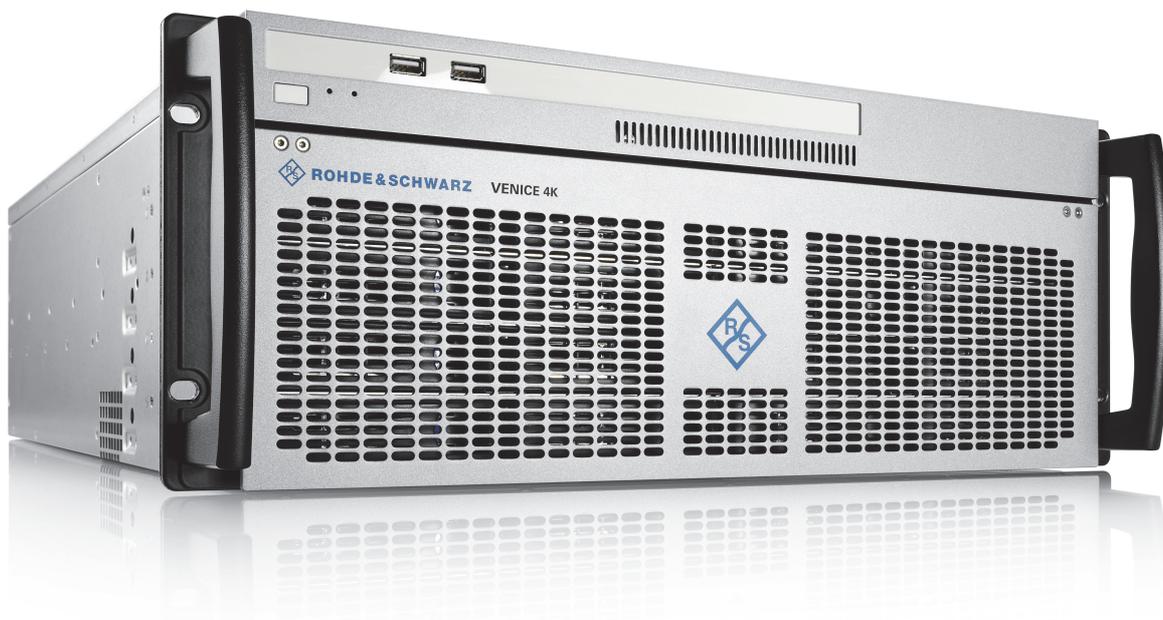


# R&S® VENICE 4K

User Manual (Hardware)



2906.0149.02



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<b>Document</b>	User Manual (Hardware)
<b>Version</b>	Hardware Gen. I, 1.1
<b>Product</b>	VENICE 4K
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<b>Disclaimer</b>	This product was developed and tested thoroughly. Unfortunately, the possibility of problems and errors can never be ruled out. To support us in helping you as fast as possible if such a case occurs, please fill in the online registration form which you can access from <a href="https://gloris.rohde-schwarz.com">https://gloris.rohde-schwarz.com</a> .



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# General

This chapter includes the following section:

- "About this Documentation" (page 6)



## About this Documentation

This documentation informs you about the installation of the VENICE 4K hardware, a video server system by Rohde & Schwarz GmbH & Co. KG, its operation as well as all connection possibilities. Furthermore, it describes maintenance tasks that you may carry out on your own.

### Required Reading

Each person who is responsible for installation, operation, maintenance or setting of the system has to read and understand this manual.

### Target Group

To use this manual you should have experience in handling video and computer equipment. Additionally, to use the system in connection with other equipment, e.g. a camera or a VTR, you should know how to handle this equipment.

When performing maintenance tasks on the hardware of the system, you must be qualified to work on, repair and test electrical equipment.

### Additional Documentation

Following documents have to be heeded while working with VENICE 4K:

- User Manual (Administration and Configuration)
- Manufacturer's documentation of the graphics card
- Manufacturer's documentation of the rack mount kit

The complete documentation can also be downloaded from **<https://gloris.rohde-schwarz.com>** after registering/logging in to access restricted information. There you may find updated manuals and further information as well.

## Abbreviations

<b>BBU</b>	Battery backup unit
<b>COM</b>	Communication
<b>GigE</b>	Gigabyte Ethernet
<b>IPMI</b>	Intelligent platform management interface
<b>LAN</b>	Local area network
<b>LTC</b>	Longitudinal time code
<b>REF</b>	Reference
<b>SDI</b>	Serial digital interface
<b>USB</b>	Universal serial bus
<b>VDCP</b>	Video disk control protocol
<b>VGA</b>	Video graphics array





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# Safety

This chapter is divided into the following sections:

- "For Your Safety" (page 10)
- "General Notes" (page 11)



## For Your Safety

The product documentation helps you to use the VENICE 4K safely and efficiently. Keep the product documentation in a safe place and pass it on to the subsequent users. Use the VENICE 4K only in its designated purpose as described in the product documentation. Observe the performance limits and operating conditions stated in the specifications (data sheet).

Safety information is part of the product documentation. It warns you about the potential dangers and gives instructions how to prevent personal injury or damage caused by dangerous situations.

Safety information is provided as follows:

- In the "Basic Safety Instructions", safety issues are grouped according to subjects.
- Throughout the documentation, safety instructions are provided when you need to take care during setup or operation.

Always read the safety instructions carefully. Make sure to fully comply with them. Do not take risks and do not underestimate the potential danger of small details such as a damaged power cable.

## General Notes

Please observe the following general important notes:

- Computer hardware contains components that are sensitive to electrostatic discharge. If you touch them without precautionary measures, they can be destroyed. Use a wrist strap connected to ground when accessing electronic parts and take care of grounding the system. Avoid touching the internal components of the VENICE 4K whenever possible.
- Performance Loss:  
The VENICE 4K has been delivered to you fully preconfigured and optimized for a real-time in- and output of video streams. Changing any of the settings (e.g. the hardware, software and/or BIOS settings) may lead to a loss of performance or may even render the system unusable. Re-configuring the VENICE 4K anew in most cases is a lengthy procedure. Modifications of settings i.e. bios settings shall be done with Rohde & Schwarz GmbH & Co. KG Service.
- Third-party Software:  
Your VENICE 4K has been tested thoroughly and is very reliable. However, because of the vast amount of third-party software available, its reactions on the installation of such could not be tested. The installation of third-party software may disrupt the real-time capability and/or limit the functionality of your system.
- Real-time-performance:  
Use only the optional internal storage or external storage solutions which are tested and released by Rohde & Schwarz GmbH & Co. KG to store video and audio data.  
Other storage locations will be too slow for real-time operations.
- Storage capacity exceeded:  
In case of a full storage performance losses may occur. Leave about 10 to 15 % of the overall main storage capacity empty of data for performance reasons.
- Alarm buzzers:  
Compared to other alarms sounded by the system the alarm buzzer of the power supply is relatively faint. In a loud environment it may be drowned by other noises. When operating the VENICE 4K in a loud environment, it is recommended to check the state of the alarm LED at regular intervals.



- It is recommended to set up an e-mail notification, to ensure you get informed when a hardware malfunction occurs. More information and how to set up the e-mail notification you can find in the user manual for administration and configuration.



# Product Description

This chapter is divided into the following sections:

- "Function" (page 14)
- "Type Plate" (page 15)
- "Scope of Delivery" (page 16)
- "The Front of the System" (page 17)
- "The Rear of the System" (page 23)
- "Battery Backup Unit (BBU)" (page 29)



## Function

VENICE 4K is an Ingest and Production Server especially designed for broadcast studio production environments. It is a scalable multi-channel system (1 or 2 channels per unit, multiple units can be clustered) that offers you ingest, playout and transcoding functions in one single box. The open software structure combines video and IT workflows in broadcast environments. VENICE comes with its own user interface, designed and developed together with the hardware. The VENICE software gives you the possibility to control and operate the system from any location at any time.

