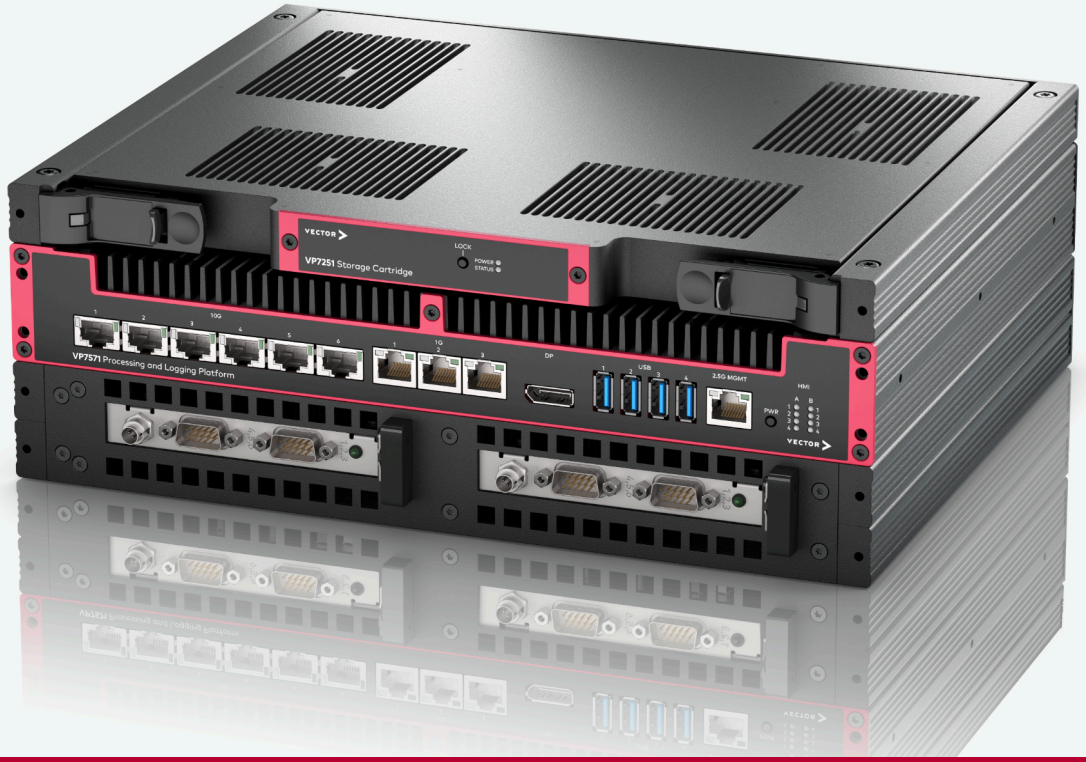
VECTOR



VP7500 Manual

Version 2.6 | English

Imprint

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1 Introduction

In this chapter you find the following information:

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1.1 About this User Manual

Conventions

In the two following charts you will find the conventions used in the user manual regarding utilized spellings and symbols.

Style	Utilization
bold	Blocks, surface elements, window and dialog names of the software. Accentuation of warnings and advices. **[OK]** Push buttons in brackets **File|Save** Notation for menus and menu entries
`Source Code`	File name and source code.
Hyperlink	Hyperlinks and references.
<CTRL>+<S>	Notation for shortcuts.

Symbol	Utilization
	This symbol calls your attention to warnings.
	Warning of damages by electrostatic discharge (ESD = Electrostatically Sensitive Device).
	Warning of hot surface! Do not touch without appropriate precautions.
	Here you can obtain supplemental information.
	Here you can find additional information.
	Here is an example that has been prepared for you.
	Step-by-step instructions provide assistance at these points.
	Instructions on editing files are found at these points.
	This symbol warns you not to edit the specified file.

1.1.1 Warranty

Restriction of warranty

We reserve the right to change the contents of the documentation and the software without notice. Vector Informatik GmbH assumes no liability for correct contents or damages which are resulted from the usage of the documentation. We are grateful for references to mistakes or for suggestions for improvement to be able to offer you even more efficient products in the future.

1.1.2 Registered Trademarks

Registered trademarks

All trademarks mentioned in this documentation and if necessary third party registered are absolutely subject to the conditions of each valid label right and the rights of particular registered proprietor. All trademarks, trade names or company names are or can be trademarks or registered trademarks of their particular proprietors. All rights which are not expressly allowed are reserved. If an explicit label of trademarks, which are used in this documentation, fails, should not mean that a name is free of third party rights.

- Windows, Windows 7, Windows 8.1, Windows 10, Windows 11 are trademarks of the Microsoft Corporation.

1.2 Important Notes



WARNING!
We provide our important notes and safety instructions in several languages, including Englisch (EN) and German (DE). For more details, see the relevant section:

- EN: Important Notes - Details
- DE: Wichtige Hinweise

2 System Description

In this chapter you find the following information:

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2.1 Overview

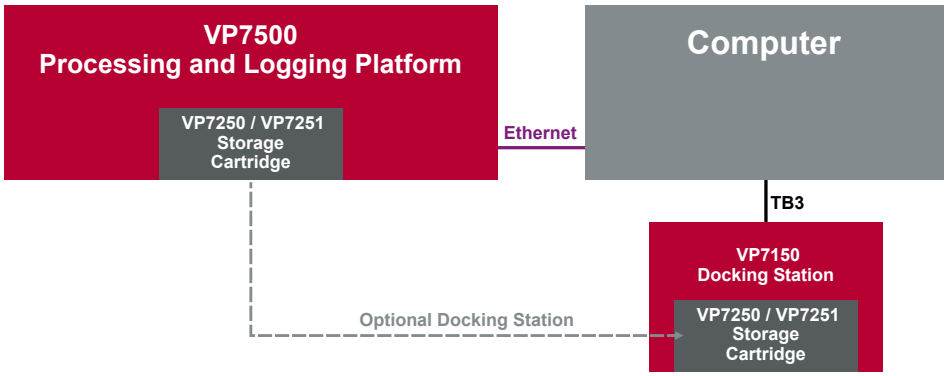
General information

The VP7500 is a powerful, compact and robust PC-based hardware platform that is especially designed for simultaneous and time-synchronous recording of automotive bus messages, video streams, radar raw data and ECU-internal measurement data.

Components

The VP7500 system consists of the following main components:

- **VP7500 Processing and Logging Platform**
  The VP7500 platforms are available in a number of hardware variants depending on the requirements. Available platforms are listed in section Platforms on page 15.
- **VP Storage Cartridge**
  Available storage cartridges are listed in section Storages and Docking Stations on page 68.



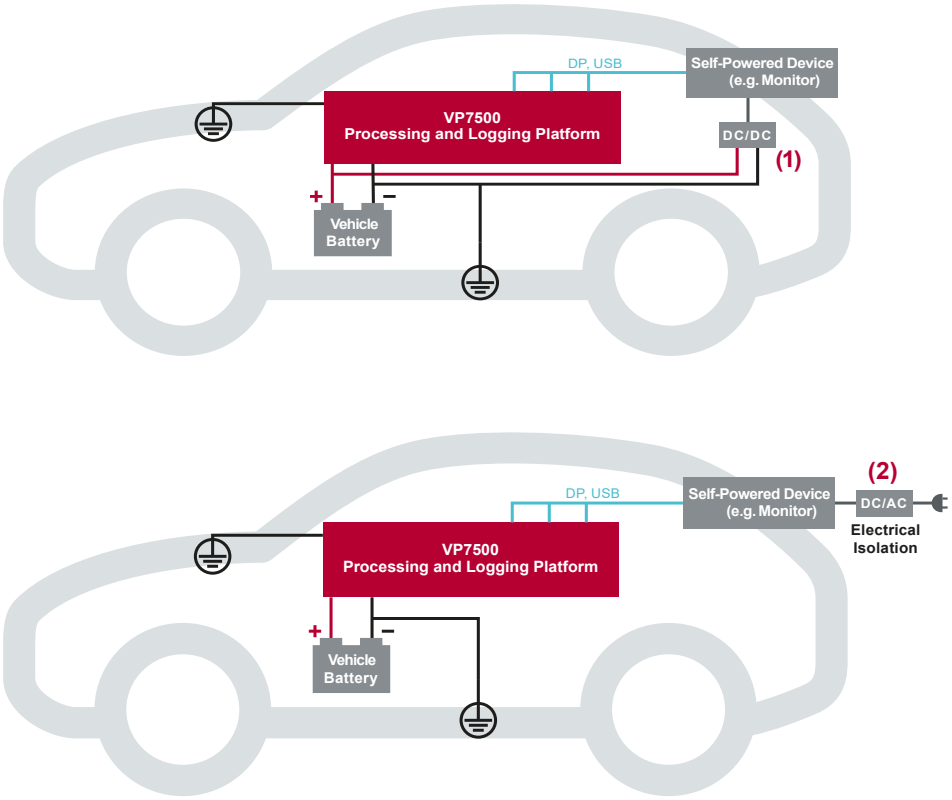
Other components and accessories are also available and listed in section Accessories on page 133.

Software variants

The VP7500 platforms are available with different software variants to suit different tasks and applications. The software variants are part of the order and cannot be changed afterwards. Please refer to section Software Variants on page 97 for more details.

2.2 General Setup

To ensure system functionality, make sure your system is set up properly. Please note that using separate power supplies with different grounds for VP7500 and connected devices may damage the devices.



2.3 Operation in Vehicle Electrical Systems

The VP7500 is designed to operate from

- 10 V DC..32 V DC (typ. 12 V DC ±10% or 24 V DC ±10%) or from
- a 12 V vehicle electrical system.

Unlike DC sources, vehicle electrical systems have voltage dips and voltage spikes. The VP7500 is safe against drop down pulses (cranking) down to 6.5 V and is also protected against 12 V load dumps according to ISO 16750-2 Load Dump Test B - with centralized load dump suppression.

Since load drops that can occur in a 24 V vehicle electrical system can damage the VP7500, we recommend using one of the following protection devices in this case:

- Vector VP2110 Smart UPS (part number: 22575)
- Ifm Electronic Load-Dump-Modul EC2016

A typical setup using a VP2110 could be as follows:

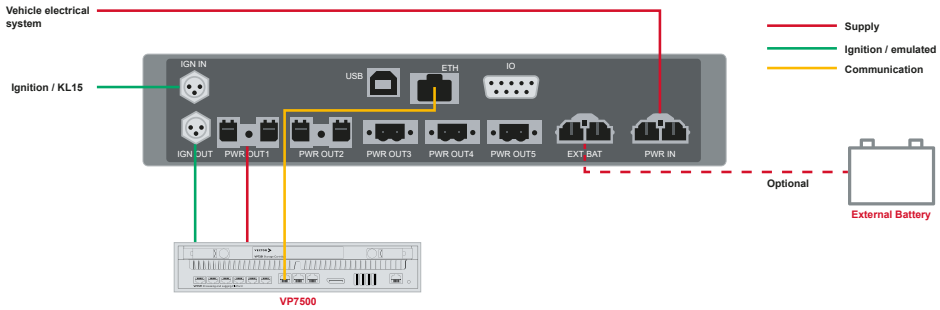


Figure 1: Setup example

The VP2110 Smart UPS protects the connected devices from undervoltage and overvoltage from the vehicle's electrical system.

A typical setup using a Ifm Electronic Load-Dump-Modul EC2016 could be as follows:

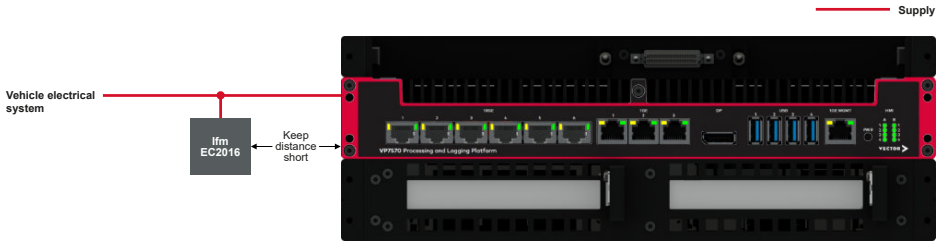


Figure 2: Setup example with Ifm EC2016

The Ifm Electronic Load-Dump-Modul EC2016 limits the voltage so that the VP7500 is not damaged.

3 Platforms

In this chapter you find the following information:

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3.1 VP7540

3.1.1 Scope of Delivery

The scope of delivery depends on the ordered system and the configuration:

- VP7540 in ordered variant and configuration (part number 22570)
- Power supply
  - Power Cable Amphenol C10 (part number 22648)
- Accessories
  - GNSS antenna (part number 07205)
  - Cable VP7 SYSCTRL <> Ignition (part number 22651)
  - Cable VP7 GPIO (part number 22650)
  - Cable VP7 SER/PPS (part number 22649)
  - Ethernet Cable 10Gbps 2m (part number 30016)
- Documentation
  - Quick Start Guide (part number 80895)

3.1.2 Introduction

The VP7540 consist of an actively-vented high-performance computer core based on x86 architecture. It supports time synchronization via PTP (IEEE1588 v2) on its 1 Gbit/s Ethernet and 10 Gbit/s Ethernet ports as timeTransmitter and has a built-in GNSS receiver as a UTC reference clock.



Figure 3: VP7540

Highlights

Features of the VP7540:

- Intel Core i7-9850HE (6 cores, 2.7 GHz)
- 64 Gbyte RAM
- 512 Gbyte Industrial SSD internal mass storage
- 6x 10 Gbit/s Ethernet (RJ45), with hardware timestamps
- 3x 1 Gbit/s Ethernet (RJ45), with hardware timestamps
- 1x 1 Gbit/s Ethernet (RJ45) (MGMT)
- 4x USB 3.2 Gen 1 (5 Gbit/s), 4x USB 2.0 (480 Mbit/s) host ports
- GNSS receiver
- PTP (IEEE1588v2), with GNSS-based master clock
- Ignition signal (clamp 15) for power management
- Microphone input
- Headphone output
- Display port

3.1.3 Interfaces, Control Elements and Indicators

3.1.3.1 Front Side

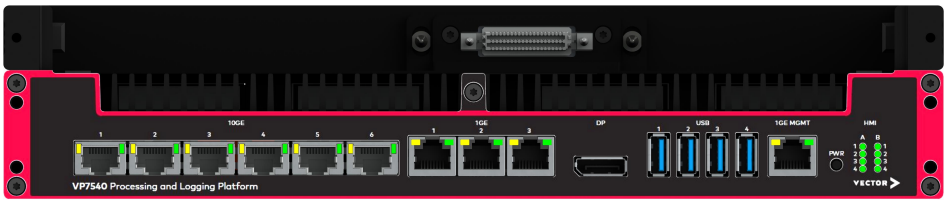


Figure 4: VP7540 front side

- **Storage Cartridge Bay**
  A storage cartridge can be inserted into the cartridge bay and be used as a removable mass storage device, e. g. for storing measurement data.

Note
The storage cartridge is not hot plug capable. Make sure your system is shut down before you insert or remove the cartridge. Insertion or removal of the storage cartridge during operation can cause data loss.

- **10G 1...6**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 10GBASE-T Ethernet interface according to IEEE 802.3an. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

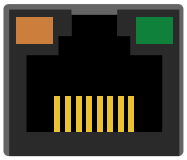
LED	Description
SPEED (left LED)	Yellow: 1 Gbit/s Green blinking: 10 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **1G 1...3**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 1000BASE-T Ethernet interface according to IEEE 802.3ab. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **DP**

The DisplayPort allows you to connect an external monitor. The maximum supported resolution is 4K at 60 Hz.

Note
Matching counterpart:
Customary DP cables.
It is recommended to use high quality cables. The cable length should not exceed 3 m for proper operation. The use of adapters is possible, but also in this case high quality components should be used.

- **USB 1...4**

The four USB 3.2 Gen 1 host ports allow to connect external USB hardware to the VP7540, for example other Vector devices to use them as additional interfaces in the tool software.

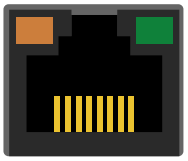
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 1000 mA per port.

Note
In order to achieve the data transmission rates typical for USB 3.2 Gen 1 (up to 5 Gbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 3.2 Gen 1. Also a connection of USB 1.0/2.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **1G MGMT**
  This Ethernet port is not recommended for data capturing as it has no hardware time synchronization. It is intended to connect the VP7540 to a LAN or a configuration computer for setup or maintenance.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity

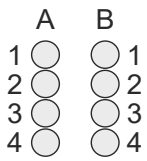


- **PWR**
  Power button to start or shut down the VP7540.

- **HMI**
  System and user defined LEDs for status information.

LED	Description
A1	User LED[1]
A2	User LED[1]
A3	User LED[1]
A4	User LED[1]
B1	User LED[1]
B2	User LED[2] / System LED: ▶ Red: VP7110 UPS config error
B3	User LED[2] / System LED ▶ Red: Temperature too low. System down state.
B4	System LED ▶ Green: Indication of operating status. ▶ Green flashing: Shutdown in progress ▶ Red: Temperature too high. System down state.

1: User programmable LED
2: User programmable LED with system override



Note
Programming the User LEDs is not yet implemented and will be available with a future software update.

Note
System Override: The microcontroller-based system management controller may override the user programmed LED state in case of the described system warning or system shut down.

Note
The critical temperature values (ambient and internal storage: -20 °C ... +60 °C) are continuously monitored during runtime by the system.

In a critical temperature condition at startup (below -20 °C or above +60 °C), the system will not be powered on and an error code (LED) will be shown.

In a critical temperature condition during operation, the system will be powered down and an error code (LED) will be shown. The system can only be re-powered by pressing the power button. Note that there is a 3 °C hysteresis.

3.1.3.2 Back Side

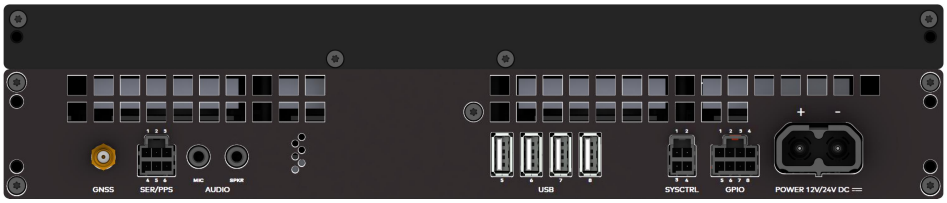


Figure 5: VP7540 back side

- **GNSS**
  SMA female connector to attach a GNSS antenna.

Note
Please attach the supplied GNSS antenna before using this feature!
Use only the supplied the GNSS antenna.

- **SER/PPS**
  This connector is reserved for future use.

Note
Use only the supplied SER/PPS cable. Cable length must not exceed 3 m for proper operation

- **AUDIO**
  These connectors can be used for connection of a microphone and a speaker or headphones.
  - **MIC:**
    Pre-amplifier with selectable 0 dB, +10 dB, +20 dB, and +30 dB gain settings.
    Programmable, low-noise MIC bias level.
  - **SPKR:**
    101 dB Dynamic range (A-wtd)
    89 dB THD+N
    Minimum impedance 16 Ohm
    Maximum output power 50 mW per channel

Note
Matching counterparts:
3.5 mm stereo jack plug (TRS plug).
Cable length must not exceed 3 m for proper operation.

- **USB 5...8**

The four USB 2.0 host ports allow to connect external USB hardware to the VP7540, for example other Vector devices to use them as additional interfaces in the tool software or peripherals like mouse and keyboard.

Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 500 mA per port.

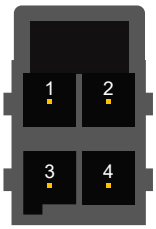
Note
In order to achieve the data transmission rates typical for USB 2.0 (480 Mbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 2.0. Also a connection of USB 1.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **SYSCTRL**

SYSCTRL connector with IGN In and CAN interface.
The CAN interface is reserved for future use.
IGN In can be used to wake respectively shutdown the VP7540.

Note
Use only the supplied SYSCTRL cable. Cable length must not exceed 3 m for proper operation.

Pin	Assignment
1	CAN High
2	IGN In, Thresholds: On: > 4.75 V Off: < 4.15 V (+-5 %), Umax: 32 V
3	CAN Low
4	Not connected



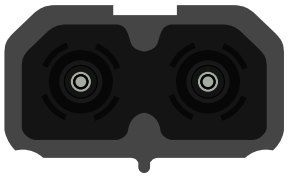
- **GPIO**

This connector is reserved for future use.

Note
Use only the supplied GPIO cable. Cable length must not exceed 3 m for proper operation.

- **Power**
  Power supply input for the VP7540 via Amphenol C10 connector to attach the supplied power cable or power adapter.

Pin	Assignment
+	VIN+ 10 V DC ... 32 V DC typ.: 12 V DC ±10 % or 24 V DC ±10 % (resistent to voltage drops down to 6.5 V)
-	VIN-

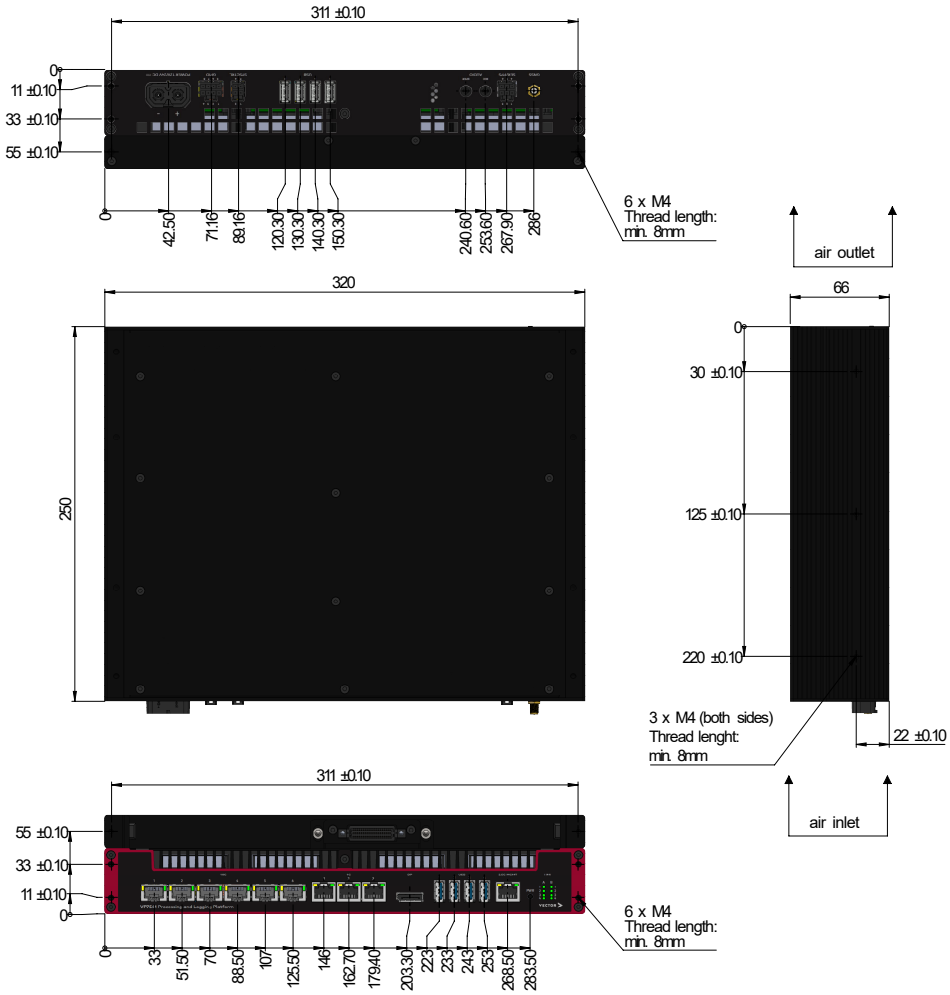


Note
Use only the supplied power cables or equivalent cables with a wire gauge of at least 4 mm² to ensure safety and proper function. Longer cables result in higher voltage drops across the cable. We recommend using cables with a length of less than 1.5 m. Use a suitable fuse (30 A / slow) close to the positive pole of the power supply. Do not pinch or touch hot surfaces or sharp edges. Check the wiring regularly for damage.

3.1.4 Technical Data

Processor	Intel Core i7-9850HE 6x 2.7 GHz
Graphic support	Intel UHD Graphics 630
RAM	64 Gbyte, DDR4
OS-Storage	512 Gbyte M.2 SSD
Network interfaces	6x 10 Gbit/s Ethernet (3x dual Intel X550 with hardware timestamp support) 3x 1 Gbit/s Ethernet (3x Intel I210 with hardware timestamp support) 1x 1 Gbit/s (Intel I218-LM MGMT)
USB interfaces	4x USB 3.2 Gen1 (5 Gbit/s) host ports (1000 mA each) 4x USB 2.0 (480 Mbit/s) host ports (500 mA each)
Audio interfaces	Microphone input, stereo headphone output
Monitor interfaces	1x DP 1.2 with a maximum resolution of: 3840 x 2160 pixels @ 60 Hz, 24 bits per pixel (bpp)
GNSS	ublox NEO-M8N
On/Off control "Ignition"	1x Digital Input via SYSCTRL plug connector (Ignition): - On: > 4.75 V - Off: < 4.15 V (±5 %) - Umax 32 V , Iin < 1 mA
Operating system	Windows 10 IoT (64 bit)
Supply voltage	10 V DC ... 32 V DC; typ.: 12 V DC ±10 % or 24 V DC ±10 %; 12 V electrical vehicle systems are supported; safe in case of dropdown pulses (cranking) down to 6.5 V
Housing dimensions (WxHxD)	320 x 66 x 250 mm
Cooling	Active cooling with dynamically controlled airflow
Power consumption typically	Between 150 W and 220 W depending on the system configuration and utilization
Standby (OFF) current	< 50 µA (RTC, GNSS, µC Stby.)
Weight	Approx. 7 kg (without storage cartridge)
Operating temperature	-20 °C ... +60 °C (without storage cartridge)
Storage temperature	-40 °C ... +85 °C
Air humidity	90 % non-condensing
Vibration and shock	EN 60068-2-64:2008 (10...1000 Hz – 33.8 m/s²); y and z axis, 1 h per axis EN 60068-2-27:2009 (half sine, 11 ms, 500 m/s²); y and z axis, 10 pos. and 10 neg. per axis
IP protection class	IP20

Dimensions


311 ±0.10
0
11 ±0.10
33 ±0.10
55 ±0.10
0
42.50
71.16
89.16
120.30
130.30
140.30
150.30
240.60
253.60
267.90
286
6 x M4
Thread length:
min. 8mm
air outlet
320
250
66
0
30 ±0.10
125 ±0.10
220 ±0.10
3 x M4 (both sides)
Thread lenght:
min. 8mm
22 ±0.10
air inlet
311 ±0.10
55 ±0.10
33 ±0.10
11 ±0.10
0
0
33
51.50
70
88.50
107
125.50
146
162.70
179.40
203.30
223
233
243
253
268.50
283.50
6 x M4
Thread length:
min. 8mm

3.2 VP7541

3.2.1 Scope of Delivery

The scope of delivery depends on the ordered system and the configuration:

- VP7541 in ordered variant and configuration (part number 22630)
- Power supply
  - Power Cable Amphenol C10 (part number 22648)
- Accessories
  - GNSS antenna (part number 07205)
  - Cable VP7 SYSCTRL <> Ignition (part number 22651)
  - Cable VP7 GPIO (part number 22650)
  - Cable VP7 SER/PPS (part number 22649)
  - Ethernet Cable 10Gbps 2m (part number 30016)
- Documentation
  - Quick Start Guide (part number 80895)

3.2.2 Introduction

The VP7541 consist of an actively-vented high-performance computer core based on x86 architecture. It supports time synchronization via PTP (IEEE1588 v2) on its 1 Gbit/s Ethernet and 10 Gbit/s Ethernet ports as timeTransmitter and has a built-in GNSS receiver as a UTC reference clock.



Figure 6: VP7541

Highlights

Features of the VP7541:

- Intel Xeon W-11865MRE (8x 2.6 GHz)
- 64 Gbyte RAM
- 512 Gbyte Industrial SSD internal mass storage
- 6x 10 Gbit/s Ethernet (RJ45), with hardware timestamps
- 3x 1 Gbit/s Ethernet (RJ45), with hardware timestamps
- 1x 2.5 Gbit/s Ethernet (RJ45) (MGMT)
- 4x USB 3.2 Gen 1 (5 Gbit/s), 4x USB 2.0 (480 Mbit/s) host ports
- GNSS receiver
- PTP (IEEE1588v2), with GNSS-based master clock
- Ignition signal (clamp 15) for power management
- Microphone input
- Headphone output
- Display port

3.2.3 Interfaces, Control Elements and Indicators

3.2.3.1 Front Side

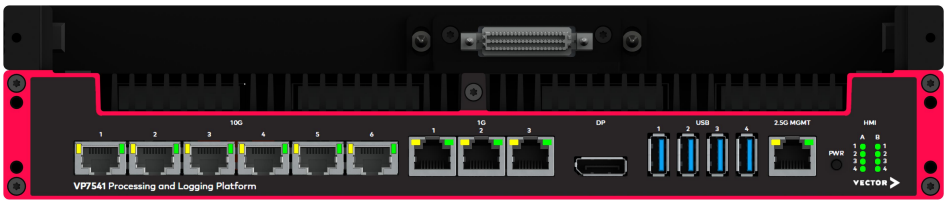


Figure 7: VP7541 front side

- **Storage Cartridge Bay**
  A storage cartridge can be inserted into the cartridge bay and be used as a removable mass storage device, e. g. for storing measurement data.

Note
The storage cartridge is not hot plug capable. Make sure your system is shut down before you insert or remove the cartridge. Insertion or removal of the storage cartridge during operation can cause data loss.

- **10G 1...6**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 10GBASE-T Ethernet interface according to IEEE 802.3an. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

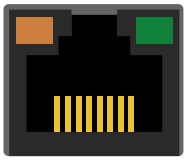
LED	Description
SPEED (left LED)	Yellow: 1 Gbit/s Green blinking: 10 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **1G 1...3**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 1000BASE-T Ethernet interface according to IEEE 802.3ab. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **DP**

The DisplayPort allows you to connect an external monitor. The maximum supported resolution is 4K at 60 Hz.

Note
Matching counterpart:
Customary DP cables.
It is recommended to use high quality cables. The cable length should not exceed 3 m for proper operation. The use of adapters is possible, but also in this case high quality components should be used.

- **USB 1...4**

The four USB 3.2 Gen 1 host ports allow to connect external USB hardware to the VP7541, for example other Vector devices to use them as additional interfaces in the tool software.

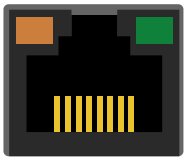
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 1000 mA per port.

Note
In order to achieve the data transmission rates typical for USB 3.2 Gen 1 (up to 5 Gbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 3.2 Gen 1. Also a connection of USB 1.0/2.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **2.5G MGMT**
  This Ethernet port is not recommended for data capturing as it has no hardware time synchronization. It is intended to connect the VP7541 to a LAN or a configuration computer for setup or maintenance.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 2.5 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity

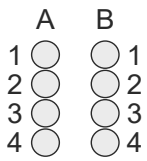


- **PWR**
  Power button to start or shut down the VP7541.

- **HMI**
  System and user defined LEDs for status information.

LED	Description
A1	User LED[1]
A2	User LED[1]
A3	User LED[1]
A4	User LED[1]
B1	User LED[1]
B2	User LED[2] / System LED: ▶ Red: VP7110 UPS config error
B3	User LED[2] / System LED ▶ Red: Temperature too low. System down state.
B4	System LED ▶ Green: Indication of operating status. ▶ Green flashing: Shutdown in progress ▶ Red: Temperature too high. System down state.

1: User programmable LED
2: User programmable LED with system override



Note
Programming the User LEDs is not yet implemented and will be available with a future software update.

Note
System Override: The microcontroller-based system management controller may override the user programmed LED state in case of the described system warning or system shut down.

Note
The critical temperature values (ambient and internal storage: -20 °C ... +60 °C) are continuously monitored during runtime by the system.

In a critical temperature condition at startup (below -20 °C or above +60 °C), the system will not be powered on and an error code (LED) will be shown.

In a critical temperature condition during operation, the system will be powered down and an error code (LED) will be shown. The system can only be re-powered by pressing the power button. Note that there is a 3 °C hysteresis.

