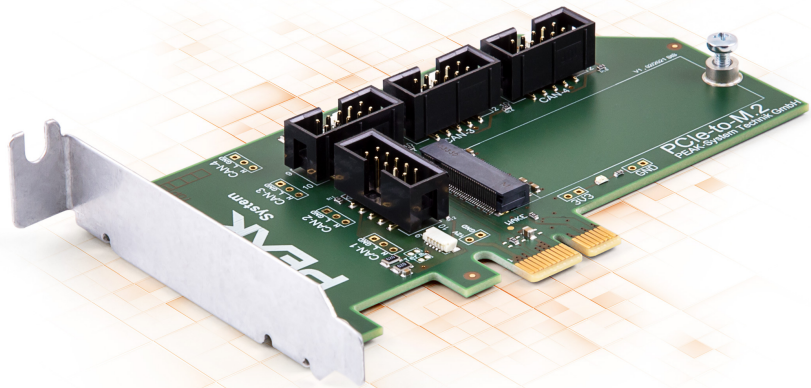


# PCIe-M.2 Low-Profile Adapter

## User Manual



# Relevant Product

Product name	Part number
PCIe-M.2 Low-Profile Adapter	IPEH-003023

## Imprint

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# 1 Introduction

The PCIe-M.2 low-profile adapter allows the use of a plug-in card of the M.2 type in a PC with a low-profile housing. The adapter card is primarily designed for operation with the CAN interface PCAN-M.2. Besides the regular D-Sub connection cables of the PCAN-M.2, the connection of up to four CAN channels can be done via pin connectors or solder connections. In addition, each CAN connection is equipped with an activatable split termination.

## 1.1 Properties at a Glance

- Low-Profile form factor
- PC plug-in card (PCIe x1) for the PCI Express slot
- Screw fixing for a card of the type M.2 (2260/M-Key)
- CAN connection optionally via
  - D-Sub connection cable of the PCAN-M.2
  - Pin connector, 10-pin
  - Solder connectors
- CAN termination can be activated through a solder jumper, separately for each CAN channel
- Status LED for power supply
- Supply voltage of the adapter of 3.3 V
- Extended operating temperature range from -40 to +85 °C (-40 to + 185°F)

## 1.2 System Requirements

- Computer with
  - Formfactor Low-Profile
  - PCI Express slot with one PCIe lane
- PCAN-M.2 CAN interface

## 1.3 Scope of Supply

- PCIe-M.2 adapter with mounted slot bracket
- Manual in PDF format

## 1.4 Intended Use

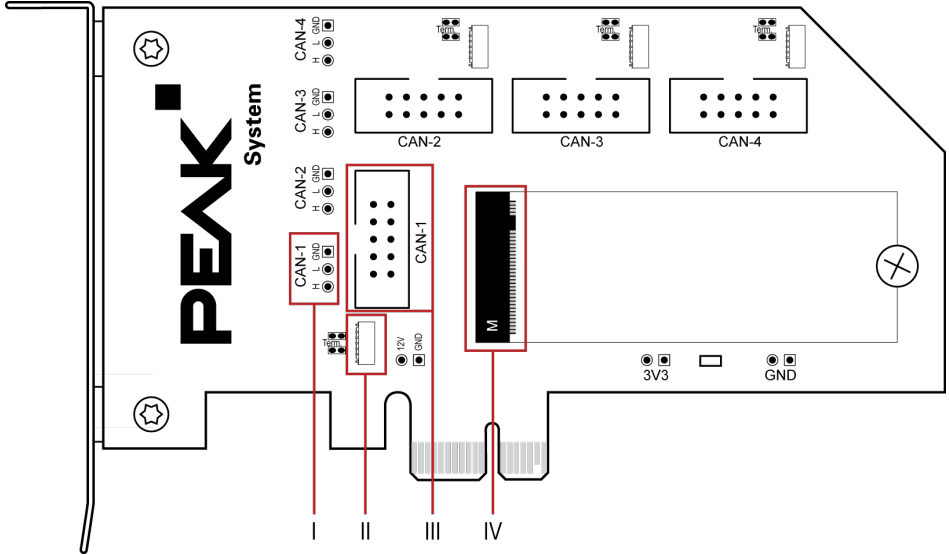
The adapter card is intended for the use of a PCAN-M.2 type CAN interface.

