	<b>Installation</b> .....	<b>8</b>
2.1	Software installation .....	8
2.2	Hardware installation .....	8
<b>3</b>	<b>Configuration</b> .....	<b>9</b>
3.1	Memory range/Interrupt.....	9
3.2	CAN bus interface .....	9
<b>4</b>	<b>Status LEDs</b> .....	<b>11</b>
4.1	Bootloader .....	11
4.2	Standard mode (with IXXAT VCI driver) .....	11
4.2.1	CAN1 / CAN2 LED .....	11
4.2.2	Low speed LED .....	11
	<b>Appendix</b> .....	<b>12</b>
	<b>Technical specifications</b> .....	<b>12</b>
	<b>EC declaration of conformity</b> .....	<b>13</b>



# 1 Introduction

## 1.1 Overview

Congratulations on your purchase of the IXXAT-PC-CAN interface tinCAN161, a high-quality electronic component developed and manufactured according to the latest technological standards.

This manual is intended to familiarize you with your interface, also referred to in the following as tinCAN161. Please read this manual before beginning with the installation.

## 1.2 Performance features

- Designed as PC-card type II (PCMCIA type II, 16 bit)
- Basic address plug & play via PC-card driver
- PC interrupts plug & play via PC-card driver
- Microcontroller Infineon C161, 25MHz
- Two CAN lines with Phillips SJA1000 controllers, 16 MHz
- 8 Kbyte Dual-Port-RAM, 8 semaphore register
- 16 bit memory mapped access (uses 16 Kbyte address space)
- "Hot-plug" compatible (plug-in during operation of computer)
- Bus interface with two CAN channels in accordance with ISO/IS 11898-2 galvanically isolated in external housing. CAN channel 1 can be switched to low speed ISO11898-3 via software