1: User programmable LED
2: User programmable LED with system override

3.2.3.2 Back Side

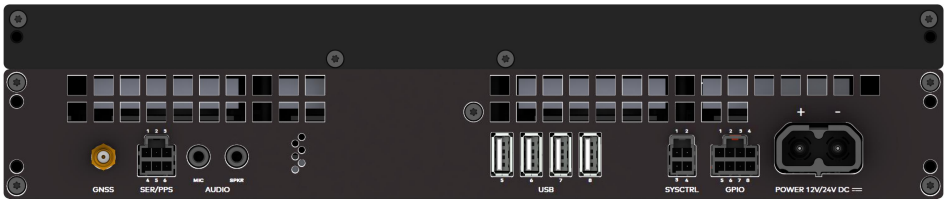


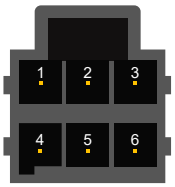
Figure 8: VP7541 back side

- **GNSS**
  SMA female connector to attach a GNSS antenna.

Note
Please attach the supplied GNSS antenna before using this feature!
Use only the supplied the GNSS antenna.

- **SER/PPS**
  The pin assignment is as follows:

Pin	Assignment
1	Reserved
2	Reserved
3	Reserved
4	Reserved
5	GND (galvanically isolated). Only for external pulse per second (PPS) signal.
6	External PPS output with an internal 100 kΩ pull-down. - High: 5 V - Low: 0 V (nominal)



Note
Use only the supplied SER/PPS cable. Cable length must not exceed 3 m for proper operation.

- **AUDIO**
  These connectors can be used for connection of a microphone and a speaker or headphones.
  - **MIC:**
    Pre-amplifier with selectable 0 dB, +10 dB, +20 dB, and +30 dB gain settings.
    Programmable, low-noise MIC bias level.
  - **SPKR:**
    101 dB Dynamic range (A-wtd)
    89 dB THD+N
    Minimum impedance 16 Ohm
    Maximum output power 50 mW per channel

Note
Matching counterparts:
3.5 mm stereo jack plug (TRS plug).
Cable length must not exceed 3 m for proper operation.

- **USB 5...8**
  The four USB 2.0 host ports allow to connect external USB hardware to the VP7541, for example other Vector devices to use them as additional interfaces in the tool software or peripherals like mouse and keyboard.

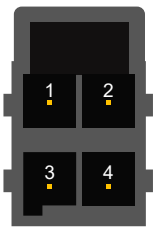
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 500 mA per port.

Note
In order to achieve the data transmission rates typical for USB 2.0 (480 Mbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 2.0. Also a connection of USB 1.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **SYSCTRL**
  SYSCTRL connector with IGN In and CAN interface.
  The CAN interface is reserved for future use.
  IGN In can be used to wake respectively shutdown the VP7541.

Note
Use only the supplied SYSCTRL cable. Cable length must not exceed 3 m for proper operation.

Pin	Assignment
1	CAN High
2	IGN In, Thresholds: On: > 4.75 V Off: < 4.15 V (+-5 %), Umax: 32 V
3	CAN Low
4	Not connected

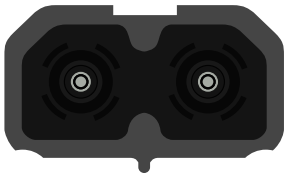


- **GPIO**
  This connector is reserved for future use.

Note
Use only the supplied GPIO cable. Cable length must not exceed 3 m for proper operation.

- **Power**
  Power supply input for the VP7541 via Amphenol C10 connector to attach the supplied power cable or power adapter.

Pin	Assignment
+	VIN+ 10 V DC ... 32 V DC typ.: 12 V DC ±10 % or 24 V DC ±10 % (resistent to voltage drops down to 6.5 V)
-	VIN-

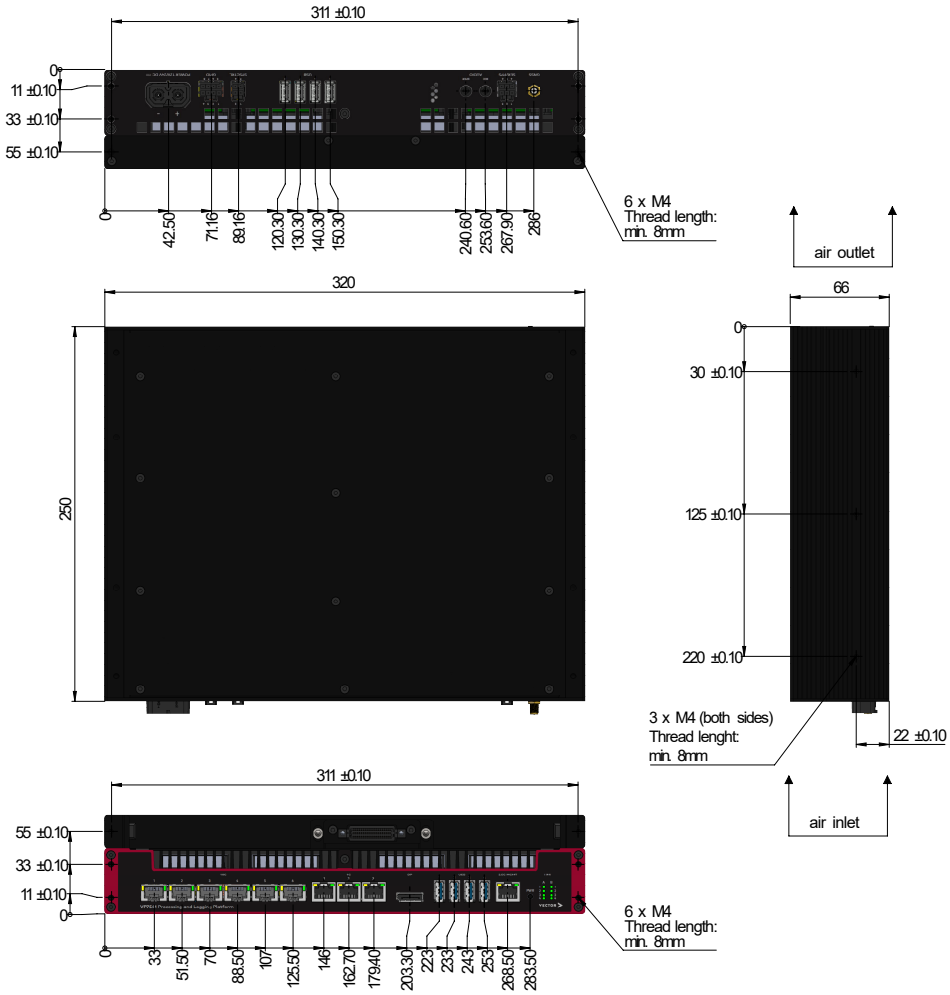


Note
Use only the supplied power cables or equivalent cables with a wire gauge of at least 4 mm² to ensure safety and proper function. Longer cables result in higher voltage drops across the cable. We recommend using cables with a length of less than 1.5 m. Use a suitable fuse (30 A / slow) close to the positive pole of the power supply. Do not pinch or touch hot surfaces or sharp edges. Check the wiring regularly for damage.

3.2.4 Technical Data

Processor	Intel Xeon W-11865MRE 8x 2.6 GHz
Graphic support	Intel UHD Graphics for 11th Gen Intel Processors
RAM	64 Gbyte, DDR4
OS-Storage	512 Gbyte M.2 SSD
Network interfaces	6x 10 Gbit/s Ethernet (3x dual Intel X550 with hardware timestamp support) 3x 1 Gbit/s Ethernet (3x Intel I210 with hardware timestamp support) 1x 2.5 Gbit/s (Intel I225-IT MGMT)
USB interfaces	4x USB 3.2 Gen1 (5 Gbit/s) host ports (1000 mA each) 4x USB 2.0 (480 Mbit/s) host ports (500 mA each)
Audio interfaces	Microphone input, stereo headphone output
Monitor interfaces	1x DP 1.4a with a maximum resolution of: 3840 x 2160 pixels @ 60 Hz, 30 bits per pixel (bpp)
GNSS	ublox NEO-M8N
On/Off control “Ignition”	1x Digital Input via SYSCTRL plug connector (Ignition): - On: > 4.75 V - Off: < 4.15 V (±5 %) - Umax 32 V , Iin < 1 mA
Operating system	Automotive PC: Windows 11 IoT (64 bit) Smart Logger: Windos 10 IoT (64 bit)
Supply voltage	10 V DC ...32 V DC; typ.: 12 V DC ±10 % or 24 V DC ±10 %; 12 V electrical vehicle systems are supported; safe in case of dropdown pulses (cranking) down to 6.5 V
Housing dimensions (WxHxD)	320 x 66 x 250 mm
Cooling	Active cooling with dynamically controlled airflow
Power consumption typically	Between 150 W and 220 W depending on the system configuration and utilization
Standby (OFF) current	< 50 µA (RTC, GNSS, µC Stby.)
Weight	Approx. 7 kg (without storage cartridge)
Operating temperature	-20 °C ... +60 °C (without storage cartridge)
Storage temperature	-40 °C ... +85 °C
Air humidity	90 % non-condensing
Vibration and shock	EN 60068-2-64:2008 (10...1000 Hz – 33.8 m/s²); y and z axis, 1 h per axis EN 60068-2-27:2009 (half sine, 11 ms, 500 m/s²); y and z axis, 10 pos. and 10 neg. per axis
IP protection class	IP20

Dimensions


311 ±0.10
0
11 ±0.10
33 ±0.10
55 ±0.10
0
42.50
71.16
89.16
120.30
130.30
140.30
150.30
240.60
253.60
267.90
286
6 x M4
Thread length:
min. 8mm
air outlet
320
250
66
0
30 ±0.10
125 ±0.10
220 ±0.10
3 x M4 (both sides)
Thread lenght:
min. 8mm
22 ±0.10
air inlet
311 ±0.10
55 ±0.10
33 ±0.10
11 ±0.10
0
0
33
51.50
70
88.50
107
125.50
148
162.70
179.40
203.30
223
233
243
253
268.50
283.50
6 x M4
Thread length:
min. 8mm

3.3 VP7570

3.3.1 Scope of Delivery

The scope of delivery depends on the ordered system and the configuration:

- VP7570 in ordered variant and configuration (part number 22571)
- Power supply
  - Power Cable Amphenol C10 (part number 22648)
- Accessories
  - GNSS antenna (part number 07205)
  - Cable VP7 SYSCTRL <> Ignition (part number 22651)
  - Cable VP7 GPIO (part number 22650)
  - Cable VP7 SER/PPS (part number 22649)
  - Ethernet Cable 10Gbps 2m (part number 30016)
- Documentation
  - Quick Start Guide (part number 80895)

3.3.2 Introduction

The VP7570 consist of an actively-vented high-performance computer core based on x86 architecture. It supports time synchronization via PTP (IEEE1588 v2) on its 1 Gbit/s Ethernet and 10 Gbit/s Ethernet ports as timeTransmitter and has a built-in GNSS receiver as a UTC reference clock.

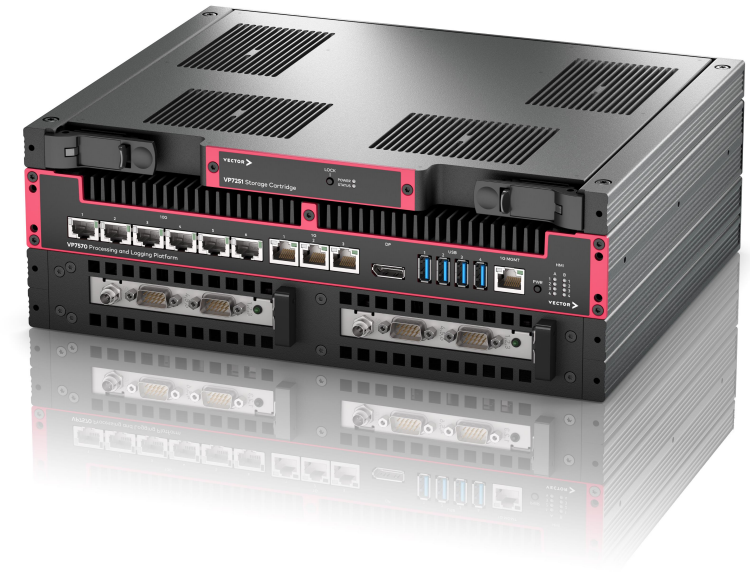


Figure 9: VP7570

Highlights

Features of the VP7570:

- Intel Core i7-9850HE (6 cores, 2.7 GHz)
- 64 Gbyte RAM
- 512 Gbyte Industrial SSD internal mass storage
- 6x 10 Gbit/s Ethernet (RJ45), with hardware timestamps
- 3x 1 Gbit/s Ethernet (RJ45), with hardware timestamps
- 1x 1 Gbit/s Ethernet (RJ45) (MGMT)
- 4x USB 3.2 Gen 1 (5 Gbit/s), 4x USB 2.0 (480 Mbit/s) host ports
- GNSS receiver
- PTP (IEEE1588v2), with GNSS-based master clock
- Ignition signal (clamp 15) for power management
- Microphone input
- Headphone output
- Display port

3.3.3 Interfaces, Control Elements and Indicators

3.3.3.1 Front Side

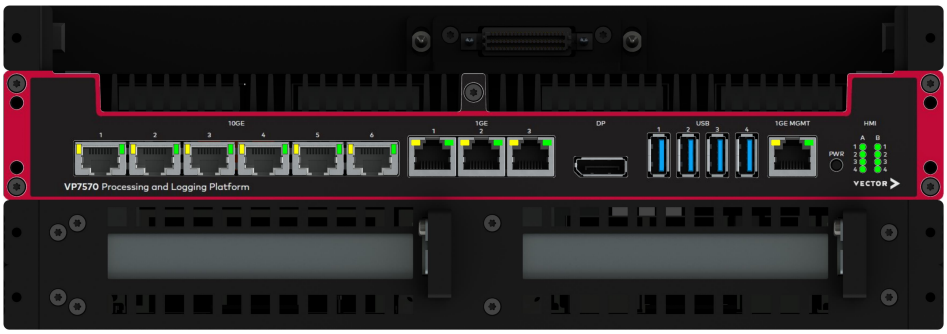


Figure 10: VP7570 front side

- **Storage Cartridge Bay**
  A storage cartridge can be inserted into the cartridge bay and be used as a removable mass storage device, e. g. for storing measurement data.

Note
The storage cartridge is not hot plug capable. Make sure your system is shut down before you insert or remove the cartridge. Insertion or removal of the storage cartridge during operation can cause data loss.

- **10G 1...6**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 10GBASE-T Ethernet interface according to IEEE 802.3an. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

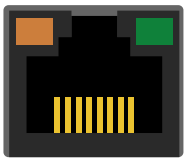
LED	Description
SPEED (left LED)	Yellow: 1 Gbit/s Green blinking: 10 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **1G 1...3**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 1000BASE-T Ethernet interface according to IEEE 802.3ab. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **DP**

The DisplayPort allows you to connect an external monitor. The maximum supported resolution is 4K at 60 Hz.

Note
Matching counterpart:
Customary DP cables.
It is recommended to use high quality cables. The cable length should not exceed 3 m for proper operation. The use of adapters is possible, but also in this case high quality components should be used.

- **USB 1...4**

The four USB 3.2 Gen 1 host ports allow to connect external USB hardware to the VP7570, for example other Vector devices to use them as additional interfaces in the tool software.

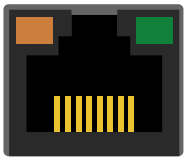
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 1000 mA per port.

Note
In order to achieve the data transmission rates typical for USB 3.2 Gen 1 (up to 5 Gbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 3.2 Gen 1. Also a connection of USB 1.0/2.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **1G MGMT**
  This Ethernet port is not recommended for data capturing as it has no hardware time synchronization. It is intended to connect the VP7570 to a LAN or a configuration computer for setup or maintenance.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity

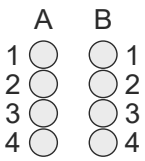


- **PWR**
  Power button to start or shut down the VP7570.

- **HMI**
  System and user defined LEDs for status information.

LED	Description
A1	User LED[1]
A2	User LED[1]
A3	User LED[1]
A4	User LED[1]
B1	User LED[1]
B2	User LED[2] / System LED: ▶ Red: VP7110 UPS config error
B3	User LED[2] / System LED ▶ Red: Temperature too low. System down state.
B4	System LED ▶ Green: Indication of operating status. ▶ Green flashing: Shutdown in progress ▶ Red: Temperature too high. System down state.

1: User programmable LED
2: User programmable LED with system override



Note
Programming the User LEDs is not yet implemented and will be available with a future software update.

Note
System Override: The microcontroller-based system management controller may override the user programmed LED state in case of the described system warning or system shut down.

Note
The critical temperature values (ambient and internal storage: -20 °C ... +60 °C) are continuously monitored during runtime by the system.

In a critical temperature condition at startup (below -20 °C or above +60 °C), the system will not be powered on and an error code (LED) will be shown.

In a critical temperature condition during operation, the system will be powered down and an error code (LED) will be shown. The system can only be re-powered by pressing the power button. Note that there is a 3 °C hysteresis.

3.3.3.2 Back Side

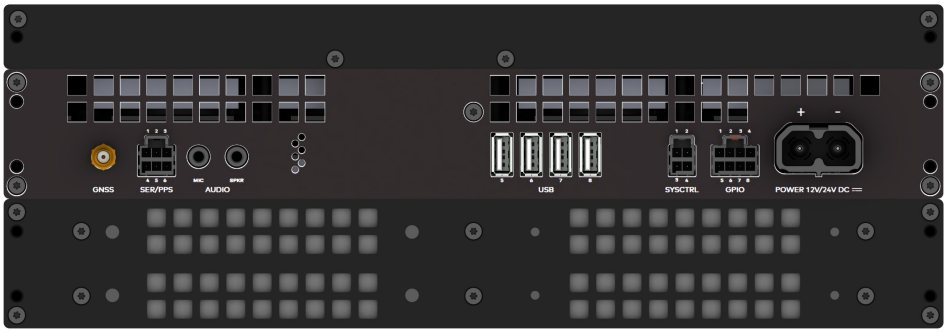


Figure 11: VP7570 back side

- **GNSS**
  SMA female connector to attach a GNSS antenna.

Note
Please attach the supplied GNSS antenna before using this feature!
Use only the supplied the GNSS antenna.

- **SER/PPS**
  This connector is reserved for future use.

Note
Use only the supplied SER/PPS cable. Cable length must not exceed 3 m for proper operation

- **AUDIO**
  These connectors can be used for connection of a microphone and a speaker or headphones.
  - **MIC:**
    Pre-amplifier with selectable 0 dB, +10 dB, +20 dB, and +30 dB gain settings.
    Programmable, low-noise MIC bias level.
  - **SPKR:**
    101 dB Dynamic range (A-wtd)
    89 dB THD+N
    Minimum impedance 16 Ohm
    Maximum output power 50 mW per channel

Note
Matching counterparts:
3.5 mm stereo jack plug (TRS plug).
Cable length must not exceed 3 m for proper operation.

- **USB 5...8**

The four USB 2.0 host ports allow to connect external USB hardware to the VP7570, for example other Vector devices to use them as additional interfaces in the tool software or peripherals like mouse and keyboard.

Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 500 mA per port.

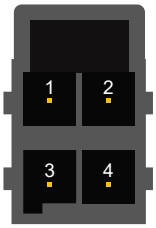
Note
In order to achieve the data transmission rates typical for USB 2.0 (480 Mbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 2.0. Also a connection of USB 1.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **SYSCTRL**

SYSCTRL connector with IGN In and CAN interface.
The CAN interface is reserved for future use.
IGN In can be used to wake respectively shutdown the VP7570.

Note
Use only the supplied SYSCTRL cable. Cable length must not exceed 3 m for proper operation.

Pin	Assignment
1	CAN High
2	IGN In, Thresholds: On: > 4.75 V Off: < 4.15 V (+-5 %), Umax: 32 V
3	CAN Low
4	Not connected



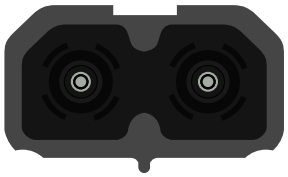
- **GPIO**

This connector is reserved for future use.

Note
Use only the supplied GPIO cable. Cable length must not exceed 3 m for proper operation.

- **Power**
  Power supply input for the VP7570 via Amphenol C10 connector to attach the supplied power cable or power adapter.

Pin	Assignment
+	VIN+ 10 V DC ... 32 V DC typ.: 12 V DC ±10 % or 24 V DC ±10 % (resistent to voltage drops down to 6.5 V)
-	VIN-



Note
Use only the supplied power cables or equivalent cables with a wire gauge of at least 4 mm² to ensure safety and proper function. Longer cables result in higher voltage drops across the cable. We recommend using cables with a length of less than 1.5 m. Use a suitable fuse (30 A / slow) close to the positive pole of the power supply. Do not pinch or touch hot surfaces or sharp edges. Check the wiring regularly for damage.

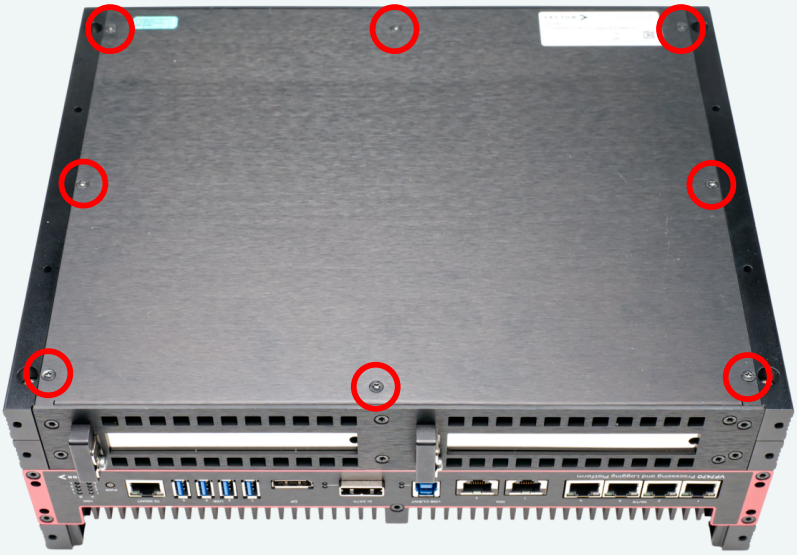
3.3.4 PCIe Card Assembly

WARNING!
Ensure an ESD safe working environment during disassembly and assembly. Avoid touching the top, bottom or connectors of the boards during this process to avoid ESD damage.

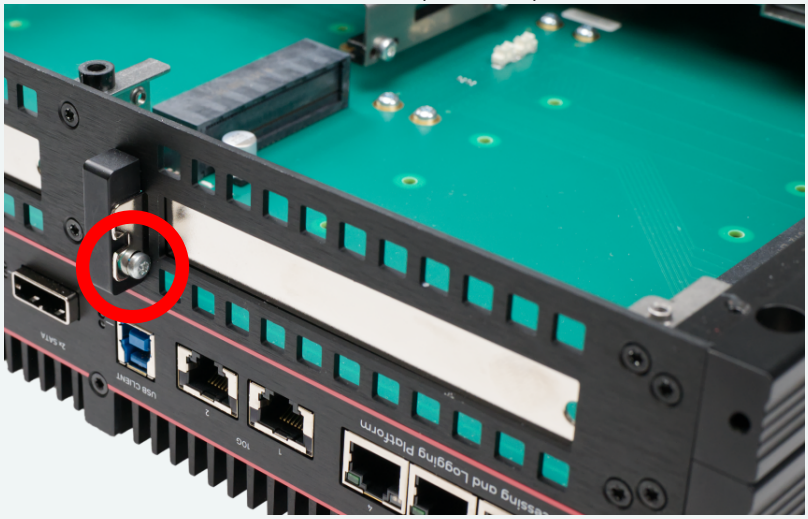
WARNING!
Turn off the main power supply of the Vector hardware.

Step by Step Procedure
Follow these steps to mount a PCIe card into the Vector hardware.

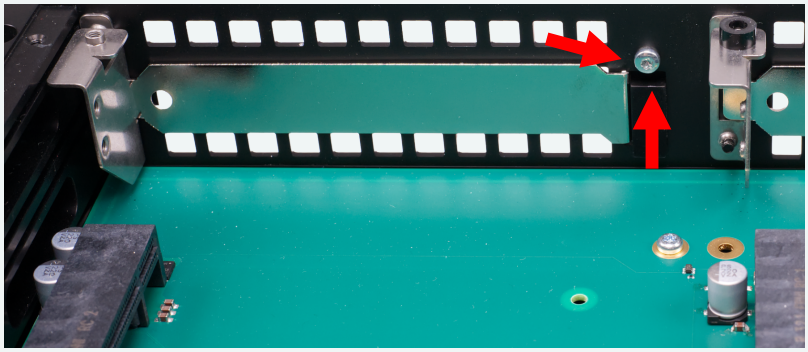
1. Remove the eight screws of the bottom plate (Torx T10).



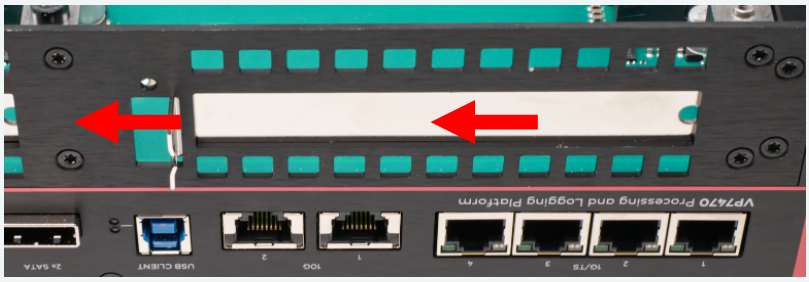
2. Remove the screw of the slot cover (Torx T10).



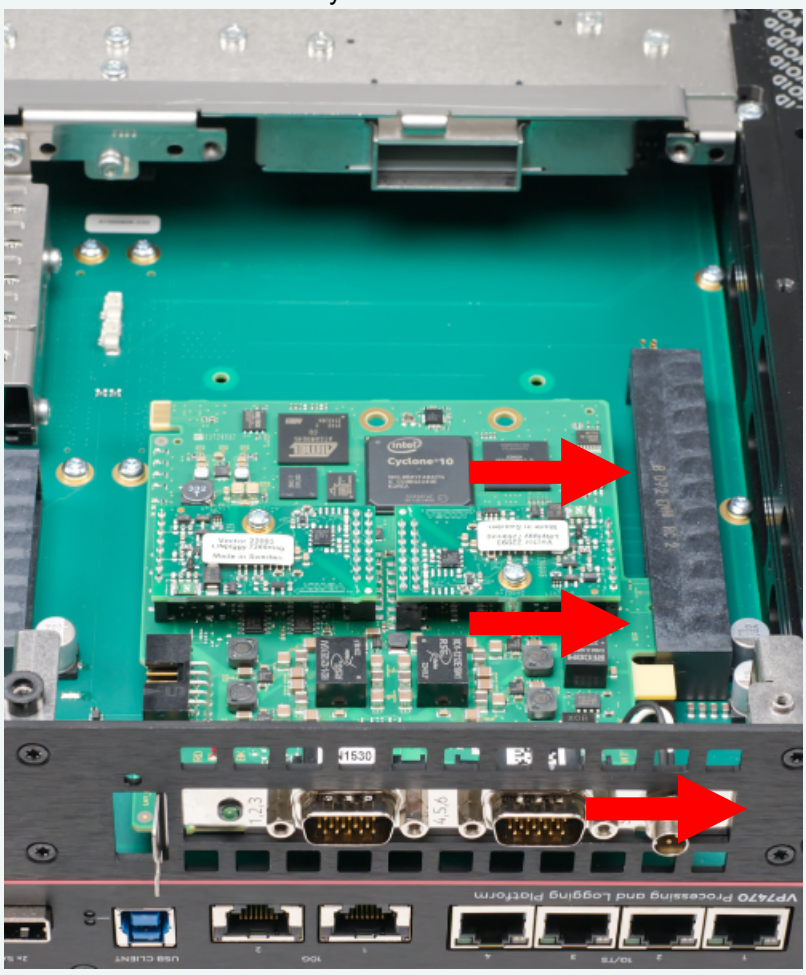
3. Then remove the fixation screw. Remove the black fixation itself by sliding it upwards.



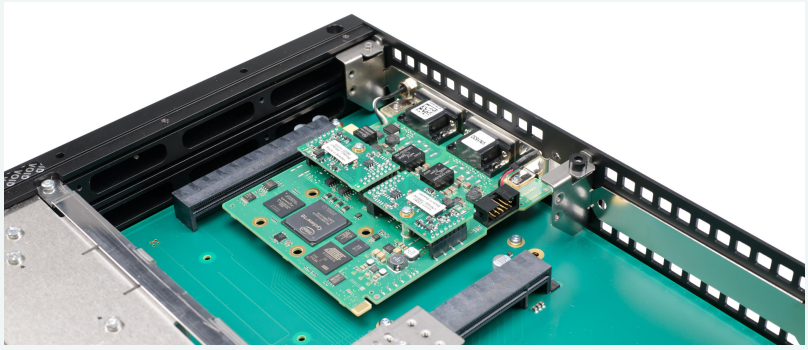
4. Remove the slot cover by sliding it sideways.



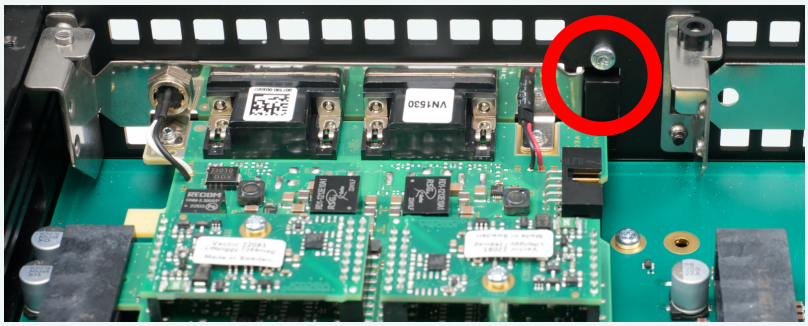
5. Insert the PCIe card carefully.



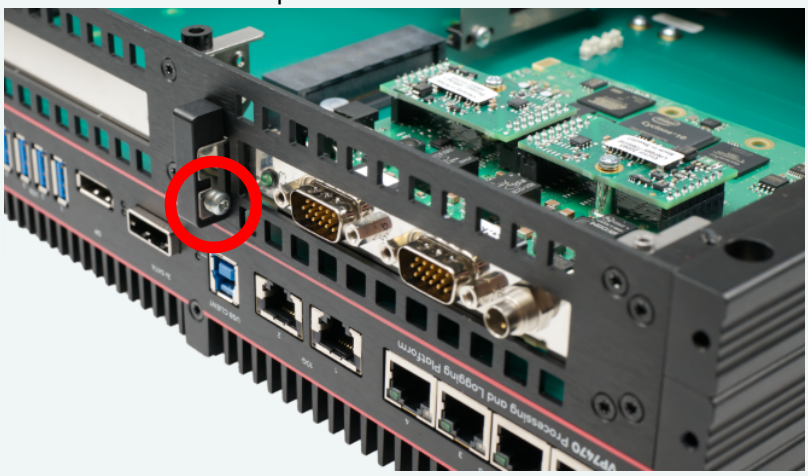
WARNING!
Do not force the PCIcard into the slot. Make sure that the connectors of the card's PCIe connector are aligned with the bus connector on the motherboard before you insert the card into the slot. If it does not fit properly, gently remove it and try again.



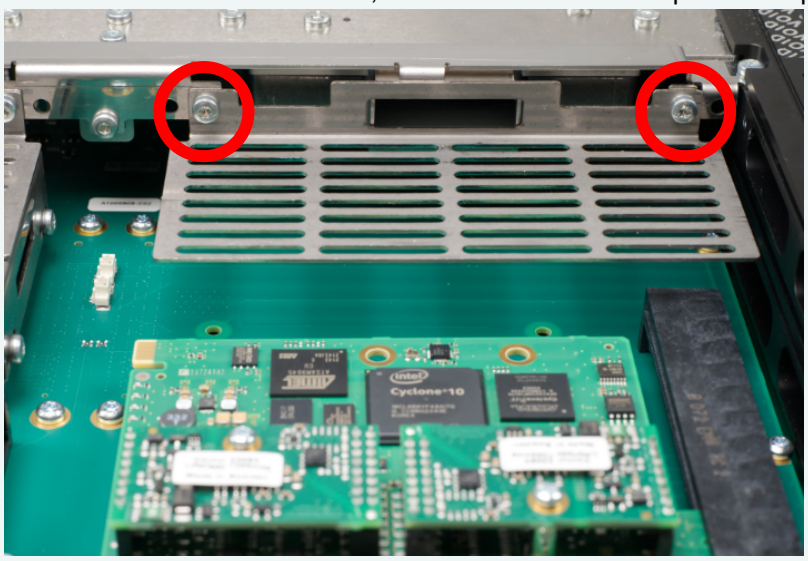
6. Insert the black fixation. Use the screw to secure it.