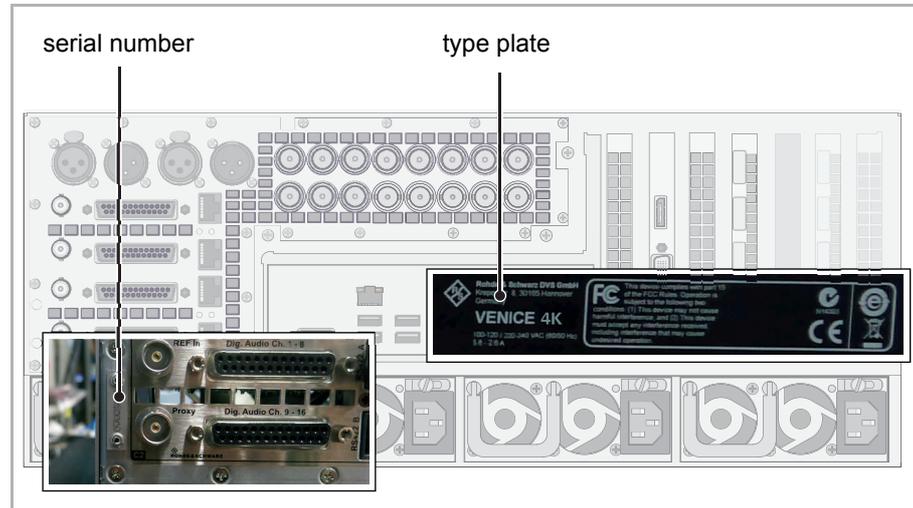
The major functions of the VENICE software are:

- Ingest
- Playout
- Transform

For more information about the VENICE Software see the online help and for administration and configuration the related document.

## Type Plate

On the rear of the VENICE 4K you will find the type plate and an extra plate with the serial number of your device. Following information will be found on the type plate.



Type Plate

<b>Manufacturer</b>	Rohde & Schwarz GmbH & Co. KG Krepenstr. 8 30165 Hannover Germany
<b>Product</b>	VENICE 4K
<b>Input power requirements</b>	100-120 / 220-240 VAC (47 - 63 Hz)



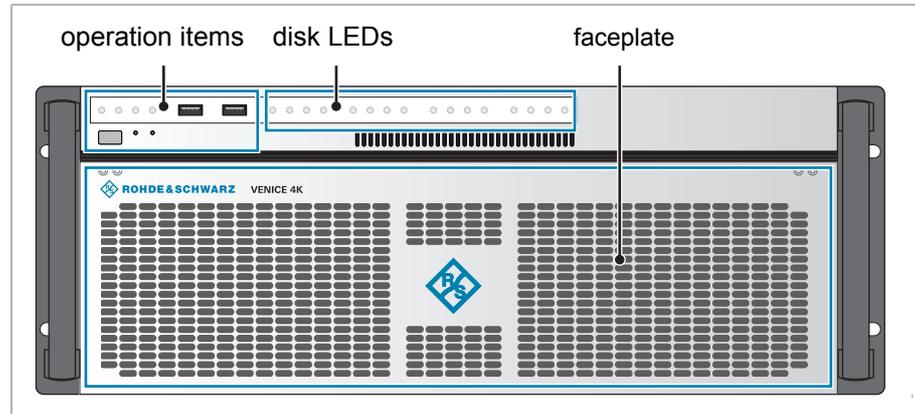
## Scope of Delivery

The following components are included:

- VENICE 4K Chassis
- 1 x Mouse
- 1 x Keyboard
- 4 x Power-cable
- 1 (for one channel) or 2 (for two channel) x Cable-adapter for RJ-45 male to DB-9 female
- 1 x 19' Rack mount kit
- 16 x Head screws
- Product documentation

# The Front of the System

## Chassis front



Chassis front

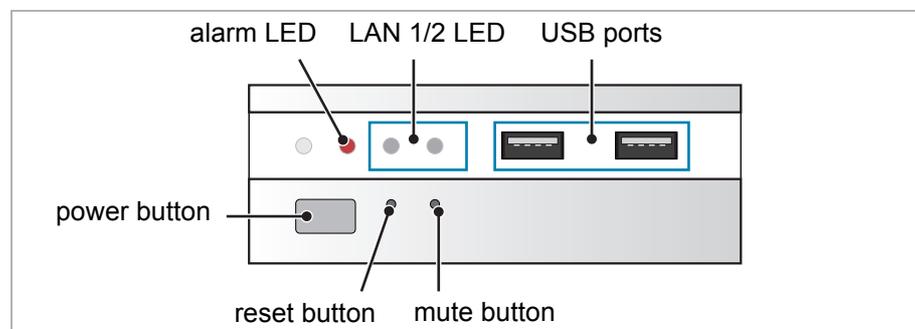
## Operation Items

With the operation items at the system's front the hardware of VENICE 4K can be controlled (e.g. turned on or off). There you can also find LEDs that allow you to assess the state of the system as well as USB connectors.



The LEDs only can be seen when they are flashing because they are located behind the white strip and thus not visible when off.

Further information about what to do in case of an alarm can be found in section "Failure Table" on page 58.



Operation items



<b>Alarm LED</b>	<p>This LED indicates that a hardware malfunction has occurred, e.g. a failure of a fan or a power supply unit.</p> <p><b>This LED does not indicate a failure of the storage disks!</b></p> <p><b>If you want be informed automatically about such a failure it is recommended to configure the VENICE 4K system for an automatic e-mail notification. How to precede you can find in the user manual for administration and configuration.</b></p>
<b>LAN 1/2 LEDs</b>	<p>Indicate that a valid network is connected to the first/second LAN connection at the rear of the system (see "ATX Connector Panel" on page 25.)</p>
<b>USB ports</b>	<p>The USB connectors (universal serial bus) at the front offer you the possibility to connect other devices such as memory sticks.</p>
<b>Power button</b>	<p>Turns the system on or off.</p>
<b>Reset button</b>	<p>Resets your system and initiates a reboot. Use a thin, pointed object to press this button.</p> <p><b>Data Loss:</b></p> <p><b>With rebooting the system you will lose any unsaved data.</b></p> <p><b>Save your data before resetting the system.</b></p>
<b>Mute button</b>	<p>By pressing this button the alarm buzzer can be switched mute. Use a thin, pointed object to press this button</p> <p><b>Some alarms (e.g. in case of a disk failure) are independent of the system alarm and cannot be switched mute.</b></p>



## Disk Array

The storage disks of the disk array are used to store your video and audio material. Two of these disks are reserved for the operating system. It is the main storage of the VENICE 4K. To prevent data loss in case a disk fails, it is RAID protected.

### RAID

The RAID feature makes the VENICE 4K tolerant of disk failures. Even with a broken disk operations can still be continued and, once the failed disk has been replaced, the missing data can be easily recovered. The data protection is provided by a RAID controller installed inside the system. The controller administers the data protection for the sets of storage disks connected to it.

The main storage of the VENICE 4K comprises 12 disks (2 for system/10 for storage). These are connected to up to two RAID controllers that apply a RAID 6 to the data. With this, the data is striped across these storage disks during writing procedures. At the same time the information which are necessary to rebuild a failed disk (parity information) are generated and written across the disks as well. With the parity information written, one storage disk per disk set (RAID pack) can fail and your data will still be recoverable as the information is stored on the other disks.

#### **NOTICE**

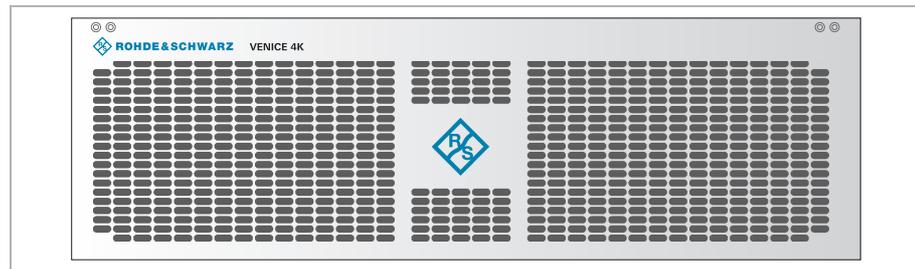
#### **Data Loss**

If a second disk within the same disk set fails in the meantime, the data will be unrecoverable.

