Kvaser Mini PCI Express HS User's Guide

Last updated Wednesday, 18 September 2013

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1 About this manual

This manual is intended for Kvaser Mini PCI Express HS users. This document contains a description of the hardware's properties and general instructions for connecting the device to a computer.

2 Introduction

This section will describe the functions and features of the Kvaser Mini PCI Express HS.

2.1 Welcome to Kvaser Mini PCI Express HS

Figure 1. Kvaser Mini PCI Express HS.

The Kvaser Mini PCI Express HS is a small, yet advanced, CAN interface.

Table 1: Device and EAN Number.

Device	Product Number
Kvaser Mini PCI Express HS	73-30130-00688-1

2.2 Major features

- Mini PCI Express CAN interface.
- Quick and easy plug-and-play installation.
- Supports both 11-bit (CAN 2.0A) and 29-bit (CAN 2.0B active) identifiers.
- 100% compatible with applications written for other Kvaser CAN hardware with Kvaser CANLib.
- High-speed CAN connection (compliant with ISO 11898-2), up to 1 Mbit/s.
- Fully compatible with J1939, CANopen, NMEA 2000® and DeviceNet.
- Supports silent mode for analysis tools – listen to the bus without interfering.
- Simultaneous operation of multiple devices.

2.3 Additional software and documentation

- Kvaser CANLIB SDK, which includes everything you need to develop software for the Kvaser CAN hardware. Includes full documentation and many sample programs, written in C, C++, C#, Delphi, and Visual Basic. All Kvaser CAN interface hardware shares a common software API. Programs written for one device type will run without modification on other device types!
- On-line documentation in Windows® HTML Help and Adobe Acrobat format.
- The latest versions of documentation, software and drivers can be downloaded for free at www.kvaser.com or purchased separately on CD.

3 Kvaser Mini PCI Express HS hardware

In this section you can read more about the CAN channels, power supply and led indicators.

3.1 Hardware installation

The Kvaser Mini PCI Express HS may be inserted in any free Mini PCI Express slot on the host computer that supports USB. You do need to switch the power off before inserting or removing the device. For the Kvaser Mini PCI Express HS to communicate with the host computer, compatible versions of the Kvaser driver and firmware must be installed. The firmware is downloaded and installed directly on the Kvaser Mini PCI Express HS. The driver is installed on the host computer.

To communicate with the host computer, the correct version of the Kvaser driver must be installed. The installation file, kvaser_drivers_setup.exe, and instructions can be found on the attached CD but it is recommended that the latest version is downloaded from http://www.kvaser.com/download/.

3.2 Firmware Update

Firmware updates and upgrade instructions can be found at http://www.kvaser.com/download/. Use “Kvaser Hardware” to see the current firmware version of your Kvaser Mini PCI Express HS.

3.3 Kvaser Mini PCI Express HS connection

The Kvaser Mini PCI Express HS is a Card of type F2 (Full-Mini with bottom side keep outs).

3.4 CAN channels

The standard Kvaser Mini PCI Express HS has one CAN channel and has a 4-pin Molex connector (see chapter 4.2 CAN connectors).

3.5 Power supply

The Kvaser Mini PCI Express HS is powered from the Mini PCI Express connector.

3.6 LED Indicators

The Kvaser Mini PCI Express HS has one LED, it's functionality is shown in Table 2.

Table 2 LED configuration

LED	Function	Description
Green	Power	Steady light when unit is powered and working.
	USB configuration	Blinking once every three seconds when something is wrong with the USB connection
	Firmware	2 Hz flash if something is wrong with the firmware or configuration.

3.7 Troubleshooting

- Use “Kvaser Hardware” in the Control Panel to verify that the computer really can talk to the Kvaser Mini PCI Express HS. If the firmware version shown is all zeroes, there are communication problems.

4 Appendices

In this section you will find technical information about the Kvaser Mini PCI Express HS and its connectors.

4.1 Technical data

In Table 3 below you will find the Kvaser Mini PCI Express HS's technical specifications.

Table 3: Kvaser Mini PCI Express HS Technical Specifications.

CAN Channels	1
CAN Transceivers	TJA1051T (Compliant with ISO 11898-2)
CAN Controller	Built into the processor
CAN Bit Rate	40 to 1000 kbit/s
Time stamp resolution	25 µs
Error Frame Detection	Yes
Error Frame Generation	No
Silent mode	Yes
PC interface	Mini PCI Express with USB 2.0.
Power consumption	Typical values are: 180mA @ 3.3V from Mini PCI Express slot.
Hardware configuration	Done by software (Plug & Play).
Software requirements	Windows XP or later. (For other operating systems, see Kvaser web or contact Kvaser support.)
Weight	6g excluding cables and connectors.
Operating temperature	-40 ºC ... +85 ºC
Storage temperature	-55 ºC ... +90 ºC
Relative Humidity	0% ... 85% (non-condensing.)

4.2 CAN connectors

The Kvaser Mini PCI Express HS has one high-speed CAN channel with a 4-pin Molex connector (53780-0470) with the pinning described in Table 4.