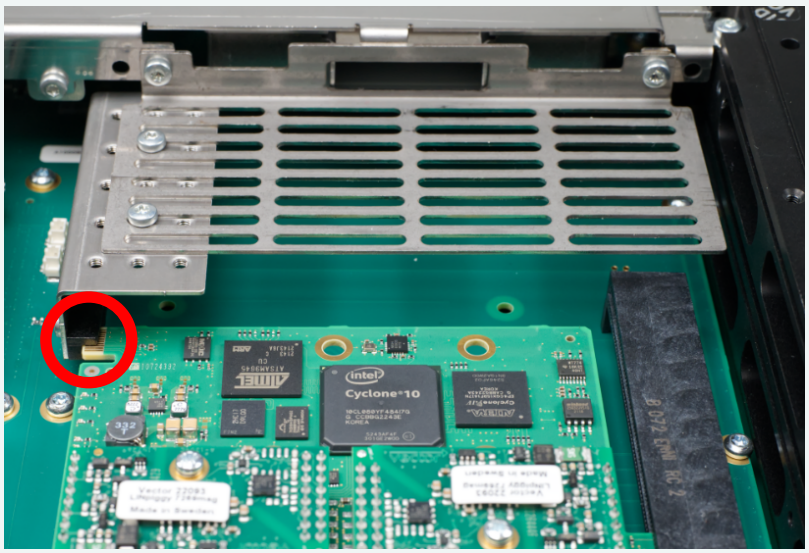
7. Screw the PCIe card in place.



8. To further secure the PCIe card, first screw on the central perforated plate.



9. Screw on the other perforated plate as shown. Be careful not to damage the circuit board.



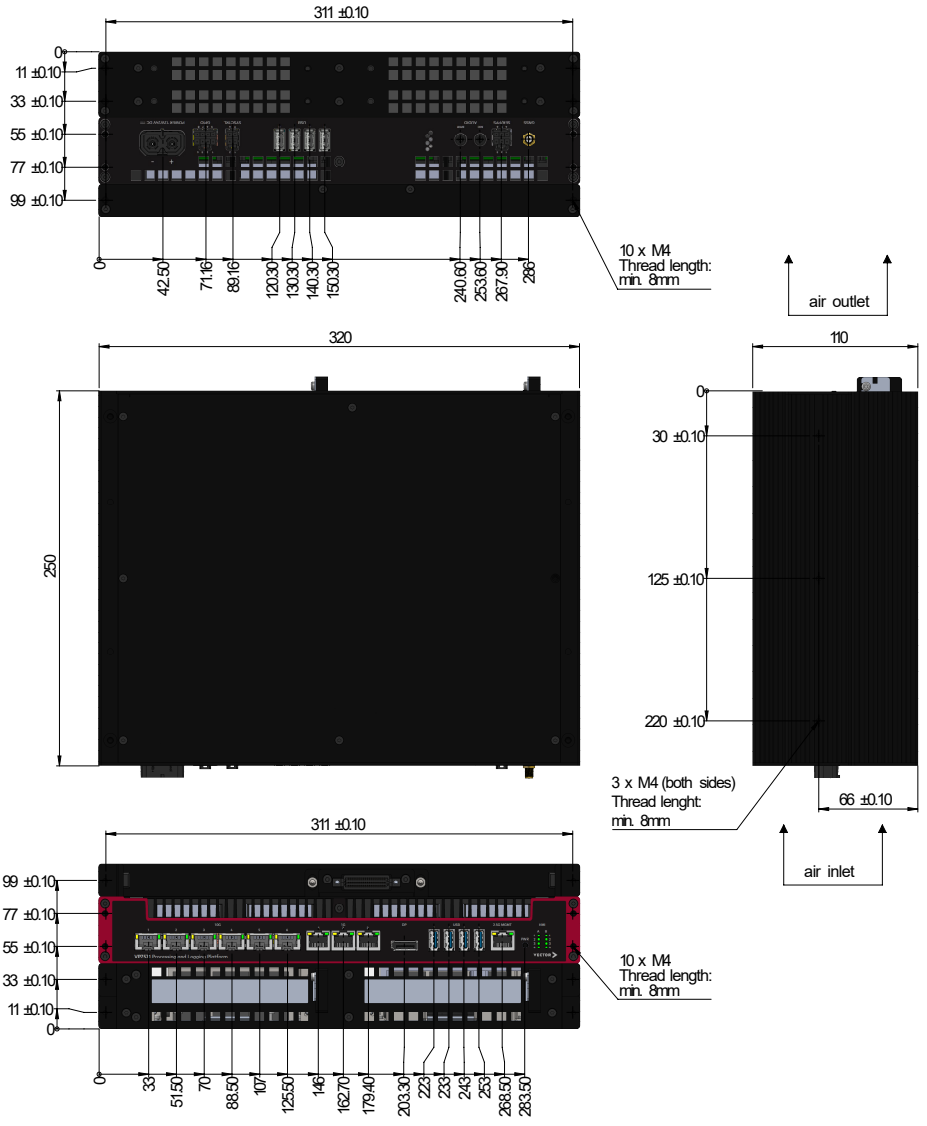
10. Depending on the PCIe card, a second fixing may be required on the right-hand side. Proceed as described.
11. Remount the bottom plate (see step 1.)

3.3.5 Technical Data

Processor	Intel Core i7-9850HE 6x 2.7 GHz
Graphic support	Intel UHD Graphics 630
RAM	64 Gbyte, DDR4
OS-Storage	512 Gbyte M.2 SSD
Network interfaces	6x 10 Gbit/s Ethernet (3x dual Intel X550 with hardware timestamp support) 3x 1 Gbit/s Ethernet (3x Intel I210 with hardware timestamp support) 1x 1 Gbit/s (Intel I218-LM MGMT)
USB interfaces	4x USB 3.2 Gen1 (5 Gbit/s) host ports (1000 mA each) 4x USB 2.0 (480 Mbit/s) host ports (500 mA each)
Audio interfaces	Microphone input, stereo headphone output
Monitor interfaces	1x DP 1.2 with a maximum resolution of: 3840 x 2160 pixels @ 60 Hz, 24 bits per pixel (bpp)
GNSS	ublox NEO-M8N
On/Off control "Ignition"	1x Digital Input via SYSCTRL plug connector (Ignition): - On: > 4.75 V - Off: < 4.15 V (±5 %) - Umax 32 V , Iin < 1 mA
Operating system	Windows 10 IoT (64 bit)
Supply voltage	10 V DC ... 32 V DC; typ.: 12 V DC ±10 % or 24 V DC ±10 %; 12 V electrical vehicle systems are supported; safe in case of dropdown pulses (cranking) down to 6.5 V
Housing dimensions (WxHxD)	320 x 110 x 250 mm
Cooling	Active cooling with dynamically controlled airflow
Power consumption typically	Between 150 W and 220 W depending on the system configuration and utilization
Standby (OFF) current	< 50 µA (RTC, GNSS, µC Stby.)
Weight	Approx. 7 kg (without storage cartridge)
Operating temperature	-20 °C ...+60 °C (without storage cartridge)
Storage temperature	-40 °C ... +85 °C
Air humidity	90 % non-condensing
Vibration and shock	EN 60068-2-64:2008 (10...1000 Hz – 33.8 m/s²); y and z axis, 1 h per axis EN 60068-2-27:2009 (half sine, 11 ms, 500 m/s²); y and z axis, 10 pos. and 10 neg. per axis
IP protection class	IP20
PCIe operating tem-	-20 °C …+60 °C

perature	(PCIe cards may have different specification)
PCIe power	Limited power 1x 60 W or 2x 30 W maximum. Power supply only via bus interface, no separate power connector, max current all slots 5 A @12 V, 2 A @3.3 V
PCIe slots	Left (as seen from the front): - mechanical x16, electrical x8 - 8 lanes PCIe 3.0 extension slot Right (as seen from the front): - mechanical x8, electrical x8 - 8 lanes PCIe 3.0 extension slot
Size	Max. half size cards, 106.68 mm (height) x 175.26 mm (long), 1 slot mounting

Dimensions



3.4 VP7571

3.4.1 Scope of Delivery

The scope of delivery depends on the ordered system and the configuration:

- VP7571 in ordered variant and configuration (part number 22631)
- Power supply
  - Power Cable Amphenol C10 (part number 22648)
- Accessories
  - GNSS antenna (part number 07205)
  - Cable VP7 SYSCTRL <> Ignition (part number 22651)
  - Cable VP7 GPIO (part number 22650)
  - Cable VP7 SER/PPS (part number 22649)
  - Ethernet Cable 10Gbps 2m (part number 30016)
- Documentation
  - Quick Start Guide (part number 80895)

3.4.2 Introduction

The VP7571 consist of an actively-vented high-performance computer core based on x86 architecture. It supports time synchronization via PTP (IEEE1588 v2) on its 1 Gbit/s Ethernet and 10 Gbit/s Ethernet ports as timeTransmitter and has a built-in GNSS receiver as a UTC reference clock.

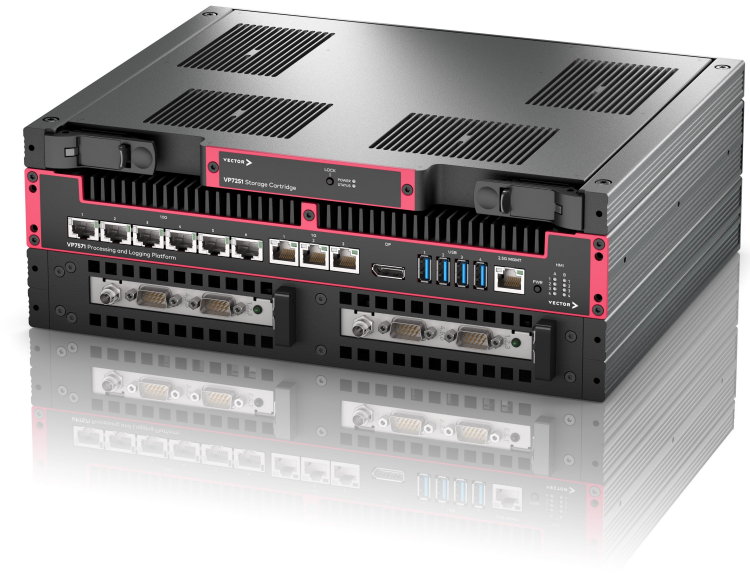


Figure 12: VP7571

Highlights

Features of the VP7571:

- Intel Xeon W-11865MRE (8x 2.6 GHz)
- 64 Gbyte RAM
- 512 Gbyte Industrial SSD internal mass storage
- 6x 10 Gbit/s Ethernet (RJ45), with hardware timestamps
- 3x 1 Gbit/s Ethernet (RJ45), with hardware timestamps
- 1x 2.5 Gbit/s Ethernet (RJ45) (MGMT)
- 4x USB 3.2 Gen 1 (5 Gbit/s), 4x USB 2.0 (480 Mbit/s) host ports
- GNSS receiver
- PTP (IEEE1588v2), with GNSS-based master clock
- Ignition signal (clamp 15) for power management
- Microphone input
- Headphone output
- Display port

3.4.3 Interfaces, Control Elements and Indicators

3.4.3.1 Front Side

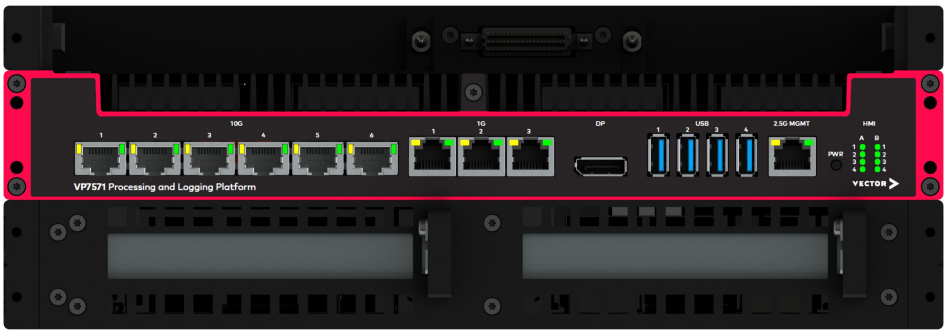


Figure 13: VP7571 front side

- **Storage Cartridge Bay**
  A storage cartridge can be inserted into the cartridge bay and be used as a removable mass storage device, e. g. for storing measurement data.

Note
The storage cartridge is not hot plug capable. Make sure your system is shut down before you insert or remove the cartridge. Insertion or removal of the storage cartridge during operation can cause data loss.

- **10G 1...6**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 10GBASE-T Ethernet interface according to IEEE 802.3an. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

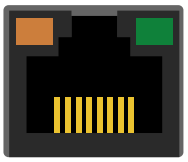
LED	Description
SPEED (left LED)	Yellow: 1 Gbit/s Green blinking: 10 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **1G 1...3**
  These connectors are designed as RJ45 sockets with integrated LEDs and correspond to a 1000BASE-T Ethernet interface according to IEEE 802.3ab. All ports support hardware time synchronization using IEEE1588 PTP and are able to provide incoming data frames with hardware timestamps.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 1 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity



- **DP**

The DisplayPort allows you to connect an external monitor. The maximum supported resolution is 4K at 60 Hz.

Note
Matching counterpart:
Customary DP cables.
It is recommended to use high quality cables. The cable length should not exceed 3 m for proper operation. The use of adapters is possible, but also in this case high quality components should be used.

- **USB 1...4**

The four USB 3.2 Gen 1 host ports allow to connect external USB hardware to the VP7571, for example other Vector devices to use them as additional interfaces in the tool software.

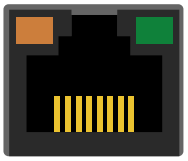
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 1000 mA per port.

Note
In order to achieve the data transmission rates typical for USB 3.2 Gen 1 (up to 5 Gbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 3.2 Gen 1. Also a connection of USB 1.0/2.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **2.5G MGMT**
  This Ethernet port is not recommended for data capturing as it has no hardware time synchronization. It is intended to connect the VP7571 to a LAN or a configuration computer for setup or maintenance.

Note
Use only the supplied Ethernet cables. The cable length must not exceed 3 m for proper operation.

LED	Description
SPEED (left LED)	Off: 10 Mbit/s Yellow: 100 Mbit/s Green: 2.5 Gbit/s
LINK/ACT (right LED)	Off: No Link Green: Link Green blinking: Activity

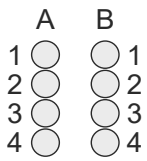


- **PWR**
  Power button to start or shut down the VP7571.

- **HMI**
  System and user defined LEDs for status information.

LED	Description
A1	User LED[1]
A2	User LED[1]
A3	User LED[1]
A4	User LED[1]
B1	User LED[1]
B2	User LED[2] / System LED: ▶ Red: VP7110 UPS config error
B3	User LED[2] / System LED ▶ Red: Temperature too low. System down state.
B4	System LED ▶ Green: Indication of operating status. ▶ Green flashing: Shutdown in progress ▶ Red: Temperature too high. System down state.

1: User programmable LED
2: User programmable LED with system override



Note
Programming the User LEDs is not yet implemented and will be available with a future software update.

Note
System Override: The microcontroller-based system management controller may override the user programmed LED state in case of the described system warning or system shut down.

Note
The critical temperature values (ambient and internal storage: -20 °C ... +60 °C) are continuously monitored during runtime by the system.

In a critical temperature condition at startup (below -20 °C or above +60 °C), the system will not be powered on and an error code (LED) will be shown.

In a critical temperature condition during operation, the system will be powered down and an error code (LED) will be shown. The system can only be re-powered by pressing the power button. Note that there is a 3 °C hysteresis.

3.4.3.2 Back Side

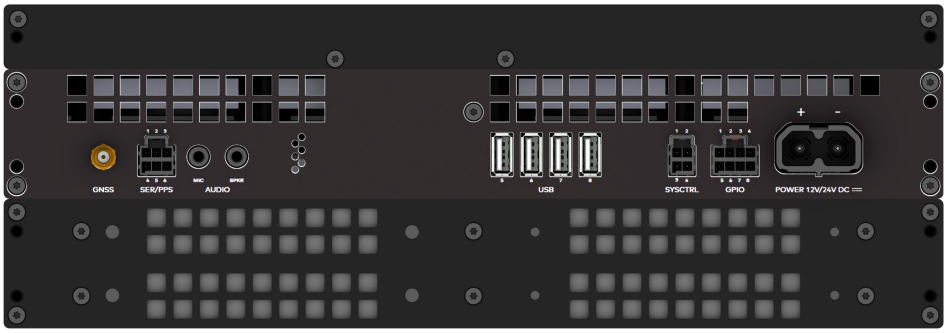


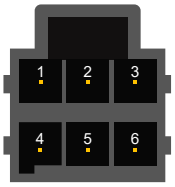
Figure 14: VP7571 back side

- **GNSS**
  SMA female connector to attach a GNSS antenna.

Note
Please attach the supplied GNSS antenna before using this feature!
Use only the supplied the GNSS antenna.

- **SER/PPS**
  The pin assignment is as follows:

Pin	Assignment
1	Reserved
2	Reserved
3	Reserved
4	Reserved
5	GND (galvanically isolated). Only for external pulse per second (PPS) signal.
6	External PPS output with an internal 100 kΩ pull-down. - High: 5 V - Low: 0 V (nominal)



Note
Use only the supplied SER/PPS cable. Cable length must not exceed 3 m for proper operation.

- **AUDIO**
  These connectors can be used for connection of a microphone and a speaker or headphones.
  - **MIC:**
    Pre-amplifier with selectable 0 dB, +10 dB, +20 dB, and +30 dB gain settings.
    Programmable, low-noise MIC bias level.
  - **SPKR:**
    101 dB Dynamic range (A-wtd)
    89 dB THD+N
    Minimum impedance 16 Ohm
    Maximum output power 50 mW per channel

Note
Matching counterparts:
3.5 mm stereo jack plug (TRS plug).
Cable length must not exceed 3 m for proper operation.

- **USB 5...8**
  The four USB 2.0 host ports allow to connect external USB hardware to the VP7571, for example other Vector devices to use them as additional interfaces in the tool software or peripherals like mouse and keyboard.

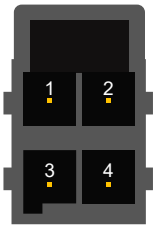
Note
The USB ports are protected against over current via a self-resetting fuse. The maximum current is 500 mA per port.

Note
In order to achieve the data transmission rates typical for USB 2.0 (480 Mbit/s), suitable connection cables with USB Type-A plugs have to be used. Furthermore, the connected peripheral devices have to support USB 2.0. Also a connection of USB 1.0 devices with USB Type-A plugs is possible. Cable length must not exceed 3 m for proper operation.

- **SYSCTRL**
  SYSCTRL connector with IGN In and CAN interface.
  The CAN interface is reserved for future use.
  IGN In can be used to wake respectively shutdown the VP7571.

Note
Use only the supplied SYSCTRL cable. Cable length must not exceed 3 m for proper operation.

Pin	Assignment
1	CAN High
2	IGN In, Thresholds: On: > 4.75 V Off: < 4.15 V (+-5 %), Umax: 32 V
3	CAN Low
4	Not connected

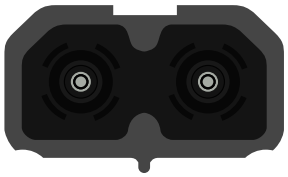


- **GPIO**
  This connector is reserved for future use.

Note
Use only the supplied GPIO cable. Cable length must not exceed 3 m for proper operation.

- **Power**
  Power supply input for the VP7571 via Amphenol C10 connector to attach the supplied power cable or power adapter.

Pin	Assignment
+	VIN+ 10 V DC ... 32 V DC typ.: 12 V DC ±10 % or 24 V DC ±10 % (resistent to voltage drops down to 6.5 V)
-	VIN-



Note
Use only the supplied power cables or equivalent cables with a wire gauge of at least 4 mm² to ensure safety and proper function. Longer cables result in higher voltage drops across the cable. We recommend using cables with a length of less than 1.5 m. Use a suitable fuse (30 A / slow) close to the positive pole of the power supply. Do not pinch or touch hot surfaces or sharp edges. Check the wiring regularly for damage.

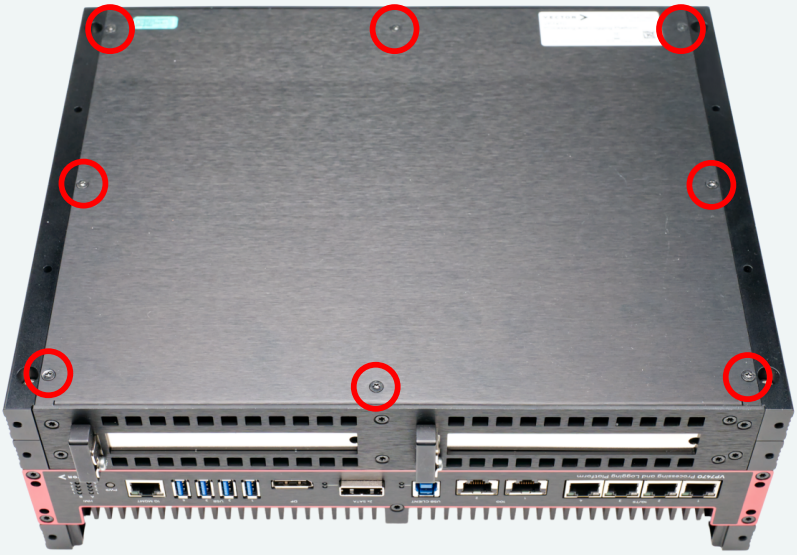
3.4.4 PCIe Card Assembly

WARNING!
Ensure an ESD safe working environment during disassembly and assembly. Avoid touching the top, bottom or connectors of the boards during this process to avoid ESD damage.

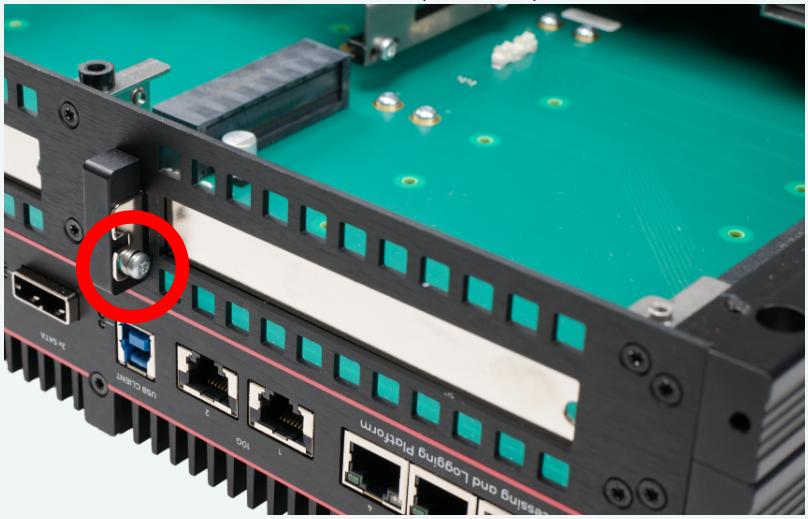
WARNING!
Turn off the main power supply of the Vector hardware.

Step by Step Procedure
Follow these steps to mount a PCIe card into the Vector hardware.

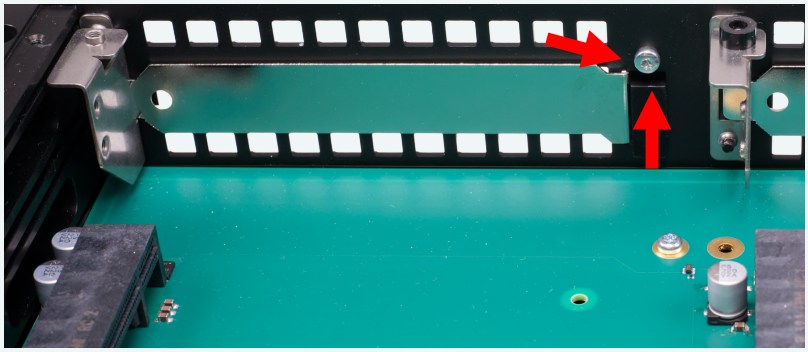
1. Remove the eight screws of the bottom plate (Torx T10).



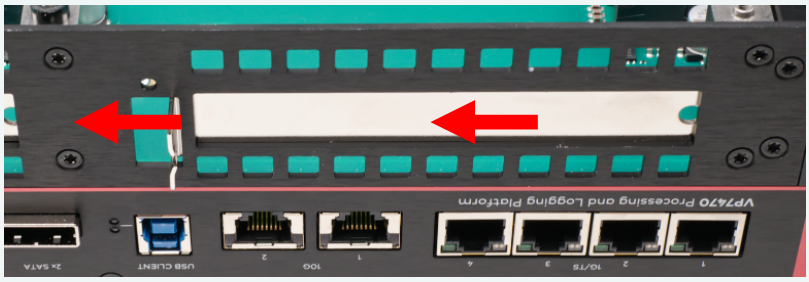
2. Remove the screw of the slot cover (Torx T10).



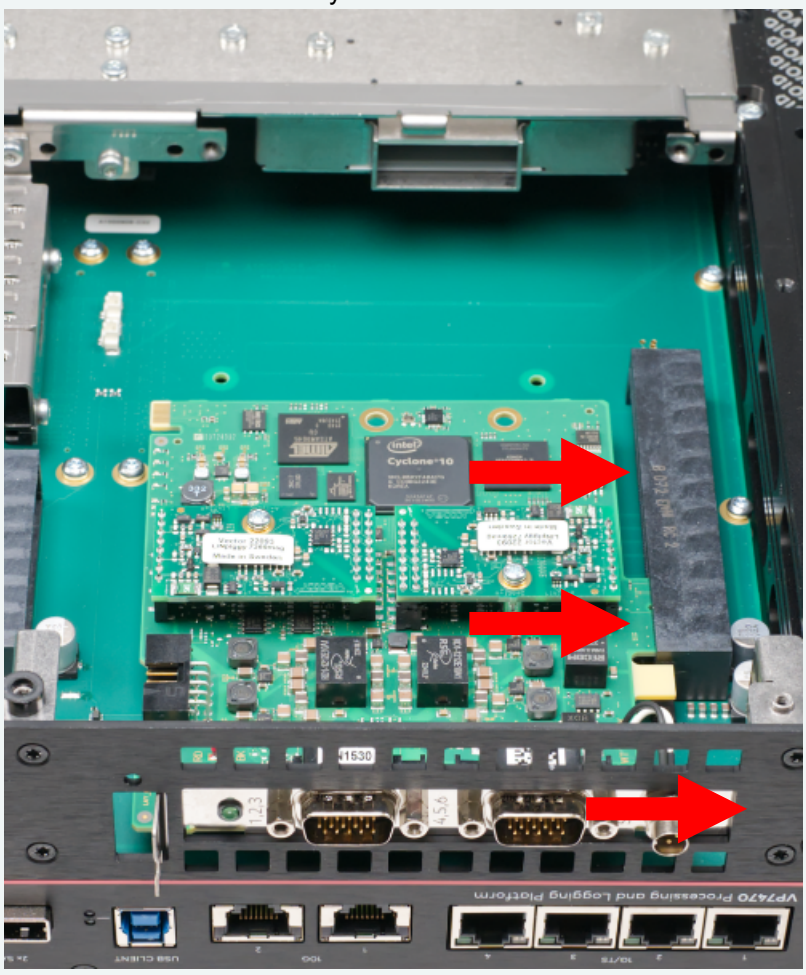
3. Then remove the fixation screw. Remove the black fixation itself by sliding it upwards.



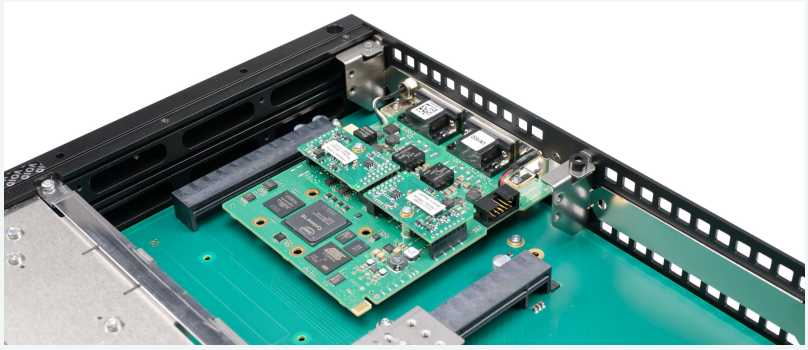
4. Remove the slot cover by sliding it sideways.



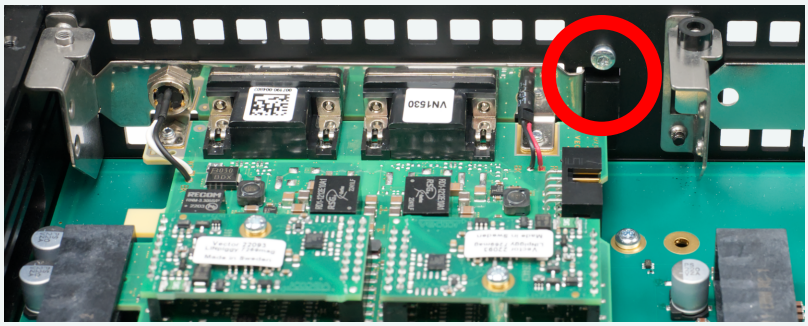
5. Insert the PCIe card carefully.



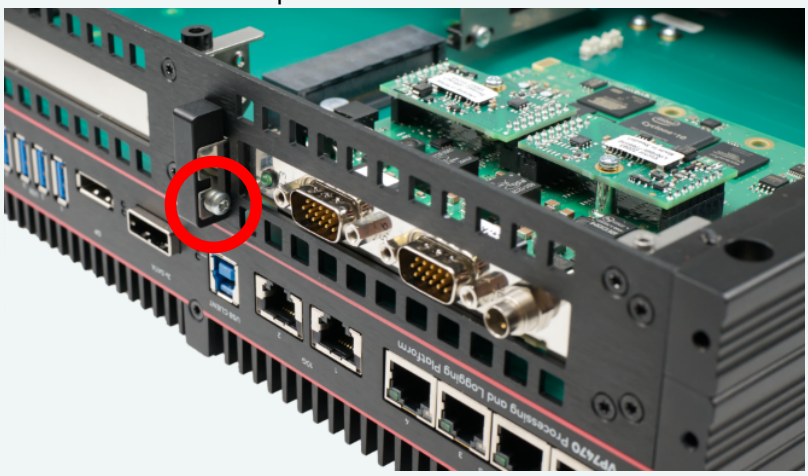
WARNING!
Do not force the PCIcard into the slot. Make sure that the connectors of the card's PCIe connector are aligned with the bus connector on the motherboard before you insert the card into the slot. If it does not fit properly, gently remove it and try again.



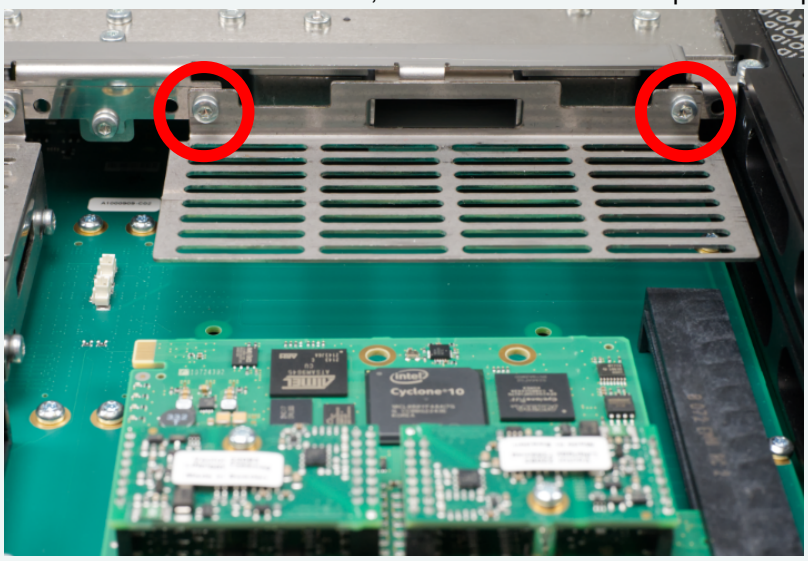
6. Insert the black fixation. Use the screw to secure it.



