# Kvaser T-Cannector Expansion L User's Guide



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https://www.kvaser.com

Printed Sunday 31st May, 2026

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# 1 About this manual

This manual is intended for Kvaser T-Cannector Expansion L 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-Cannector Expansion L.

## 2.1 Welcome to Kvaser T-Cannector Expansion L



Figure 1: Kvaser T-Cannector Expansion L

The Kvaser T-Cannector Expansion L, which consists of a Kvaser T-cannector v2 (Base unit) and a Kvaser T-cannector L (Extension unit), expands the Kvaser T-cannector v2 (00776-5) to a CAN bus hub that in total offers eight D-SUB9 socket connectors.

An adjustable CAN termination load (connecting an optional resistor of 120 Ω or 60 Ω) is provided by the Kvaser T-cannector v2 (Base unit) and thus provides an affordable and safe way of terminating the CAN bus when using Kvaser interfaces on a development board.

When attached and powered via the Kvaser T-cannector v2, the CAN bus hub is also capable of powering bus powered devices, such as Kvaser's Blackbird, Hybrid, and Memorator series.

| Device | Product Number (EAN) |
|---|---|
| Kvaser T-Cannector Expansion L | 73-30130-01300-1 |

Table 1: Kvaser T-Cannector Expansion L device with product number.

## 2.2 Major features

- Acts as a CAN bus hub extension to the Kvaser T-cannector v2 (00776-5)
- Extends the Kvaser T-cannector v2 to in total eight D-SUB9 socket connectors
- Adjustable termination via easy-to-use three-way switch (Base unit)
- LED to indicate power on (Base unit)
- Voltage range of 12 - 24 V DC

# 3 Kvaser T-cannector v2 (Base unit) hardware



Figure 2: Kvaser T-cannector v2 (Base unit) with D-SUB9 connectors.

Kvaser T-cannector v2 (Base unit) is a CAN bus hub with three D-SUB9 sockets (see Figure 3) and one D-SUB9 plug connector (see Figure 4 on Page 8).

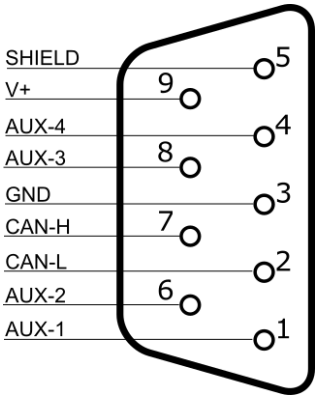



Figure 3: Pinout of D-SUB9 socket.

All pins of these connectors are fully connected, e.g. pin 1 on each connector is connected to pin 1 on all other connectors, see Figure 5 on Page 8.

Pin 9 (V+) and pin 3 (GND) are connected to the power supply. A power indicator LED is connected as shown in Figure 5 on Page 8. The termination resistor is selectable using the three-way switch marked SW.

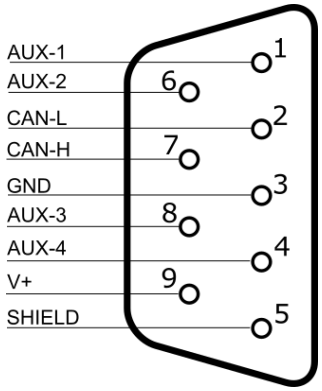



Figure 4: Pinout of D-SUB9 plug.