**Change a failed disk as soon as possible.**

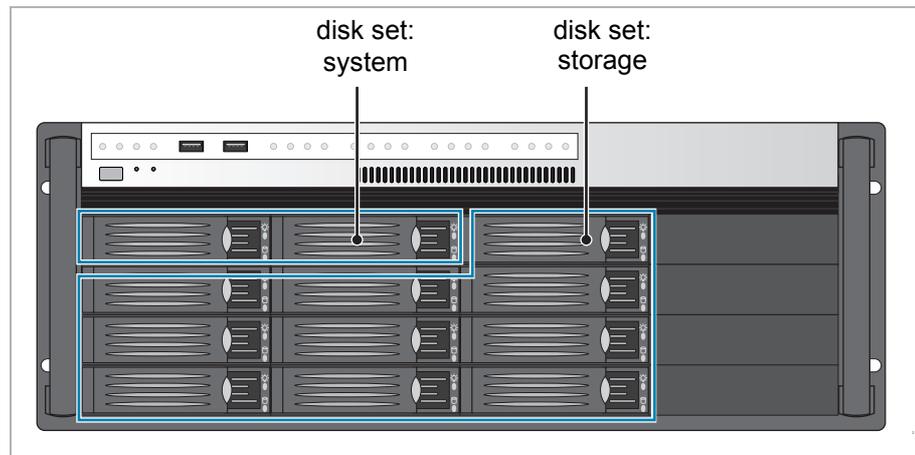
### Faceplate

The disk array is covered by a faceplate. The top side of the faceplate is mounted via two brackets for easy removal. If you need access to one of the disks, for example, to replace it, you have to remove the faceplate, see also section "Removing the Faceplate" on page 41.



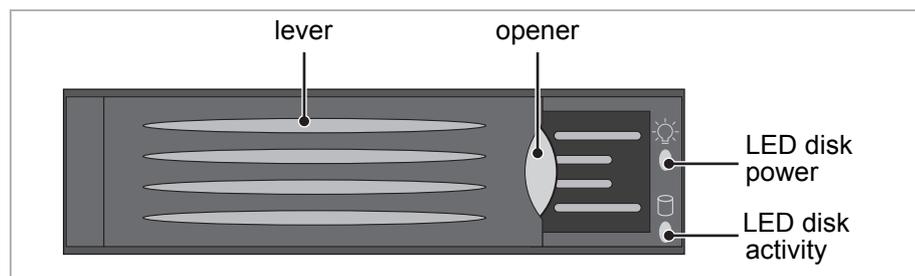
Overview of the faceplate

**Disk Array** Once the faceplate is lifted, you have access to the disk array.



Disk array

Each disk of the array is connected to the system with the help of a disk carrier which makes the removal of a disk from the system easy, for example, in the event of a failure.



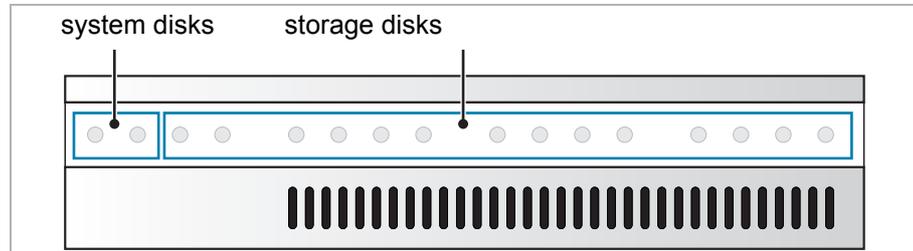
Disk carrier

<b>Disk carrier</b>	Holds the storage disk of the array. The storage disks are mounted to the disk carriers with several screws normally located at the sides of the carriers.	
<b>Lever</b>	Once the lever is unlatched with the opener, it can be used to pull the disk carrier and its disk out of the system.	
<b>Opener</b>	Unlatches the lever and with it the disk carrier.	
<b>LED disk power</b>	Shows whether the disk of the disk carrier receives power.	
<b>LED disk activity</b>	Indicates the state of the storage disk of the disk carrier:	
		(off) Storage disk is idle.
		(green) Storage disk is accessed.
		(red) A storage disk or a storage disk carrier related error has occurred.
		(red blinking) Localization of drive indicated by the controller.



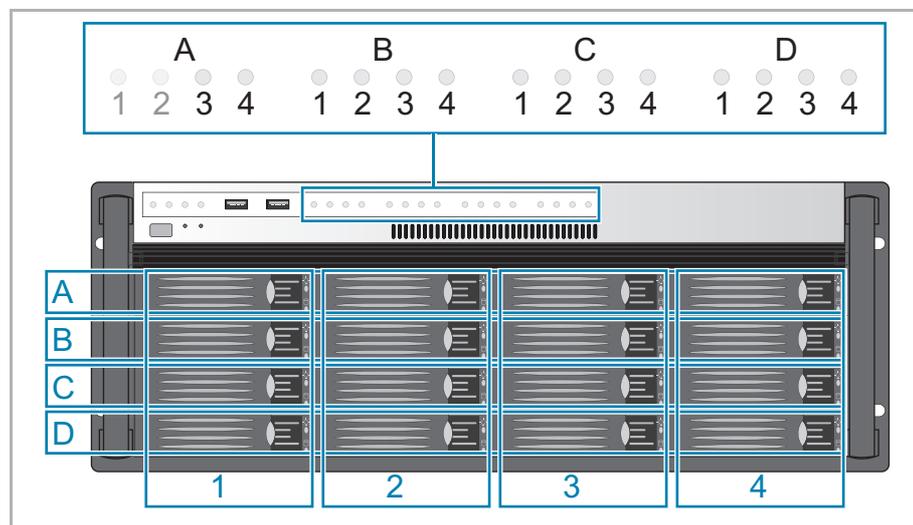
Further information about how to remove and exchange a storage disk can be found in section “Replacing a Disk” on page 40”.

**Disks LEDs** The LEDs on the front panel indicate the state (activities) of the disks. They can be seen only when they are flashing because they are located behind the white strip and thus not visible when off.



Disks LEDs

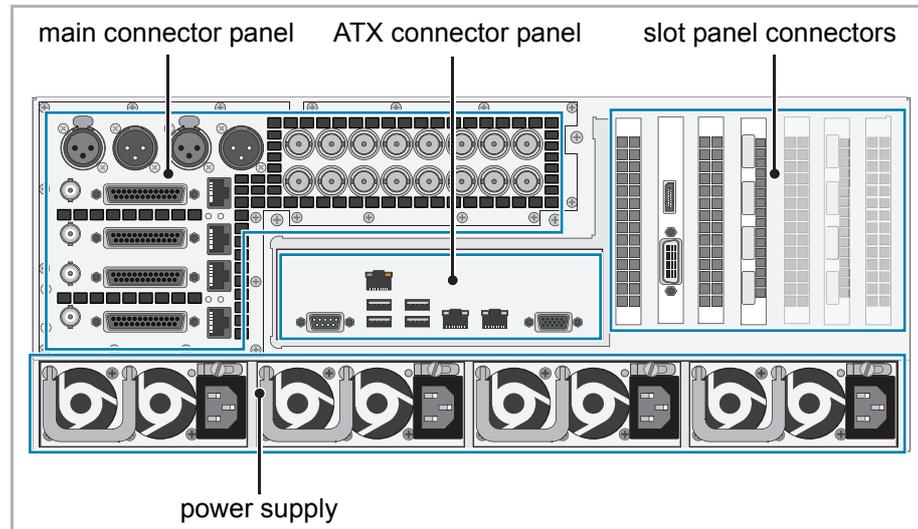
Each LED represents a disk of the array:



Channel of the storage LEDs

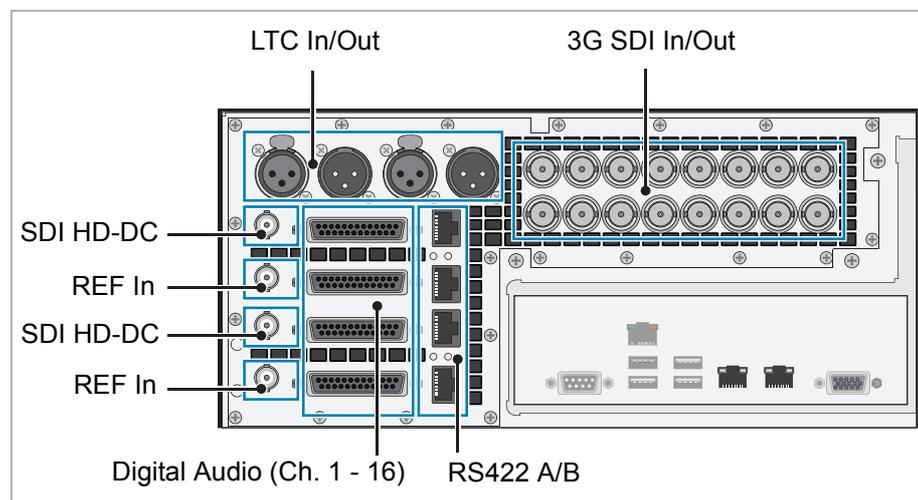
## The Rear of the System

### Chassis Rear



Chassis rear

### Main Connector Panel



Main connector panel

<b>LTC</b>	<b>In</b>	XLR connector (female) for an input of longitudinal timecode
	<b>Out</b>	XLR connector (male) for an output of longitudinal timecode



<b>Digital Audio</b>	<b>Channel 1 - 8</b>	DB-25 connector (female) for a balanced audio signal in- and output of the digital audio channels 1 to 8 (AES/EBU); XLR connectors are available via a breakout cable
	<b>Channel 9 - 16</b>	DB-25 connector (female) for a balanced audio signal in- and output of the digital audio channels 9 to 16 (AES/EBU); XLR connectors are available via a breakout cable
<b>RS422</b>	<b>A</b>	RMT-1: Serial interface for an output of master control signals
	<b>B</b>	RMT-2: Serial interface for an input of slave control signals
<b>3G-SDI</b>	<b>UHD-1 In</b>	BNC connectors for input of digital UHD-1 video signals
	<b>UHD-1 Out</b>	BNC connectors for output of digital UHD-1 video signals
<b>SDI</b>	<b>HD-DC</b>	HD-downconvert from related UHD-1-channel
<b>REF</b>	<b>In</b>	BNC connector for a synchronization of video signals, i.e. the reference input; input of horizontal or composite sync depending on software settings.



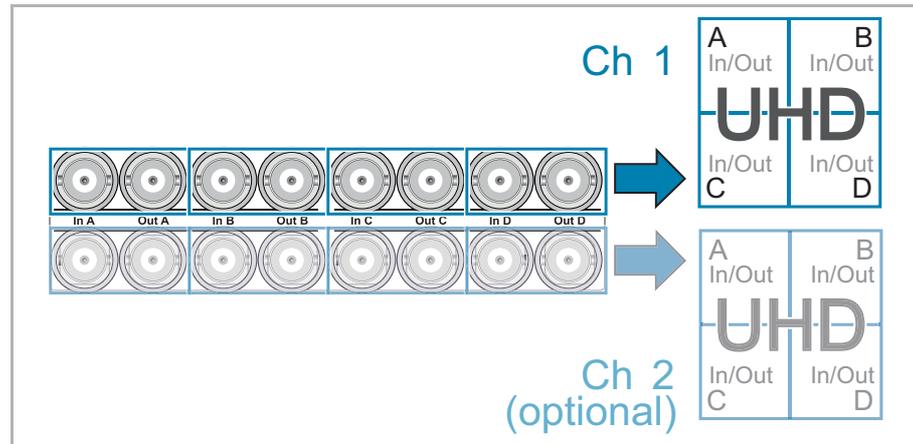
Pin-outs of most connectors can be found in section "Signal In- and Outputs" on page 21.

For the availability of connectors not present at the system's rear (blind panels) please contact Rohde & Schwarz GmbH & Co. KG.

### Digital Video I/Os

VENICE 4K supports several SDI modes, which can be selected through the user interface in the software. Each SDI mode requires a specific layout on how to connect the digital video I/Os located on the main connector panel.

The I/O ports are divided into four quadrants, each of them having a row for channel 1 and optional channel 2 as well as two in and out ports.

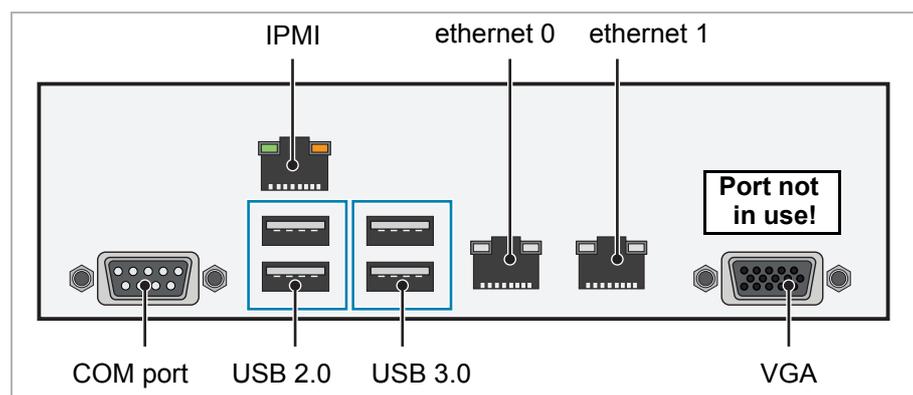


Layout of UHD SDI output at 3G

The following table gives an overview on the signal distribution over the SDI with different connection speed (1.5 Gbit/s and 3 Gbit) considering also the fps:

SDI mode	FPS	1.5 Gbit/s	3 Gbit/s
YUV 4:2:2 (10 bit)	25 + 29.97	Level A + B	Level A + B
	50 + 59.94		Level A + B

## ATX Connector Panel



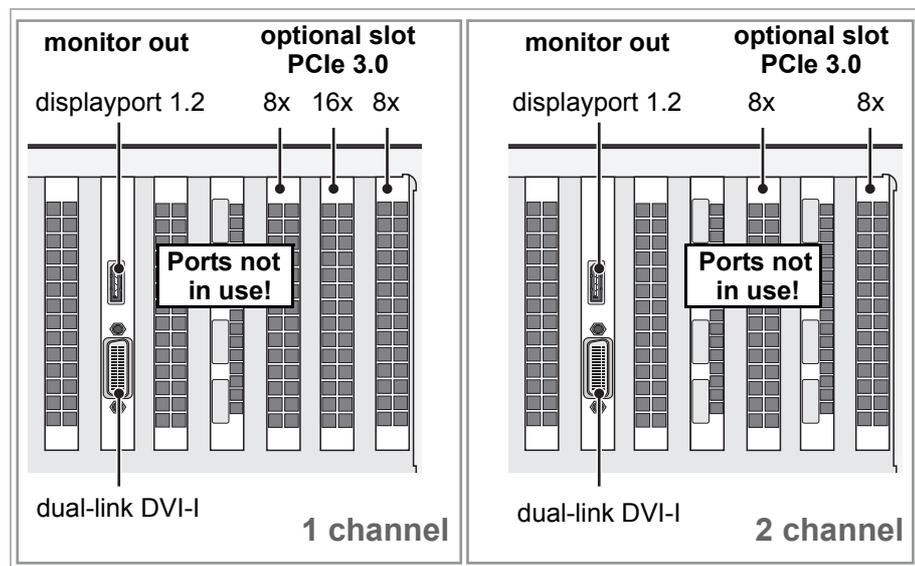
ATX connector panel

<b>IPMI</b>	Dedicated LAN port for IPMI 2.0 providing KVM (Keyboard, Video, Mouse redirection) as well.
<b>COM port</b>	RS232 connector for the connection of serial interface devices.