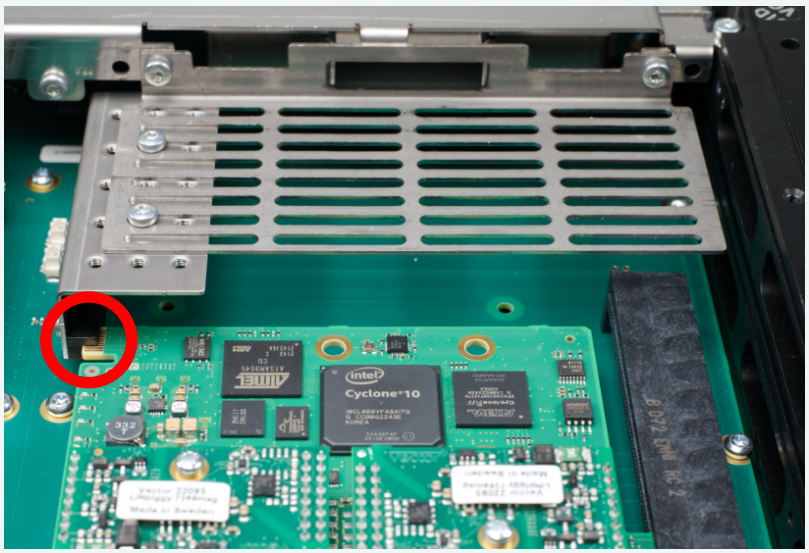
7. Screw the PCIe card in place.



8. To further secure the PCIe card, first screw on the central perforated plate.



9. Screw on the other perforated plate as shown. Be careful not to damage the circuit board.



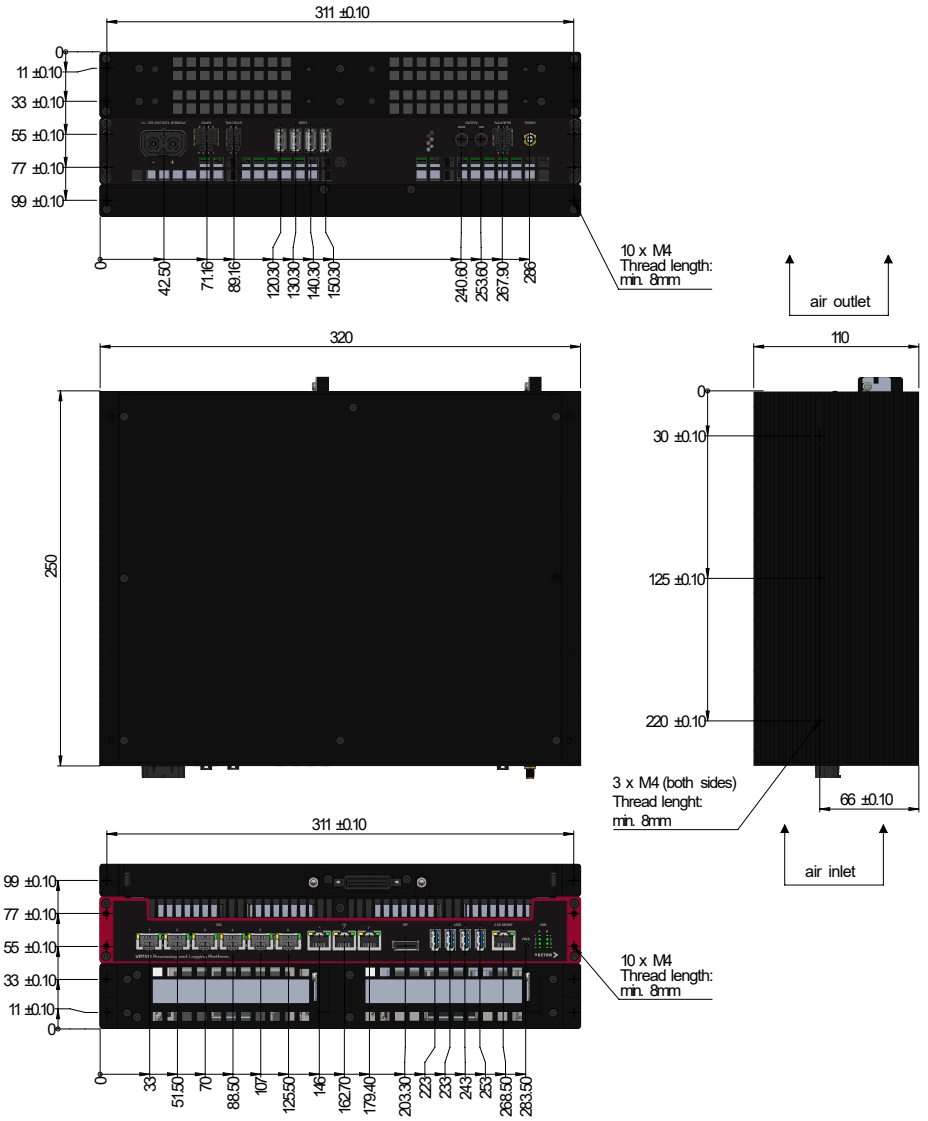
10. Depending on the PCIe card, a second fixing may be required on the right-hand side. Proceed as described.
11. Remount the bottom plate (see step 1.)

3.4.5 Technical Data

Processor	Intel Xeon W-11865MRE 8x 2.6 GHz
Graphic support	Intel UHD Graphics for 11th Gen Intel Processors
RAM	64 Gbyte, DDR4
OS-Storage	512 Gbyte M.2 SSD
Network interfaces	6x 10 Gbit/s Ethernet (3x dual Intel X550 with hardware timestamp support) 3x 1 Gbit/s Ethernet (3x Intel I210 with hardware timestamp support) 1x 2.5 Gbit/s (Intel I225-IT MGMT)
USB interfaces	4x USB 3.2 Gen1 (5 Gbit/s) host ports (1000 mA each) 4x USB 2.0 (480 Mbit/s) host ports (500 mA each)
Audio interfaces	Microphone input, stereo headphone output
Monitor interfaces	1x DP 1.4a with a maximum resolution of: 3840 x 2160 pixels @ 60 Hz, 30 bits per pixel (bpp)
GNSS	ublox NEO-M8N
On/Off control “Ignition”	1x Digital Input via SYSCTRL plug connector (Ignition): - On: > 4.75 V - Off: < 4.15 V (±5 %) - Umax 32 V , Iin < 1 mA
Operating system	Automotive PC: Windows 11 IoT (64 bit) Smart Logger: Windos 10 IoT (64 bit)
Supply voltage	10 V DC ... 32 V DC; typ.: 12 V DC ±10 % or 24 V DC ±10 %; 12 V electrical vehicle systems are supported; safe in case of dropdown pulses (cranking) down to 6.5 V
Housing dimensions (WxHxD)	320 x 110 x 250 mm
Cooling	Active cooling with dynamically controlled airflow
Power consumption typically	Between 150 W and 220 W depending on the system configuration and utilization
Standby (OFF) current	< 50 µA (RTC, GNSS, µC Stby.)
Weight	Approx. 7 kg (without storage cartridge)
Operating temperature	-20 °C ... +60 °C (without storage cartridge)
Storage temperature	-40 °C ... +85 °C
Air humidity	90 % non-condensing
Vibration and shock	EN 60068-2-64:2008 (10...1000 Hz – 33.8 m/s²); y and z axis, 1 h per axis EN 60068-2-27:2009 (half sine, 11 ms, 500 m/s²); y and z axis, 10 pos. and 10 neg. per axis

IP protection class	IP20
PCIe operating temperature	-20 °C … +60 °C (PCIe cards may have different specification)
PCIe power	Limited power 1x 60 W or 2x 30 W maximum. Power supply only via bus interface, no separate power connector, max current all slots 5 A @12 V, 2 A @3.3 V
PCIe slots	Left (as seen from the front): - mechanical x16, electrical x8 - 8 lanes PCIe 3.0 extension slot Right (as seen from the front): - mechanical x8, electrical x8 - 8 lanes PCIe 3.0 extension slot
Size	Max. half size cards, 106.68 mm (height) x 175.26 mm (long), 1 slot mounting

Dimensions



4 Storages and Docking Stations

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4.1 VP7251 Storage Cartridge

4.1.1 Overview

General information

The VP7251 Storage Cartridge is a mass storage device, that offers continuous write data rates of up to 2.5 Gbyte/s. It can be inserted into the storage bay of the VP7500 Processing and Logging Platform.

Note
To keep the Storage Cartridges' writing performance high, you should format them after each logging session and wait 5 minutes. This allows the cartridge to complete internal processes that improve performance.

Note
The available memory of the VP7251 Storage Cartridges shown in the operating system is typically smaller than the storage size in the article name.

This is due to the following reasons:

- The memory size of the Storage Cartridges is specified in TB = Terabyte = 10^{12} bytes. Operating systems typically show the memory size in TiB = Tebibyte = 2^{40} bytes.
- Part of the memory is reserved as a spare area to ensure optimum write speed. See section Variants on page 71 for available sizes.

4.1.2 Interfaces, Control Elements and Indicators



Figure 15: VP7251 Storage Cartridge

Device description

- **Fastener**
  Fastener to lock and unlock the exchangeable VP7251 Storage Cartridge in the storage bay of the VP7500.

Note
The VP7251 Storage Cartridge is not hot plug capable. Use the LOCK button to eject or mount the VP7251 Storage Cartridge or make sure the VP7500 is shut down before you insert or remove the cartridge. Insertion or removal of the VP7251 Storage Cartridge during operation can cause data loss.

- **LOCK**
  Lock button ejects and mounts the storage.

- **LEDs**
  - **POWER**
    Indicates cartridge Power OK.
  - **STATUS**
    - Green: Temperature is OK.
    - Red: Temperature too low or too high.

Note
The temperature values of the VP7251 Storage Cartridge and the built-in SSDs are continuously monitored. In case of a temperature warning the STATUS LED is set to red.

4.1.3 Variants

4.1.3.1 VP7251-r Storage Cartridges

The VP7251-r Storage Cartridges are available in the following storage size configurations:

- **VP7251-16r Storage Cartridge 16TB**
  Available storage size: 14.4 Tbyte
  Part number: 180242 (former 180207)

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	2.0 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

- **VP7251-32r Storage Cartridge 32TB**
  Available storage size: 28.8 Tbyte
  Part number: 180243 (former 180208)

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

- **VP7251-64r Storage Cartridge 64TB**
  Available storage size: 57.7 Tbyte
  Part number: 180244 (former 180209)

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

- **VP7251-128r Storage Cartridge 128TB**
  Available storage size: 115.4 Tbyte
  Part number: 180041

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

4.1.3.2 VP7251-rn Storage Cartridges

The VP7251-rn Storage Cartridges are available in the following storage size configurations:

- **VP7251-32rn Storage Cartridge 32TB**
  Available storage size: 28.8 Tbyte
  Part number: 180272

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption not supported

4.1.3.3 VP7251-f Storage Cartridges

The VP7251-f Storage Cartridges are available in the following storage size configurations:

- **VP7251-16f Storage Cartridge 16TB**
  Available storage size: 14.4 Tbyte
  Part number: 180204

Technical data

Operating temperature	-20 °C ... 60 °C
Write data rate	2.0 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

- **VP7251-32f Storage Cartridge 32TB**
  Available storage size: 28.8 Tbyte
  Part number: 180205

Technical data

Operating temperature	-20 °C ... 60 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

- **VP7251-64f Storage Cartridge 64TB**
  Available storage size: 57.7 Tbyte
  Part number: 180206

Technical data

Operating temperature	-20 °C ... 60 °C
Write data rate	2.5 Gbyte/s
Encryption	Hardware encryption ready according to TCG Opal 2.01

4.1.4 Technical Data

Housing dimensions	284 x 22 x 245 (L x H x W) mm
Weight	Approx. 2.1 kg
Insertion cycles	Min. 1000
Housing material and Surface	Solid aluminum housing with black anodized surface. Please note: Due to the anodizing process minimal differences in color are possible.

Dimensions

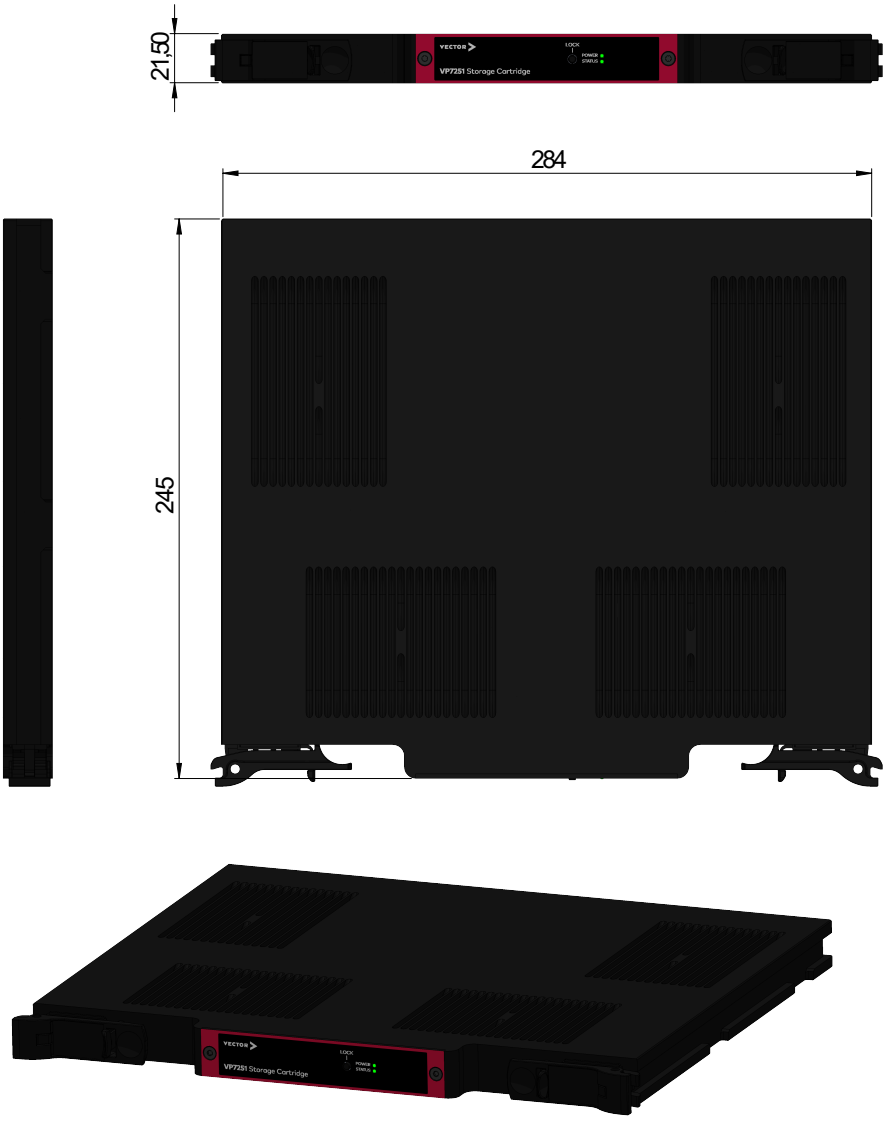


Figure 16: Mechanical drawing

4.2 VP7250 Storage Cartridge

4.2.1 Overview

General information

The VP7250 Storage Cartridge is a mass storage device, that offers continuous write data rates of up to 1 Gbyte/s. It can be inserted into the storage bay of the VP7500 Processing and Logging Platform.

Note
To keep the Storage Cartridges' writing performance high, you should format them after each logging session and wait 5 minutes. This allows the cartridge to complete internal processes that improve performance.

Note
The available memory of the VP7250 Storage Cartridges shown in the operating system is typically smaller than the storage size in the article name.

This is due to the following reasons:

- The memory size of the Storage Cartridges is specified in TB = Terabyte = 10^{12} bytes. Operating systems typically show the memory size in TiB = Tebibyte = 2^{40} bytes.
- Part of the memory is reserved as a spare area to ensure optimum write speed. See section Variants on page 77 for available sizes.

4.2.2 Interfaces, Control Elements and Indicators

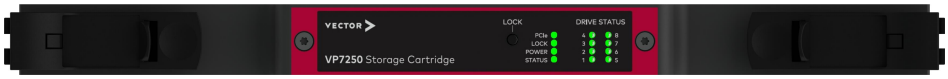


Figure 17: VP7250 Storage Cartridgecartridge

Device description

- **Fastener**
  Fastener to lock and unlock the exchangeable VP7250 Storage Cartridge in the storage bay of the VP7500.

Note
The VP7250 Storage Cartridge is not hot plug capable. Use the LOCK button to eject or mount the VP7250 Storage Cartridge or make sure the VP7500 is shut down before you insert or remove the cartridge. Insertion or removal of the VP7250 Storage Cartridge during operation can cause data loss.

- **LOCK**
  Lock button ejects and mounts the storage.

- **LEDs**
  - **PCIe**
    Indicates PCI Express connection established and active.
  - **LOCK**
    Indicates cartridge locked correctly.
  - **POWER**
    Indicates cartridge Power OK.
  - **STATUS**
    - Green: Temperature is OK.
    - Red: Temperature too low or too high.

- **DRIVE STATUS 1...8**
  - Green: Drive activity.
  - Red: Drive failure.

Note
The temperature values of the VP7250 Storage Cartridge and the built-in SSDs are continuously monitored. In case of a temperature warning the STATUS LED is set to red.

4.2.3 Variants

4.2.3.1 VP7250-p Storage Cartridges

The VP7250-p Storage Cartridges are available in the following storage size configurations:

- **VP7250-16p Storage Cartridge 16TB**
  Available storage size: 14.4 Tbyte
  Part number: 180256

Technical data

Operating temperature	0 °C ... 45 °C
Write data rate	1 Gbyte/s

4.2.4 Technical Data

Housing dimensions	284 x 22 x 245 (L x H x W) mm
Weight	Approx. 1.3 kg
Insertion cycles	Min. 1000
Housing material and Surface	Solid aluminum housing with black anodized surface. Please note: Due to the anodizing process minimal differences in color are possible.

Dimensions

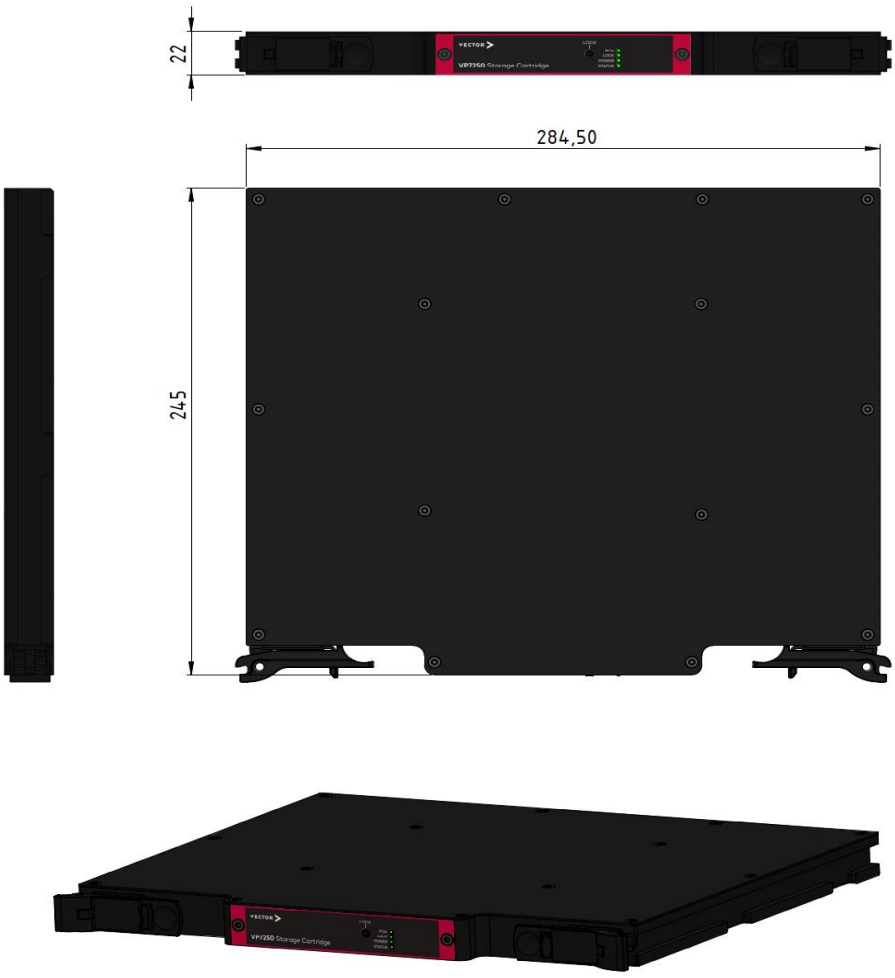


Figure 18: Mechanical drawing

4.3 VP7201 Storage Adapter

4.3.1 Overview

The VP7201 Storage Adapter allows using the VP7240 Storage Cartridges with a VP7500 Processing and Logging Platform. Therefore the VP7201 Storage Adapter is mounted onto the Storage Bay of the VP7500 as described in the following section.



Figure 19: VP7201 Storage Adapter

Note
The resulting write data rate is limited by the used Storage Cartridge, not by the VP7500 Processing and Logging Platform.

The data rates of the VP7240 Storage Cartridge can be found in section VP7240 Storage Cartridge on page 82.

4.3.2 Assembling Instructions

Step by Step Procedure
Follow these steps to mount the VP7201 Storage Adapter onto the storage bay of a VP7500 Processing and Logging Platform for use with VP7240 Storage Cartridges. All required screws are included in the scope of delivery.

1. Remove the four screws of the back plate (Torx T10, M3x6).





2. Disassemble the outer centering pins.



To do this, remove the outer screws (Torx T10).



Hint: Keep the removed material in case you want to remove the VP7201 again later.

3. Insert the VP7201 adapter and fasten it with two Torx T10 M3x10 screws.



4. Remount the back plate (see step 1.).

Note

To use VP7250/VP7251 Storage Cartridges with the VP7500 again, the VP7201 Storage Adapter has to be removed. To do this, follow the instructions above in reverse order.

4.4 VP7240 Storage Cartridge

4.4.1 Overview

General information

The VP7240 Storage Cartridge is a mass storage device, that offers continuous write data rates of up to 1 Gbyte/s. It can be inserted into the storage bay of the VP7500 Processing and Logging Platform when using the VP7201 Storage Adapter (see section VP7201 Storage Adapter on page 79).

Note
To keep the Storage Cartridges' writing performance high, you should format them after each logging session and wait 5 minutes. This allows the cartridge to complete internal processes that improve performance.

Note
The available memory of the VP7240 Storage Cartridges shown in the operating system is typically smaller than the storage size in the article name.

This is due to the following reasons:

- The memory size of the Storage Cartridges is specified in TB = Terabyte = 10^{12} bytes. Operating systems typically show the memory size in TiB = Tebibyte = 2^{40} bytes.
- Part of the memory is reserved as a spare area to ensure optimum write speed. See section Variants on page 84 for available sizes.

4.4.2 Interfaces, Control Elements and Indicators

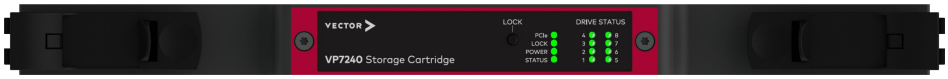


Figure 20: VP7240 Storage Cartridgecartridge

Device description

- **Fastener**
  Fastener to lock and unlock the exchangeable VP7240 Storage Cartridge in the storage bay of the VP7400.

Note
The VP7240 Storage Cartridge is not hot plug capable. Make sure the VP7400 is shut down before you insert or remove the cartridge. Insertion or removal of the VP7240 Storage Cartridge during operation can cause data loss.

- **LOCK**
  Lock button ejects the storage. Reboot the device to mount the storage.

- **LEDs**
  - **PCIe**
    Indicates PCI Express connection established and active.
  - **LOCK**
    Indicates cartridge locked correctly.
  - **POWER**
    Indicates cartridge Power OK.
  - **STATUS**
    - Green: Temperature is OK.
    - Red: Temperature too low or too high.

- **DRIVE STATUS 1...8**
  - Green: Drive activity.
  - Red: Drive failure.

Note
The temperature values of the VP7240 Storage Cartridge and the built-in SSDs are continuously monitored. In case of a temperature warning the STATUS LED is set to red.

4.4.3 Variants

4.4.3.1 VP7240 Storage Cartridges (obsolete)



Note
The VP7240 Storage Cartridges are discontinued. Please choose one of the alternatively available variants depending on the required temperature range and storage size.

The VP7240 Storage Cartridges are available in the following storage size configurations:

- **VP7240-4 Storage Cartridge 4TB (obsolete)**
  Available storage size: 3.6 Tbyte
  Part number: 180144

Technical data

Operating temperature	0 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-8 Storage Cartridge 8TB (obsolete)**
  Available storage size: 7.2 Tbyte
  Part number: 180145

Technical data

Operating temperature	0 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-16 Storage Cartridge 16TB (obsolete)**
  Available storage size: 14.4 Tbyte
  Part number: 180147

Technical data

Operating temperature	0 °C ... 70 °C
Write data rate	1 Gbyte/s

4.4.3.2 VP7240-e Storage Cartridges (obsolete)

Note
The VP7240-e Storage Cartridges are discontinued. Please choose one of the alternatively available variants depending on the required temperature range and storage size.

The VP7240-e Storage Cartridges are available in the following storage size configurations:

- **VP7240-4e Storage Cartridge 4TB (obsolete)**
  Available storage size: 3.6 Tbyte
  Part number: 180148

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-8e Storage Cartridge 8TB (obsolete)**
  Available storage size: 7.2 Tbyte
  Part number: 180170

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-16e Storage Cartridge 16TB (obsolete)**
  Available storage size: 14.1 Tbyte
  Part number: 180171

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

4.4.3.3 VP7240-r Storage Cartridges

The VP7240-r Storage Cartridges are available in the following storage size configurations:

- **VP7240-4r Storage Cartridge 4TB (obsolete)**
  Available storage size: 3.6 Tbyte
  Part number: 180178

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	1 Gbyte/s

- **VP7240-8r Storage Cartridge 8TB**
  Available storage size: 7.2 Tbyte
  Part number: 180179

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	1 Gbyte/s

- **VP7240-16r Storage Cartridge 16TB**
  Available storage size: 14.4 Tbyte
  Part number: 180180

Technical data

Operating temperature	0 °C ... 50 °C
Write data rate	1 Gbyte/s

4.4.3.4 VP7240-f Storage Cartridges

The VP7240-f Storage Cartridges are available in the following storage size configurations:

- **VP7240-4f Storage Cartridge 4TB**
  Available storage size: 3.6 Tbyte
  Part number: 180187

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-8f Storage Cartridge 8TB**
  Available storage size: 7.2 Tbyte
  Part number: 180188

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

- **VP7240-16f Storage Cartridge 16TB**
  Available storage size: 14.4 Tbyte
  Part number: 180189

Technical data

Operating temperature	-20 °C ... 70 °C
Write data rate	1 Gbyte/s

4.4.4 Technical Data

Housing dimensions	284 x 22 x 245 (L x H x W) mm
Weight	Approx. 1.3 kg
Insertion cycles	Min. 1000
Housing material and Surface	Solid aluminum housing with black anodized surface. Please note: Due to the anodizing process minimal differences in color are possible.

Dimensions

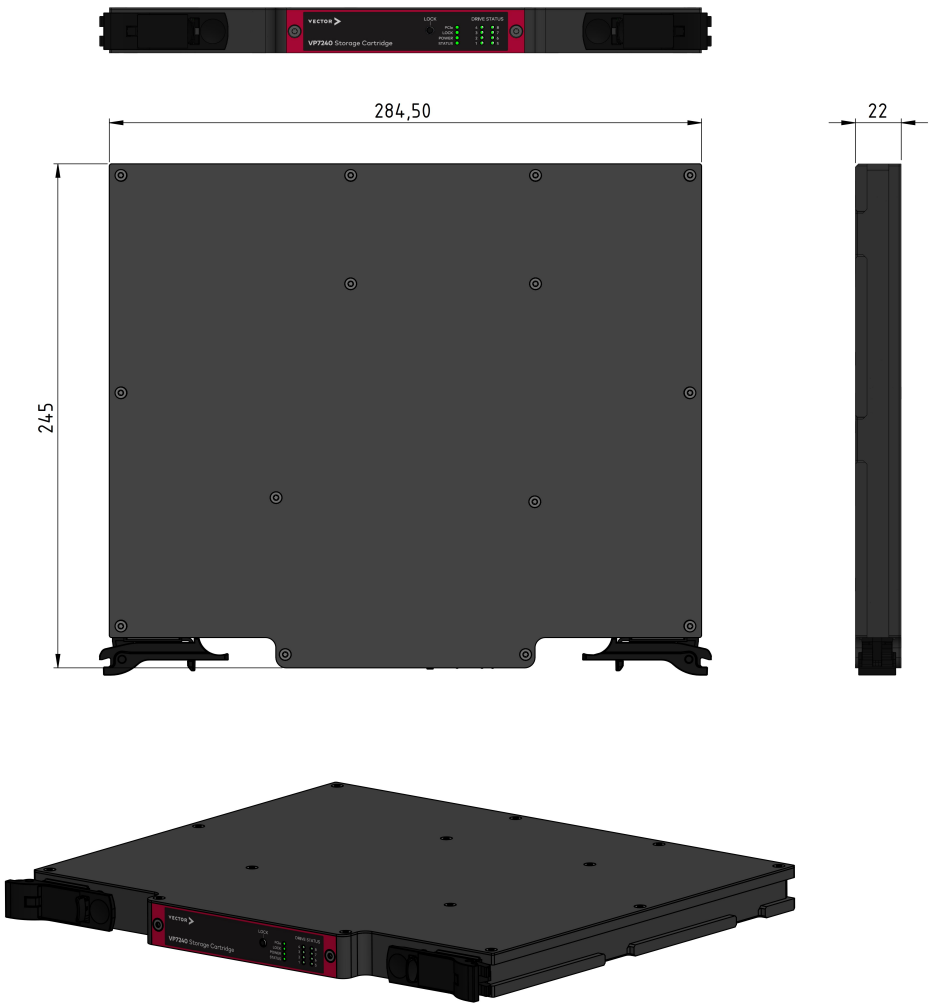


Figure 21: Mechanical drawing

4.5 VP7150 Docking Station

4.5.1 Scope of Delivery

- VP7150 Docking Station for VP7251 (part number 22641)
- Power Supply
  - Power Supply 12V/15A R7B Connector (part number 05248)
  - Power cord EU/UK/USA/JP (depending on the region of delivery)
- Accessories
  - Thunderbolt 5 Cable (part number 22720)
  - USB CABLE 2.0 Type-A/Micro-B (part number 05252)
- Documentation
  - Quick Start Guide (part number 80895)

4.5.2 Overview

Designed for the VP7251, the VP7150 Docking Station easily connects a VP7251 Storage Cartridge to a conventional notebook or computer system via a Thunderbolt 3 interface, enabling access to the Storage Cartridge's data. The Thunderbolt 3 interface enables transfer rates of up to 20 Gbit/s.



Figure 22: VP7150 Docking Station

4.5.3 Interfaces, Control Elements and Indicators

4.5.3.1 Front Side



Figure 23: VP7150 front panel including VP7251 Storage Cartridge.

- **Storage bay**
  The storage bay of the VP7150 is compatible with all VP7251 Storage Cartridges.

Note
For instructions regarding the handling of the VP7251 Storage Cartridge, please refer to the corresponding chapter in this manual.

4.5.3.2 Back Side



Figure 24: VP7150 back side

- **DC Connector**
  Power input supply connector. Only use the provided power supply (part number: 05248).

- **Power Switch**
  Turns the device on/off.

- **USB-C with Thunderbolt 3**
  The TB3_1 connector provides a Thunderbolt 3 interface. It allows you to connect the VP7150 to a notebook or computer system. Only use the provided Thunderbolt cable (part number 22720).

- **Power LED**
  LED indicating the power status of the device.

- **Micro-USB Mangement port (MGMT)**
  This connector provides the management port for administrative access. Only use the provided USB cable (part number 05252).

