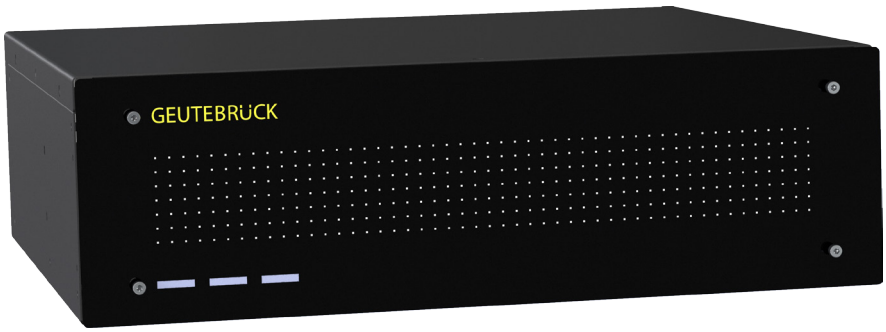
GEUTEBRÜCK




# G-ST 3000+

## Installation manual

# Introduction

The information in this document can be changed without prior notice. Without the express written consent of GEUTEBRÜCK, no part of these documents may be reproduced or transferred, either mechanically or electronically, for any use.



These operating instructions represent the current technological state of our devices. Errors and omissions excepted.

These operating instructions provide you with all the necessary information to use the **G-ST 3000+** safely and properly.

Please read and observe these operating instructions so that errors and danger can be avoided.

The operating instructions are valid for the **G-ST 3000+**. The operating instructions are only valid when the device corresponds to the version described herein.

These instructions contain all specifications that are required for transport, assembly and commissioning of the devices.

Please read these instructions carefully before initial operation to ensure safe use of the devices.

If malfunctions or repair needs should occur, please contact our qualified personnel.

All maintenance and repair work is to be performed by qualified personnel. If maintenance or repair work is neglected or performed improperly, our guarantee becomes null and void.

# Contents

# General notes and safety

## Intended use

The **G-ST 3000+** is a high performance, digital video management system based on modern processor architectures.

The G-ST supports direct recording and playback of network cameras.
The recording rate depends on the type of network camera.

Standard and megapixel cameras can be recorded in all resolutions supported by the camera and are displayed in the corresponding format.

## Description and definition of signs

Symbols and pictograms are used in these instructions, with whose meaning you should familiarize yourself. These symbols will help you to understand the information in these instructions more quickly and point out danger or particularly important information.

***Warning!***

Danger signs. In order to avoid physical injury and material damage, these alert you to danger as well as instructions that must be followed and things that are prohibited.

***Warning of electric energy!***

Danger to life! Please note that work on electric equipment may only be performed by qualified electricians.

**Definition of terms**

- **User, operator**: Person who has been authorized to operate the device by the operating company. The user must be instructed by the operating company with regards to safe use with the device.
- **Operating company**: Responsible for safe installation, regular maintenance and cleaning of the device.
- **Qualified personnel**: Trained specialists, authorized by the operating company or GEUTEBRÜCK who is familiar with the devices and with the technology. Qualified personnel must be trained and capable of performing maintenance and repair work on the device.

# General safety instructions

When using the devices or performing maintenance on them, the following safety instructions are to be observed to protect the operator, the service technician and the device:

- During design and construction of the devices, the acknowledged state of the art as well as the acknowledged applicable standards and directives have been taken into account and implemented.
- Additionally, the devices have been designed and developed so that the danger that occurs during intended use has been eliminated to the greatest possible extent.

Nonetheless, we are obligated to describe these safety instructions so that the re sidual dangers can be eliminated.

***Warning!***

When electric machines are used, fundamental safety precautions must be observed to eliminate the risk of fire, electric shock and injury to persons. For this reason, please read these operating instructions before starting your work. Store these instructions in a place where the qualified personnel and user can access them quickly and easily.

When operating the device, the locally applicable laws, regulations and standards must be observed. In the interest of safety, the operating company and supervisors are responsible for compliance.

Whenever performing any kind of work, check for any possible damage. All parts must be mounted correctly and all conditions fulfilled to ensure proper functioning. If the device is damaged in any way, it may no longer be used. Ensure that the devices are repaired properly. Mark the defect clearly and pull the power plug so that no accidents or damage can occur before the device is repaired.