<b>USB 2.0 port</b>	The USB 2.0 port offer you the possibility to connect other devices to your system.
<b>USB 3.0 port</b>	The USB 3.0 port offer the possibility to connect other devices to the VENICE 4K.
<b>Ethernet 0</b>	10 Gigabit ethernet connection port for transferring metadata in a network.
<b>Ethernet 1</b>	10 Gigabit ethernet connection port for file-transfer and Spycernet.
<b>VGA</b> <b>NOT IN USE!</b>	DB-15 connector (female) to connect a monitor. Normally with an extra graphics card installed, this connector will not be operational; however, to use IPMI/KVM for system management it has to be made operational again; if you want to use IPMI/KVM, please contact Rohde & Schwarz GmbH & Co. KG.

## Slot Panel Connectors



Slot panels on rear



The layout of the slot panel area on your system may differ from the figure above: The position of the individual slot panels may vary and additional panels may be installed for internal reasons or on customer request.

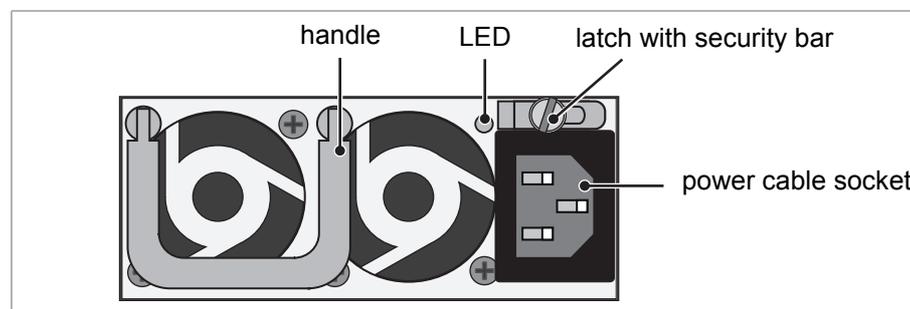
<b>Monitor out</b>	The monitor out panel is the panel of the graphics card. If available, the monitor for the VENICE 4K software has to be connected here. The panel provides a DVI and a DisplayPort connection.
<b>Optional slot for connectivity</b>	Could either be equipped with a 10 GigE or fibre channel card.

For further information about the graphics card, please refer to the original manufacturer’s documentation included in the delivery of VENICE 4K.

## Power Supply

The redundant power supply provides the system with power. It consists of several independent power supply units: Even if one fails the others will still offer enough power to keep the system working.

<b>NOTICE</b>	<p><b>System Damage</b></p> <p>The system can be operated with one power supply unit out of order. However, if another one fails, a continued operation of the system cannot be guaranteed.</p> <p><b>Change a failed power supply unit immediately (see section “Replacing a Power Supply Unit” on page 50).</b></p>
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Power supply unit

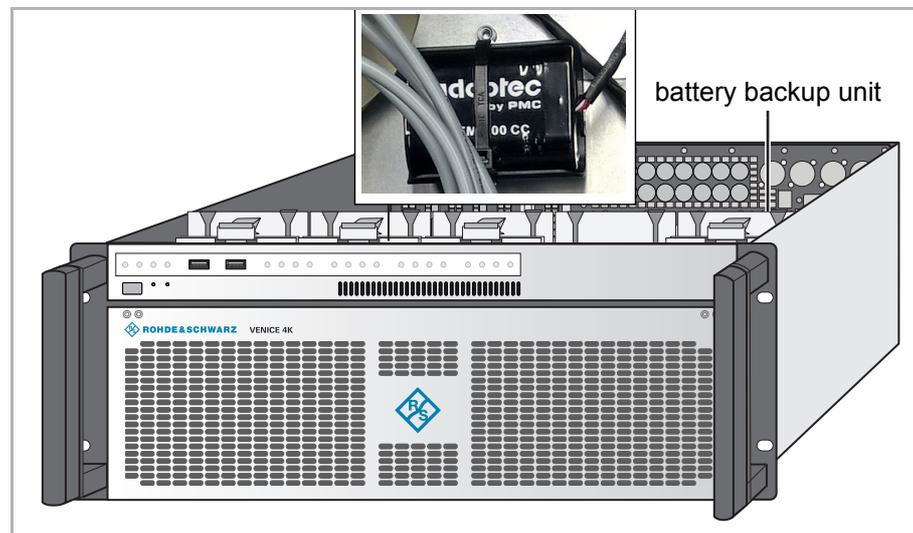


<b>Handle</b>	With the handle of the power supply unit you can pull the unit out of the power supply.	
<b>LED</b>	Indicates the state of the power supply unit:	
	●	green normal operation
	○	off standby mode
	○	off (alarm LED on) disconnected from power or malfunction
<b>Latch with security bar</b>	Locks it in the power supply.	
<b>Power cable socket</b>	The socket where the power cable has to be plugged in to provide the system with power.	

## Battery Backup Unit (BBU)

To prevent data loss especially for the metadata, the system/metadata hard disks are protected by a battery backup unit. If the system's operation gets interrupted, for example, in case of a power failure, it will provide power to the cache of the connected RAID controller, so that buffered data will not get lost. Once the operation of the system is restored, the cached data will be written to the hard disks.

The battery backup unit is located inside the casing of the VENICE 4K, above the power supply.:



Battery backup unit

To get access to the BBU the chassis must be open. How to open the chassis see "Replacing the Fan" on page 48.



---

# Operation

This chapter is divided into the following sections:

- "Installing the System" (page 32)
- "Starting the System" (page 35)
- "Configure and Work With the System" (page 36)
- "Shutting Down the System" (page 37)



## Installing the System

Perform the following steps:

1. Unpack the VENICE 4K system and its accessories.

### **NOTICE**

#### **Warranty Claims**

To make warranty claims you have to keep the original packing and use it in case of a return transportation.

2. Check your delivery and compare it with the delivery note and the "Scope of Delivery" on page 16. In case of missing items, please contact your local vendor or Rohde & Schwarz GmbH & Co. KG immediately.

### **⚠ DANGER**

#### **Risk of injury while handling component with heavy weight**

Improper handling of the VENICE 4K can cause substantial damage to personnel and equipment by falling or overturning.

- VENICE 4K must be lifted and carried by two people on both sides.
- It is preferable to use lifting devices and means of transport.
- Beware of the crushing hazard when working with heavy loads.

The handles installed on the front side of the unit are intended only for pushing into or pulling out of the rack.

- The handles are not designed for transporting the VENICE 4K.
- Transport aids must not be fastened to the handles.

Preventive measures to avoid death or serious injury.

3. Place the system on a firm, flat surface within reach of a power outlet or mount it in a rack. For proper air circulation and cooling make sure the ventilation holes on the rear of the system are not covered.



If you using the rack mount kit which is included in the scope of delivery: Use four of the 16 head screws (separately included) to fix the plate on each side.



### NOTICE

#### Ventilation

When installing the system in a rack, take care that warmed up air is conducted to the rear of the rack and properly vented away.

### NOTICE

#### Environmental Conditions

For error-free working and a long service life VENICE 4K needs some basic environmental conditions:

- Do not expose the VENICE 4K to sources of heat, such as direct sunlight or a radiator.
- Do not cover or obstruct the ventilation holes of the system.
- Avoid areas with high humidity or dust. Best operating conditions are given in an air-conditioned site.
- Do not expose the VENICE 4K to strong electric or magnetic fields.
- Avoid areas where the VENICE 4K will be subject to vibrations or shocks.

4. Connect the following computer peripherals:
  - Mouse
  - Keyboard
  - A monitor that is operable at a resolution of at least 1280 x 1024 pixels (default manufacturing setting)



5. Connect any other peripheral computer and video equipment. An overview of the panels and connectors are listed in chapter “The Rear of the System” on page 23.



The recommended resolution to run the VENICE 4K software is 1920 × 1200 pixels.

6. Connect the power cables to the system.

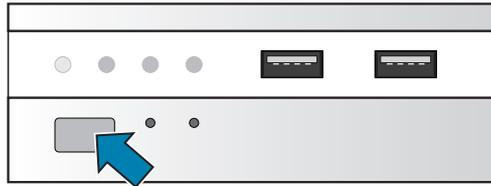
VENICE 4K is ready for first use. The VENICE 4K hardware is now properly installed and you can switch on the system.