### 1.3 Block diagram

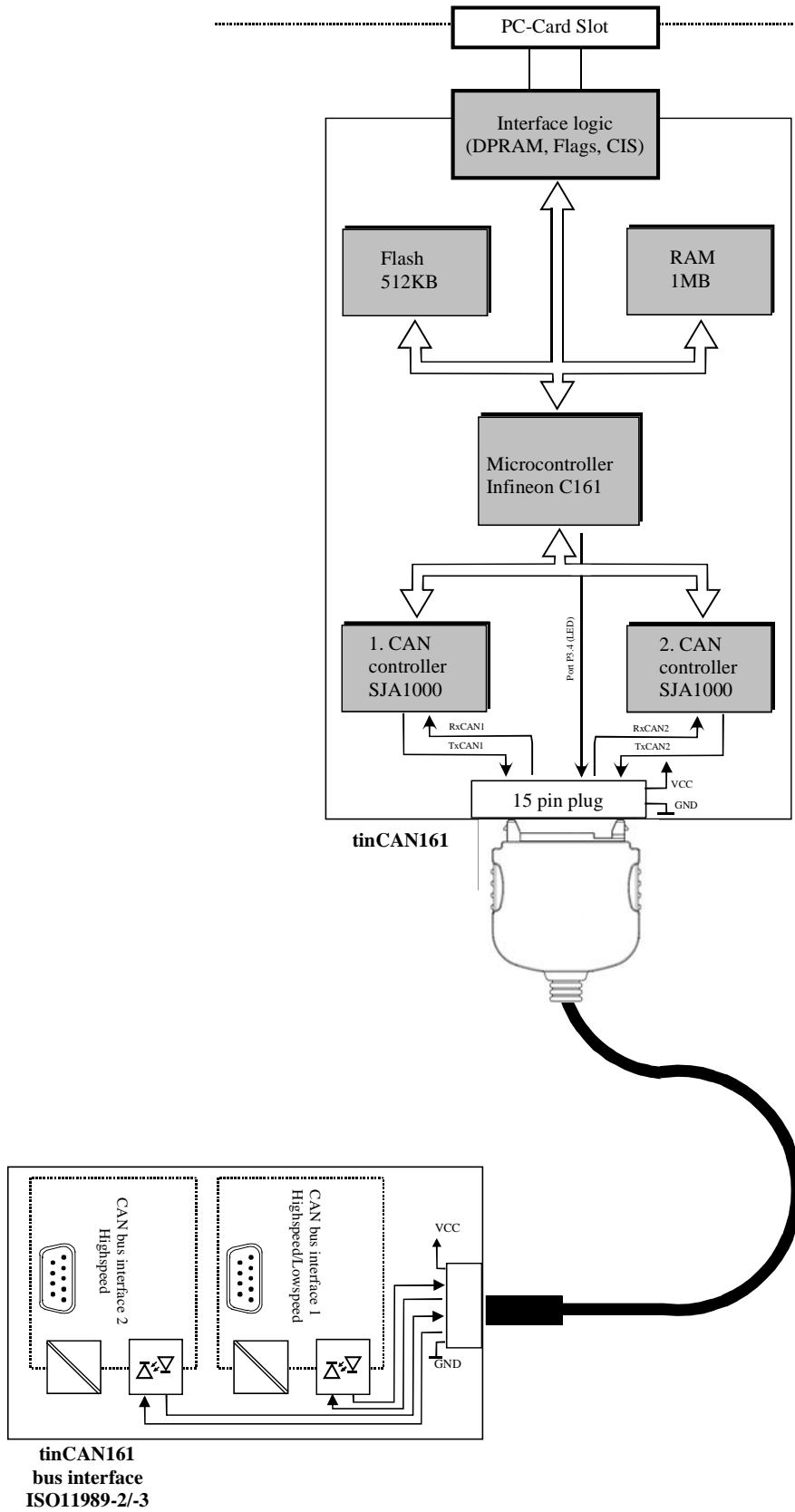


Fig. 1-1 Block diagram tinCAN161

### 1.4 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.

### 1.5 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.

# 2 Installation

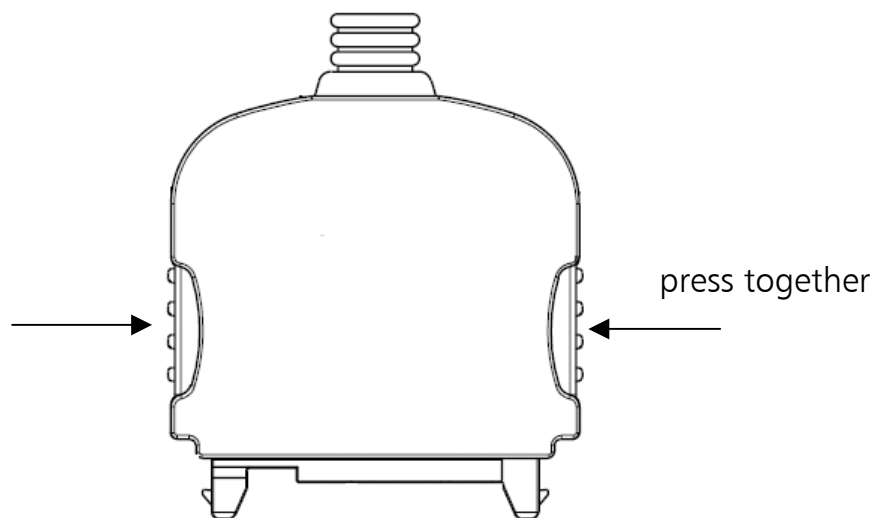
## 2.1 Software installation

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

## 2.2 Hardware installation

Before you plug the tinCAN161 into the PCMCIA slot, install the software driver (see Section 2.1).

Connect the tinCAN161 to the bus interface. For this the locking mechanism of the plug of the bus interface must be pressed (see Fig. 2-1). The plug is protected against polarity reversal, so that incorrect connection of the bus interface to the microcontroller hardware is not possible.



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Fig. 2-1 Locking mechanism of the plug

**Caution:** Windows NT is not hot-plug-compatible. Under Windows NT the computer must be switched off when you plug in the card.



## 3 Configuration

### 3.1 Memory range/Interrupt

The tinCAN161 is fully configured by the driver using the data in the Card Information Structure (CIS). For operation with IXXAT software, no user interventions are necessary.

### 3.2 CAN bus interface

The bus interface of the tinCAN161 is housed in a separate housing (see also Fig. 1-1). The two CAN lines bus interfaces are galvanically isolated from each other and from the PC. CAN line 1 can be switched between high speed (ISO 11898-2) and low speed (ISO 11898-3) via software. CAN line 2 has a high-speed bus interface. The mechanical connection to the CAN bus is made in each case with a 9-pin SUB-D connector. Pin allocation for high speed is in accordance with CiA (CAN in Automation) DS-102, low speed (only CAN1) is connected to pin 1 and pin 4 (see Table 3-1 and Table 3-2).