The use of other cards of type M.2 (2260/M-Key) is possible, but not part of this manual.

# 2 Description

The adapter card is equipped with connectors for an individual connection of up to four CAN channels and a switchable termination per CAN channel..

## 2.1 Connectors



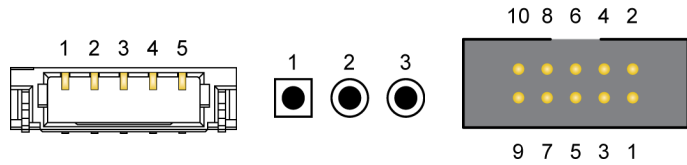
Per CAN channel (CAN-1 to CAN-4):

- I: Solder connector
- II: SUR-header for connection to PCAN-M.2
- III: 10-pin connector

For the installation of a PCAN-M.2:

- IV: M.2 slot (2260/M-Key)

## 2.1.1 Assignment of the Connectors



Designation	SUR header	Solder connector	10-pin connector
<b>Connected to</b>	<b>M.2 plug-in card</b>	<b>CAN bus</b>	<b>CAN bus</b>
CAN_GND	3	1	5
CAN_Low	5	2	3
CAN_High	4	3	4
CAN_High Daisy Chain	1	-	6
CAN_Low Daisy Chain	2	-	1

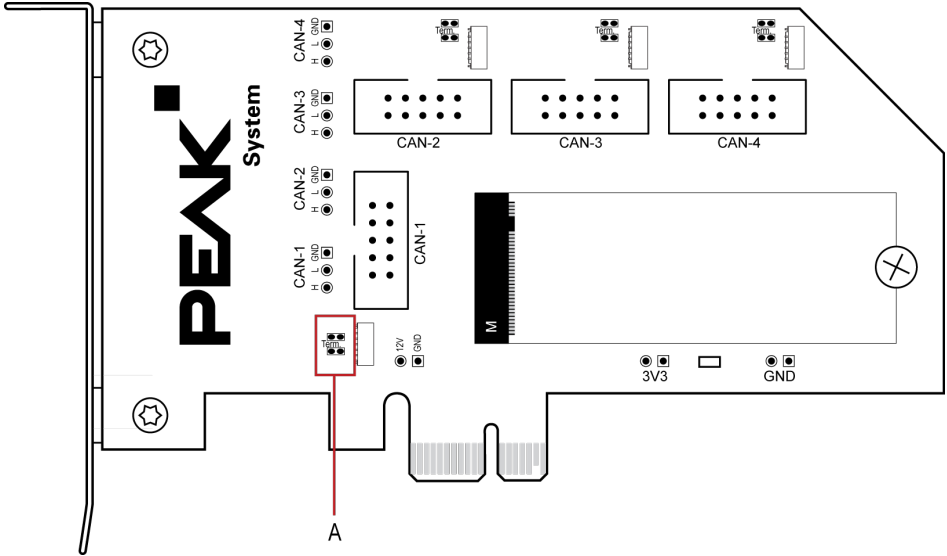
## 2.1.2 CAN Connection

When using a PCAN-M.2 CAN interface, the one to four CAN channels are optionally connected as follows:

- directly with the connection cable of the PCAN-M2 plug-in card
- via the 10-pin connector
- via solder connectors

**Note:** Separate cables are required for connection to the 10-pin connector or solder connectors. These are not included in the scope of delivery.

## 2.2 Activatable Termination



A: A split termination can be activated with solder bridges separately for each channel, see chapter *Commissioning*.

**Note:** With a connected termination, the adapter card can only be used at the end of a CAN bus. With a termination on the CAN cabling, the adapter card can be variably connected to the CAN bus. If the termination has already been enabled on the PCAN-M.2, the termination of the adapter card must remain disabled.

# 3 Commissioning

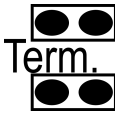


**Risk of damage!** Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

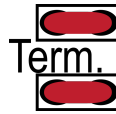
## 3.1 Activatable Termination

**Note:** Soldering on the adapter card may only be performed by qualified electrical engineering personnel.

Each channel is equipped with two solder bridges for termination.