Table 4: Molex pin configuration.

pin number	Function
1	GND
2	CAN_H
3	CAN_L
4	Shield

5 Disposal and Recycling Information

When this product reaches its end of life, please dispose of it according to your local environmental laws and guidelines.

6 Legal acknowledgements

6.1 Usage warning

WARNING FOR ALL USERS

WARNING! - YOUR USE OF THIS DEVICE MUST BE DONE WITH CAUTION AND A FULL UNDERSTANDING OF THE RISKS!

THIS WARNING IS PRESENTED TO INFORM YOU THAT THE OPERATION OF THIS DEVICE MAY BE DANGEROUS. YOUR ACTIONS CAN INFLUENCE THE BEHAVIOR OF A CAN-BASED DISTRIBUTED EMBEDDED SYSTEM, AND DEPENDING ON THE APPLICATION, THE CONSEQUENCES OF YOUR IMPROPER ACTIONS COULD CAUSE SERIOUS OPERATIONAL MALFUNCTION, LOSS OF INFORMATION, DAMAGE TO EQUIPMENT, AND PHYSICAL INJURY TO YOURSELF AND OTHERS. A POTENTIALLY HAZARDOUS OPERATING CONDITION IS PRESENT WHEN THE FOLLOWING TWO CONDITIONS ARE CONCURRENTLY TRUE: THE PRODUCT IS PHYSICALLY INTERCONNECTED TO A REAL DISTRIBUTED EMBEDDED SYSTEM; AND THE FUNCTIONS AND OPERATIONS OF THE REAL DISTRIBUTED EMBEDDED SYSTEM ARE CONTROLLABLE OR INFLUENCED BY THE USE OF THE CAN NETWORK. A POTENTIALLY HAZARDOUS OPERATING CONDITION MAY RESULT FROM THE ACTIVITY OR NON-ACTIVITY OF SOME DISTRIBUTED EMBEDDED SYSTEM FUNCTIONS AND OPERATIONS, WHICH MAY RESULT IN SERIOUS PHYSICAL HARM OR DEATH OR CAUSE DAMAGE TO EQUIPMENT, DEVICES, OR THE SURROUNDING ENVIRONMENT.

WITH THIS DEVICE, YOU MAY POTENTIALLY:

- CAUSE A CHANGE IN THE OPERATION OF THE SYSTEM, MODULE, DEVICE, CIRCUIT, OR OUTPUT.
- TURN ON OR ACTIVATE A MODULE, DEVICE, CIRCUIT, OUTPUT, OR FUNCTION.
- TURN OFF OR DEACTIVATE A MODULE, DEVICE, CIRCUIT, OUTPUT, OR FUNCTION.
- INHIBIT, TURN OFF, OR DEACTIVATE NORMAL OPERATION.
- MODIFY THE BEHAVIOR OF A DISTRIBUTED PRODUCT.
- ACTIVATE AN UNINTENDED OPERATION.
- PLACE THE SYSTEM, MODULE, DEVICE, CIRCUIT, OR OUTPUT INTO AN UNINTENDED MODE.

ONLY THOSE PERSONS WHO:
(A) ARE PROPERLY TRAINED AND QUALIFIED WITH RESPECT TO THE USE OF THE DEVICE,
(B) UNDERSTAND THE WARNINGS ABOVE, AND

(C) UNDERSTAND HOW THIS DEVICE INTERACTS WITH AND IMPACTS THE FUNCTION AND SAFETY OF OTHER PRODUCTS IN A DISTRIBUTED SYSTEM AND THE APPLICATION FOR WHICH THIS DEVICE WILL BE APPLIED, MAY USE THE DEVICE.

PLEASE NOTE THAT YOU CAN INTEGRATE THIS PRODUCT AS A SUBSYSTEM INTO HIGHER-LEVEL SYSTEMS. IN CASE YOU DO SO, KVASER AB HEREBY DECLARES THAT KVASER AB'S WARRANTY SHALL BE LIMITED TO THE CORRECTION OF DEFECTS, AND KVASER AB HEREBY EXPRESSLY DISCLAIMS ANY LIABILITY OVER AND ABOVE THE REFUNDING OF THE PRICE PAID FOR THIS DEVICE, SINCE KVASER AB DOES NOT HAVE ANY INFLUENCE ON THE IMPLEMENTATIONS OF THE HIGHER-LEVER SYSTEM, WHICH MAY BE DEFECTIVE.

6.2 Agency Approval

CE

The equipment complies with the directive 2004/108/EC of the European Parliament and the following applicable standards EN 55 022:2010 (emission), EN 55 024:2010 (immunity) and EN 61000-6-2:2005 (industrial level immunity).

FCC Compliance

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.

6.3 RoHS compliance statement

This product is manufactured in accordance with directive 2002/95/EC on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS.)

6.4 Patents, copyrights and trademarks

The products described in this document are protected by U.S. patent 5,696,911 and 7,100,042.

7 Document revision history

Revision	Date	Changes
1	2013-09-17	First revision