Due to the galvanic isolation, the GND of CAN1 and CAN2 is isolated in each case from the rest of the circuit.

The shielded connections of CAN1 and CAN2 are connected to the PC housing.

## Configuration

Pin no.	Signal
1	CAN_L (low speed)
2	CAN_L (high speed)
3	GND
4	CAN_H (low speed)
5	-
6	-
7	CAN_H (high speed)
8	-
9	-

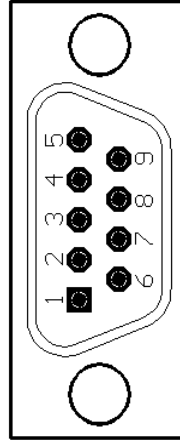


Table 3-1 Pin allocation of high / low speed bus interface (CAN1)

Pin no.	Signal
1	-
2	CAN_L (high speed)
3	GND
4	-
5	-
6	-
7	CAN_H (high speed)
8	-
9	-

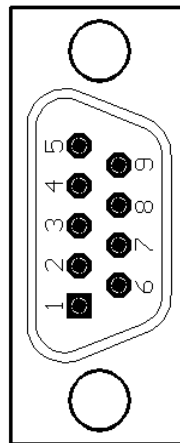


Table 3-2 Pin allocation of high-speed bus interface (CAN2)

## 4 Status LEDs

The tinCAN161 bus interface has three two-color status LEDs. Depending on the operating mode of the tinCAN161, the LEDs behave as follows.

### 4.1 Bootloader

After plugging in the PCMCIA card, the bootloader of the tinCAN161 is active. In this case the three LEDs flash green with a frequency of approx. 2 Hz.

### 4.2 Standard mode (with IXXAT VCI driver)

#### 4.2.1 CAN1 / CAN2 LED

The LED CAN1 and CAN2 are lit green every time a message is received or transmitted without errors. When the CAN error warning level is reached, the corresponding LED is lit red during reception or transmission. In the 'CAN BUS OFF' state, communication is no longer possible and the LED is permanently lit red.

#### 4.2.2 Low speed LED

The low speed LED is lit green when the low speed transceiver is activated on CAN1. The LED switches to red when the low speed transceiver detects a bus error. Communication may still be possible if the automatic bus error management can compensate for the bus error.

# Appendix

## Technical specifications

PC-card type:	PCMCIA type II, 16-bit
Microcontroller:	Infineon C161, 25MHz
RAM / Flash:	1 Mbyte / 512 Kbyte
Capacity:	20,000 CAN messages/s
CAN controller:	2x Phillips SJA1000, 16MHz
CAN transceiver:	Texas Instruments SN65HVD251D or Philips PCA82C251T
Max. number of CAN bus nodes:	120
Power supply:	5V DC $\pm$ 5%
Power consumption	typically 300 mA
Dimensions (L x B x H) in mm	89.5 x 54.0 x 4.5
Dimensions of bus interface in mm:	80 x 45 x 20
Weight incl. bus interface:	approx. 130 g
Working temperature range	0 – 55 °C
Relative humidity	10-95%, non-condensing
Signal delay due to galv. isolation	typically 50 ns
EMC test in accordance with	EN 55022:1998 + A1:2000 + A2:2003 EN 55024:1998 + A1:2000 + A2:2003
Protection type	IP 40
Galv. isolation bus interface:	250 V AC between CAN1, CAN2 and PC

## Notes on EMC

In order to comply with the EC directive on electro-magnetic compatibility, the PCMCIA interface tinCAN161 may only be installed in a PC with a CE-symbol and an RF-shielded housing. All leads connected to the interface must have a shielded lead. The shield braiding must be connected to the connector housing using the largest possible surface area.

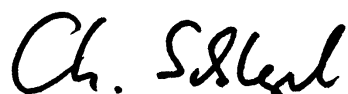
## Declaration of conformity

IXXAT Automation declares that the product: tinCAN161

Model: tinCAN161  
with the article number: 1.01.0026.00020

complies with the EC-directive: 89/336/EEC

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



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