BRICK THUNDER DOCK

Manual
Version 1.0
Imprint

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1 General Information

1.1 Important Instructions

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 12V or 24V DC
- Operation of the device is allowed only in circuits with safety low voltage within the admissible limit values (SELV standard EN60950). This applies to all connections to the unit.
- The use of a power supply outside the 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 stresses 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.
- Stresses due to extreme environmental conditions (e.g. 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 extreme values is subject to the usual fluctuations.

1.2 Warranty and Liability

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.
1.3 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 proprietor. 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.

1.4 Used Symbols and their Meanings

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>Warning of general hazard. The kind of hazard is specified by the text next to the symbol.</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>Warning of hazardous electrical voltage and the effects thereof.</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>This symbol refers to a hot surface that should not be touched without appropriate precautions. There is danger of burning!</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>Warning of damages by electrostatic discharge</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>ESD (Electrostatically Sensitive Device) warning symbol</td>
</tr>
<tr>
<td><img src="image" alt="Information symbol" /></td>
<td>This symbol refers to general information about device and user manual.</td>
</tr>
<tr>
<td><img src="image" alt="Information symbol" /></td>
<td>This symbol introduces diverse details as to product configurations.</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>This symbol indicates that, in the case of non-observance of the warning, the device or parts thereof could be damaged.</td>
</tr>
<tr>
<td><img src="image" alt="Warning symbol" /></td>
<td>This symbol refers to instructions and recommendations for the connection of external peripherals and their wiring.</td>
</tr>
</tbody>
</table>
2 Safety

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.

Please observe the notes in chapter 1 in addition to this chapter.

2.1 Proper Use and Intended Purpose

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 workshops 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.

2.2 Hazards

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.

2.3 Battery Notice

CAUTION!
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.
2.4 Electrostatically Sensitive Components (ESD)

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.

2.4.1 Grounding Practices

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.

2.5 Warning of Hot Surface

The BRICK THUNDER DOCK System can become very hot during operation and should not be touched without appropriate precautions. There is danger of burning!

2.6 Disclaimer

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.
3 Product Identification

3.1 Scope of Delivery

Please check the scope of delivery according to the survey printed below.

<table>
<thead>
<tr>
<th>Product</th>
<th>BRICK THUNDER DOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessories</td>
<td>USB Stick (Driver and Documentations)</td>
</tr>
<tr>
<td></td>
<td>Thunderbolt® Cable 1m</td>
</tr>
<tr>
<td></td>
<td>Power Supply 12V/230V up to 60W, 12V5.0A, only use the specified power supply</td>
</tr>
<tr>
<td>Documentation</td>
<td>Manual BRICK THUNDER DOCK (on USB Stick)</td>
</tr>
<tr>
<td></td>
<td>Safety supplement</td>
</tr>
</tbody>
</table>

3.2 Type Plate

A type plate like this is located on the bottom of the device. The example data used here refer to the BRICK THUNDER DOCK, a device of the BRICK CORE COM product group.

Figure 1: BRICK THUNDER DOCK Type plate (example)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="symbol1.png" alt="Symbol" /></td>
<td>Legal notice regarding the disposal of used appliances (WEEE)</td>
</tr>
<tr>
<td><img src="symbol2.png" alt="Symbol" /></td>
<td>CE Label</td>
</tr>
</tbody>
</table>
4 Functional Description

4.1 Overview

The BRICK THUNDER DOCK is designed to connect a BRICK STORAGE cartridge over a Thunderbolt® interface to a PC-System.

5 Technical Specification

5.1 Base Specification

Basic technical characteristics:

<table>
<thead>
<tr>
<th>Features</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>12V DC 5A</td>
</tr>
<tr>
<td>Storage interface</td>
<td>BRICK STORAGE cartridge</td>
</tr>
<tr>
<td>PC interface</td>
<td>Thunderbolt® 2</td>
</tr>
<tr>
<td>Housing dimensions</td>
<td>320 x 44 x 250 (B x H x T) mm</td>
</tr>
<tr>
<td>Cooling</td>
<td>Active</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 3kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature device</td>
<td>0°C to +40°C</td>
</tr>
<tr>
<td>Storage temperature device</td>
<td>-40°C to +75°C</td>
</tr>
<tr>
<td>Air humidity</td>
<td>90% non-condensing</td>
</tr>
<tr>
<td>IP protection class</td>
<td>IP20</td>
</tr>
<tr>
<td>Electromagnetic compatibility (EMC)</td>
<td>EMV Directive 2014/30/EU</td>
</tr>
<tr>
<td>RoHS II directive</td>
<td>2011/65/EU</td>
</tr>
<tr>
<td>Certifications</td>
<td>FCC Industrial Class A</td>
</tr>
</tbody>
</table>
6 Product Description