4.5.4 Getting Started

4.5.4.1 Host System Requirements

General information

The VP7150 Docking Station is only compatible with notebooks or computers that support Thunderbolt 3 or 4. It cannot operate on any USB interface.



Note

Update the BIOS, operating system, and drivers of the host system to the latest versions.

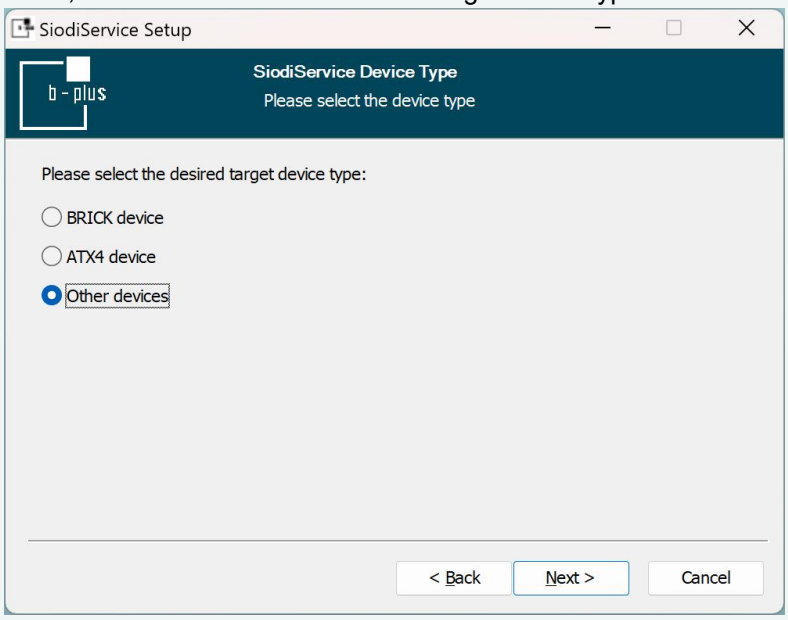
To ensure optimal performance, establish a direct connection between the VP7150 and the host system. Do not connect the VP7150 to a docking station or port splitter.

4.5.4.2 Initial Setup and Installation (Windows)

Note
Admin access is required for initial setup and software installation.

Step by Step Procedure

1. Make sure the VP7150 and the host system are both turned off.
2. Connect the Thunderbolt cable to the **TB3_1** port on the back of the VP7150, then connect the other end to your notebook or computer.
3. Connect the micro USB cable to both the notebook or computer and the management port located on the back of the VP7150.
4. Insert a compatible storage cartridge into the VP7150. Ensure that the latches are closed correctly. Please note that the cartridge is not included in the delivery.
5. Connect the power supply line to the power supply unit and the power connector on the back of the VP7150.
6. Turn on the VP7150 using the power switch located on the back.
7. Turn on the VP7251 Storage Cartridge by pressing and holding the **LOCK** button for 1 second.
8. Wait about 10 seconds for the VP7251 Storage Cartridge to become operational. This is indicated by solid **POWER** and **STATUS** LEDs. During VP7251 boot-up, the **STATUS** LED will flash.
9. Turn on your host system and boot up the operating system.
10. Download the SIODI Service version 3.19.2 or higher to your host system from www.vector.com/vp-tools.
11. Install the downloaded SIODI Service on your host system. During installation, choose **Other devices** as the target device type.



12. Reboot your host system.

4.5.4.3 Initial Setup and Installation (Ubuntu 24.04)

Note
Admin access is required for initial setup and software installation.

Step by Step Procedure

1. Make sure that both the VP7150 and the host system are turned off.
2. Turn on your host system and boot up the operating system.
3. Make sure the host system is connected to the internet.
4. Update the package sources by entering the following command in Terminal: `sudo apt update`
5. Install the build essentials tools by executing the following command in Terminal: `sudo apt install build-essentials`
6. Download the SIODI Service version 3.19.2 or higher to your host system from www.vector.com/vp-tools.
7. Install the SIODI Service on your host system by executing the command: `sudo dpkg -i SiodiService_3.19.2_amd64.deb`.
8. During installation, select **Other devices** as the target device type.
9. Shut down your host system.
10. Connect the Thunderbolt cable to the **TB3_1 port** located on the back of the VP7150. Then, connect the other end to your laptop or computer.
11. Connect the micro USB cable to both the notebook or computer and the management port located on the back of the VP7150.
12. Insert a compatible storage cartridge into the VP7150. Make sure the latches are closed correctly. Please note that the cartridge is not included.
13. Connect the power supply line to both the power supply unit and the power connector located on the back of the VP7150.
14. Turn on the VP7150 using the power switch located on the back.
15. Turn on the VP7251 Storage Cartridge by pressing and holding the LOCK button for 1 second.
16. Allow about 10 seconds for the VP7251 Storage Cartridge to become operational. This is indicated by the solid **POWER** and **STATUS** LEDs. During VP7251 boot-up, the **STATUS** LED will flash.
17. Turn on your host system and boot up the operating system.
18. The VP7251 Storage Cartridge is accessible.

4.5.4.4 Operating and Hot-Swapping VP7251 Storage Cartridges

Setup and Initial Operation



Step by Step Procedure

1. Make sure the VP7150 and the host system are both turned off.
2. Connect the Thunderbolt cable to the **TB3_1** port on the back of the VP7150, then connect the other end to your notebook or computer.
3. Connect the micro USB cable to both the notebook or computer and the management port located on the back of the VP7150.
4. Insert a compatible storage cartridge into the VP7150. Ensure that the latches are closed correctly. Please note that the cartridge is not included in the delivery.
5. Connect the power supply line to the power supply unit and the power connector on the back of the VP7150.
6. Turn on the VP7150 using the power switch located on the back.
7. Turn on the VP7251 Storage Cartridge by pressing and holding the **LOCK** button for 1 second.
8. Wait about 10 seconds for the VP7251 Storage Cartridge to become operational. This is indicated by solid **POWER** and **STATUS** LEDs. During VP7251 boot-up, the **STATUS** LED will flash.
9. Turn on your host system and boot up the operating system.
10. The VP7251 Storage Cartridge is accessible.

Hot-Swap



Step by Step Procedure

1. To remove the VP7251 Storage Cartridge, press the **LOCK** button for 1 second.
   - The **LOCK** LED flashes during the unmount process. Depending on the host setup, this process may take between one and 30 seconds.
   - The VP7251 switches off after a successful unmount.
   - In the event of a failure, such as due to open file handles, SIODI will stop the unmount process and the VP7251 will remain online. Manually stop any open tasks before trying again.
2. Remove the VP7251 Storage Cartridge.
3. Wait at least 30 seconds for the operating system to update the internal device and disc status.
4. Insert the new VP7251 Storage Cartridge.
5. Turn on the VP7251 Storage Cartridge by pressing and holding the **LOCK** button for 1 second.
6. Wait for the drives to be detected and the partitions to be mounted. During the initialization and mounting procedure, the **STATUS** LED on the VP7251 Storage Cartridge will flash. Depending on the host setup, this process may take between 5 and 20 seconds.

4.5.5 Technical Data

Power supply	12 V DC; 12 A
Storage interface	Compatible to VP7251 Storage Cartridge
Data interface	USB-C with Thunderbolt 3, 20 Gbit/s, 1x host, 1x daisy-chain
Management interface	1x Micro-USB 2.0 Host
Dimensions (LxWxH)	335 x 320 x 44 mm
Cooling	Active with Fan Control
Temperature range (ambient temp. of the device)	0 °C ... +50 °C
Air humidity	90 % non-condensing
Supported operating system	Windows 10 Windows 11 Ubuntu 24.04

5 Software Variants

In this chapter you find the following information:

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5.1 Introduction

Each platform of the VP7500 family differs in the technical (hardware) properties. In addition, they differ in the software used. The right software variant for you depends on the intended use.

The following software variants are available:

- **Smart Logger**
  Use this software variant if you want to perform logging tasks in conjunction with CANape log or vMeasure log. Use dedicated Vector tools for configuration, measurement and logging. This software variant is the perfect choice for field applications where a given configuration must be used (e. g. vehicle fleet).
- **Automotive PC**
  Use this software version as a dedicated computer to run a full version of CANape. You can access the Automotive PC like any other computer by connecting a keyboard, mouse and display. This variant is particularly suitable for trained CANape personnel who place a high value on configuration and flexibility.
- **Logging Extension**
  Use this software variant if you want to expand an existing Smart Logger or Automotive PC to increase the data rate, processor performance or memory capacity.



Note
The software variants are part of the order and cannot be changed afterwards.

5.2 Smart Logger

5.2.1 Introduction

The Smart Logger software variant is the perfect choice for field applications where a given configuration must be used (e. g. vehicle fleet) and if you want to perform logging tasks in conjunction with CANape log or vMeasure log. With CANape log or vMeasure log, the VP7500 platform becomes a powerful stand-alone Smart Logger.

Use dedicated Vector tools for configuration, measurement, and logging. Configuration is performed on a computer with CANape or vMeasure installed. Existing CANape projects can be downloaded to the VP7500 platform quickly and easily.

The configuration computer is no longer needed for logging while a browser-based mobile user interface is available for monitoring measurements. Individual measurement signals and status information, such as remaining memory capacity, can also be displayed.

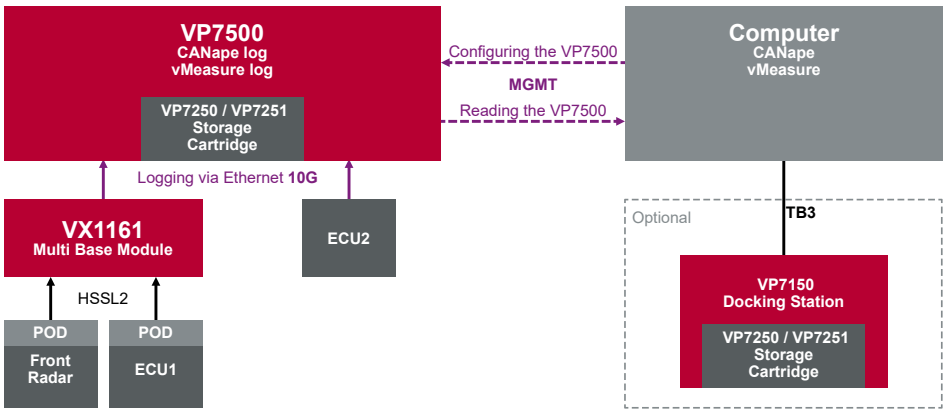


Figure 25: Setup example

Note
The Smart Logger software variant is supported by all platforms.

5.2.2 Getting Started

5.2.2.1 Step 1: Power Supply

Smart Loggers are designed to start-up when terminal 15 of the vehicle becomes active. The following sections describe the required wiring.

Step by Step Procedure

1. Connect the open cable ends of the supplied power cable (part number 22648) to the permanent power supply of the vehicle (terminal 30/GND).
2. Connect the Amphenol C10 connector at the other end of the power cable to the **Power 12/24V DC** connector of the VP7500.
3. Connect the supplied ignition cable (part number 22651) to terminal 15 of the vehicle.
4. Connect the Ultra-Fit connector at the other end of the cable to the **SYSCTRL** connector of the VP7500.

Note
Power supply and terminal 15 line must have the same GND reference for proper functionality.

5.2.2.2 Step 2: Computer Connection

To configure and control the Smart Logger, an Ethernet connection between the Smart Logger and a configuration computer is required. Connect the configuration computer to the Ethernet port labeled **MGMT**.

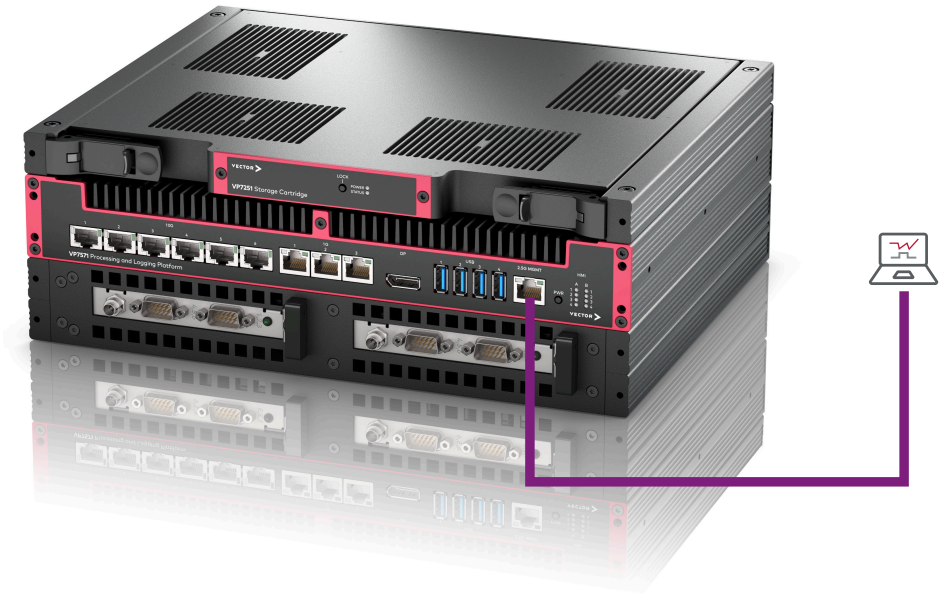


Figure 26: Connecting VP7500 to configuration computer

5.2.2.3 Step 3: IP Address Configuration

To establish an Ethernet connection between the Smart Logger and the configuration computer both devices must be configured to use the same IP address subnet. Please ensure this or change the settings if required.

Edit

The default IP settings of the Smart Loggers for the **ETH1 MGMT** port are:
- IP Address: 192.168.0.10
- Subnet mask: 255.255.255.0

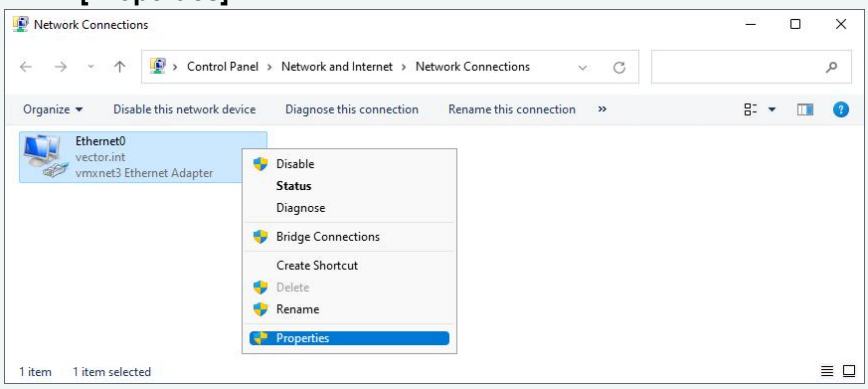
The following sections describe how to change the IP settings for the configuration computer and the Smart Logger.

Adapt Configuration Computer IP Settings

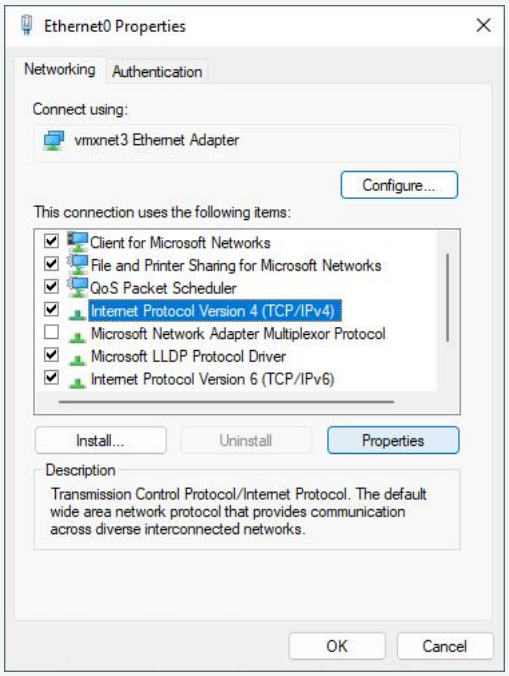
Step by step guide to change the adapter settings on your configuration computer under Windows 11:

Step by Step Procedure

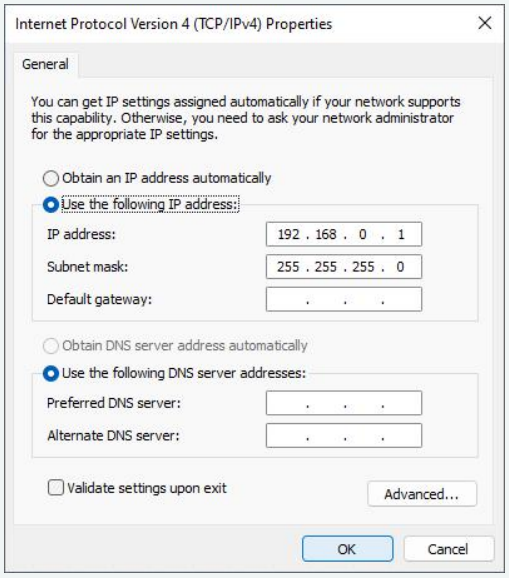
1. Open the Windows start menu and search for **Network connections**.
2. Right click on the Ethernet adapter the Smart Logger is connected to and select **[Properties]**.



3. Select **Internet Protocol Version 4 (TCP/IPc4)** and click on **[Properties]**.



4. Set the IP address and the subnet mask to match the Smart Logger settings, e. g.:
   - IP Address: 192.168.0. 1
   - Subnet mask: 255.255.255.0



5. Turn off the firewall to establish a connection between configuration computer and Smart Logger.

5.2.2.4 Step 4: Adapting Smart Logger IP Settings

Upon delivery, all Smart Loggers are configured with the IP setting described in section Step 2: Computer Connection on page 100. To change these settings, you will have to connect at least once using matching settings on the configuration computer.

Once the adapter settings of the configuration computer are set, and the firewall is turned off follow these steps to adapt the IP settings of the Smart Logger:

Step by Step Procedure

1. Start the **Vector Platform Manager**.
2. Choose the Smart Logger from the drop-down list **Selected devices.**
3. After the connection between the Vector Platform Manager and the Smart Logger is established, switch to the tab **Tool Platform** and then to the sub-tab **Network Settings**.
4. Select the **ETH1 / MGMT** port form the drop-down list **Network adapter**.
5. Change the adapter setting in the section **IP Settings**.

Note
The adapter settings must be set static.

6. Click the button **[Apply]**.

Note
After clicking the button **[Apply]**, the connection to the Smart Logger will be lost. You will then have to adapt the network adapter settings of the configuration computer to match the new IP settings of the Smart Logger before reconnecting.

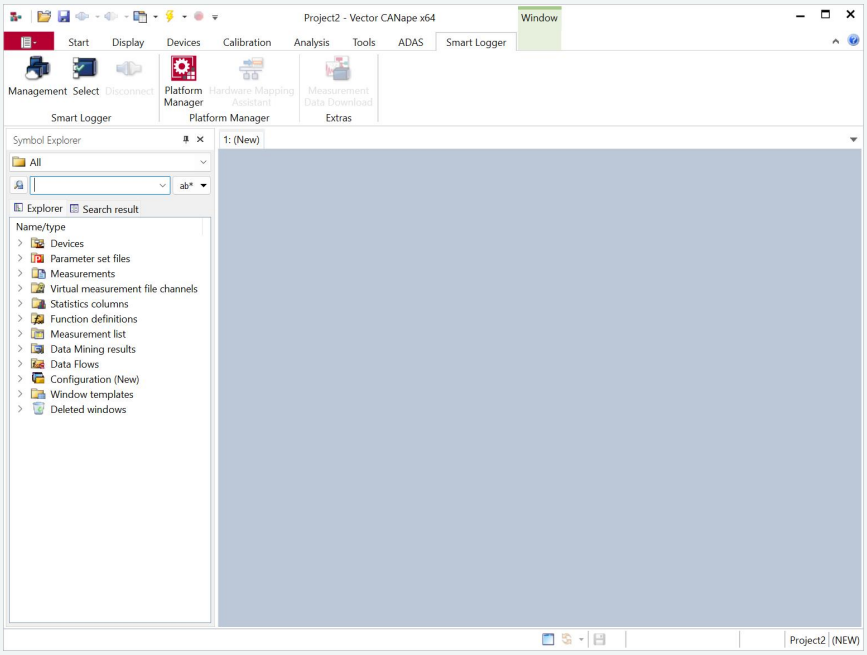
5.2.2.5 Step 5: Smart Logger Configuration

Vector Smart Loggers are available in two version, as vMeasure log and CANape log. The configuration tools for these two versions are vMeasure and CANape, respectively. In terms of configuring a Smart Logger, both versions are alike.

Connecting the Configuration Tool

Step by Step Procedure

1. After setting up the hardware and configuring the Ethernet interfaces, as described in section Getting Started on page 100, boot the Smart Logger. Ensure that the firewall of the configuration computer is turned off.
2. Start the configuration tool.
3. Create a new project in vMeasure or a new container project in CANape.
4. Switch to the ribbon **Smart Logger**.



5. Click on **[Select Logger]** to open the Smart Logger selection dialog.
6. Select your Smart Logger and confirm the dialog (If necessary, update the logger).

Note

The red frame around the configuration tool GUI depicts, that you are now connected with the Smart Logger. Any modification done in the configuration tool is executed on the Smart Logger. The configuration of interfaces connected to or built-in the Smart Logger is done from the ribbon **Smart Logger**.

Transferring Existing Project

Step by Step Procedure

1. Follow the steps described in section Connecting the Configuration Tool on page 104. However, instead of creating a new project in step 3, load your existing project to the configuration tool.
2. With step 6, the existing project is deployed to the Smart Logger.
3. Connect all devices to the Smart Logger.
4. Check on the ribbon **Smart Logger** that the channel mapping of the Smart Logger matches the project.

Note

Existing project might need to be adapted to the logging use-case. The Smart Logger use-case dictates an autonomous operation.

Starting a Measurement

With the configuration tool, a measurement is started by clicking on the lightning icon **Start** on the ribbon **Start** or in the quick access toolbar.

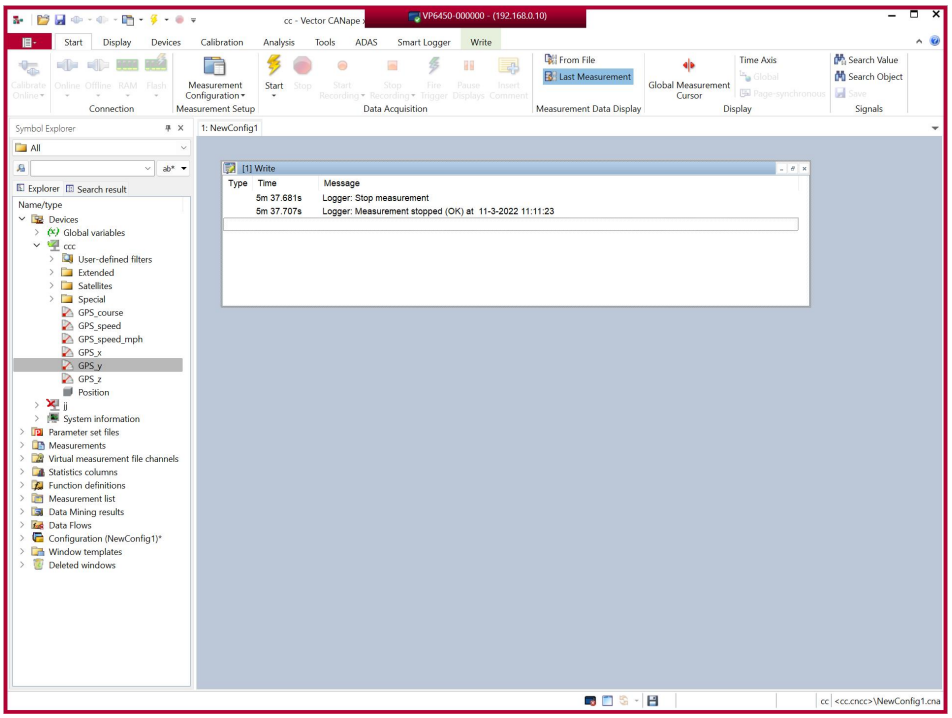


Figure 27: Starting a measurement in CANape

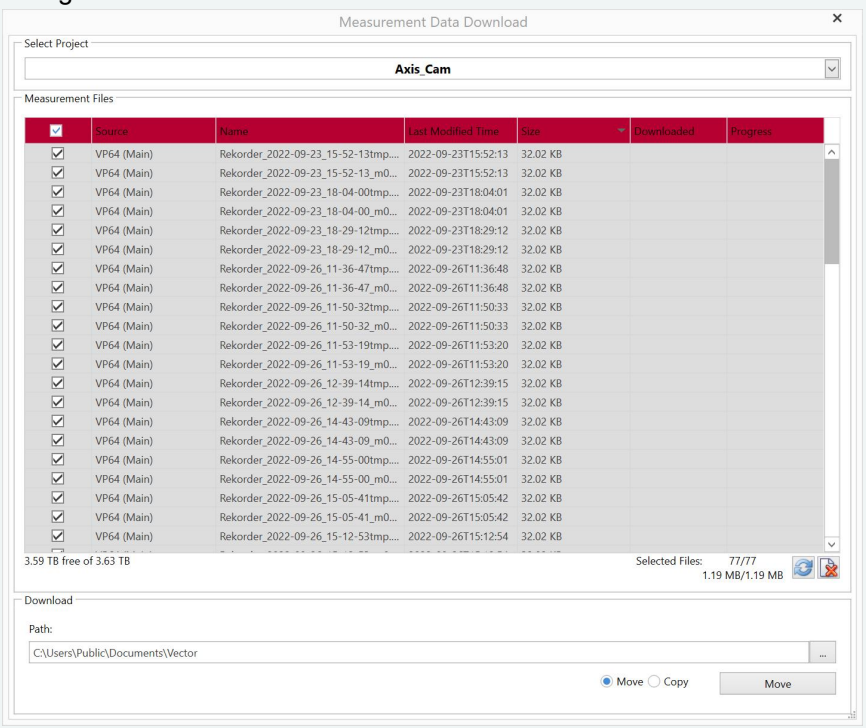
Every reboot of the Smart Logger starts a new measurement.

The recording of measurement data can be configured separately. Check the recorder configuration within the **Measurement Configuration** on the ribbon **Start**.

Downloading Recorded Data

Step by Step Procedure

1. Click on **Measurement Data Download** on the ribbon **Smart Logger**.
2. All measurement files recorded with the currently active project are listed in the section Measurement Files. To download data from previously used project, scroll through the drop-down menu. Select **Project** at the very top of the dialog.



3. Select individual files or all files to be downloaded from the Smart Logger.
4. State the directory the measurement data shall be downloaded to and if you want the data to be moved or just copied.
5. Click the button **[Move/Copy]** to start the download.

Note

In addition to the **Measurement Data Download** dialog integrated into the tool, the stand-alone tool **Vector Measurement Data Explorer** is also available for downloading the recorded data. The **Vector Measurement Data Explorer** can be downloaded from the Vector website.

5.2.3 Mobile UI

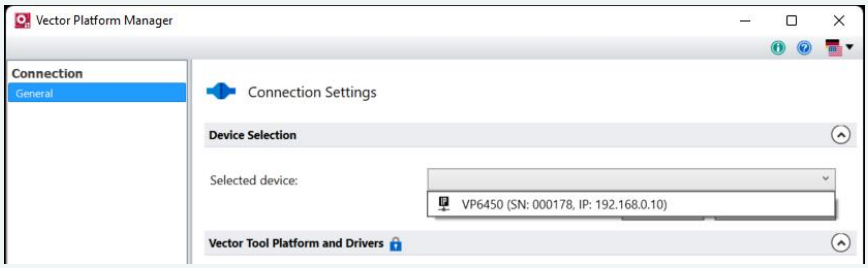
The Mobile UI is a web-based user interface that allows you to pause and resume recordings, fire trigger, monitor vital Smart Logger properties and display currently recorded signals. The mobile UI can be accessed with any browser from any WLAN connected device.

Note
Please use the RV55W or an external WLAN adapter from LM Technologies. Driver sets for the WLAN adapter from LM Technologies to equip the VP7500 with WLAN. Driver sets for the WLAN adapter LM007 and LM808 are included in the Smart Logger OS.

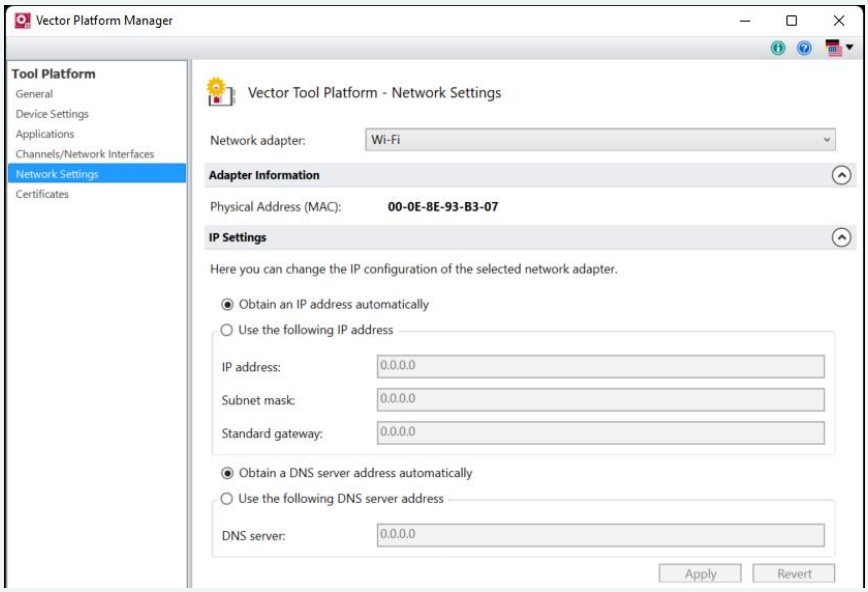
5.2.3.1 Connecting Via WLAN

Step by Step Procedure

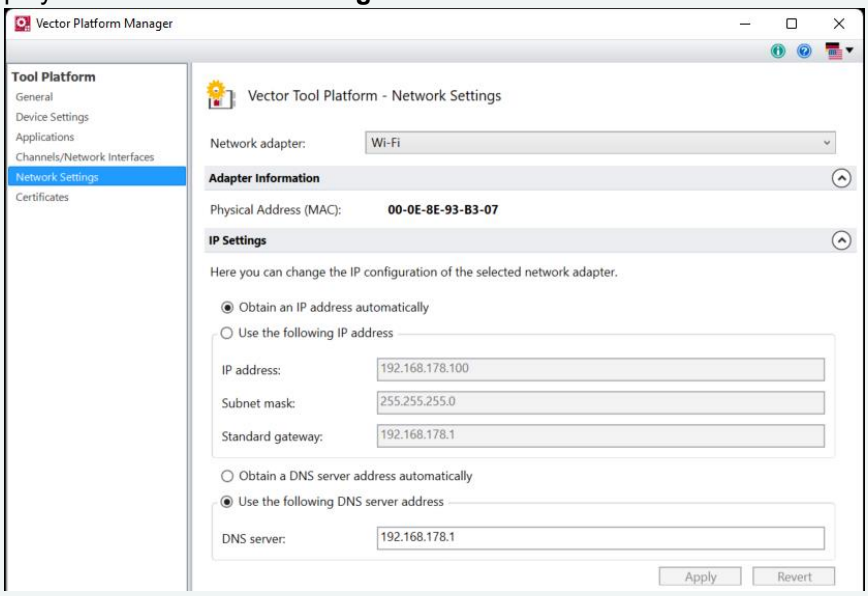
1. Set up a hotspot with the device you want to display the mobile UI with. For details on how to set it up please have a look in the manual of your device.
2. Connect an external WLAN adapter to the Smart Logger.
3. Disable the firewall on your computer.
4. Start the configuration tool.
5. Switch to the ribbon **Smart Logger**.
6. Click on the button **Platform Manager** to open the **Vector Platform Manager**.
7. Select your Smart Logger from the drop-down list in the section **Device Selection**.



8. Switch to the ribbon **Tool Platform** and there to the sub-ribbon **Network Settings**.
9. Select the **WLAN Adapter** form the drop-down list **Network adapter**.
10. In section **WLAN Settings**, switch the mode to **Infrastructure**. All available WLAN networks in range are listed in the table **Infrastructure**.
11. Select the network referring to your hotspot and connect to it.



12. After connection is established refresh the display page, e.g. by switching the sub-ribbon back and forth. The IP address of your Smart Logger is displayed in the section **IP Settings**.