Do not use the power line for uses for which it is not intended. Protect the cable from heat, oil and sharp edges.

In dangerous situations or technical malfunctions, disconnect the device from the power supply immediately.

***Warning of electric energy!***

In case of damage, the device may no longer be used. Disconnect the device from the power supply!

***Warning!***

For all repair and maintenance work, the device must be disconnected from the power supply. Work on electrical equipment may only be performed by qualified electricians.

Only original parts may be used. Otherwise, the user is subject to danger of accident.

***Warning!***

The use of parts and related accessories other than those specified in these operating instructions can lead to injury. Only use replacement parts approved by the manufacturer!

***Warning!***

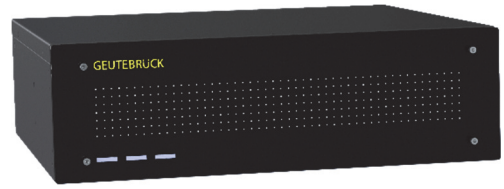
Risk of explosion if mainboard battery is replaced by an incorrect type.

Dispose of batteries in accordance with local laws and regulations!

# Device description

## Overview G-ST 3000+

### Recommended uses and applications




The G-ST 3000+ is the ideal system platform for use in medium-sized branches.

Due to the flexible expandability with a wide range of software options, such as video content analysis or interfaces to third-party systems, it is perfectly suited for all types of video security applications as well as automatic process visualization (value imaging) in logistics supply chains.

### Product features

- Professional desktop video security solution for networking together medium-sized installations.
- Excellent image processing power through the use of GPU acceleration and 64-bit architecture.
- Windows 10 IoT Enterprise Embedded.
- Configurable analog kits for the additional connection of 8 or 16 analog cameras.

# Transportation, storage, initial commissioning

### Transportation and storage

The device is shipped from the factory in a shipping box with a special cushion packing. This protects the device from damage during transportation. Whenever possible, use the original device packaging.

### Transportation and storage conditions

- Temperature range: -25°C to +55°C
- Relative humidity: 10% to 90% (without condensation)

### Installation instructions and initial commissioning

- The devices may only be installed by qualified personnel who are familiar with the devices.
- The device may only be commissioned after it has been ensured that all applicable safety requirements have been fulfilled.

# Scope of delivery

Ensure that the following items are included in the delivery:

- G-ST 3000+
- Manual
- Installations/recovery DVD
- Power cord
- Manufacturer's driver CD

# Device view

## Front view


Figure 1: Front view

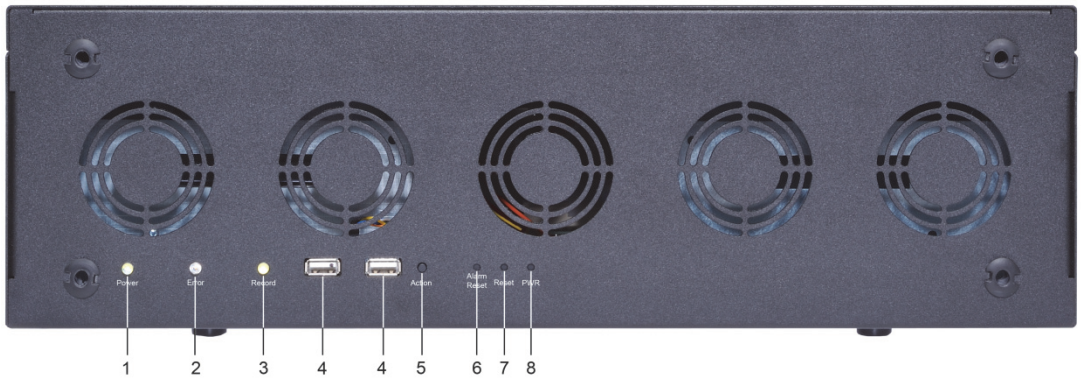



Figure 2: Front view without cover

| | |
|---|---|
| 1 | LED (white)<br>**Power** |
| 2 | LED (red)<br>**Error** |
| 3 | LED (white)<br>**Record HDD** |
| 4 | USB connections (2x) |
| 5 | Action push button |
| 6 | Alarm-Reset button |
| 7 | Reset button |
| 8 | Power button |