Termination inactive

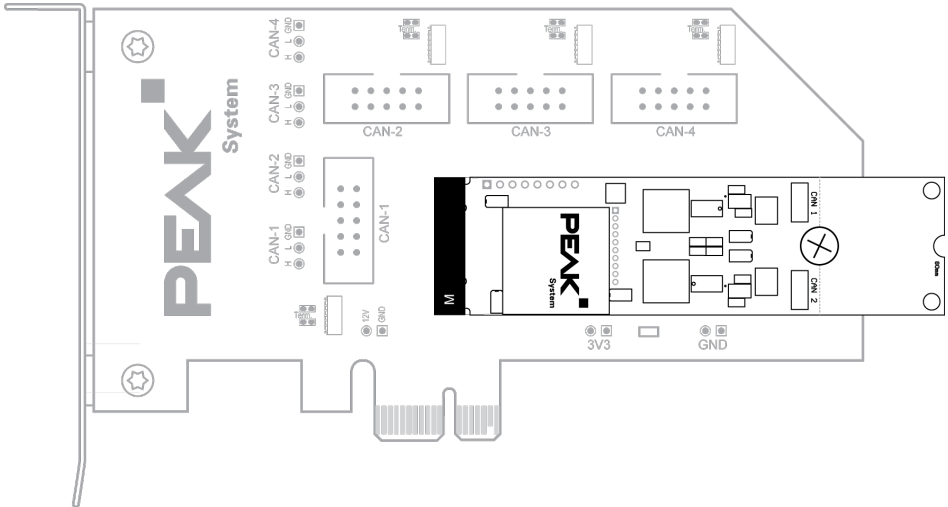


Termination active

If you want to activate the termination at the adapter card:

Close both solder bridges at the relevant CAN channel.

## 3.2 Install PCAN-M.2



**Note:** In the 2280 format the PCAN-M.2 protrudes beyond the edge of the adapter card. To prevent this, the PCAN-M.2 can be shortened to format 2260. To do this, carefully break off the rear part along the predetermined breaking line.

1. Unscrew the screw from the spacer of the adapter card.
2. Insert the PCAN-M.2 as far as it will go into the slot of the adapter card.
3. Push the end of the PCAN-M.2 down.
4. Fasten the PCAN-M.2 to the spacer with the screw.

## 3.3 Connect CAN

The following options can be used independently for each CAN channel:

### Option 1

Connect the connection cable (SUR/D-SUB) supplied with the PCAN-M.2 directly to the PCAN-M.2.

### Option 2

For the use of the 10-pin connector or the solder connectors:

1. Disconnect the connection cable supplied with the PCAN-M.2 from the D-Sub connector.
2. Connect a CAN connector of the PCAN-M.2 to the equivalent SUR header of the adapter card.
3. Connect a self-provided connection cable to the 10-pin connector or the solder connector.

## 3.4 Install Adapter Card

**Note:** The driver package of the PCAN-M.2 must be installed before mounting the adapter card.

1. Shut down the computer.
2. Open the computer case.
3. Remove the slot bracket in front of the adapter card slot.
4. Insert the adapter card into a PCI Express slot.
5. Close the computer case.
6. Reconnect the computer power supply.

The adapter card is ready for operation.

# 4 Technical Data

## Connectors

CAN header on plug-in card	SUR type: SM05B-SURS-TF
CAN connection	Optional via 10-pin connector, solder connector or directly to PCAN-M.2 plug-in card.
Computer slot	PCI Express; electromechanical specifications 1.1 or higher; uses PCIe lane
Slot on adapter card	M.2 (2260/M-Key)

## Power supply

Operating voltage	3.3 V
Current consumption without plug-in card	5 mA
Operating voltage for plug-in card	3.3 V

## Measures

Size adapter card (W x L x H)	Without slot bracket:	69.1 x 123 x 12 mm
	With slot bracket:	80.1 x 136.5 x 22.1 mm
Weight including slot bracket	41 g	

## Environment

Operating temperature	-40 to +85 °C (-40 to +185 °F)
Temperature for storage and transport	-40 to +125 °C (-40 to +257 °F)
Relative humidity	15 to 90 %, not condensing

# Appendix A Dimension Drawings