13. Type in the IP address the browser of the device you want to display the Mobil UI in. Your browser will be automatically redirected to the Mobile UI.

5.2.4 Shutdown via Terminal 15

5.2.4.1 Overview

The VP7500 Smart Logger has a shutdown function. The Vector Tool Platform monitors terminal 15 of the Smart Logger. This monitoring is used to shut down running software and the VP7500 as soon as the power supply via terminal 15 is interrupted.

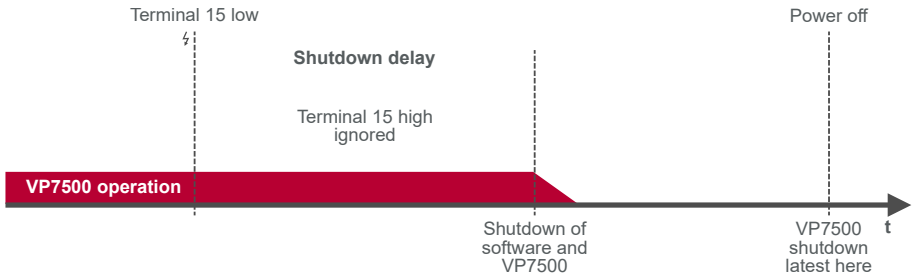


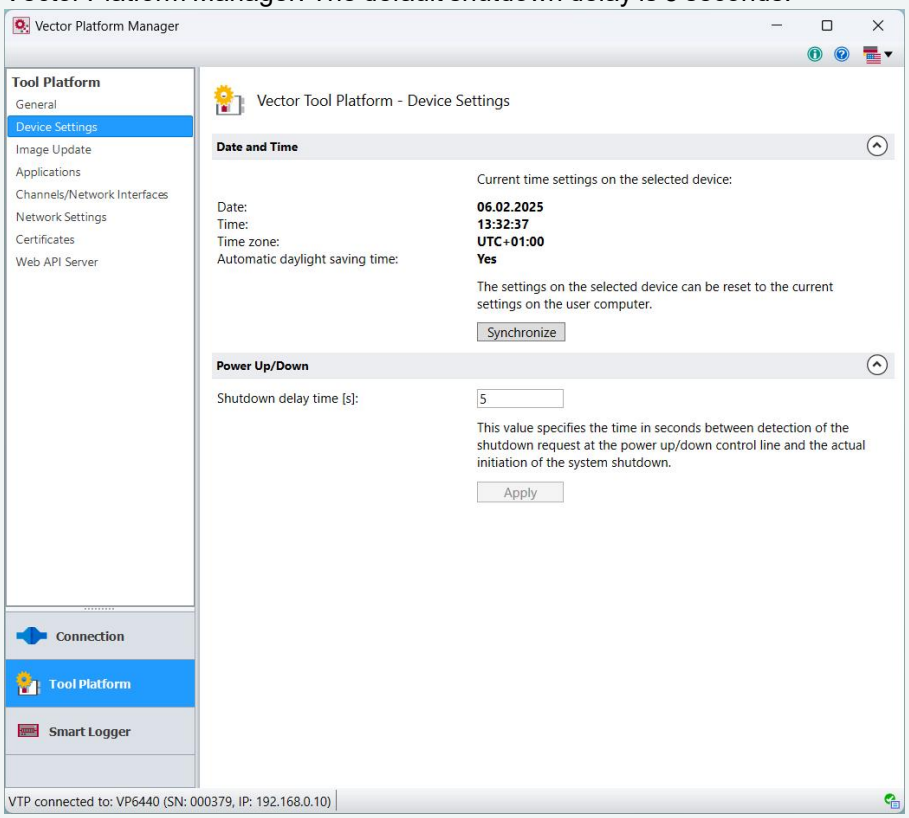
Figure 28: Shutdown phases

- **Shutdown delay**
  Terminal 15 high has no effect anymore. After the shutdown delay time has elapsed, the current measurement is stopped and the software, e. g. CANape, is closed. The VP7500 will also shut down.
- **Power off**
  Under certain circumstances, the VP7500 may have a delayed shutdown. In this case, a hard shutdown (power off) occurs at the latest 180 seconds after terminal 15 went low.

5.2.4.2 Timeout Configuration

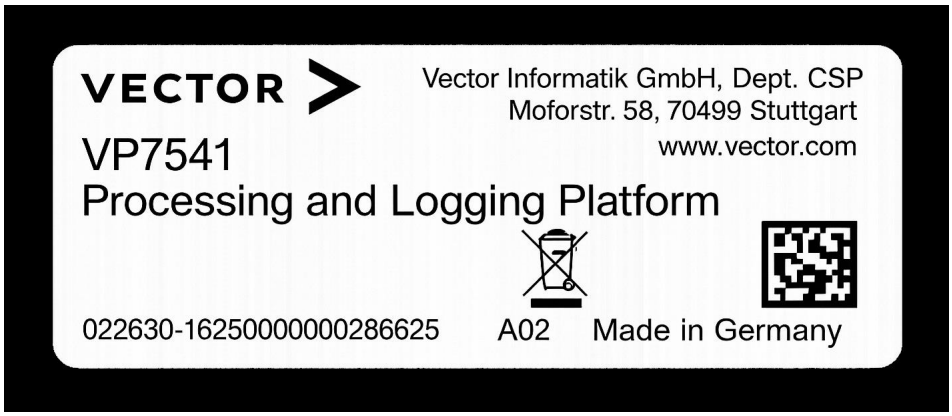
Edit

The shutdown delay for the VP7500 Smart Logger can be configured in the Vector Platform Manager. The default shutdown delay is 5 seconds.



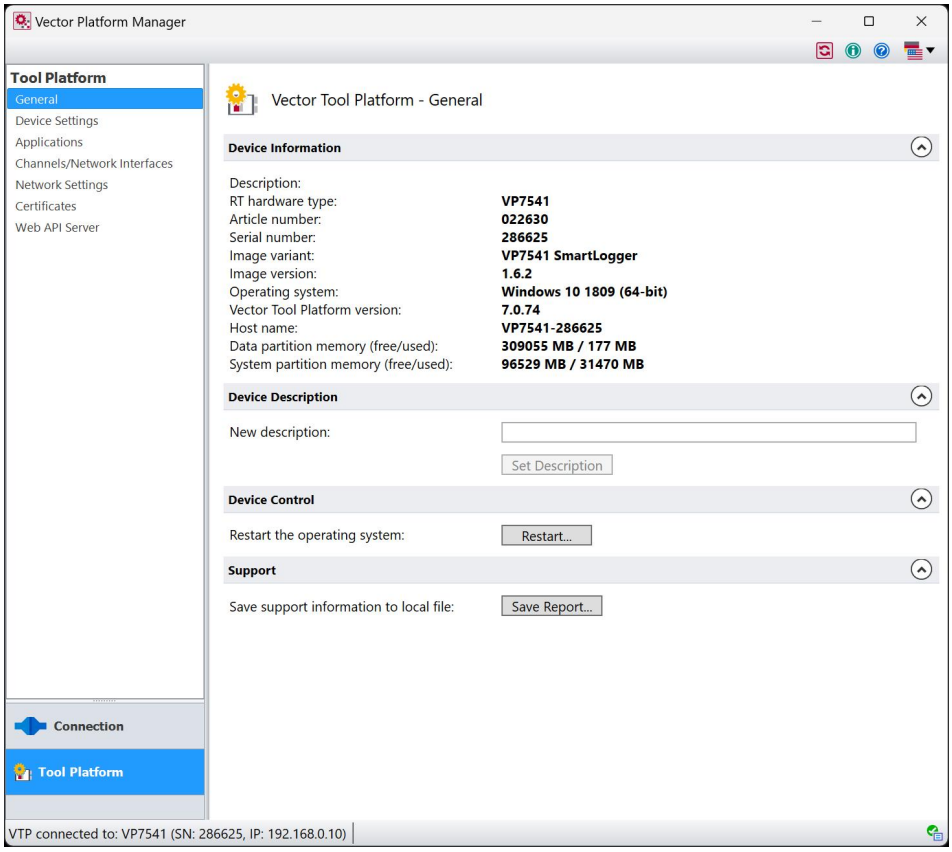
5.2.5 Retrieving Serial Number

The device's serial number is located on the label attached to the bottom of the housing.



If the device is permanently installed and the label is unreadable, you can retrieve its serial number via the Vector Platform Manager:

Open the Vector Platform Manager on the host system and connect to the smart logger. The smart logger's serial number can be found under **Tool Platform | General | Device Information | Serial Number**.



5.3 Automotive PC

5.3.1 Introduction

The Automotive PC software version is a dedicated, standalone computer running Windows. It is the perfect choice if you want to run a full version of CANape and other applications for deep configuration and flexibility.

To access the Automotive PC, simply connect a keyboard and mouse to the front panel, and a display to the back panel.

Pre-installed Vector drivers provide easy support for other Vector hardware products. Optionally, the system can be ordered with pre-installed Vector tools such as CANape.

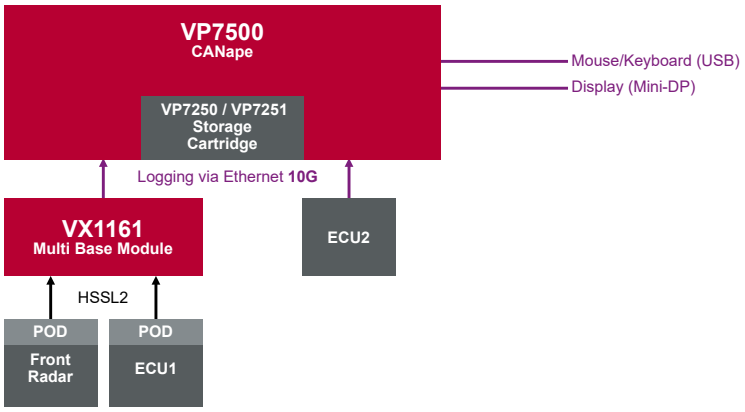


Figure 29: Setup example

Note
The Automotive PC software variant is supported by all VP7500 platforms.

5.3.2 Getting Started

5.3.2.1 Step 1: Power Supply

The VP7500 Automotive PC will start when terminal 15 of the vehicle becomes active. The following sections describe the wiring.

Step by Step Procedure

1. Connect the open cable ends of the supplied power cable (part number 22648) to the permanent power supply of the vehicle (terminal 30/GND).
2. Connect the Amphenol C10 connector at the other end of the power cable to the **Power 12/24V DC** connector of the VP7500.
3. Connect the supplied ignition cable (part number 22651) to terminal 15 of the vehicle.
4. Connect the Ultra-Fit connector at the other end of the cable to the **SYSCTRL** connector of the VP7500.

5.3.2.2 Step 2: Connection of Periphery

External periphery can be easily connected by using the ports on the front side of the Automotive PC.



Figure 30: Connecting keyboard, mouse and monitor

5.3.3 Using a Remote Desktop Connection

You can also control the Automotive PC using a remote desktop connection.

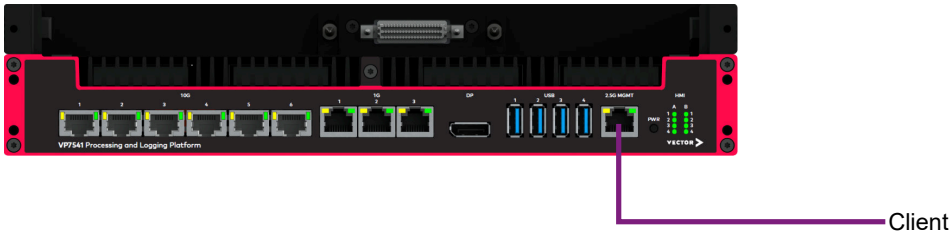


Figure 31: MGMT port connected to client

Step by Step Procedure

1. Connected to the MGMT port of the VP device to the client computer (Windows).
2. In Windows, open the Remote Desktop Connection.
3. Connect to 192.168.0.10. This is the default IP address of the MGMT port.



5.3.4 Shutdown via Terminal 15

5.3.4.1 Overview

The VP7500 Automotive PC internally runs a shutdown service, which monitors the status of terminal 15 (Vbatt+ from ignition switch).

This service is used to shut down running software and the VP7500 in several phases as soon as the power supply via terminal 15 is interrupted. The duration of each phase is also configurable.

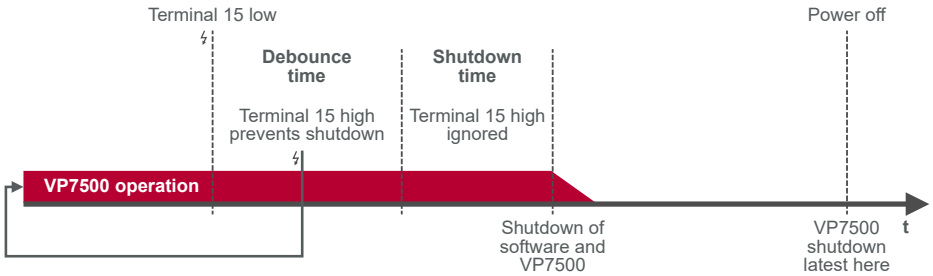


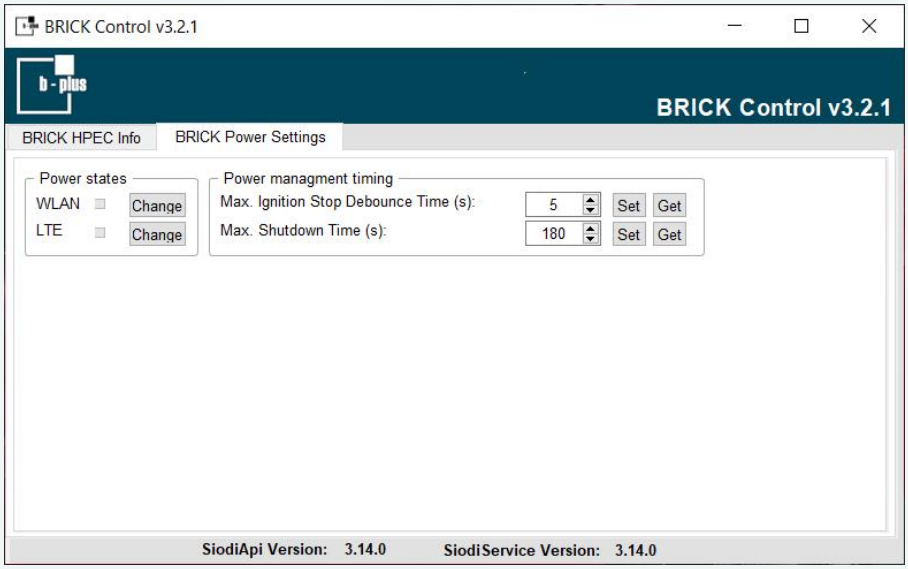
Figure 32: Shutdown phases

- **Debounce time**
  During this time, the VP7500 is set to debounce state to prepare for shutdown. But as long as the time has not expired and terminal 15 is high again, the shutdown process is interrupted and the VP7500 returns to its normal state. Default timeout: 5 seconds.
- **Shutdown time**
  The VP7500 is set to shutdown state. Terminal 15 high has no effect anymore. During this time, the current measurement is stopped and the software, e. g. CANape, is closed. The VP7500 is also shut down. The status is indicated by the user LED B4 (see the corresponding HMI LED description).
- **Power off**
  A hard shutdown occurs at the latest when the max. shutdown timeout has elapsed. The maximum shutdown timeout starts counting after terminal 15 goes low. Default timeout: 180s.

5.3.4.2 Timeout Configuration

Edit

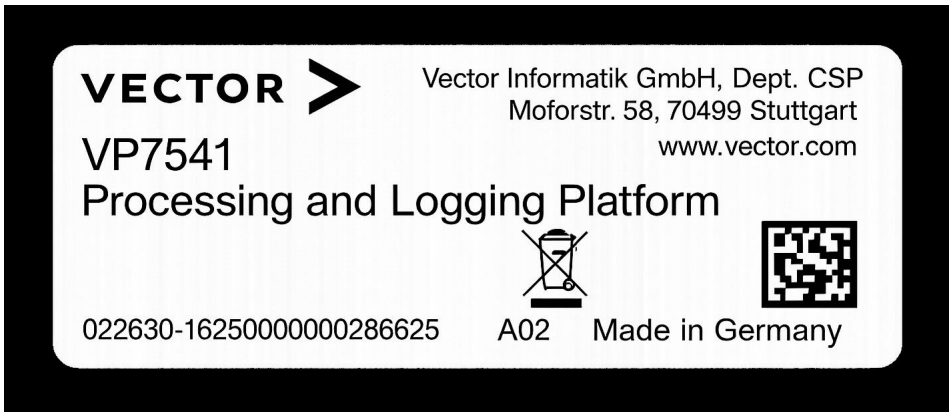
The timeouts can be edited via the **BRICK Control** tool:
`C:\Program Files\b-plus\BRICK_Control_03.02.01\app\BrickControl.exe`



- The valid range for **Max. Ignition Stop Debounce Time (s)** is 2...60 seconds.
- The valid range for **Max. Shutdown Time (s)** is 20...240 seconds.

5.3.5 Retrieving Serial Number

The device's serial number is located on the label attached to the bottom of the housing.



If the device is permanently installed and the label is unreadable, you can find the serial number using the `hostname` command in the command line.



5.3.6 VP Storage Cartridge Encryption

5.3.6.1 Overview

The VP7251 Storage Cartridge supports hardware encryption in accordance with the TCG Opal 2.0 standard. The secure AES data encryption is performed directly on the SSD's controller, ensuring that the host system's CPU remains unaffected. Access control is implemented through password-based authentication, and encryption management can be handled via the VP Storage Manager tool.

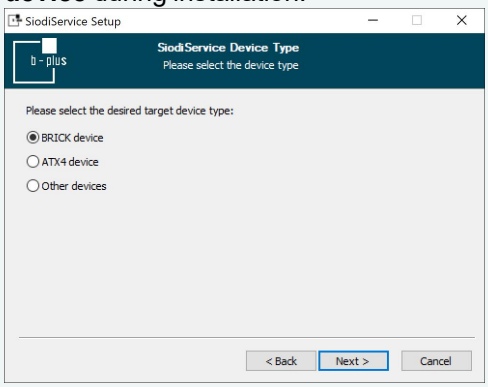
5.3.6.2 System Requirements

The following requirements must be met to use hardware encryption:

- Use of the VP7251 Storage Cartridge
- CANape 23 SP3 or a newer version is installed
- SIODI 3.19.2 or newer must be installed
- VP Storage Manager 1.2.7.246 or newer is installed

Note
The SIODI and VP Storage Manager can be downloaded from www.vector.com/vp-tools.

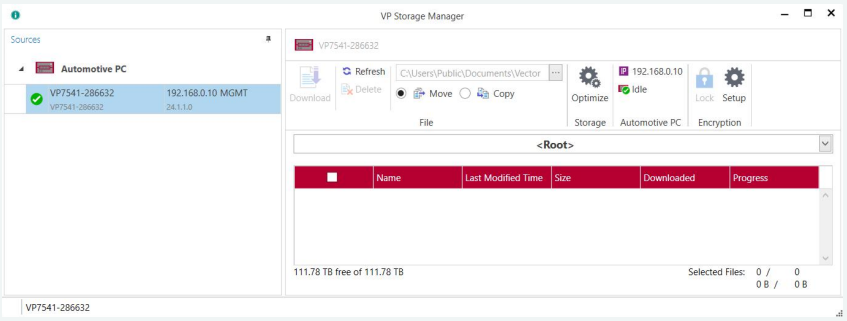
Note
When updating an existing SIODI installation to a new version, select **BRICK device** during installation.



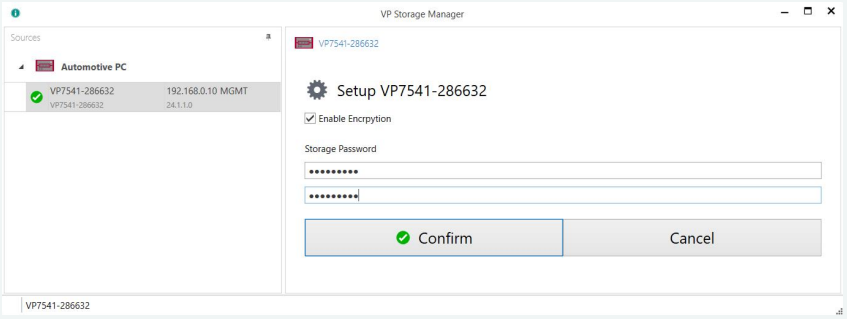
5.3.6.3 Enabling Encryption

Step by Step Procedure

1. Turn off the VP7500.
2. Insert a VP7251 Storage Cartridge into the VP7500.
3. Turn on your host system and boot up the operating system.
4. Open the VP Storage Manager.
5. Select your system on the left and click the **Setup** icon.



6. Check **Enable Encryption**, enter your password twice, and click **[Confirm]**.

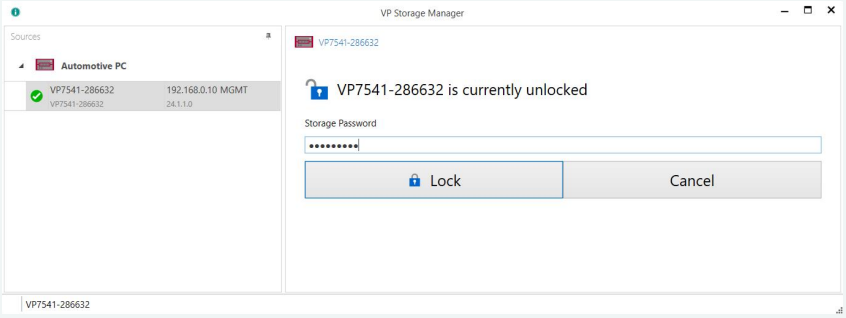


7. After a few seconds, the VP Storage Cartridge will be hardware encrypted. The VP Storage Cartridge is unlocked, and you can access the data on it.
8. Your storage remains unlocked until you lock it or shut down your host system.

5.3.6.4 Locking

Step by Step Procedure

1. Open the VP Storage Manager.
2. Select your system on the left, enter your password, and click **[Lock]**.

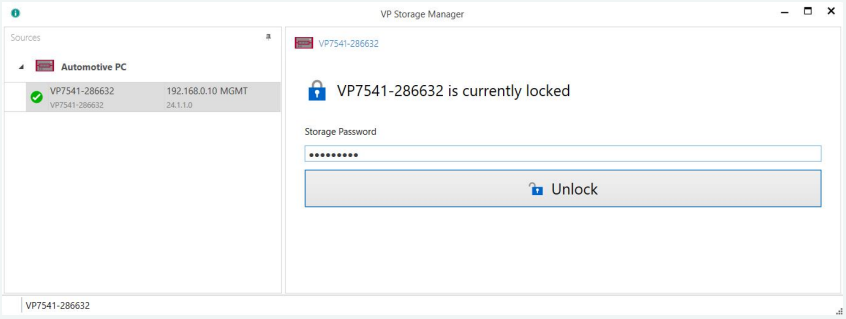


3. After a few seconds, the VP Storage Cartridge will be locked.

5.3.6.5 Unlocking

Step by Step Procedure

1. Open the VP Storage Manager.
2. Select your system on the left, enter your password, and click **[Unlock]**.

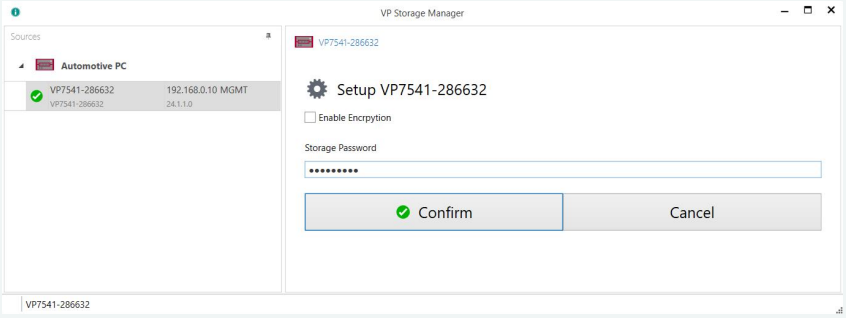


3. After a few seconds, the VP Storage Cartridge will unlock, allowing you to access the data on it.

5.3.6.6 Disabling Encryption

Step by Step Procedure

1. Open the VP Storage Manager.
2. Select your system on the left, uncheck **Enable Encryption**, type your password, and click **[Confirm]**.



3. After a few seconds, the VP Storage Cartridge's hardware encryption is disabled.

5.4 Logging Extension

5.4.1 Introduction

With the Logging Extension software variant you can extend your existing Smart Logger or Automotive PC with to expand data rate, CPU performance and memory capacity.

The Smart Logger or Automotive PC acts as the head unit, while the Logging Extension adds data rate, CPU power and memory capacity. The Logging Extension is seamlessly integrated into the overall system, has no graphical user interface and is controlled by the software on the Head Unit.

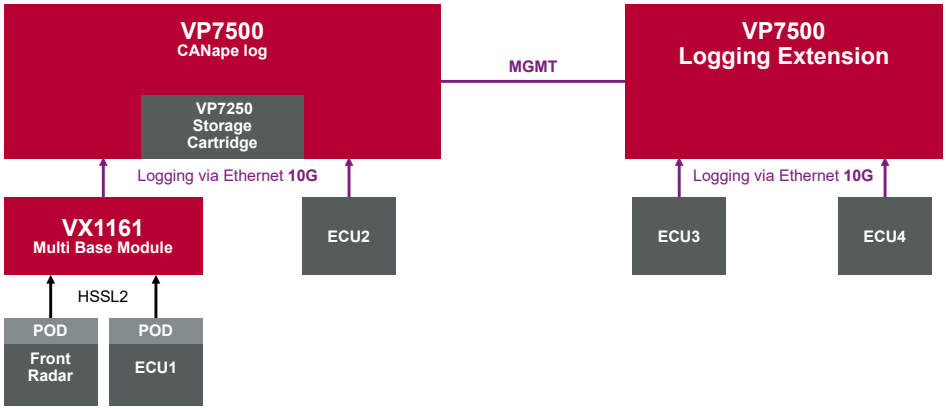


Figure 33: Setup example

Note

The Logging Extension software variant is supported on the following platforms:

- VP7541

5.4.2 Getting Started

5.4.2.1 Step 1: Power Supply

Logging Extensions are designed to start-up when terminal 15 of the vehicle becomes active. The following sections describe the required wiring for the different hardware platforms to achieve this behavior.



Step by Step Procedure

1. Connect the open cable ends of the supplied power cable (part number 22648) to the permanent power supply of the vehicle (terminal 30/GND).
2. Connect the Amphenol C10 connector at the other end of the power cable to the **Power 12/24V DC** connector of the VP7500.
3. Connect the supplied ignition cable (part number 22651) to terminal 15 of the vehicle.
4. Connect the Ultra-Fit connector at the other end of the cable to the **SYSCTRL** connector of the VP7500.



Note
Power supply and terminal 15 line must have the same GND reference for proper functionality.

5.4.2.2 Step 2a: Connection to the Automotive PC

To configure and control the Logging Extension, an Ethernet connection between the Automotive PC and the Logging Extension is required.

Connect **2.5G MGMT** of the Automotive PC to **2.5G MGMT** of the Logging Extension.

5.4.2.3 Step 2b: Connection to the Smart Logger

To configure and control the Logging Extension, an Ethernet connection between the configuration computer, Smart Logger and Logging Extension is required.

Connect **2.5G MGMT** of the Smart Logger and **2.5G MGMT** of the Logging Extension to a network switch. Also connect the configuration computer to this network switch.

5.4.2.4 Step 3: IP Address Configuration

To establish an Ethernet connection between the platforms, all devices must be configured to use the same IP address subnet. Make sure this is the case or change the settings if necessary.

Edit

The default IP settings of the Logger Extension for the **ETH1 / 2.5G MGMT** port are:

- IP Address: 192.168.0.10
- Subnet mask: 255.255.255.0

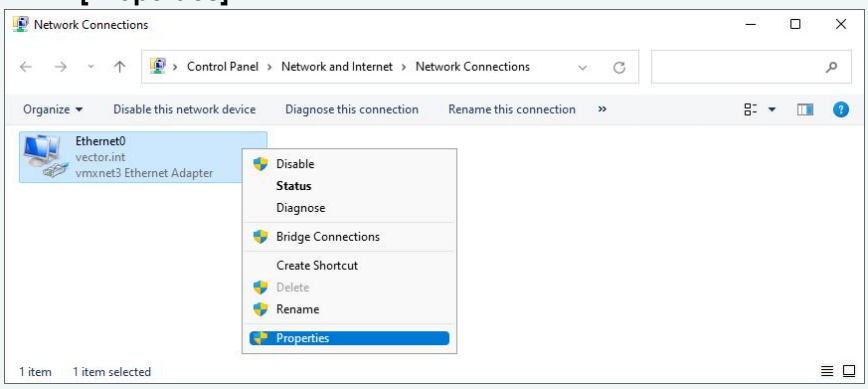
The following sections describe how to change the IP settings for the configuration computer and the Logging Extension.

Adapt Configuration Computer IP Settings

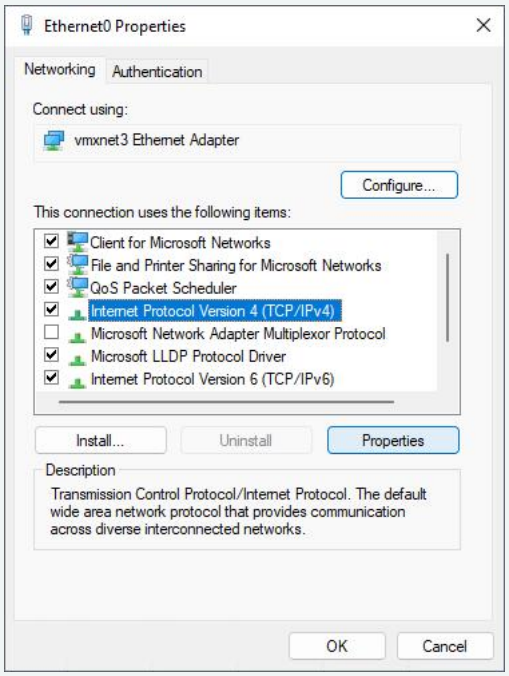
Step by step guide to change the adapter settings on your configuration computer under Windows:

Step by Step Procedure

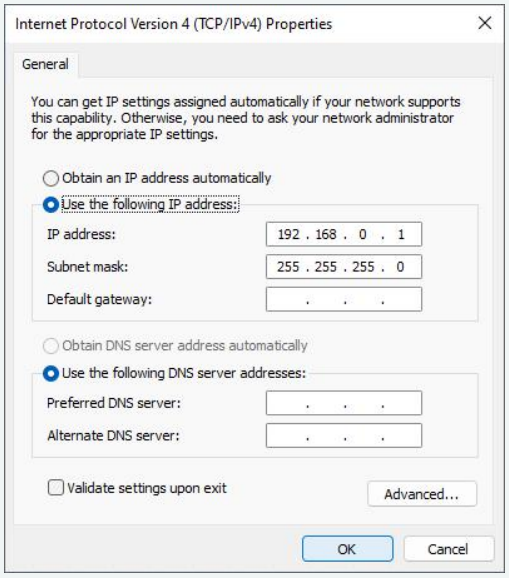
1. Open the Windows start menu and search for **Network connections**.
2. Right click on the Ethernet adapter the Smart Logger is connected to and select **[Properties]**.



