

CANblue

Intelligent Bluetooth/CAN Interface



IXXAT

Headquarter

IXXAT Automation GmbH
Leibnizstr. 15
D-88250 Weingarten

Tel.: +49 (0)7 51 / 5 61 46-0
Fax: +49 (0)7 51 / 5 61 46-29
Internet: www.ixxat.de
e-Mail: info@ixxat.de

US Sales Office

IXXAT Inc.
120 Bedford Center Road
USA-Bedford, NH 03110

Phone: +1-603-471-0800
Fax: +1-603-471-0880
Internet: www.ixxat.com
e-Mail: sales@ixxat.com

Support

In case of unsolvable problems with this product or other IXXAT products please contact IXXAT in written form by:

Fax: +49 (0)7 51 / 5 61 46-29
e-Mail: support@ixxat.de

Copyright

Duplication (copying, printing, microfilm or other forms) and the electronic distribution of this document is only allowed with explicit permission of IXXAT Automation GmbH. IXXAT Automation GmbH reserves the right to change technical data without prior announcement. The general business conditions and the regulations of the license agreement do apply. All rights are reserved.

| | | |
|----------|---|-----------|
| 1 | Introduction | 5 |
| | Overview | 5 |
| | Features | 5 |
| | Support | 5 |
| | Returning hardware | 6 |
| 2 | Installation | 7 |
| | Software installation | 7 |
| | Hardware installation | 7 |
| 3 | Connections and displays | 8 |
| | Pin allocation | 8 |
| | 3.1.1 Power supply | 8 |
| | 3.1.2 CAN bus connector..... | 8 |
| | Displays | 9 |
| | CAN bus termination | 9 |
| 4 | Appendix | 10 |
| | Technical specifications | 10 |
| | FCC Compliance | 11 |
| | IC Compliance | 11 |
| | Notes on EMC | 12 |
| | Disposal of waste electronic equipment | 12 |
| | EC declaration of conformity | 13 |

1 Introduction

Overview

Congratulations on your purchase of the IXXAT Bluetooth CAN interface CANblue, 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 CANblue. Please read this manual before beginning with the installation.

The CANblue is particularly suitable for wireless diagnosis and parameterization of CAN networked applications. Due to the maximum transfer rate of 700 kBit that can be achieved with Bluetooth, the Bluetooth device CANblue is not recommended for wideband CAN network analysis.

Features

- Bluetooth specification V 2.0
- Supply voltage 9 - 30 V DC
- Microcontroller Infineon C161, 36 MHz
- One CAN line with Phillips SJA1000 controller, 16 MHz
- Bus interface in accordance with ISO 11898-2. The CAN channel can be switched to low speed ISO11898-3 with software.

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.

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

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.

Hardware installation

In order to operate the CANblue, a Bluetooth interface is required on the PC in accordance with the Bluetooth specification V 2.0. The device is recognized as a network adapter and activated via a so-called RF-COM port in the PC.

A suitable antenna must be attached in order to operate the device. Screw the antenna supplied with the device onto the antenna connection.

Information on compatible Bluetooth products is given in the Support section on our website (<http://www.ixxat.de>).

Before the CANblue can be accessed via the VCI drivers, a Bluetooth connection must first be established.

3 Connections and displays

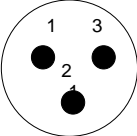
Pin allocation

3.1.1 Power supply

The device is supplied with direct voltage of 9 V - 36 V. A pre-fabricated cable for power supply is included in the scope of delivery. The connection allocation is shown in Table 3-1.

The CANblue is protected against polarity reversal. In the event of over-voltage, an internal fuse is triggered.

| Pin No. X1 | Signal | Lead color |
|------------|---------|------------|
| 1 | PWR (+) | White |
| 2 | GND (-) | Brown |
| 3 | Shield | Shield |



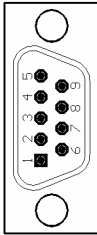
X1

Table 3-1: Pin allocation Power

3.1.2 CAN bus connector

The CANblue has a bus interface in accordance with ISO 11898-2 and ISO 11898-3. Switch over between the two interfaces can be made via software. The signals of the bus interface are connected to the 9-pin Sub-D connector (see Table 3-2).

| Pin No. X2 | 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 | - |



X2

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

Displays

The CANblue has four LEDs to indicate the various states.