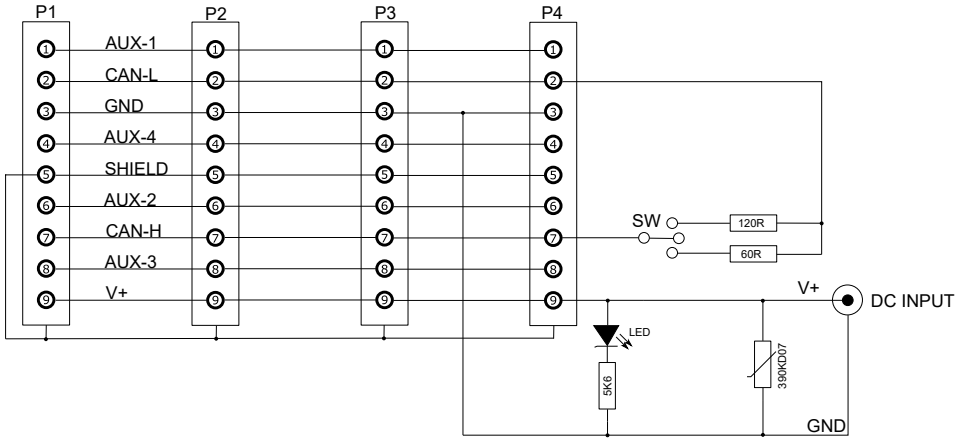



Figure 5: Schematic over the Kvaser T-cannector v2 (Base unit).

## 3.1 Power Distribution

The Kvaser T-cannector v2 (Base unit) may be powered from an external DC power supply, via a 2.1 x 5.5 mm connector, providing a power source for Kvaser CAN interfaces. The Kvaser T-cannector v2 (Base unit) may also distribute power via V+ in any of the D-SUB9 connectors.

## 3.2 LED Indicators

The Kvaser T-cannector v2 (Base unit) has one red power LED indicator, see Figure 6 on Page 9.



Figure 6: Power LED and termination three-way switch on Kvaser T-cannector v2 (Base unit).

## 3.3 Termination Adjustment

The Kvaser T-cannector v2 (Base unit) has an adjustable CAN termination that provides an effective way of terminating the CAN circuit. The optional termination of 120 Ω or 60 Ω is selected through a three-way switch, see Figure 6.

# 4 Kvaser T-cannector L (Extension unit) hardware



Figure 7: Top view of Kvaser T-cannector L (Extension unit).




Figure 8: Bottom view of Kvaser T-cannector L (Extension unit).

Kvaser T-cannector L (Extension unit) is a CAN bus hub with three plus one D-SUB9 sockets (see Figure 10 on Page 11) and one D-SUB9 plug connector (see Figure 11 on Page 11) designed for connecting to a Kvaser T-cannector v2 (Base unit). All pins of the D-SUB9 connectors are fully connected, e.g. pin 1 on each connector is connected to pin 1 on all other connectors, see Figure 9 on Page 11.

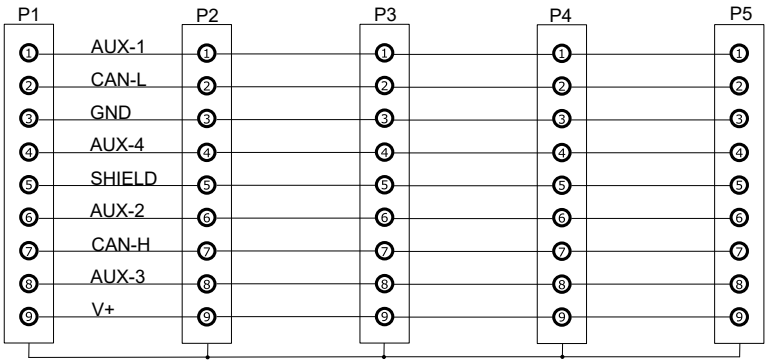



Figure 9: Schematic over the Kvaser T-cannector L (Extension unit).

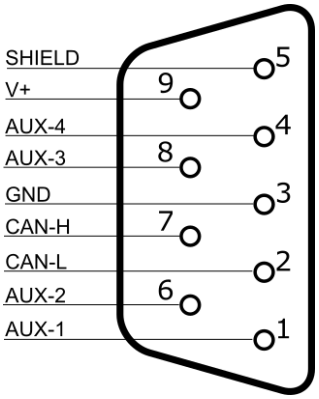



Figure 10: Pinout of D-SUB9 socket.

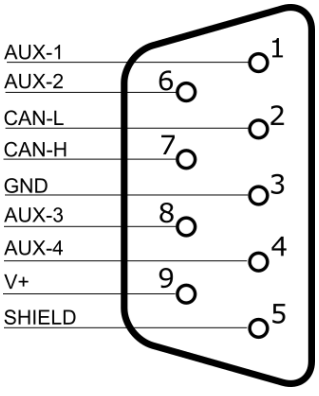



Figure 11: Pinout of D-SUB9 plug.