## Rear view

### G-ST 3000+

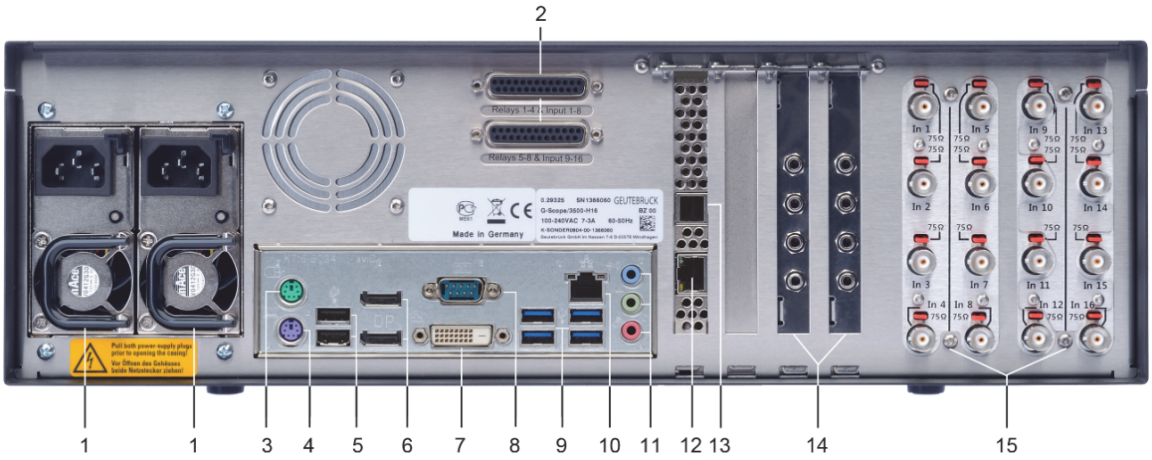



Figure 3: Rear view G-ST 3000+

| | |
|---|---|
| **1** | Connection(s) for power supply (2. Power supply optional) |
| **2** | Control inputs for connecting external contacts for the event-based image recording/relay outputs |
| **3** | Connection for PS/2 PC keyboard (6-pin mini-DIN socket) |
| **4** | Connection for PS/2 PC mouse (6-pin mini-DIN socket) |
| **5** | USB 2.0 interfaces (2x) |
| **6** | Display Port (2x) |
| **7** | DVI-D graphics output for connecting a PC monitor |
| **8** | Serial RS-232 interface COM1 (9-pin Sub-D connector) |
| **9** | USB 3.0 interfaces (4x) |
| **10** | Network connection (Ethernet 10 /100 / 1000 Base/T - RJ45) |
| **11** | Audio connections |
| **12** | RAID controller remote management port 10/100 MBit/s RJ45 optional |
| **13** | SAS Extension Port Mini SAS (for JBOD Extension) optional |
| **14** | AnalogKit Audio Line In optional |
| **15** | FBAS inputs on AnalogKit optional |

When using an analog monitor you need a DisplayPort to VGA adapter (Art. No.: 5.39401).

The position of the connections may vary!

Please check the accompanying mainboard manual if the configuration is different.

# Installation and commissioning

## Requirements

### Checking the conditions

**Before** you integrate your G-ST 3000+ into an existing network, you must ensure that the following conditions are met:

- There is a functioning network with TCP/IP protocol (100/1000 Mbit Ethernet). For other networks, the successful integration of G-ST must first be demonstrated.
- For commissioning, a network administrator is required on site who can intervene promptly when problems with the network arise.
- The responsible network administrator must provide a free IP address, in some cases with subnet mask and default gateway, for every G-ST and for each configuration and playback PC. In addition, a free IP address is required per network segment. This additional IP address will be used for test setups during commissioning and must remain available after completion of work.
- With the help of the **PING** diagnostic tool, which is normally executed as a console command, functional communication between the G-ST and the configuration or playback PCs must be confirmed. You can also demonstrate functional name mapping using PING. You start the command window using right klick on **Start** → left klick on **Command promp** → enter **PING + IP adress**.