3. Select **Internet Protocol Version 4 (TCP/IPc4)** and click on **[Properties]**.



4. Set the IP address and the subnet mask to match the Logging Extension settings, e. g.:
   - IP Address: 192.168.0. 1
   - Subnet mask: 255.255.255.0



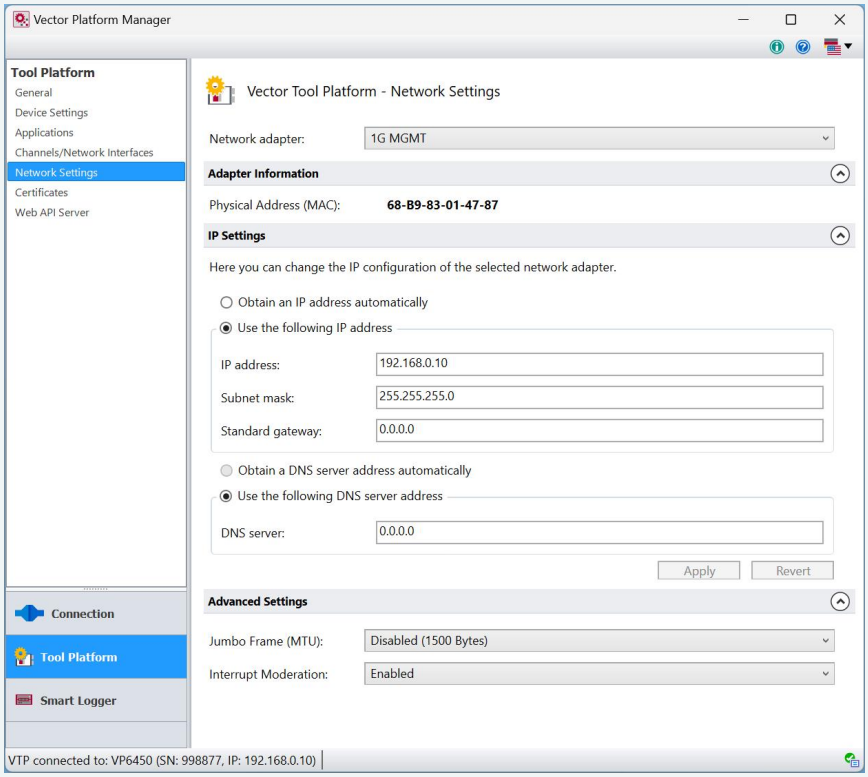
5. Turn off the firewall to establish a connection between configuration computer and Smart Logger / Logging Extension.

5.4.2.5 Step 4: Adapting Logging Extension IP Settings

Once the adapter settings of the Automotive PC or configuration computer are set, and the firewall is turned off, follow these steps to adapt the IP settings of the Logging Extension:

Step by Step Procedure

1. Start the **Vector Platform Manager**.
2. Choose the Logging Extension from the drop-down list **Selected devices.**
3. After the connection between the Vector Platform Manager and the Logging Extension is established, switch to the tab **Tool Platform** and then to the sub-tab **Network Settings**.
4. Select **2.5G MGMT** form the drop-down list **Network adapter**.



5. Change the adapter setting in the section **IP Settings**.

Note
The adapter settings must be set static.

6. Click the button **[Apply]**.



Note
After clicking the button **[Apply]**, the connection to the Logging Extension will be lost. You will then have to adapt the network adapter settings of the configuration computer to match the new IP settings of the Logging Extension before reconnecting.

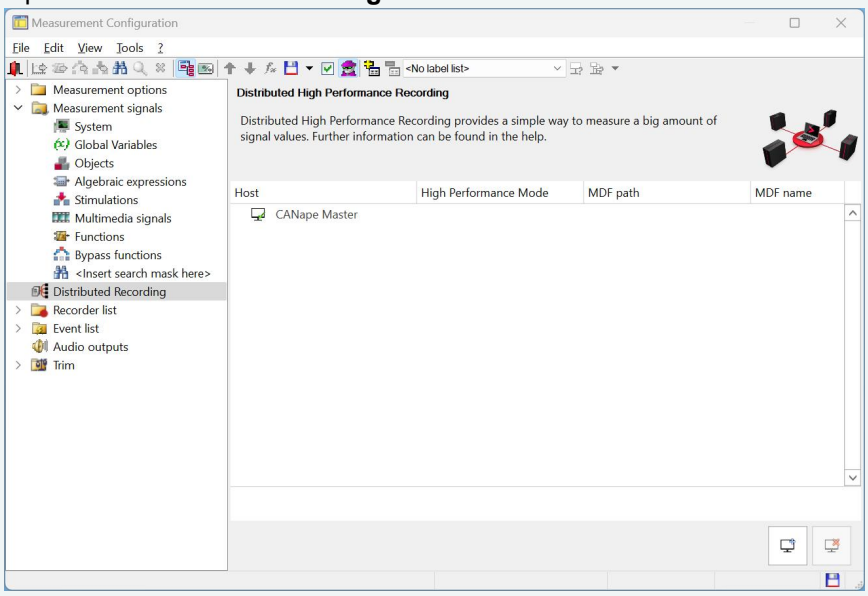
5.4.2.6 Step 5: Logging Extension Configuration

The use of a Logging Extension is configured with CANape within the CANape project. The following sections explain how to add a Logging Extension, how to distribute the logging configuration to the platforms, and how to access the recorded measurement files.

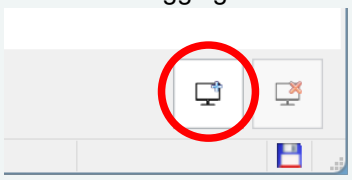
Adding a Logging Extension

Step by Step Procedure

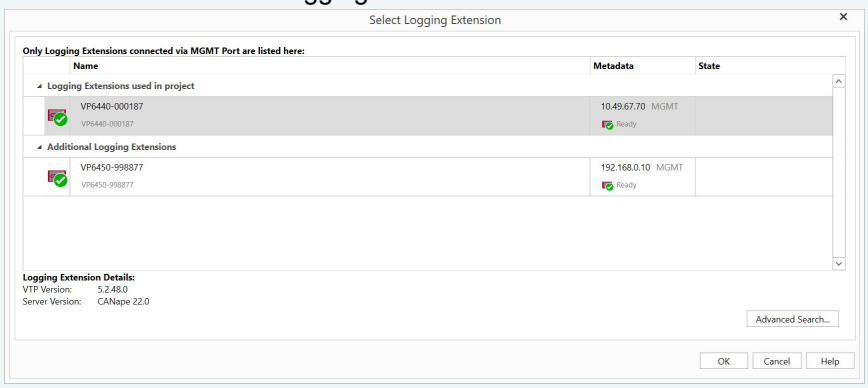
1. After setting up the hardware and configuring the Ethernet interfaces, as described in section Step 1: Power Supply on page 123, boot the Logging Extension. If the configuration computer is used, ensure that the firewall of the configuration computer is turned off.
2. Start the configuration tool CANape.
3. Load or create a new CANape project.
4. Open the **Measurement Configuration** and select **Distributed Recording**.



5. Add a new Logging Extension via the **[Plus]** button on the bottom right.



6. Select one of the listed Logging Extensions.



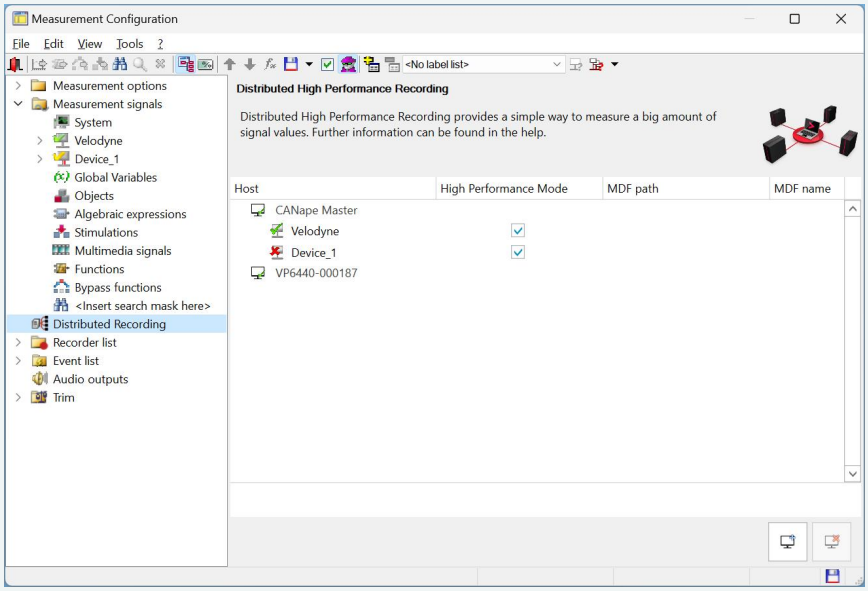
Note

The software version of the Logging Extension must match the CANape version of the configuration computer. If this is not the case, please update the Logging Extension first.

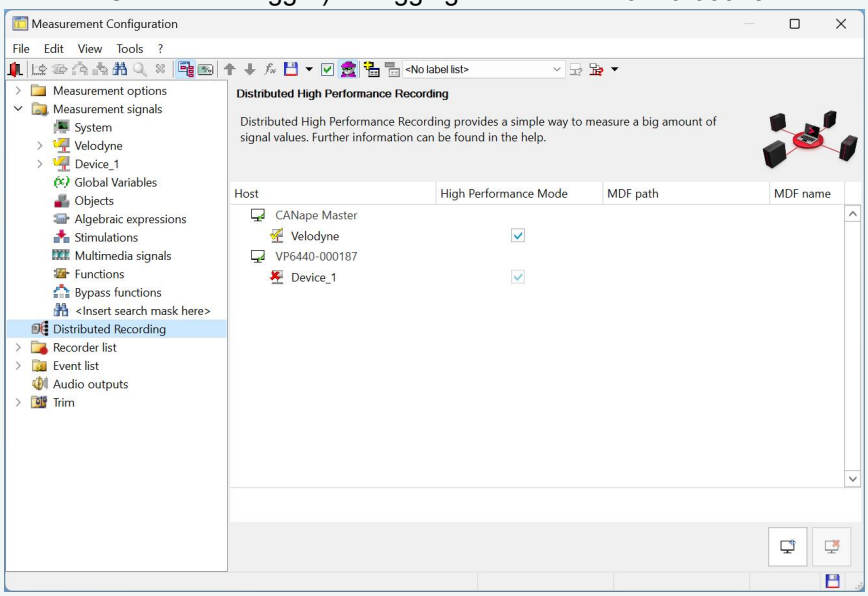
Distribute Measurement

Step by Step Procedure

1. After one or more Logging Extensions have been added to the CANape configuration, you can distribute the CANape devices across the Logging Extensions.
2. Open the **Measurement Configuration** and select **Distributed Recording**.



3. A CANape device can be distributed via drag & drop from one platform to another. In this example, **Device_1** is moved from CANape Master (Automotive PC or Smart Logger) to Logging Extension VP6440-000187.



Note

Make sure that the measurement interface required by the CANape device moved to the Logging Extension is connected to the Logging Extension.

Make sure that the IP settings of the Logging Extension Eth Adapter to which the measurement interface is connected are correct.

Starting a Measurement

The measurement can either be started manually in CANape or automatically by a Smart Logger. In both cases, all distributed CANape devices start their data acquisition.

Each CANape device connected to a Logging Extension writes its measurement files to the respective Logging Extension.

Downloading Recorded Data

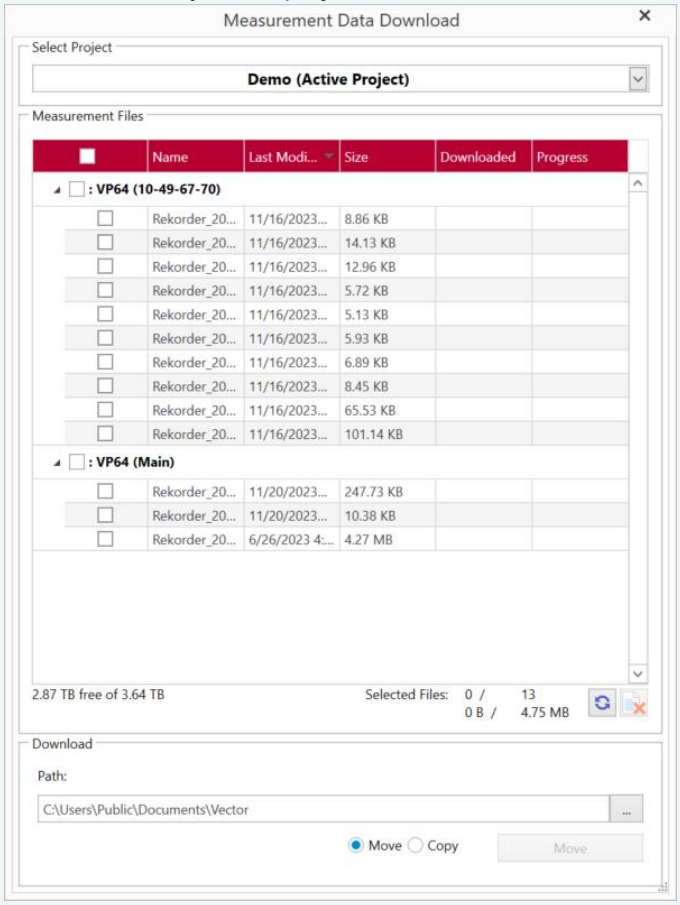
After the measurement is completed, several measurement files are available in the Logging Extension storage.

To download the measurement files, use the CANape integrated **Measurement Data Download** dialog on the **Smart Logger** ribbon or the Vector **Measurement Data Explorer** application, which can be downloaded from the Vector web site Vector Measurement Data Explorer | Vector.

Step by Step Procedure

Procedure for Measurement Data Download:

1. Click on **Measurement Data Download** on the ribbon **Smart Logger**.
2. All measurement files, from Smart Logger and Logging Extensions, recorded with the currently active project are listed in the **Measurement Files** section.



3. Select individual or all files for the download.

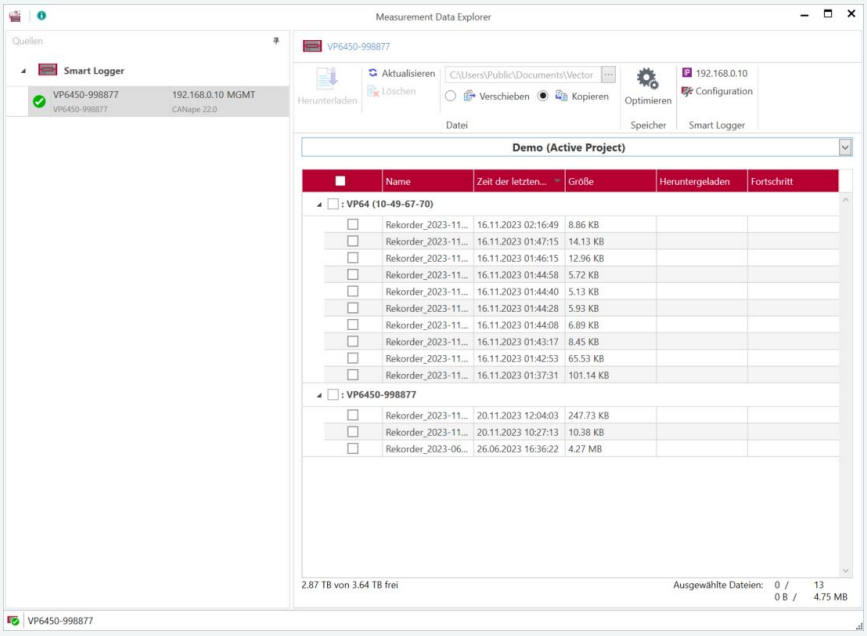
4. Select the directory to download the measurement files to and whether to move or copy the files.
5. Click the button **[Move/Copy]** to start the download.



Step by Step Procedure

Procedure for Measurement Data Explorer:

1. Download the latest Measurement Data Explorer from Vector web site.
2. Start the application and select the data source on the left side.



3. Select individual or all files for download.
4. Select the directory to download the measurement files to and whether to move or copy the files.
5. Click the button **[Move/Copy]** to start the download.

6 Accessories

In this chapter you find the following information:

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6.5.1 Spectra TouchScreen 12" SR 162

6.1 Router and Antennas

6.1.1 Router RV55W

Technical data

Description	LTE router and WLAN access point. - Wireless transmission of logging telemetry data from vehicles, for example to use the Mobile UI - Connecting the Smart Logger to the Logger Cloud - Updating the Smart Logger configuration via mobile radio - Support for universal SIM cards (SIM card not included)
Scope of delivery	- 1x LTE Router RV55W - 2x Antenna for 3G/4G Router 2.0 (part number 28134) - 2x 2.4 & 5 GHz Antenna SMA-R std. (part number 07169) - 1x Ethernet Cable 10Gbps 2m (part number 30016)
Temperature range	Operation: -30 °C ... +70 °C Storage: -40 °C ... +85 °C
IP - class	IP64
Areas of application	Global
Dimensions (WxHxD)	119 mm x 33 mm x 85 mm (102 mm including WLAN connectors)
Weight	320 g
Part number	28154



6.1.2 2.4 & 5 GHz Antenna SMA-R Std.

Technical data

Description	Standard antenna for EU, USA and other non-Asian countries. Suitable for 2.4 GHz and 5 GHz applications.
Part number	07169



Reference
A suitable antenna for Asian countries can be found section 2.4 & 5.2 GHz Antenna SMA-R Asia on page 135.

6.1.3 2.4 & 5.2 GHz Antenna SMA-R Asia

Technical data

Description	Standard antenna for Asia. Suitable for 2.4 GHz and 5.2 GHz applications.
Part number	07170



Reference
A suitable antenna for EU, USA and other non-Asia countries can be found section 2.4 & 5 GHz Antenna SMA-R Std. on page 135.

6.1.4 GNSS Antenna SMA

Technical data

Description	Low profile magnet mounted GPS-GLONASS-GALILEO positioning antenna
Length	3 m (RG174 Coax cable)
Part number	07205



6.1.5 4G LTE Antenna

Technical data

Description	4G LTE antenna for suction cup mounting on car windows
Length	2 m
Connectors	1x SMA-plug 1x window antenna (including 3x suction cups)
Part number	22542



6.2 Power

6.2.1 VP7110 UPS (Obsolete)

Technical data

Description	200 Watt managed Li-ion UPS with 160 Wh
Part number	22514

6.2.2 VP2110 Smart UPS

Technical data

Description	240 Watt SuperCap Smart UPS with external energy storage connection
Features	▶ 5x output: - 2x max. 240 W - 3x max. 85 W ▶ External energy storage: - LiFePO4 batteries ▶ LAN interface for device management ▶ Terminal 15 input and output to activate/run down the measurement system ▶ Digital IO interface for wake-up (wired or remote control)
Temperature range	-40 °C ... +65 °C
Part number	22575



Reference
Refer to the separate VP2110 manual for details.

6.2.3 Desktop Type Power Supply

Technical data

Description	Power supply - AC 110...240 V - 50/60 Hz - 220 W - 24 V - 9.5 A - incl. power cord EURO CEE7/7
Part number	05116



Connection cable Europe

Description	Connection cable for power supply unit
Connectors	Connector for Europe
Part number	05244

Connection cable USA/Japan

Description	Connection cable for power supply unit
Connectors	Connector for USA/Japan
Part number	05115

Connection cable UK

Description	Connection cable for power supply unit
Connectors	Connector for UK
Part number	05125

Connection cable China

Description	Connection cable for power supply unit
Connectors	Connector for China
Part number	05114

6.2.4 Power Supply 24V/2.5A DC Coaxial Plug

Technical data

Description	Power supply unit with 24 V and 2.5 A for use with USB 3.2 Gen2x1 hub (part no. 05225). Country specific AC connection cable included.
Connectors	1x Country specific AC connection cable (see below) 1x DC coaxial plug 5.5 mm x 2.1 mm
Part number	05233



Connection cable Europe

Description	Connection cable for power supply unit
Connectors	Connector for Europe
Part number	05244

Connection cable USA/Japan

Description	Connection cable for power supply unit
Connectors	Connector for USA/Japan
Part number	05115

Connection cable UK

Description	Connection cable for power supply unit
Connectors	Connector for UK
Part number	05125

Connection cable China

Description	Connection cable for power supply unit
Connectors	Connector for China
Part number	05114

6.2.5 Power Supply 12V/15A R7B Connector

Technical data

Description	Power supply unit with 85...264 V AC / 47...63 Hz input and 12 V DC / 15 A output for use with VP7150 Docking Station for VP7251 (part number 22641). Country-specific AC power cable included.
Connectors	1x country-specific AC connection cable 1x R7B connector
Part number	05248



Connection cable Europe

Description	Connection cable for power supply unit
Connectors	Connector for Europe
Part number	05244

Connection cable USA/Japan

Description	Connection cable for power supply unit
Connectors	Connector for USA/Japan
Part number	05115

Connection cable UK

Description	Connection cable for power supply unit
Connectors	Connector for UK
Part number	05125

Connection cable China

Description	Connection cable for power supply unit
Connectors	Connector for China
Part number	05114

6.3 Cables and Connectors

6.3.1 USB

6.3.1.1 Cable USB 2.0 for Spectra Touch

Technical data

Description	USB 2.0 Cable, Type A-A for Spectra TouchScreen.
Length	4.5 m
Connectors	2x USB 2.0 Type-A
Part number	22447



6.3.1.2 USB Cable 3.1 Type A-C (Dual Screw Lock)

Technical data

Description	USB 3.1 cable
Length	approx. 1.8 m
Rated voltage	30 V
Min. bending radius	27.0 mm
Max. operating temp.	80 °C
Connectors	1x connector Type-A 1x connector Type-C with screws
Max. data rate	5 Gbit/s
Part number	05140



6.3.1.3 USBcable 3.2 Gen 2 C-C SDSL

Technical data

Description	USB 3.2 cable. This cable is primarily intended for use with the USB hub. SDSL: Single-sided Dual Screw Lock
Length	approx. 1.5 m
Rated voltage	30 V
Min. bending radius	28.8 mm
Max. operating temp.	80 °C
Connectors	1x connector Type-C 1x connector Type-C with screws
Max. data rate	10 Gbit/s
Part number	05227



6.3.1.4 USBcable 3.2 Gen 2 C-C DDSL

Technical data

Description	USB 3.2 cable. This cable is primarily intended for use with the USB hub. DDSL: Double-sided Dual Screw Lock
Length	approx. 1.5 m
Rated voltage	30 V
Min. bending radius	28.8 mm
Max. operating temp.	80 °C
Connectors	2x connector Type-C with screws
Max. data rate	10 Gbit/s
Part number	05226



6.3.1.5 USBcable 3.2 Gen 2 C-B DDSL

Technical data

Description	USB 3.2 cable. This cable is primarily intended for use with the USB hub. DDSL: Double-sided Dual Screw Lock
Length	approx. 1.5 m
Rated voltage	30 V
Min. bending radius	27.0 mm
Max. operating temp.	80 °C
Connectors	1x connector Type-B 1x connector Type-C with screws
Max. data rate	10 Gbit/s
Part number	05228



6.3.1.6 USBadapter 3.2 Gen 1 C-A SDSL

Technical data

Description	USB 3.2 adapter SDSL: Single-sided Dual Screw Lock
Length	approx. 0.1 m
Rated voltage	30 V
Min. bending radius	27.0 mm
Max. operating temp.	80 °C
Connectors	1x connector Type-A (female) 1x connector Type-C with screws
Max. data rate	10 Gbit/s
Part number	05229



6.3.1.7 USB 3.2 Gen2x1 Hub

Technical data

Description	USB 3.2 Gen2x1 hub with one USB Type-A and three USB Type-C downstream ports for secure data transfer at high speeds of up to 10 Gbit/s. With metal housing and mounting equipment. User manual included in delivery.
Ports	3x USB Type-C port with up to 3 A @ 5 V - cable fixation according to USB Type-C Locking Connector Specification 1x USB Type-A port with up to 1.5 A @ 5 V - cable fixation according to USB3 Vision standard One USB Type-C upstream port supporting up to 10 Gbit/s.
Power supply	1x DC coaxial connector 5.5 mm x 2.1 mm 9...24 V - Recommended: part no. 05233 (see section Power Supply 24V/2.5A DC Coaxial Plug on page 139) 1x Terminal block 9...24 V, up to 60 W
Part number	05225





Terminal block

Connector	Description
V+	Power supply plus (9...24 V, up to 60 W)
V-	Power supply minus (no PE/FG!)
G	System ground

WARNING!
To avoid damage to your devices and equipment, please note that **V-** must not be connected to AC Protective Earth (PE) or Functional Ground (FG)!

WARNING!
When using the USB 3.2 Gen2x1 Hub in a vehicle, an electrically isolated power supply must be used!

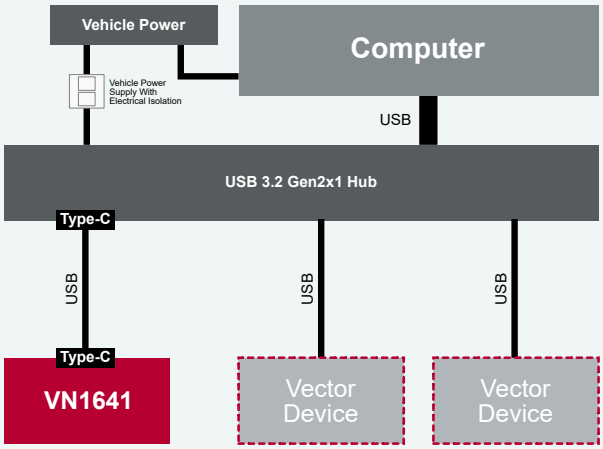


Figure 34: Example with VN1641

Note
The USB 3.2 Gen2x1 hub is a self-powered hub.
To avoid draining the battery (e. g. of a car or laptop), the hub is completely shut down by unplugging the USB host connection cable or the power adapter. This is different from typical consumer (bus-powered) hubs.

6.3.1.8 USB CABLE 2.0 Type-A/Micro-B

Technical data

Description	USB 2.0 connection cable
Length	1 m
Connectors	1x USB Type-A 1x USB Micro-B
Part number	05252



6.3.2 Ethernet Cables

6.3.2.1 Ethernet Cable 10Gbps 0.5m

Connection cable

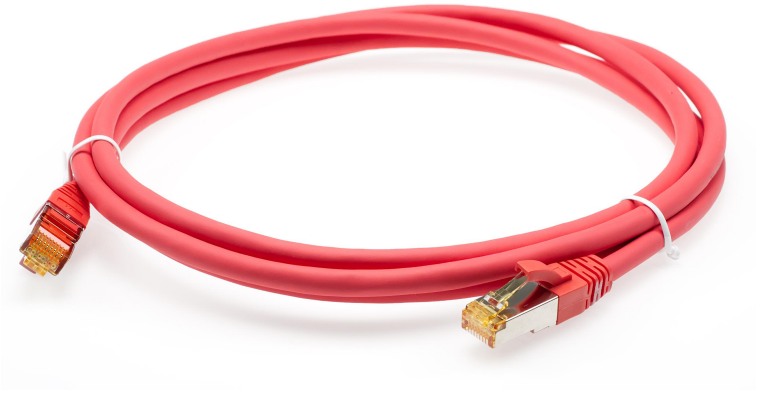
Description	Cable for Ethernet network interfaces. Designed for vehicle interiors.
Length	approx. 0.5 m
Connectors	2x RJ45 (LxWxH: 41.9 x 12.1 x 15.6 mm)
Category	Cat 6A
Temp. range	Fixed installation: -20 °C ...+60 °C
Min. bending radius	Fixed installation: 87 mm
Outer diameter	6.2 mm
Part number	30017



6.3.2.2 Ethernet Cable 10Gbps 2m

Connection cable

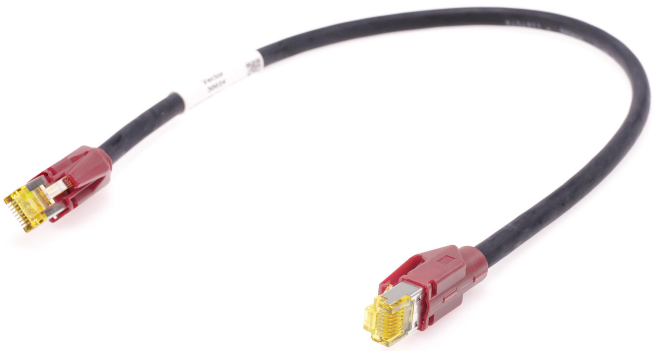
Description	Cable for Ethernet network interfaces. Designed for vehicle interiors.
Length	approx. 2 m
Connectors	2x RJ45 (LxWxH: 41.9 x 12.1 x 15.6 mm)
Category	Cat 6A
Rated voltage	250 V
Temp. range	Fixed installation: -20 °C ...+60 °C
Min. bending radius	Fixed installation: 87 mm
Outer diameter	6.2 mm
Part number	30016



6.3.2.3 Ethernet Cable Robust 10Gbps 0.5m

Connection cable

Description	Robust cable for Ethernet network interfaces. Designed for vehicle interiors during demanding long-term vehicle testing, with extended temperature range and higher cable robustness against oil, fuel and ozone.
Length	approx. 0.5 m
Connectors	2x RJ45 (LxWxH: 44.7 x 13.4 x 16.1 mm)
Temp. range	-40 °C ...+80 °C
Category	Cat 6A
Min. bending radius	Fixed installation: 40 mm
Outer diameter	6.6 mm
Part number	30024



6.3.2.4 Ethernet Cable Robust 10Gbps 2.0m

Connection cable

Description	Robust cable for Ethernet network interfaces. Designed for vehicle interiors during demanding long-term vehicle testing, with extended temperature range and higher cable robustness against oil, fuel and ozone.
Length	approx. 2 m
Connectors	2x RJ45 (LxWxH: 44.7 x 13.4 x 16.1 mm)
Temp. range	-40 °C ...+80 °C
Category	Cat 6A
Min. bending radius	Fixed installation: 40 mm
Outer diameter	6.6 mm
Part number	30025



6.3.3 Miscellaneous

6.3.3.1 Power Cable Amphenol C10

Description	Red/black 4 mm² power cord for Vector devices with Amphenol C10 connector.
Length	1.5 m
Connectors	1x Amphenol C10 connector 2x open end
Part number	22648



6.3.3.2 Cable VP7 Ignition <> Binder 3-pin

Description	Cable to connect a VP7000 with ignition on the VP2110.
Length	1.5 m
Connectors	1x Binder 3-pin connector 1x Ultra-Fit 4-pin connector
Part number	22632



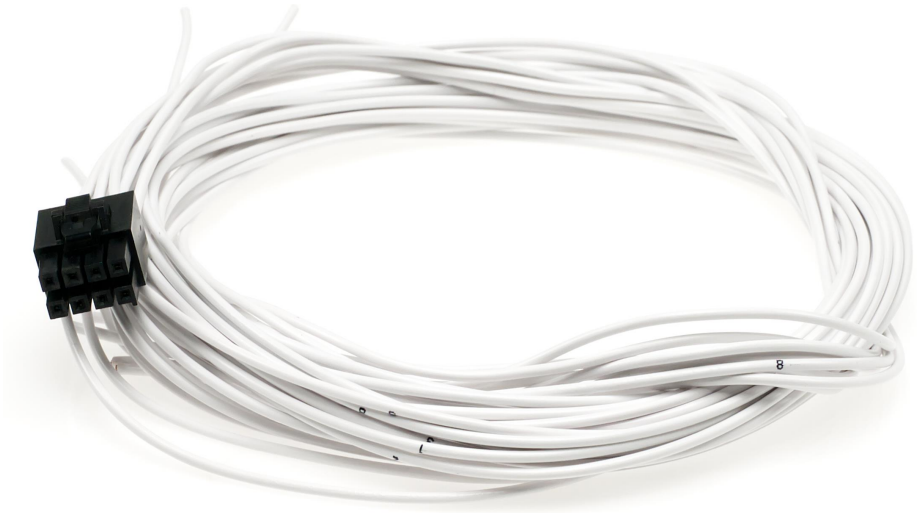
6.3.3.3 Cable VP7 SYSCTRL <> Ignition

Description	Yellow 0.5 mm² FLRY cable to connect a VP7000 to ignition.
Length	1.5 m
Connectors	1x Ultra-Fit 4-pin connector 1x open end
Part number	22651



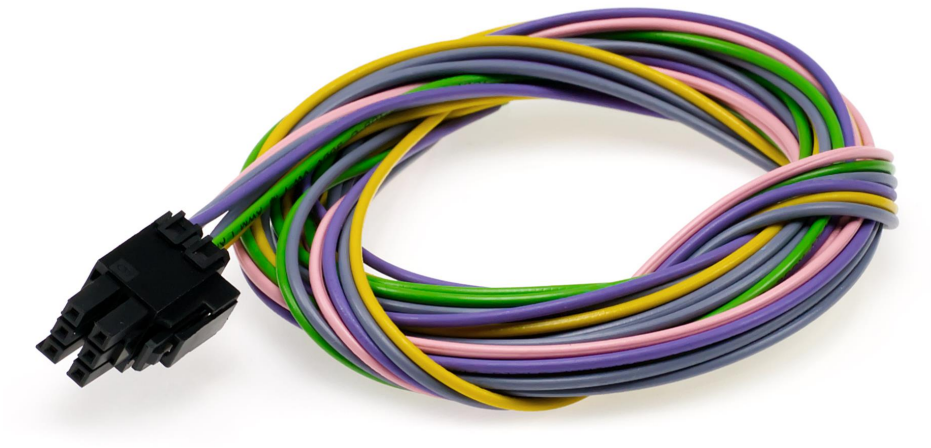
6.3.3.4 Cable VP7 GPIO

Description	White 0.75 mm² FLRY cable for VP7000.
Length	1.5 m
Connectors	1x Ultra-Fit 8-pin connector 8x open ends
Part number	22650