## Starting the System

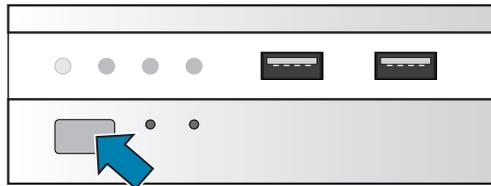
After a proper installation of the system you may start the VENICE 4K system at any time.

Perform the following steps:

1. Press the power switch briefly to turn on the system.



- ▶ The system will be started. It takes several minutes until the system is fully operational.
2. After login you have the possibility to work directly on the VENICE 4K graphical desktop. The initial password of the user **venice** is **venice**.



For security reasons you should never use the root user account to work with the system.



## Configure and Work With the System

Before working with VENICE 4K it is necessary to configure it. How to do this you can find in the user manual for administration and configuration in PDF-format on your VENICE 4K.



## Shutting Down the System

There are several possibilities to shut down the system. It depends on whether the operating system is already loaded, frozen or not completely loaded. Please act accordingly.

### NOTICE

#### Re-start

It takes a while to safely erase all memory banks of the system.

After a shut-down wait at least ten seconds before starting the system again.

## Shut Down While Running

If the operating system is up and running, there are two ways to shut down your system.

### Shut Down With Operating System Fully Loaded

For this way the user has to be logged in.

Perform the following steps:

- Choose in menu System > Shut down
  - ▶ The operating system will save your personal settings and once it has ended, the system will turn off.

System is shut down.

### Fast Shut Down

Perform the following steps:

- Initiating a fast shut down by pressing the power switch briefly.
  - ▶ Some settings will be saved and afterwards the system turns off.

### NOTICE

#### Data Loss

The fast shut-down may not save all your system data and personal settings before the system turns off.

Save all data and settings before shutting down the system.

System is shut down.



## Shut Down With Operating System Frozen or Not Completely Loaded

If the operating system is not responding anymore or not completely loaded, do as follows:

### **NOTICE**

#### **Corrupted Data**

Shutting down the system while frozen or not completely loaded may lead to corrupted system data.

Use this procedure only if absolutely necessary.

Perform the following steps:

- Shut down the system by pressing the power switch lengthly until the system turns off.

The system is shut down.



---

# Maintenance

This chapter is divided into the following sections:

- "Replacing a Disk" (page 40)
- "Replacing a Fan" (page 46)
- "Replacing a Power Supply Unit" (page 50)



## Replacing a Disk

### Identifying a Defective Disk

In case of an alarm or when suspecting a worn storage disk, you have to identify the broken storage disk first in order to replace it.

#### **NOTICE**

#### **Alarm**

An alarm can be caused by a number of reasons. Please refer to section “Failure Table” on page 58 first for further details about what to do in case of an alarm.

If a storage disk fails, the alarm will be sounded by the RAID controller. It cannot be switched mute with the mute button of the operation items. It can be turned off either with the RAID software manager or by replacing the broken storage disk.

Data accesses to the storage disk array are still possible because any missing data will be recalculated from the parity information stored on the other storage disks of the disk set. This can limit the overall performance and real-time operations may no longer be possible.

In most cases you can find the broken disk by simply observing the LEDs of the disk array (see section “Disk Array” on page 19). While performing continuous accesses to the data, it will be the one:

- no longer blinking (either continuously on or off),
- irregularly blinking compared to the other storage disks of the same disk set, or
- showing a storage disk or disk carrier related error.

**NOTICE****Total Loss of Data**

Replacing the wrong storage disk, i.e. a good one instead of the defective one, may result in a total loss of data.

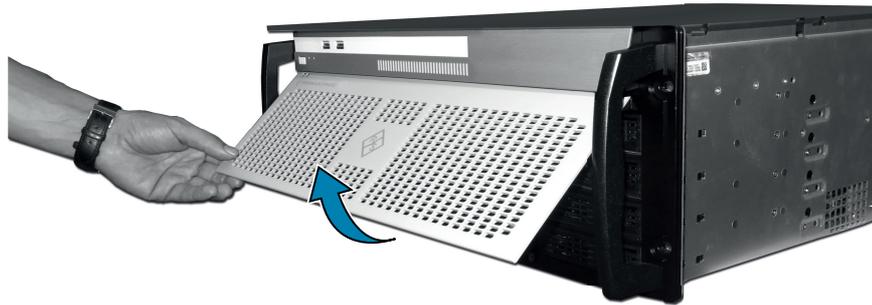
**If you are unsure about having detected the correct storage disk please contact Rohde & Schwarz GmbH & Co. KG.**

## Removing the Faceplate

To get access to the disk arrays you have to remove the faceplate.

Perform the following steps:

1. Lift up the lower edge of the plate, until the plate is positioned horizontally.



2. Pull the faceplate to detach it from the brackets:



The faceplate is removed.

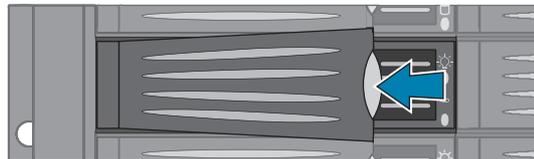


## Removing Disk from Carrier

The storage disks that are accessible at the front of the system are connected to the system with the help of disk carriers. They can be removed easily, even when the system is running (hot-swappable).

Perform the following steps:

1. If appropriate, stop all accesses to the storage disk array of your system, for example, by exiting the video system software and severing the network connections.
2. Unlatch the disk carrier of the defective storage disk by pressing the opener of the disk carrier.



- ▶ This will cause the lever to come out of the disk carrier so that it protrudes from the rest of the disk carriers.
3. Take the lever and turn it in its hinge until it cannot be moved further:
  - ▶ This takes the storage disk installed in the disk carrier out of the system's interfaces inside.
4. Once the interface connections inside the system are severed, pull out the disk carrier of the system.

### **NOTICE**

#### **System Damage**

Significant environmental changes, for example, altitude, voltage, temperature, shock, vibration, etc., can damage a storage disk.

**Handle storage disks with great care.**

5. Unscrew the screws that fix the storage disk to the disk carrier.



**NOTICE**

**Original parts**

If you don't use original parts a loss of performance might occur.

**Use the same brand and type of disk again.**

6. Exchange the defective disk with a new one.
7. Assemble it in the disk carrier with the screws.
8. Slide the disk carrier back into its shaft at the disk array.

**NOTICE**

**Carrier damage**

If you use the lever to insert the disk carrier, it can be damaged.

**Apply an even pressure only to the carrier directly until the lever moves back by itself.**

9. Push the disk carrier completely back into the shaft. Move it until you feel the resistance of the storage disk interface inside the system.



▶ The lever retracts by itself from the pushing.



10. Close the lever until it snaps back in place which as a result will slide the carrier completely back in.
  - ▶ The disk carrier of the replaced disk be leveled with the others of the array.
11. Once the faceplate of the VENICE 4K is back in place, the replacement of the storage disk is finished. After several minutes the replaced storage disk will be automatically recognized by the system. Then the rebuild of the data will be initiated on its own. When the system has finished the rebuild, the VENICE 4K will be fully operational again.
  - ▶ The rebuild process will be indicated by the storage LEDs.

**NOTICE**

**Accesses to the Disk Array**

During a rebuild, real-time processes may not be possible. It is recommended to restrict accesses to the storage disk array until the rebuild is finished, as it takes several hours.