### Tool for commissioning

Ensure that before commissioning, all accessories needed for installation are available and connect these accessories.

If configuration and operation of the system is to be performed directly on the **G-ST**, you need the following equipment:

- S-VGA monitor (min. resolution of 1024 x 768 pixels, 17-inch recommended)
- USB keyboard and USB mouse.

**Mouse and keyboard**

Connect the mouse and keyboard via the USB ports on the back of the device.

Use only standard PC keyboards and mice that are compatible with MS Windows.

**Monitor**

Connect the monitor cable to the DVI connector on the back of the device. If necessary, use the VGA adapter if you have an analog RGB monitor.

The device driver for the graphic card has already been installed on the device.

**Network integration**

For network integration of G-ST we recommend the following tools:

- Laptop with installed network card and the required network configuration. For testing, installation using MS Windows7 is sufficient.
- Establish the connection between the **G-ST 3000+** and analysis PC via a switch or use a crossover network cable.

## Preparations

Before you begin establishing connections and specifying configurations, you should familiarize yourself with the hardware and use of your system:

- Number and manufacturer of the recording cameras.
- Number and type of input contacts for event recording.
- For serial connection of cash-dispensing machines or access control systems with card readers, the protocol used and the serial parameters.
- The required storage capacity for image data (take into account an additional 15% of the calculated image storage capacity for management of images).
- Recording grid (number of images per unit time) of the corresponding cameras for permanent and/or event recording.

You should also be experienced in dealing with MS Windows and be able to install hardware and software.

**Network applications**

For setup of network applications, you should also have the following information available to you:

- Network topology and technology and responsibilities of your system.
- Computer name and/or IP addresses of the computers and devices to be set.

## Instructions on installation of in-house PC cards and external devices

To avoid expensive installation and to ensure correct operation, consider the following:

- Wherever possible, use PC cards offered by GEUTEBRÜCK. If you ordered these cards with the device, they are already installed and ready for operation.

  When re-ordering a card, we strongly recommend also ordering assembly and the installation at the same time.

  Installation of third-party PC cards is performed at your own risk as we cannot ensure proper system function in such a case.
- Use only monitors that meet the minimum requirements set out here. If possible, use only standard PC keyboards and mice that are MS Windows-compatible.
- If possible, use printers that are supported by MS Windows and whose printer drivers can be found on the system disk in the Windows directory.

For connecting external devices, note in general:

- **G-ST 3000+** devices **do not have a CD-ROM/DVD drive**.
- For the use of a recovery DVD you need an external USB drive. When selecting devices, please ensure that the devices are compatible with MS Windows.
- In this context, please also take into account the training that GEUTEBRÜCK offers for safe use of the hardware and software of the G-ST.

## Connecting devices

All connections are made on the back. In addition, two USB ports are available on the front.

Please note the following precautions for your security and the safety of the appliance.

***Warning!***

- All connection work may only be performed when the device is shut off.
- Do not remove the cover! Only maintenance-free components are to be found inside the device. Repairs may only be performed by qualified specialists.
- For use of external USB devices, check the order of driver installation and connecting of the device.
- For all control lines, only use shielded cable. Twist the cable shield at the end and solder it to the frame of the SUB-D connection (plug or socket).
- Do not short-circuit wires with the cable shield. Slide an insulator across the shield to prevent short circuits.
- Do not connect a cable shield to a ground connection (pin).
- Keep the twisted part of the cable shield in the plug (socket) as short as possible.

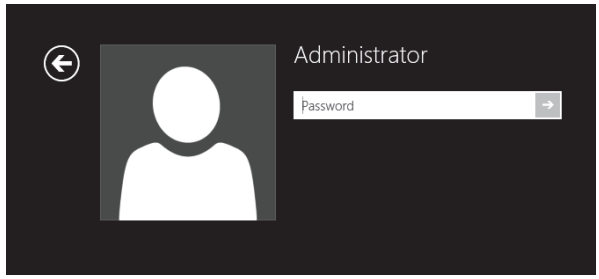
## Turning on the device

Before turning the unit on, please observe the following safety information.