## 4.1 Assembly

In order to connect the Kvaser T-cannector L (Extension unit) with the Kvaser T-cannector v2 (Base unit), position the Kvaser T-cannector L (Extension unit) so the bottom D-SUB9 socket connects with the D-SUB9 plug connector on the Kvaser T-cannector v2 (Base unit). See Figure 12.



Figure 12: Kvaser T-cannector L (Extension unit) connected on top of the Kvaser T-cannector v2 (Base unit).

The final step is to connect the assembled Kvaser T-Cannector Expansion L to a Kvaser T-cannector v2 (00776-5) as shown in Figure 13.

The difference between the Kvaser T-cannector v2 (Base unit) and the Kvaser T-cannector v2 is that the former has the hex-nuts on the D-SUB9 plug exchanged to screws in order to facilitate fastening of the assembly. This means that the assembly needs to be performed as described.



Figure 13: Kvaser T-Cannector Expansion L connected to a Kvaser T-cannector v2 (00776-5).

# 5 Appendices

In this section you will find technical information about the Kvaser T-Cannector Expansion L and its connectors.

## 5.1 Technical data

In Table 2 below you will find the technical specifications of Kvaser T-cannector v2 (Base unit).

| | |
|---|---|
| CAN Connectors | 3 sockets, 1 plug (D-SUB9) |
| Galvanic isolation | No |
| CAN Bit Rate | 1 Mbit/s "Classic CAN" |
| CAN FD Bit Rate | Up to 8 Mbit/s |
| Power consumption | Typically 20 mW at 12 V DC |
| Voltage range | 12 - 24 V DC, max 2 A |
| 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 for Kvaser T-cannector v2 (Base unit)

In Table 3 below you will find the technical specifications of Kvaser T-cannector L (Extension unit).

| | |
|---|---|
| CAN Connectors | 3 + 1 sockets, 1 plug (D-SUB9) |
| Galvanic isolation | No |
| CAN Bit Rate | 1 Mbit/s "Classic CAN" |
| CAN FD Bit Rate | Up to 8 Mbit/s |
| Power consumption | – |
| Voltage range | 12 - 24 V DC, max 2 A |
| Dimensions | 51 x 55 x 34 mm |
| Weight | 80 g |
| Operating temperature | −30 °C to +80 °C |
| Storage temperature | −40 °C to +85 °C |
| Relative humidity | 0 % to 85 % (non-condensing.) |

Table 3: Technical Specifications for Kvaser T-cannector L (Extension unit)

# 6 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

# 7 Legal acknowledgements

## 7.1 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.

## 7.2 EU Regulatory Compliance

KVASER **EU Declaration of Conformity (DoC)**

**We**

| | | | |
|---|---|---|---|
| Company Name: | Kvaser AB | City: | Mölndal |
| 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-cannector v2

**Object of the declaration** (identification of apparatus allowing traceability):
Product: Kvaser T-cannector 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:**

| Mölndal | 2021-06-30 | |
|---|---|---|
| Place of issue | Date of issue | Claes Haglund, Supply Chain and Quality Director |

KVASER **EU Declaration of Conformity (DoC)**

**We**

| | | | |
|---|---|---|---|
| Company Name: | Kvaser AB | City: | Mölndal |
| 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-Cannector Expansion L

**Object of the declaration** (identification of apparatus allowing traceability):
Product: Kvaser T-Cannector Expansion L
Type: 73-30130-01203-5

**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:**

| Mölndal | 2021-06-30 | |
|---|---|---|
| Place of issue | Date of issue | Claes Haglund, Supply Chain and Quality Director |

# 8 Document Revision History

Version history for document UG_98236_t-cannector_v2_l:

| Revision | Date | Changes |
|---|---|---|
| 1.0 | 2021-09-07 | Initial version. |
| 1.1 | 2022-03-15 | Minor textual changes. |
| 1.2 | 2024-03-15 | Updated Kvaser logo. |
| 1.3 | 2025-01-13 | Minor textual changes. |