6.1 BRICK THUNDER DOCK Front View

![Figure 2: BRICK THUNDER DOCK front view](image)

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BRICK STORAGE cartridge slot</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Air outlet, do not cover</td>
<td></td>
</tr>
</tbody>
</table>

6.2 BRICK THUNDER DOCK Rear View

![Figure 3: BRICK THUNDER DOCK rear view](image)

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thunderbolt IF</td>
<td>Thunderbolt 2 connector</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Air inlet</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Power LED</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Power switch</td>
</tr>
<tr>
<td>5</td>
<td>POWER IN</td>
<td>Power input supply connector, only use the specified power supply</td>
</tr>
</tbody>
</table>
7 Interfaces, Control Elements and Indicators

7.1 Thunderbolt® 2 Interface

This connector provides the Thunderbolt® 2 interface (redundant ports).

![Thunderbolt® 2 interface](image)

Figure 4: Thunderbolt® 2 interface

7.2 Power Supply Interface

<table>
<thead>
<tr>
<th>LED</th>
<th>Signal</th>
<th>LED Array</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power LED</td>
<td><img src="image" alt="LED 1" /></td>
</tr>
<tr>
<td>2</td>
<td>Power Switch</td>
<td><img src="image" alt="LED 2" /></td>
</tr>
<tr>
<td>3</td>
<td>Power supply connector 2,1x5,5mm</td>
<td><img src="image" alt="LED 3" /></td>
</tr>
</tbody>
</table>

![Power supply interface](image)

Figure 5: Power supply interface
8 Commissioning and Maintenance

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

Die BRICK THUNDER DOCK 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.

Important instructions!

For positioning and installation or removal of the BRICK THUNDER DOCK System, please observe the relevant instructions given in this user manual.

The device must only be positioned and installed by maintenance personnel responsible in this area (that is familiar with the associated risks).

The device can be operated in all positions except with the upper side downwards.

In order to avoid overheating of the platform, keep a distance of at least 100 mm to the upper cooling fins of the chassis.

In case of installation in a housing (e.g. a control cabinet): The housing (control cabinet) must have enough space for the BRICK THUNDER DOCK System and the corresponding spaces for air circulation and cable connections. Moreover, the housing must have sufficient, possibly active, ventilation to avoid overheating.

The cooling fins and the inlet and discharge openings of the housing must not be blocked (covered).
8.1 Initial Commissioning

The accessories of the BRICK THUNDER DOCK include an appropriate power supply, a Thunderbolt® cable and Windows® OS drivers.

1. Prerequisites
   a. This Docking Station only works with Thunderbolt® aware Personal Computers.
   b. Be sure the BRICK THUNDER DOCK is switched off

2. Insert a BRICK STORAGE cartridge (is not part of the scope of delivery) into the BRICK THUNDER DOCK Docking Station.

3. Connect the Power supply line to the power supply unit and to the rear side (1) of the BRICK THUNDER DOCK.
4. Connect the Thunderbolt® cable to the PC and to one of the two Thunderbolt® connectors on the rear side (2) of the BRICK THUNDER DOCK. The second connector could be used to “Daisy chain” 2 BRICK THUNDER DOCK Stations (not specified).

![Figure 8: BRICK THUNDER DOCK Thunderbolt® connector](image)

5. If the PC is not powered, switch on the PC
6. Switch on (3) the BRICK THUNDER DOCK and see if the green LED (4) is on.

![Figure 9: BRICK THUNDER DOCK Power switch](image)

### 8.1.1 Thunderbolt® Bridge Detection

The following message of a Thunderbolt® aware Windows® system appears:

![New Thunderbolt™ devices have been attached](image)

Proceed with the ok button and you get the next window where you have to define if the connection should be accepted automatically.
Please choose “connect always”

Please accept the Thunderbolt® Device in the next message box:

Now the Thunderbolt® Bridge is installed and the RAID Controller within in the BRICK STORAGE cartridge is detected by the system.
8.1.2 BRICK STORAGE cartridge Driver Installation

If the system does not automatically ask you for a “RAID Controller” driver please use the device-manager to update/install the driver:

Choose the correct driver directory on the accessory USB stick:

Press Install to install to device driver
After correct installation procedure you get this message:

In Device Manager you will see the RAID controller now in category “Storage Controllers”.
8.1.3 BRICK STORAGE cartridge Volume Detection

After a successful driver installation procedure, you also should get a volume mounted by the OS.

8.1.4 Save BRICK STORAGE cartridge removal

If you want to disconnect the BRICK STORAGE cartridge form your PC system please use the appropriate OS function:
Choose the “disconnect” icon:

Choose the correct volume to disconnect:

The system informs you, when the BRCK STORAGE cartridge can be removed and BRICK THUNDER DOCK can be switched off.