- Use a socket with a protective contact for connection.
- Ensure a power supply between 110 VAC and 230 VAC.
- **Please do not press any keys while powering up!**
  The operating system is precisely pre-configured for your device. By pressing a key during powering up, this configuration could be adversely affected.

To turn on the device, follow these steps:

1. Connect the device to the power supply
2. Activate the on/off switch on the power supply unit on the back of the device. The device has been switched on.
3. Wait until the operating system has started up and the **Begin Registration** window is displayed. During this operation, the client and the database of the device are started automatically.
4. Use the key combination **Ctrl** +**Alt** +**Del** to log on MS Windows.



Enter the following at the MS windows Logon dialog box:

- User name: **Administrator**
- Password: **Pa$$w0rd**

Please confirm by pressing the ENTER key.

The **Admin** user profile allows full access to your G-ST.

You are now on the operating system level.

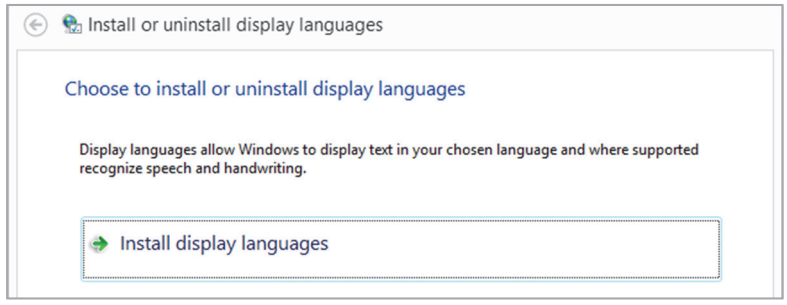
**At first, please choose your language setting.**


G-ST will be delivered ex-factory with language setting **English**.

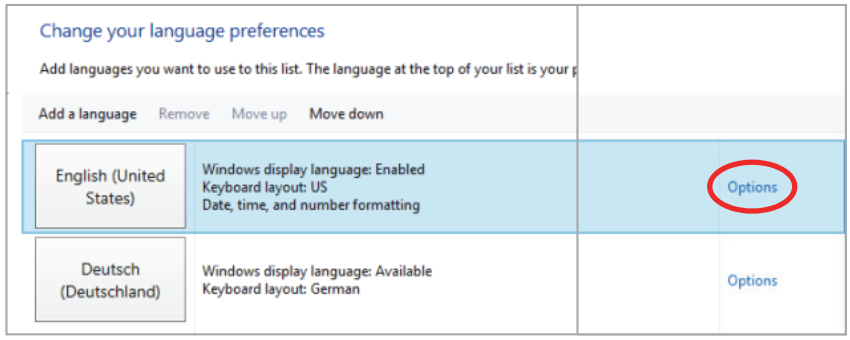
To modify the language displayed in Windows, follow these steps:

- Add the desired language.
- Define the desired languages as the primary language.

1. Double click on the Language icon and click "Install display languages" to open the selection menu.



2. Select a language and click "Next". The corresponding language pack is installed.
3. Open the Region and Language options, by right clicking **Start**, Control Panel and then Language.
4. Click Add a Language to access the selection menu. Select your language and click "Add".
5. By clicking on your country language and on Options you access the activation menu for the primary language.




6. Activate your language by clicking "Make this the primary language" and follow the instructions.

## Integrating the device into the network

It is best to have the following work performed by an administrator:

1. Assign the **G-ST** the intended IP address in order to integrate it into the network. Manual assignment of IP addresses is performed using the settings of the network card of the device.
2. Using the console command **PING**, check whether the device was integrated correctly into the network. You start the command window using right klick on **Start** → left klick on **Command prompt** → enter **PING + IP adress**.

In general, when assigning an IP address, make sure that the assigned address is in fact available and not already assigned to another network component.

# Managing I/O contacts

Using programmable and tamper-monitored digital inputs and outputs, contacts for event-controlled recording can be controlled. For example, using a contact the movement of a pan/tilt head can be triggered, a gate can be opened or an infrared light can be switched on.

Each input and output can be given a meaningful name and an additional description in the G-Set configuration software.