| | | |
|---------------|----------------------|---|
| Power LED | lit green | Operating voltage is on. |
| Status LED | flashes green (2 Hz) | A Bluetooth connection exists and the Firmware has been initialized. |
| | flashes red (2 Hz) | Bluetooth LED is lit green: CANblue is ready for operation and waiting for connection to the PC. Bluetooth LED lit blue: Bluetooth connection to the PC must be disconnected and then reestablished. |
| | flashes red (10 Hz) | Communication, data or protocol error during communication between CANblue and PC. The power supply to the CANblue must be interrupted temporarily in order to restart the device. |
| CAN LED | flickers green | A message was received or transmitted without errors. |
| | flickers red | A message was received or transmitted and the CAN controller is in "Error warning" state. |
| | lit red | CAN-Controller is in "Bus off" state. |
| Bluetooth LED | lit green | Bluetooth module is in standby state. |
| | lit blue | Bluetooth connection to the PC is established. |
| | flickers blue | Data communication between PC and CANblue via the Bluetooth connection. |
| | lit red | The Bluetooth module is not ready for operation. The power supply to the CANblue must be interrupted temporarily in order to restart the device. |

Table 3-3: LED states

CAN bus termination

There is **no** bus termination resistor for the CAN bus fitted on the CANblue. For simple integration of the bus termination resistor in accordance with ISO 11898-2, IXXAT offers an appropriate feed-through connector with integrated bus termination.

4 Appendix

Technical specifications

| | |
|-------------------------------|--|
| Microcontroller: | Infineon C161, 25MHz |
| RAM / Flash: | 128 kByte / 256 kByte |
| Capacity: | 1,000 CAN messages/s |
| CAN controller: | Phillips SJA1000 |
| CAN transceiver: | Texas Instruments SN65HVD251 |
| Max. number of CAN bus nodes: | 120 |
| Power supply | 9 - 30V DC \pm 5% |
| Power consumption | typically 220 mA at 10V |
| Dimensions (L x W x H) in mm | 88 x 72 x 35 |
| Weight: | approx. 156 g |
| Working temperature range | 0 – 55 °C |
| Relative humidity | 10-95%, non-condensing |
| EMC test in accordance with | EN 5022:1998 + A1:2000 EN 5024:1998 |
| Protection type | IP 40 |

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the distance between the equipment and receiver
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

FCC ID: PVH090202L

IC Compliance

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device has been designed to operate with an antenna having a maximum gain of 8dBi.

Having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for

the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

IC ID: 5325A-90202L

Notes on EMC

The PC/CAN interface CANblue may only be installed in a PC with a CE symbol. The CAN bus connected to the interface must have a shielded cable and the braiding is to be connected to the connector housing using the largest possible surface area.

Disposal of waste electronic equipment



Please note that the information on disposal of waste electrical and electronic equipment is only relevant in Germany.

This product is subject to the Electrical and Electronic Equipment Act (ElektroG) and is to be disposed of separately in accordance with the ElektroG. The products of IXXAT that are subject to the ElektroG are devices for exclusive commercial use and are marked with the symbol of a waste bin with a cross through it.



In accordance with the B2B regulation, disposal is governed separately according to § 10 para. 2 clause 3 Electrical and Electronic Equipment Act (ElektroG) in the edition of March 16 2005 in the General Terms and Conditions of Business of IXXAT and its supplements.

Accordingly, when the products supplied by IXXAT are no longer used, customers are obliged to dispose of these products at their own expense. It is to be noted that in contrast to privately used equipment (B2C), they may not be disposed of at the state-owned collection centers of disposal organizations (e.g. municipal recycling centers). The statutory regulations for disposal are to be observed.

If delivered products are passed on to third parties, customers are obliged to take back the delivered products when no longer used at their own expense and dispose of them correctly in accordance with the statutory regulations or to impose these obligations on third parties.

The General Terms and Conditions of Business and their supplements as well as further information on disposal of waste electrical and electronic equipment can be downloaded at www.ixxat.de.

EC declaration of conformity

IXXAT Automation declares that the product: CANblue
with the article number: 1.01.0125.00000
meets the requirements of the standards: DIN EN 55022/ 05.1999,
class B + A1:2000
DIN EN 55024/ 05.1999
according to the following test report: IX337_01.DOC

The product therefore complies with the EC-directive: 89/336/EEC

This declaration applies to all devices bearing the CE symbol and loses its validity if modifications are made to the product

05.02.04, Dipl.-Ing. Christian Schlegel, CEO



IXXAT Automation GmbH
Leibnizstraße 15
88250 Weingarten