**Avoid accesses to the disk array during this time, otherwise it may take considerably longer to rebuild the raid.**

## Mount the Faceplate

**NOTICE**

**Electromagnetic Compatibility**

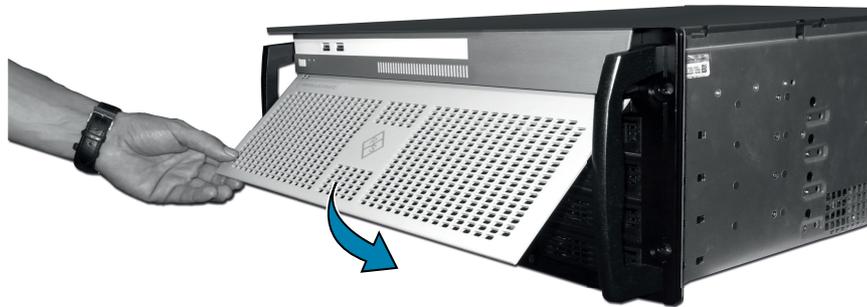
The system must be operated with the faceplate installed to ensure electromagnetic compatibility.

Perform the following steps:

1. Push the faceplate towards the system to suspend it to the brackets:



2. Clap the lower edge of the plate, until the plate is closed.



The faceplate is mounted.



## Replacing a Fan

When a fan failure occurs, you will be notified by a lit alarm LED and the sounding of an alarm buzzer of the system. The alarm can be switched mute with the mute button at the front of the system (see section “Operation Items” on page 17).

### Open the chasing

#### **DANGER**

#### **High Voltage**

The system you are working on operates with voltages that can be hazardous to your health.

**Never work on the system or access its interior with the power cable(s) being plugged in. Make sure the power supply is disconnected from the components you intend to work on. Maintenance inside the system should only be performed by personnel qualified for handling and testing electrical equipment.**

#### **NOTICE**

#### **Electrostatic Discharge**

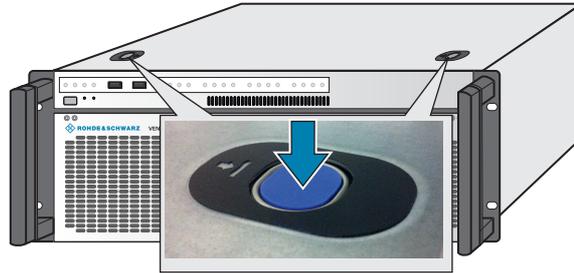
Computer hardware contains components that are sensitive to electrostatic discharge. If you touch them without precautionary measures, they can be destroyed.

**Avoid touching the internal components of the computer system.**

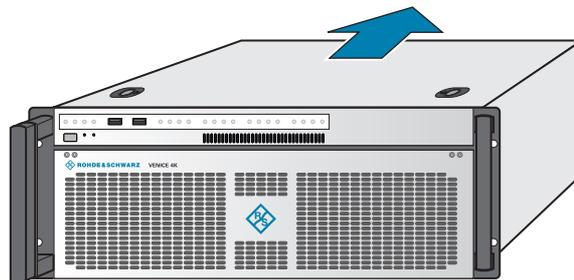
Perform the following steps:

1. Shut down the system as described in section “Shutting Down the System” on page 37.
2. Disconnect all power cords from the system.

3. Press the two buttons at the top of the system.



4. Move the cover towards the rear of the system.



5. Open the casing of the system.

**⚠ DANGER**

**Serious Injury**

Testing the fans is possible only with an opened chassis and the power turned back on. Reaching inside the system can causing electric shock.

**Once the power cables are plugged in again do not touch anything else than the external power cords or the power switch at the front of the system. Under no circumstances reach inside the system. After testing the fans switch off the power and disconnect the power cables immediately.**

6. For testing the fan you have to plug in the power supply again.  
→ Reconnect the power cords.
7. Press the power switch to turn on the system.
8. Observe the fans and memorize the failed one (the fan not revolving is the broken one).



9. Press the power switch until the system turns off.
  10. Disconnect the power cables once again.
- System is prepared to exchange the fans.

## Replacing the Fan

### NOTICE

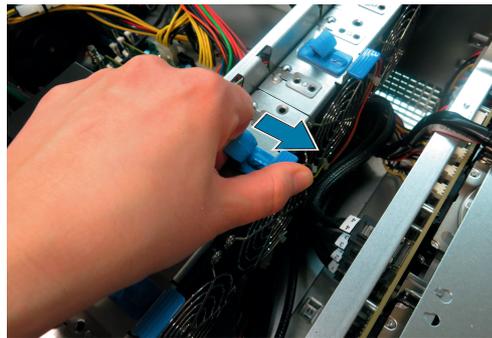
#### System Damage

Third-party spare parts might damage your system.

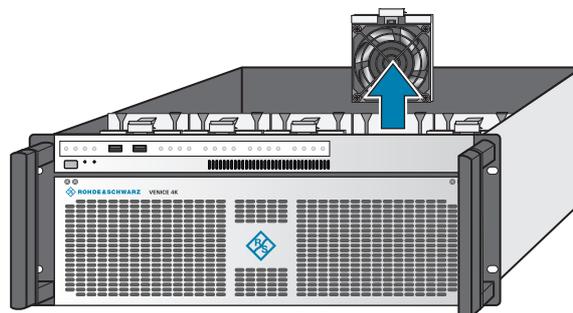
**Only use original manufacturer spare parts.**

Perform the following steps:

1. Press the latch of the respective fan module towards the front of the system.



2. With the locking mechanism released pull the fan module up and out of the system.



▶ This will sever the connection of the fan to the system.

3. Unscrew the finger protection grille from the broken fan and afterwards screw off the fan from the fan bracket.

4. Replace the broken fan with a new one and reassemble the fan module: Screw the fan to the fan bracket and afterwards the finger protection grille to the fan.
5. Re-insert the repaired fan module into the system.



The fan module have to plug properly into the system's fan interface. When completely inserted, the locking mechanism snaps back into its locked position.

6. Put the cover back on and slide it into place until it locks.
7. Reconnect the power cords.

The defective fan module is successfully replaced. Once the system is turned on, no alarm should be sounded anymore.

## Replacing a Power Supply Unit

### NOTICE

#### Second power supply failure

The system can be operated with one power supply unit out of order. However, if another one fails, a continued operation of the system cannot be guaranteed.

**Change a failed power supply unit immediately.**

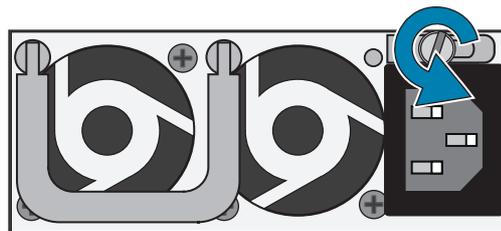


When a power supply unit failure occurs, you will be notified by a lit alarm LED and the sounding of an alarm buzzer of the system. The alarm can be switched mute with the mute button at the front of the system (see section "Operation Items" on page 41).

Each power supply unit in the VENICE 4K is hot-swappable, so you can safely replace it while the system is running.

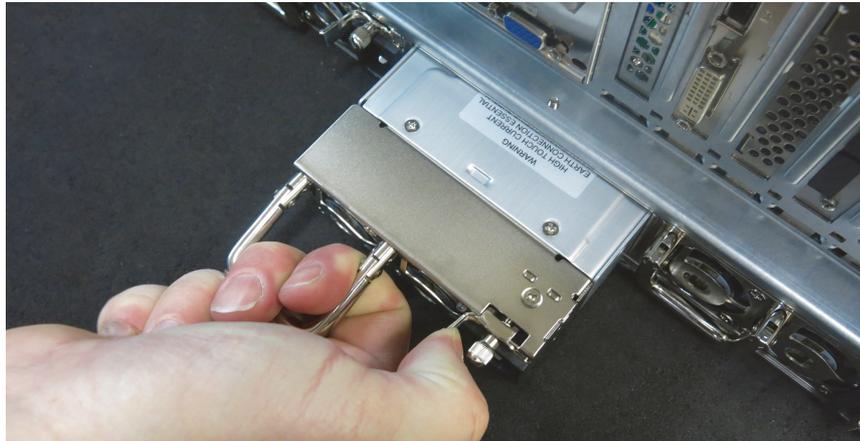
Perform the following steps:

1. Check the power supply at the rear and examine the LEDs of the units. The LED of the malfunctioning power supply unit will be either extinguished or lit in red.
2. Unplug the power cord from this power supply unit.
3. Open the security bar of the power supply.



