

Kvaser T-connector v2 User's Guide



Copyright 2017-2021 Kvaser AB, Mölndal, Sweden
<https://www.kvaser.com>

Printed Tuesday 25th May, 2021

We believe that the information contained herein was accurate in all respects at the time of printing. Kvaser AB cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by Kvaser AB.

(This page is intentionally left blank.)

Contents

1	About this manual	4
2	Introduction	5
2.1	Welcome to Kvaser T-connector v2	5
2.2	Major features	6
3	Kvaser T-connector v2 hardware	7
3.1	Power Distribution	8
3.2	LED Indicators	8
3.3	Termination Adjustment	8
4	Appendices	9
4.1	Technical data	9
5	Disposal and Recycling Information	10
6	Legal acknowledgements	11
6.1	Usage warning	11
6.2	EU Regulatory Compliance	12
6.3	FCC Regulatory Compliance	13
7	Document Revision History	14

1 About this manual

This manual is intended for Kvaser T-connector v2 users. This document contains a description of the hardware's properties and functionality.

2 Introduction

This section will describe the functions and features of the Kvaser T-connector v2.

2.1 Welcome to Kvaser T-connector v2



Figure 1: Kvaser T-connector v2

Kvaser T-connector v2 is a CAN bus hub with three female and one male D-SUB9 connectors. Offering an adjustable CAN termination resistor (connecting a load of $120\ \Omega$, $60\ \Omega$, or $0\ \Omega$) the Kvaser T-connector v2 provides an affordable and safe way of terminating the CAN circuit when using Kvaser interfaces on a development board, as well as powering interface devices without internal power, such as Kvaser's Blackbird and Memorator series.

Device	Product Number (EAN)
Kvaser T-connector v2	73-30130-00776-5

Table 1: Kvaser T-connector v2 devices and their product numbers.

2.2 Major features

- Acts as a CAN bus hub with 3 female and 1 male D-SUB9 connectors
- Each D-SUB9 has screws to secure the connection to the Kvaser CAN interface
- Adjustable termination via easy-to-use switch
- LED to indicate power on
- Voltage range of 12 V - 24 V DC
- A complementary 12 V, 1 A power supply is included

3 Kvaser T-connector v2 hardware

Kvaser T-connector v2 is a CAN bus hub with three female (see Figure 2) and one male D-SUB9 connectors (see Figure 3). All pins of these connectors are fully connected, e.g. pin 1 on any connector is connected to pin 1 on all other connectors, including pin 3 and pin 6.

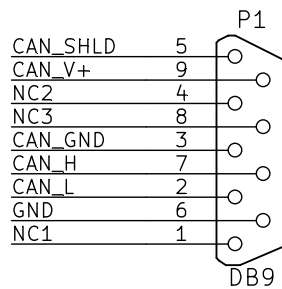


Figure 2: Female D-SUB9

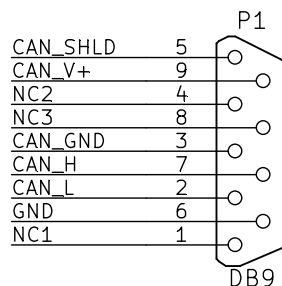


Figure 3: Male D-SUB9

The terminal resistor is selectable using a three-way switch, see Figure 4.

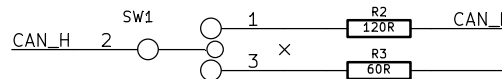


Figure 4: Terminal resistance selector

Pin 9 (CAN_V+) and pin 3 (CAN_GND) are connected to the power supply. A power indicator LED is connected as shown in Figure 5 on Page 8

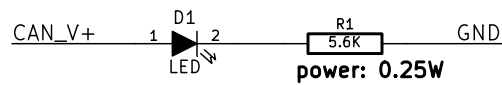


Figure 5: Power indicator

3.1 Power Distribution

The Kvaser T-connector v2 may be powered from an external 12 V 1 A power supply, via a 2.1 mm x 5.5 mm connector, providing a power source for Kvaser CAN interfaces. The Kvaser T-connector v2 may also distribute power via CAN_V+ in any of the D-SUB9 connectors.

3.2 LED Indicators

The Kvaser T-connector v2 has one red power LED indicator, see Figure 6.



Figure 6: Power LED and termination resistor switch on Kvaser T-connector v2.

3.3 Termination Adjustment

The Kvaser T-connector v2 has an adjustable CAN termination, connecting a load of 120 Ω , 60 Ω , or 0 Ω , that provides an effective way of terminating the CAN circuit. The value of the load resistor is controlled by a three-way switch, see Figure 6.

4 Appendices

In this section you will find technical information about the Kvaser T-connector v2 and its connectors.

4.1 Technical data

In Table 2 below you will find the Kvaser T-connector v2's technical specifications.

CAN Connectors	3 female, 1 male (D-SUB9)
Galvanic isolation	No
CAN Bit Rate	1 Mbit/s "Classic CAN"
CAN FD Bit Rate	Up to 8 Mbit/s (with correct physical layer implementation)
Power consumption	Typically 20 mW at 12 V
Dimensions	55 x 90 x 30 mm
Weight	100 g
Operating temperature	-30 °C to +80 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	0 % to 85 % (non-condensing.)

Table 2: Technical Specifications.

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.

For information about Kvaser's recycling programs, visit:
<https://www.kvaser.com/en/kvaser/recycling-policy.html>

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-LEVEL SYSTEM, WHICH MAY BE DEFECTIVE.

6.2 EU Regulatory Compliance



EU Declaration of Conformity (DoC)

We

Company Name:	Kvaser AB	City:	Mölnadal
Postal address:	Aminogatan 25	Telephone number:	+46 31 886344
Postcode:	431 53	E-mail address:	sales@kvaser.com

declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product: Kvaser T-connector v2

Object of the declaration (identification of apparatus allowing traceability):

Product: Kvaser T-connector v2

Type: 73-30130-00776-5

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

RoHS recast Directive 2011/65/EU (Art. 4.1)

The following harmonised standards and technical specifications have been applied
(title, date of standard/specification):

EN 50581 (2012)

Signed for and on behalf of:

Mölnadal

2019-12-05

Place of issue

Date of issue

Claes Haglund, Supply Chain and Quality director

6.3 FCC Regulatory Compliance



Federal Communications Commission (FCC) Compliance Information Statement

IDENTIFICATION OBJECT:

Product: Kvaser T-connector v2

Type: 73-30130-00776-5

APPLICABLE COMPLIANCE STATEMENTS:

CFR Title 47 Part 15 §15.107, §15.109

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.

RESPONSIBLE PARTY (IN USA) NAME:

Kvaser Inc.

23881 Via Fabricante, Suite 503

Mission Viejo, CA 92691

Internet contact: support@kvaser.com

7 Document Revision History

Version history for document UG_98209_t-connector_v2:

Revision	Date	Changes
1.0	2018-01-30	Initial version
2.0	2018-10-15	Updated EU Regulatory Compliance
2.1	2019-08-09	Url protocol updated
2.2	2020-01-27	Added sdoc
2.3	2021-04-08	Correction, pin 3 is not connected to pin 6, pin 3 is connected to power supply