## Assigning contacts

### Digital inputs

The G-ST 3000+ has 16 control inputs, which are each equipped with an internal pull-up resistor with 1 kΩ to +5 V.

The control inputs are distributed onto two 25-pin Sub-D sockets (inputs 1-8 and 9-16). These are located on the back of the device.

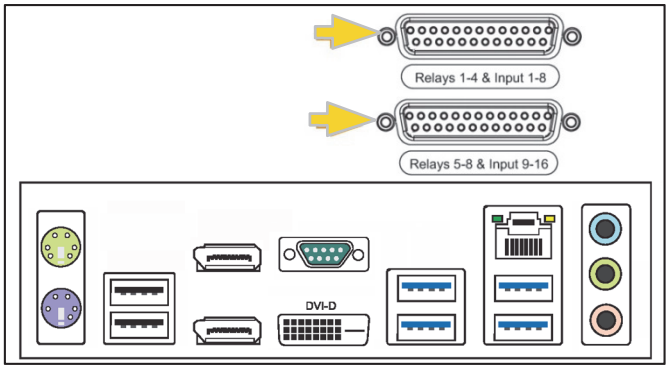



Figure 4: 25-pin Sub-D sockets

Contacts for event processing can be connected to the control inputs of the Sub-D sockets.

The event contacts can start or stop recording, for example, when a contact is opened or closed or in case of sabotage. The events are created and set up accordingly in the **G-Set** configuration software.

**Tamper monitoring**

To set up the tamper monitoring of contacts, follow these steps.

1. Define the foreseen contact as normally open.
2. Select the monitoring resistance so that the sum of monitoring resistance and line resistance is 510 ohm +/- 10%.

For tamper monitoring using quiescent current circuits, three different levels can be distinguished at the switch inputs:

| | |
|---|---|
| **Level 0:** | 0 to approx. 0.66 V |
| **Level 1:** | approx. 0.7 to approx. 1.5 V |
| **Level 2:** | approx. 1.6 V to 3.3 V |

The loop current monitoring is performed with a 470 Ω resistor at the end of the line.

***Warning!***

Please do not apply a power above the value of 3.3 V.

This may lead to damages!

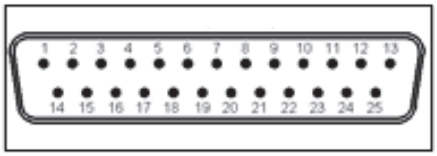
## Digital outputs

Each unit has four floating digital outputs. Like the digital inputs, these are distributed onto the 25-pin sub-D socket (relay 1-4).

Using the digital outputs, you can switch external devices, for example, to report system errors. The events are created and set up accordingly in the **G-Set** configuration software.

## Assignment of the 25-pin Sub-D sockets

The contacts can be soldered directly to the corresponding Sub-D plug. The assignment of the 25-pin Sub-D connectors is shown in the following figure.