6.3.3.5 Cable VP7 SER/PPS

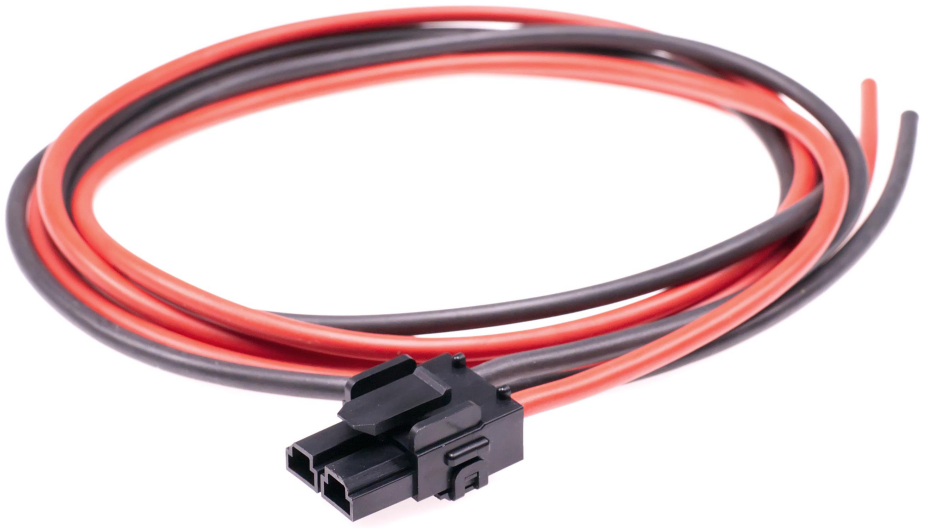
Description	External time sync cable for VP7000.
Length	1.5 m
Connectors	1x Ultra-Fit 6-pin connector 6x open ends
Part number	22649



6.3.3.6 Power Cable Molex Mini-Fit 4mm²

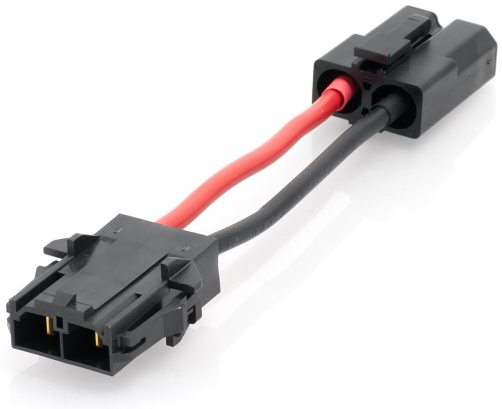
Technical data

Description	Red/black 4 mm² power cable for Vector devices with Molex Mini-Fit connector.
Length	1.5 m
Connectors	1x Molex Mini-Fit connector 2x open end
Part number	22515



6.3.3.7 Adapter Molex Mini-Fit <> Amphenol C10

Description	Adapter for use of - desktop power supply, - Molex Mini-Fit power cable or - Molex Mini-Fit power adapter with VP7500.
Connectors	1x Amphenol C10 connector 1x Molex Mini-Fit socket
Part number	22579



6.3.3.8 Power Adapter Molex Mini-Fit

Description	Adapter for Molex Mini-Fit power cables with taps for VCC and GND potentials via banana sockets.
Length	0.25 m
Connectors	1x Molex Mini-Fit connector 1x Molex Mini-Fit socket 2x banana sockets
Part number	22556



6.3.3.9 Cable DP-DVI for Spectra Touch

Technical data

Description	DisplayPort Cable, DP-DVI (24+1), M/M for Spectra TouchScreen.
Length	5 m
Connectors	1x DisplayPort 1x DVI-D 24+1, Dual-Link
Part number	22448



6.3.3.10 Thunderbolt 5 Cable

Technical data

Description	Thunderbolt 5 cable with maximum transfer rate of 80 Gbit/s.
Length	0.8 m
Connectors	2x USB Type-C
Part number	22720



6.3.3.11 Thunderbolt 4 Cable (Obsolete)

Technical data

Description	Thunderbolt 4 cable with maximum transfer rate of 40 Gbit/s.
Length	0.8 m
Connectors	2x USB Type-C
Part number	22672



6.4 Mounting Equipment

6.4.1 Cable Guard 320

Description	Cable guard to secure connected cables against damage or coming loose in harsh environments. The cable guard requires at least ► one Cable Guard 320 Bracket and ► one or more Cable Guard 320 Clips (see page 156). The set contains: ► 1x Cable Guard 320 incl. screws ► 10x Cable Guard 320 Bracket ► 10x Cable Guard 320 Clip
Part number	22442

Setup example

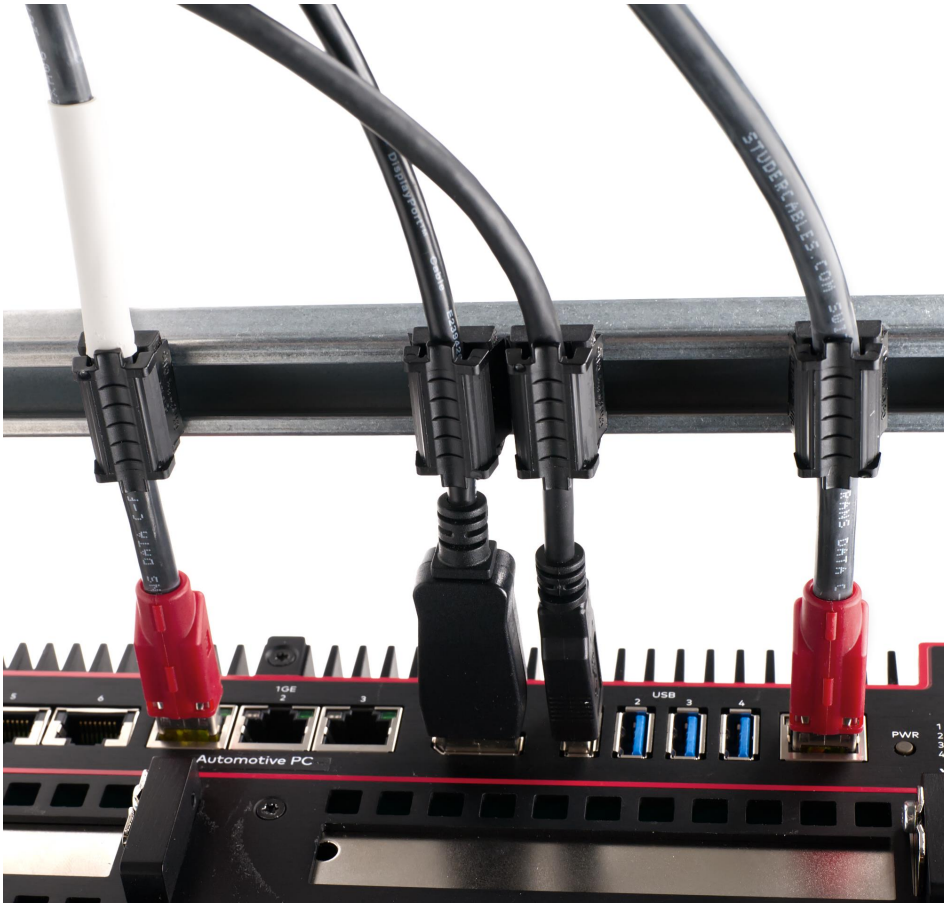


6.4.2 Cable Guard 320 Bracket and Clip

Description	Bracket for Cable Guard 320 to be mounted in the rail.
Part number	22444

Description	Cable Guard 320 Clip to attach to the bracket. Clips can be stacked to hold multiple cables together.
Part number	22443

Setup example



6.4.3 Mounting Kit 19"

Description	19" mounting kit for VP7000 hardware. Allows you to mount your VP7000 hardware in a 19" rack.
Contents	This kit is supplied in individual parts and must be assembled first: - 110 mm x 19" adapter frame - mounting angle 19" adapter frame - back plate 19" adapter frame - square handle 88.0 x 12 x 40 mm, M5 thread - self locking nuts - other screws - packaging
Part number	22628





6.4.4 Mounting Kit 19" for VP7150

Description	Mounting kit for installing a VP7150 Docking Station for VP725x in a 19" rack.
Contents	This kit is supplied in individual parts and must be assembled first: - 2x rack ear - 4x screw
Part number	22685



6.4.5 Fix Kit for VP7x40

Description	Mounting plates and screws for attaching a VP7540 / VP7541 to item profiles.
Contents	This kit is supplied in individual parts and must be assembled first: - 2x Insertion strip with 2 holes, 251 x 11.5 x 18 mm - 6x Groove strip 66 with 3 holes, 71 x 9 x 2 mm - 2x Front sheet 66 with 4 holes, 70.6 x 30.5 x 1.5 mm - 4x Fillister head screw ISO 7045, M4 x 6 - 4x Fillister head screw ISO 7045, M4 x 10 - 4x Countersunk screw ISO 7046, M4 x 8 - 6x Threaded rod DIN 913, M4 x 5
Part number	22618



6.4.6 Fix Kit for VP7x70

Description	Mounting plates and screws for attaching a VP7570 / VP7571 to item profiles.
Contents	This kit is supplied in individual parts and must be assembled first: - 2x Insertion strip with 2 holes, 251 x 11.5 x 18 mm - 6x Groove strip 110 with 5 holes, 115 x 9 x 2 mm - 2x Front sheet 110 with 6 holes, 114.6 x 30.5 x 1.5 mm - 6x Fillister head screw ISO 7045, M4 x 6 - 6x Fillister head screw ISO 7045, M4 x 10 - 4x Countersunk screw ISO 7046, M4 x 8 - 6x Threaded rod DIN 913, M4 x 5
Part number	22619



6.4.7 Ball Joint Mounting Brackets

Technical data

Description	Ball joint mounting brackets for Spectra TouchScreen. G40 45 ° with VESA plate 75 black
Part number	22446



6.5 Miscellaneous

6.5.1 Spectra TouchScreen 12" SR

Technical data

Description	12.1" Panel Monitor - 4:3 - cap-touch - 9...48 V - sunlight readable - contains a touch display and a monitor unit.
Accessories	- Cable DP-DVI for Spectra Touch (part number 22448) - Cable USB 2.0 for Spectra Touch (part number 22447) - Ball joint mounting brackets (part number 22446)
Part number	22582



7 Important Notes - Details

In this chapter you find the following information:

7.1 Safety Instructions and Hazard Warnings 164
7.1.1 Proper Use and Intended Purpose 164
7.1.2 Hazards 165
7.1.3 Battery Notice 165
7.1.4 Warning of Hot Surface 165
7.1.5 Electrostatically Sensitive Components (ESD) 165
7.1.6 Additional Instructions 166
7.2 Disclaimer 168
7.3 Disposal of Vector Hardware 169

7.1 Safety Instructions and Hazard Warnings



WARNING!
In order to avoid personal injuries and damage to property, you have to read and understand the following safety instructions and hazard warnings prior to installation and use of this hardware. Keep this documentation (manual) always near the hardware.

7.1.1 Proper Use and Intended Purpose



WARNING!
The hardware may only be operated (i) according to the instructions and descriptions of this manual; (ii) with the electric power supply designed for the hardware, e.g. USB-powered power supply; and (iii) with accessories manufactured or approved by Vector.

The hardware is exclusively designed for use by skilled personnel as its operation may result in serious personal injuries and damage to property. Therefore, only those persons may operate the hardware who (i) have understood the possible effects of the actions which may be caused by the hardware; (ii) are specifically trained in the handling with the hardware, bus systems and the system intended to be influenced; and (iii) have sufficient experience in using the hardware safely.

The knowledge necessary for the operation of the hardware can be acquired in work-shops and internal or external seminars offered by Vector. Additional and hardware specific information, such as „Known Issues“, are available in the „Vector KnowledgeBase“ on Vector´s website at www.vector.com. Please consult the „Vector KnowledgeBase“ for updated information prior to the operation of the hardware.

7.1.2 Hazards



WARNING!
The hardware may control and/or otherwise influence the behavior of control systems and electronic control units. Serious hazards for life, body and property may arise, in particular, without limitation, by interventions in safety relevant systems (e.g. by deactivating or otherwise manipulating the engine management, steering, airbag and/or braking system) and/or if the hardware is operated in public areas (e.g. public traffic, airspace). Therefore, you must always ensure that the hardware is used in a safe manner. This includes, inter alia, the ability to put the system in which the hardware is used into a safe state at any time (e.g. by „emergency shutdown“), in particular, without limitation, in the event of errors or hazards.

Comply with all safety standards and public regulations which are relevant for the operation of the system. Before you operate the system in public areas, it should be tested on a site which is not accessible to the public and specifically prepared for performing test drives in order to reduce hazards.

7.1.3 Battery Notice



WARNING!
There is a risk of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions. Please also see the battery supplementary sheet! Valid only for devices containing a battery.

7.1.4 Warning of Hot Surface



WARNING!
There is danger of burning! The device can become very hot during operation and should not be touched without appropriate precautions.

7.1.5 Electrostatically Sensitive Components (ESD)



WARNING!
A sudden electrostatic discharge could destroy sensitive components. Therefore, proper packaging and grounding prescriptions must be observed. Please always observe the following safety advices:

1. Plug-in cards always have to be transported in electrostatically safe containers or bags.
2. Please leave electrostatically sensitive components in their containers until they have reached the electrostatically safe assembly site.
3. Take care that you are correctly grounded if you touch electrostatically sensitive components.
4. Make sure that electrostatically sensitive components are stored in protective packages or on antistatic mats.



Example
By observing the following measures, electrostatic damage to the device can be avoided:

1. Lay out antistatic mats at the work place. Wear a grounding strap which is connected to the work place and the working tools.
2. Use antistatic foot mats, foot grounding equipment or air ionizers to provide additional safety.
3. Only touch sensitive components, plug-in cards and units on the housing or at the outer edges of the plug-in cards.
4. Avoid contact with pins, wires and conductor tracks.
5. Make sure that all voltage and signal sources are switched off before establishing or disconnecting electric connections or connecting testing devices.
6. Avoid non-conductive materials such as usual mounting accessories made of plastics or polystyrene at the work place.
7. Use conductive tools (e.g. ESD screwdrivers) when working on electrostatically sensitive units and components.
8. Always put plug-in cards and drives on the antistatic mat with the component side downwards.

7.1.6 Additional Instructions

General information

Prior to use of the unit it is essential to comply with the following instructions. As stipulated by law, we are providing important safety information and advice how you can avoid damage to the device and other fittings.

- Connection to the power supply must be carried out with correct polarity. Polarity reversal could cause irreparable damages.
- The correct supply voltage is 12 V DC or 24 V DC
- Operation of the device is allowed only in circuits with safety low voltage within the admissible voltage limits (SELV standard EN60950). This applies to all connections to the unit.
- The use of a power supply outside the voltage limits defined above could cause damage or even destruction of the device.
- It is forbidden to directly connect the unit to the 230 V mains voltage.
- Please avoid mechanical stress when the device is installed.
- The unit has undergone a comprehensive final check to guarantee that it has left the facility in a perfect condition. Prior to initial operation, the unit has to be examined for damage caused by transport or inappropriate storage. If there is any damage to the unit it must not be taken into service.
- The unit must not be operated with defective safety equipment or with incorrectly mounted or inoperable safety/protection devices.
- Prior to initial operation, please check the suitability of the unit for the specific application. Please take special note of the admissible environmental and operating conditions specified in the data sheet.
- Any removal of identification numbers, repair work by yourself or modification of the unit is forbidden.
- Prior to initial operation carefully read this user manual containing notes and warnings in order to ensure safe operation.

- Unless specified differently, all technical data apply to an environmental temperature of 25 °C. The specified values are subject to the usual fluctuations.
- Stress due to extreme environmental conditions (like intense heat or cold) over a longer period of time may influence reliability. Even under normal conditions of use within the admissible limits, service life may be reduced by permanent operation at the limits. Tolerance of the operating limits is subject to the usual fluctuations.



WARNING!
For positioning and installation or removal of the VP system, please observe the relevant instructions given in this user manual.

The device must only be positioned and installed by maintenance personnel that is familiar with the associated risks.

The device can be operated in all positions except standing on its front or rear side.

In case of installation in a housing like a control cabinet: The housing must provide enough space for the VP system, air circulation and cable connections. Moreover, the housing must have sufficient, ideally active, ventilation to avoid overheating.
The cooling fins and the air inlets and outlets must not be blocked or covered.

Installation and removal of additional plug-in cards must be performed by a qualified and trained employee in accordance with the instructions of this manual.

Before removing the device cover please make sure that your system is switched off and disconnected from the power supply.



Note
Please observe the safety instructions regarding electrostatically sensitive components (ESC). Failure to observe this warning may cause damage to the device or components of the device.



Note
The VP system might get hot during operation and should not be touched without adequate precautions. There is danger of burning.

In order to avoid injuries and damage caused by direct or indirect contact with hot surfaces the following instructions must be observed:

VP device must be positioned and installed in a maintenance area or in an operating facility of limited access.

The users having permission to enter the maintenance area or the operating facility must have received adequate instructions regarding the risks.

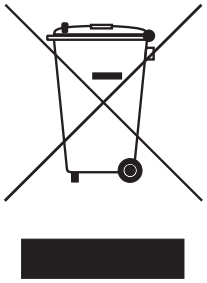
7.2 Disclaimer



WARNING!
Claims based on defects and liability claims against Vector are excluded to the extent damages or errors are caused by improper use of the hardware or use not according to its intended purpose. The same applies to damages or errors arising from insufficient training or lack of experience of personnel using the hardware.

7.3 Disposal of Vector Hardware

Please handle old devices responsibly and observe the environmental laws applicable in your country. Please dispose of the Vector hardware only at the designated places and not with the household waste.



Within the European Community, the Directive on Waste Electrical and Electronic Equipment (WEEE Directive) and the Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive) apply.

For Germany and other EU countries, we offer free take-back of old Vector hardware.

Please carefully check the Vector hardware to be disposed of before shipping. Please remove all items that are not part of the original scope of delivery, e.g. storage media. The Vector hardware must also be free of licenses and must no longer contain any personal data. Vector does not perform any checks in this regard.
Once the hardware has been shipped, it cannot be returned to you. By shipping the hardware to us, you have relinquished your rights to the hardware.
Before shipping, please register your old device via:

https://www.vector.com/int/en/support-downloads/return-registration-for-the-disposal-of-vector-hardware/

8 Wichtige Hinweise

In diesem Kapitel finden Sie die folgenden Informationen:

8.1 Sicherheits- und Gefahrenhinweise 171
8.1.1 Sach- und bestimmungsgemäßer Gebrauch 171
8.1.2 Gefahren 172
8.1.3 Hinweise zur Batterie 172
8.1.4 Warnung vor heißen Oberflächen 172
8.1.5 Elektrostatisch gefährdete Bauelemente (ESD) 173
8.1.6 Zusätzliche Anweisungen 173
8.2 Haftungsausschluss 176
8.3 Entsorgung von Vector Hardware 177

8.1 Sicherheits- und Gefahrenhinweise



WARNUNG!
Um Personen- und Sachschäden zu vermeiden, müssen Sie vor der Installation und dem Einsatz dieser Hardware die nachfolgenden Sicherheits- und Gefahrenhinweise lesen und verstehen. Bewahren Sie diese Dokumentation (Handbuch) stets in der Nähe dieser Hardware auf.

8.1.1 Sach- und bestimmungsgemäßer Gebrauch



WARNUNG!
Diese Hardware ist entsprechend den Anweisungen und Beschreibungen dieses Handbuchs einzusetzen. Dabei darf nur die dafür vorgesehene Stromversorgung, wie z. B. USB-powered, Netzteil, und das Originalzubehör von Vector bzw. das von Vector freigegebene Zubehör verwendet werden.

Diese Hardware ist ausschließlich für den Einsatz durch geeignetes Personal bestimmt, da der Gebrauch dieser Hardware zu erheblichen Personen- und Sachschäden führen kann. Deshalb dürfen nur solche Personen diese Hardware einsetzen, welche die möglichen Konsequenzen der Aktionen mit dieser Hardware verstanden haben, speziell für den Umgang mit dieser Hardware, den Bussystemen und dem zu beeinflussenden System geschult worden sind und ausreichende Erfahrung im sicheren Umgang mit dieser Hardware erlangt haben.

Die notwendigen Kenntnisse zum Einsatz dieser Hardware können bei Vector über interne oder externe Seminare und Workshops erworben werden. Darüber hinausgehende und Hardware-spezifische Informationen wie z. B. „Known Issues“ sind auf der Vector Webseite unter www.vector.com in der „Vector KnowledgeBase“ verfügbar. Bitte informieren Sie sich dort vor dem Betrieb der Hardware über aktualisierte Hinweise.

8.1.2 Gefahren



WARNUNG!
Die Hardware kann das Verhalten von Regelsystemen und Steuergeräten steuern und in anderweitiger Weise beeinflussen. Insbesondere durch Eingriffe in sicherheitsrelevante Bereiche (z. B. durch Deaktivierung oder sonstige Manipulation der Motorsteuerung, des Lenk-, Airbag-, oder Bremssystems) und/oder der Einsatz der Hardware in öffentlichen Räumen (z. B. Straßenverkehr, Luftraum) können erhebliche Gefahren für Leib, Leben und Eigentum entstehen. Stellen Sie daher in jedem Fall eine gefahrfreie Verwendung sicher. Hierzu gehört unter anderem auch, dass das System, in dem die Hardware eingesetzt wird, jederzeit, insbesondere bei Auftreten von Fehlern oder Gefahren, in einen sicheren Zustand geführt werden kann (z. B. durch Not-Abschaltung).

Beachten Sie alle sicherheitstechnischen Richtlinien und öffentlich-rechtlichen Vorschriften, die für den Einsatz des Systems relevant sind. Zur Verminderung von Gefahren sollte das System vor dem Einsatz in öffentlichen Räumen auf einem nicht-öffentlich zugänglichen und für Testfahrten bestimmten Gelände erprobt werden.

8.1.3 Hinweise zur Batterie



WARNUNG!
Bei unsachgemäßem Austausch der Batterie besteht Explosionsgefahr. Nur durch den gleichen oder gleichwertigen Typ ersetzen, der vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien gemäß den Anweisungen des Herstellers. Bitte beachten Sie auch das Batterie-Begleitblatt! Gilt nur für Geräte, die eine Batterie enthalten.

8.1.4 Warnung vor heißen Oberflächen



WARNUNG!
Es besteht Verbrennungsgefahr! Das Gerät kann während des Betriebs sehr heiß werden und sollte ohne entsprechende Vorsichtsmaßnahmen nicht berührt werden.

8.1.5 Elektrostatisch gefährdete Bauelemente (ESD)



WARNUNG!
Eine plötzliche elektrostatische Entladung kann empfindliche Bauteile zerstören. Daher sind die Vorschriften für Verpackung und Erdung zu beachten. Bitte beachten Sie immer die folgenden Sicherheitshinweise:

1. Steckkarten müssen immer in elektrostatisch sicheren Behältern oder Taschen transportiert werden.
2. Bitte lassen Sie elektrostatisch gefährdete Bauelemente in ihren Behältern, bis sie die elektrostatisch sichere Montagestelle erreicht haben.
3. Achten Sie auf die richtige Erdung, wenn Sie elektrostatisch gefährdete Bauelemente berühren.
4. Achten Sie darauf, dass elektrostatisch gefährdete Bauelemente in Schutzverpackungen oder auf antistatischen Matten gelagert werden.



Beispiel
Durch die Beachtung der folgenden Maßnahmen können elektrostatische Schäden am Gerät vermieden werden:

1. Antistatikmatten am Arbeitsplatz auslegen. Tragen Sie ein Erdungsband, das mit dem Arbeitsplatz und den Arbeitsgeräten verbunden ist.
2. Verwenden Sie antistatische Fußmatten, Fußerdungsgeräte oder Luftionisatoren, um zusätzliche Sicherheit zu gewährleisten.
3. Berühren Sie empfindliche Komponenten, Steckkarten und Geräte nur am Gehäuse oder an den Außenkanten der Steckkarten.
4. Vermeiden Sie den Kontakt mit den Pins, Drähten und Leiterbahnen.
5. Stellen Sie sicher, dass alle Spannungs- und Signalquellen ausgeschaltet sind, bevor Sie elektrische Verbindungen herstellen oder trennen oder Prüfgeräte anschließen.
6. Vermeiden Sie nicht leitfähige Materialien wie z. B. übliches Montagezubehör aus Kunststoff oder Polystyrol am Arbeitsplatz.
7. Verwenden Sie leitfähige Werkzeuge (z. B. ESD-Schraubendreher) bei Arbeiten an elektrostatisch empfindlichen Geräten und Komponenten.
8. Stecken Sie Steckkarten und Laufwerke immer mit der Bauteilseite nach unten auf die Antistatikmatte.

8.1.6 Zusätzliche Anweisungen

Allgemeine Informationen

Vor der Benutzung des Geräts sind die folgenden Hinweise unbedingt zu beachten. Wie vom Gesetzgeber vorgeschrieben, geben wir Ihnen wichtige Sicherheitshinweise und Ratschläge, wie Sie Schäden am Gerät und an anderen Einrichtungen vermeiden können.

- Der Anschluss an das Stromnetz muss mit der richtigen Polarität erfolgen. Eine Verpolung kann zu irreparablen Schäden führen.
- Die richtige Versorgungsspannung beträgt 12 V DC oder 24 V DC
- Der Betrieb des Gerätes ist nur in Stromkreisen mit Schutzkleinspannung innerhalb der zulässigen Spannungsgrenzen (SELV-Norm EN60950) zulässig. Dies gilt für alle Verbindungen zum Gerät.

- Die Verwendung eines Netzteils außerhalb der oben definierten Spannungsgrenzen kann zur Beschädigung oder gar Zerstörung des Gerätes führen.
- Es ist verboten, das Gerät direkt an die 230 V Netzspannung anzuschließen.
- Bitte vermeiden Sie mechanische Belastungen bei der Installation des Geräts.
- Das Gerät wurde einer umfassenden Endkontrolle unterzogen, um zu gewährleisten, dass es die Einrichtung in einem einwandfreien Zustand verlassen hat. Vor der ersten Inbetriebnahme ist das Gerät auf Transportschäden oder unsachgemäße Lagerung zu untersuchen. Wenn das Gerät beschädigt ist, darf es nicht in Betrieb genommen werden.
- Das Gerät darf nicht mit defekten Sicherheitseinrichtungen oder mit falsch montierten oder nicht funktionsfähigen Sicherheits-/Schutzeinrichtungen betrieben werden.
- Bitte prüfen Sie vor der ersten Inbetriebnahme die Eignung des Gerätes für den jeweiligen Anwendungsfall. Bitte beachten Sie insbesondere die im Datenblatt angegebenen zulässigen Umgebungs- und Betriebsbedingungen.
- Jegliche Entfernung von Identifikationsnummern, eigene Reparaturen oder Veränderungen am Gerät sind untersagt.
- Lesen Sie vor der ersten Inbetriebnahme diese Bedienungsanleitung mit den Hinweisen und Warnungen sorgfältig durch, um einen sicheren Betrieb zu gewährleisten.
- Wenn nicht anders angegeben, gelten alle technischen Daten für eine Umgebungstemperatur von 25 °C. Die angegebenen Werte unterliegen den üblichen Schwankungen.
- Belastungen durch extreme Umweltbedingungen (wie starke Hitze oder Kälte) über einen längeren Zeitraum können die Zuverlässigkeit beeinflussen. Auch bei normalem Gebrauch innerhalb der zulässigen Grenzen kann sich die Lebensdauer durch Dauerbetrieb an den Grenzwerten verringern. Die Toleranz der Betriebsgrenzen unterliegt den üblichen Schwankungen.



WARNUNG!
Für die Positionierung und den Ein- oder Ausbau des VP-Systems beachten Sie bitte die entsprechenden Hinweise in dieser Bedienungsanleitung.

Das Gerät darf nur von Wartungspersonal, das mit den damit verbundenen Risiken vertraut ist, aufgestellt und installiert werden.

Das Gerät kann in allen Positionen betrieben werden, außer stehend auf seiner Vorder- oder Rückseite.

Bei Einbau in ein Gehäuse wie einen Schaltschrank: Das Gehäuse muss genügend Platz für das VP-System, die Luftzirkulation und die Kabelanschlüsse bieten. Außerdem muss das Gehäuse über eine ausreichende, idealerweise aktive, Belüftung verfügen, um eine Überhitzung zu vermeiden.
Die Kühlrippen und die Luftein- und -auslässe dürfen nicht blockiert oder abgedeckt werden.

Der Ein- und Ausbau zusätzlicher Steckkarten muss von einem qualifizierten und geschulten Mitarbeiter gemäß den Anweisungen dieses Handbuchs durchgeführt werden.

Bevor Sie die Geräteabdeckung abnehmen, vergewissern Sie sich bitte, dass Ihr System ausgeschaltet und von der Stromversorgung getrennt ist.

Hinweis
Bitte beachten Sie die Sicherheitshinweise für elektrostatisch gefährdete Bauelemente (ESC). Die Nichtbeachtung dieser Warnung kann zu Schäden am Gerät oder an Komponenten des Geräts führen.

Hinweis
Das VP-System kann während des Betriebs heiß werden und sollte nicht ohne entsprechende Vorsichtsmaßnahmen berührt werden. Es besteht die Gefahr von Verbrennungen.

Um Verletzungen und Schäden durch direkten oder indirekten Kontakt mit heißen Oberflächen zu vermeiden, müssen die folgenden Hinweise beachtet werden:

Das VP-Gerät muss in einem Wartungsbereich oder in einer Betriebsstätte mit begrenztem Zugang aufgestellt und installiert werden.

Die Benutzer, die die Erlaubnis haben, den Instandhaltungsbereich oder die Betriebsanlage zu betreten, müssen eine angemessene Unterweisung über die Risiken erhalten haben.

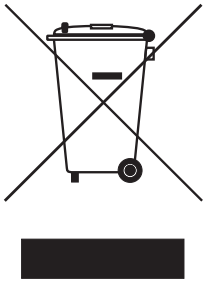
8.2 Haftungsausschluss



WARNUNG!
Soweit die Hardware nicht sach- oder bestimmungsgemäß eingesetzt wird, übernimmt Vector keine Gewährleistung oder Haftung für dadurch verursachte Schäden oder Fehler. Das Gleiche gilt für Schäden oder Fehler, die auf einer mangelnden Schulung oder Erfahrung derjenigen Personen beruhen, die die Hardware einsetzen.

8.3 Entsorgung von Vector Hardware

Bitte gehen Sie verantwortungsvoll mit Altgeräten um und beachten Sie die in Ihrem Land geltenden Umweltgesetze. Entsorgen Sie die Vector Hardware bitte nur bei den dafür vorgesehenen Stellen und nicht über den Hausmüll.



Innerhalb der Europäischen Gemeinschaft gelten die Richtlinie über Elektro- und Elektronik-Altgeräte (WEEE-Richtlinie) und die Richtlinie zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten (RoHS-Richtlinie).

Für Deutschland und andere EU-Länder bieten wir Ihnen eine kostenlose Rücknahme der alten Vector Hardware an.

Bitte überprüfen Sie die zu entsorgende Vector Hardware vor dem Versand sorgfältig. Bitte entfernen Sie alle Gegenstände, die nicht zum ursprünglichen Lieferumfang gehören, z. B. Speichermedien. Die Vector Hardware muss außerdem frei von Lizenzen sein und darf keine personenbezogenen Daten mehr enthalten. Vector führt keine Kontrollen diesbezüglich durch. Sobald die Hardware versandt wurde, kann sie nicht mehr an Sie zurück geliefert werden. Mit dem Versand der Hardware an uns haben Sie Ihre Rechte an der Hardware abgetreten. Bitte melden Sie vor dem Versand Ihr Altgerät an über:

https://www.vector.com/de/de/support-downloads/return-registration-for-the-disposal-of-vector-hardware/

VECTOR

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- Products
- Demo software
- Support
- Training classes
- Addresses