4. Take the handle of the respective unit and press the unit's latch to the left to unlock it.

5. Pull the unit at its handle out of the power supply.



**⚠ DANGER**

**High voltages**

The system you are working on operates with voltages that can be hazardous to your health.

**Do not reach inside the system when removing a power supply unit or when the unit is out of the system.**

**NOTICE**

**System Damage**

Third-party spare parts might damage your system.

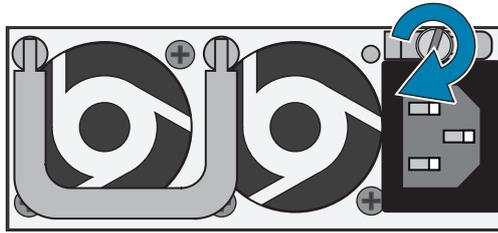
**Only use original manufacturer spare parts.**

6. Change the power supply unit against a new and operable one.
7. Slide the new unit into the power supply until it clicks into place.



When completely inserted please observe that the latch is truly in place. Locking the unit.

8. Tighten the security screw of the latch again.



9. Connect the power cord to the newly installed power supply unit.
  - ▶ The LED indicates with lighting up green, that the unit is working properly.

The power supply unit has been replaced successfully.



---

# Transport

This chapter includes the following section:

- "Transportation of the System" (page 54)



## Transportation of the System

In case of transportation observe the following information.

### Safety Notes

VENICE 4K is a very sensitive device. Handle it with great care. Especially the disks of the system must be handled with great care.



Fragile. Avoid shocks or vibrations. For longer distances use a lifting device.



Keep dry.

#### **DANGER**

#### **Risk of injury while handling component with heavy weight**

Improper handling of the VENICE 4K can cause substantial damage to personnel and equipment by falling or overturning.

- VENICE 4K must be lifted and carried by two people on both sides.
- It is preferable to use lifting devices and means of transport.
- Beware of the crushing hazard when working with heavy loads.

The handles installed on the front side of the unit are intended only for pushing into or pulling out of the rack.

- The handles are not designed for transporting the VENICE 4K.
- Transport aids must not be fastened to the handles.

Preventive measures to avoid death or serious injury.

## Packing the System

Perform the following steps:

### NOTICE

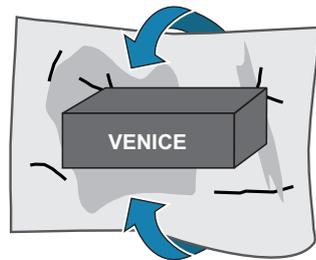
#### Transportation Damage

Warranty will be void if not using the original packing for transportation.

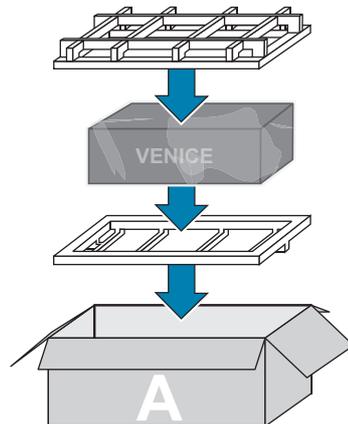
Keep the original packing and use it in case of transportation. If you do not have the original packing anymore, use a similar structured packing for transportation.

Rohde & Schwarz GmbH & Co. KG cannot be held liable for transportation damages.

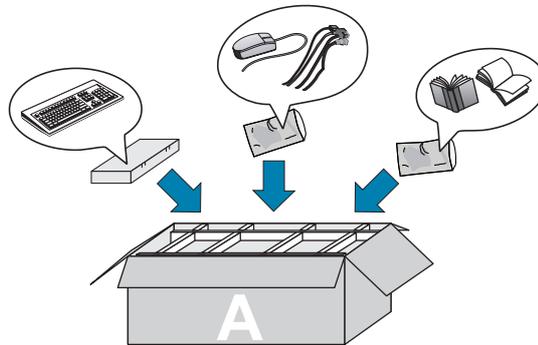
1. Wrap the video system in foil.



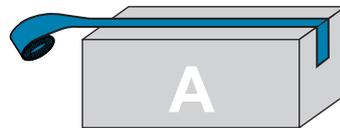
2. Pack the video system in box A with foam.



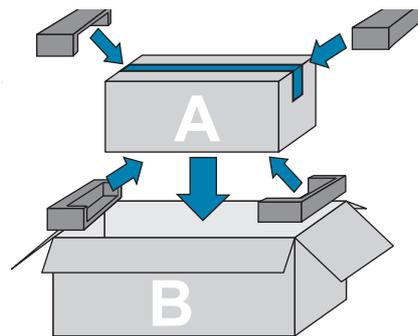
3. Pack the accessories.



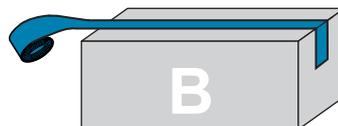
4. Close box A.



5. Pack box A in box B with foam.



6. Close box B.



The system has been packed.



---

# Troubleshooting

This chapter includes the following section:

- "Failure Table" (page 58)



## Failure Table

The table below lists some errors that may occur during the operation of the VENICE 4K and details how to resolve them. If you experience trouble that cannot be resolved with the solutions described here or in chapter "Maintenance" (page 39), please contact your local vendor or Rohde & Schwarz GmbH & Co. KG directly.

Error	Cause	Solution
Accesses to the main storage are slow.	The data storage is too full.	It is recommended to use only 85% of the overall storage disk capacity to ensure real-time capability.
AND/OR		If the storage is too full, delete some of your data.
Drops occurred during playout/capture.	The configuration of the system have been altered.	Contact Rohde & Schwarz GmbH & Co. KG.
	One or more storage disks of the storage disk array are worn.	Try to identify the worn disk and replace it as described in section "Replacing a Disk" on page 40.
	A RAID controller is defective.	If you can rule out the above mentioned causes, a RAID controller may be defective. Contact Rohde & Schwarz GmbH & Co. KG.



Error	Cause	Solution
An alarm is sounded, the alarm LED is lit and the alarm can be switched mute with the mute button.	One of the power supply units has been disconnected from power during operation.	<p>Check the LEDs of the power supply units. If one is extinguished or lit in red, this unit may be disconnected from power. Examine the power cord of the unit.</p> <p>Make sure that the power cord is in good technical order, correctly plugged in at both ends and that the mains current is operating properly.</p>
	One of the power supply units has failed.	<p>Check the LEDs of the power supply units. If one is extinguished or lit in red and you can rule out the above mentioned cause, a power supply unit has failed. Replace the broken unit as described in section "Replacing a Power Supply Unit" on page 50.</p>
	A fan has failed.	<p>Check the fan and if necessary, replace the broken module as described in section "Replacing a Fan" on page 46.</p>
	The system is overheated.	<p>Make sure that the ambient temperature at the front of the system does not exceed the operating temperature specified in section "Technical Data" on page 15.</p> <p>If the temperature is within the range, check the ventilation holes of the system and free them from all obstructions (e.g. dust).</p>



Error	Cause	Solution
<p>An alarm is sounded, the alarm LED is off and the alarm can't be switch mute with the mute button.</p> <p>OR</p> <p>At start-up the system is not able to initialize a disk set.</p>	<p>A storage disk or a storage disk carrier got loose/jammed (e.g. after transport) or is not mounted correctly.</p>	<p>Shut down the system as described in section "Shutting Down the System" on page 37. Then perform the following: Pull all disk carriers partially out of the chassis and afterwards install them again.</p> <p>Make sure that they are pulled out and reassembled correctly as described in section "Replacing a Disk" on page 40.</p> <p>Start the system again.</p>
	<p>A storage disk of the storage disk array is defective.</p>	<p>Replace the defective disk as explained in section "Replacing a Disk" on page 40.</p>
	<p>A RAID controller is defective.</p>	<p>Contact the Rohde &amp; Schwarz GmbH &amp; Co. KG.</p>

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