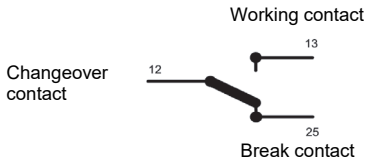




Figure: Assignment of the 25-pin Sub-D socket, solder-side

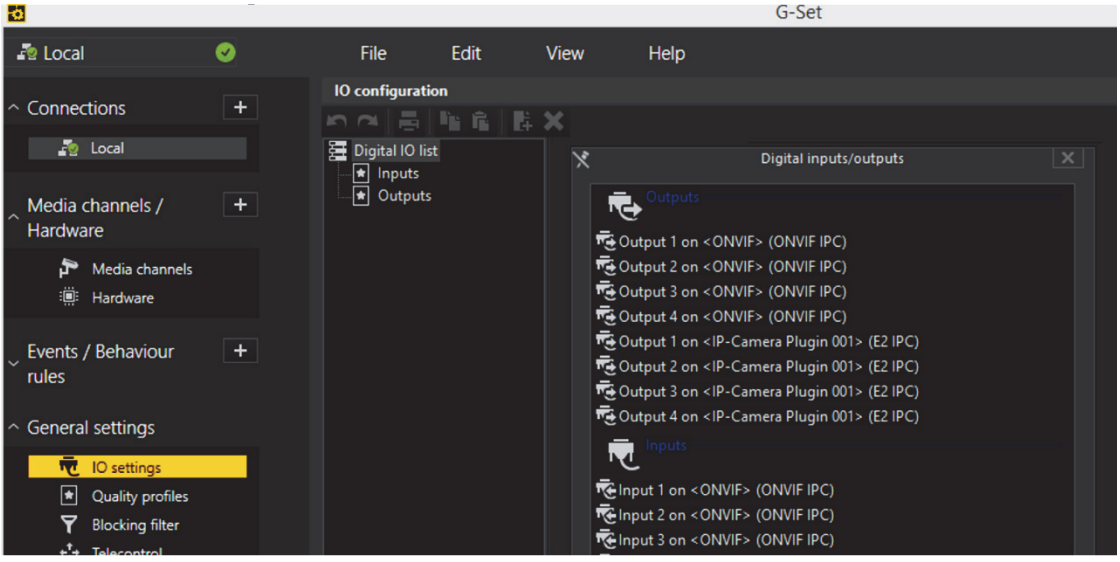
| Connection | | Signal | Socket 1 |
|---|---|---|---|
| | **13** | Normally open contact | Relay 4 |
| **25** | | Normally closed contact | |
| | **12** | Changeover contact | |
| **24** | | Normally open contact | Relay 3 |
| | **11** | Normally closed contact | |
| **23** | | Changeover contact | |
| | **10** | Normally open contact | Relay 2 |
| **22** | | Normally closed contact | |
| | **9** | Changeover contact | |
| **21** | | Normally open contact | Relay 1 |
| | **8** | Normally closed contact | |
| **20** | | Changeover contact | |
| | **7** | Ground | |
| **19** | | Switch input | 8 |
| | **6** | Switch input | 7 |
| **18** | | Ground | |
| | **5** | Switch input | 6 |
| **17** | | Switch input | 5 |
| | **4** | Ground | |
| **16** | | Switch input | 4 |
| | **3** | Switch input | 3 |
| **15** | | Ground | |
| | **2** | Switch input | 2 |
| **14** | | Switch input | 1 |
| | **1** | Ground | |

## Adding I/O contacts in G-Set

Similar to the cameras, I/O contacts must also be registered using the **G-Set** software. The I/O connections are displayed in the list of hardware modules. Configuration is performed in a separate view.

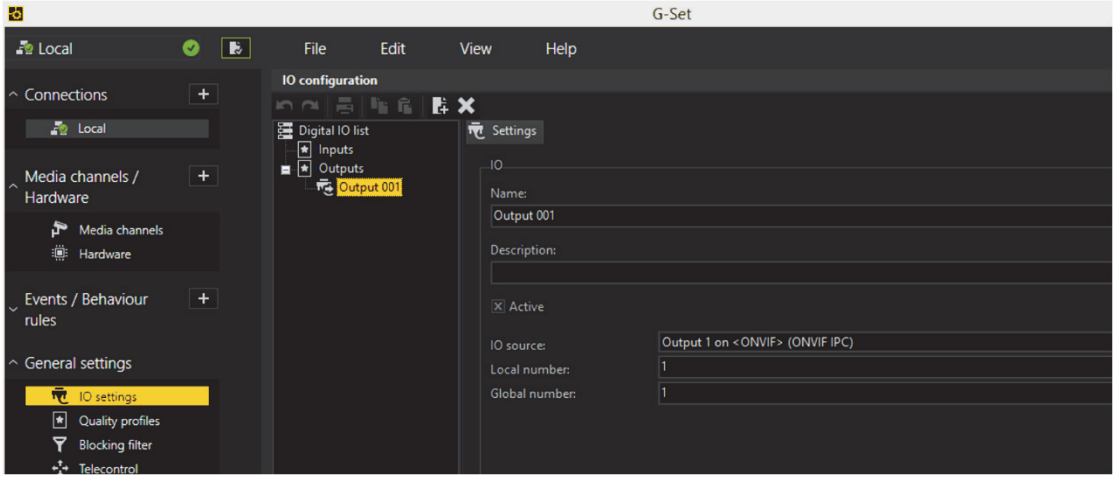
**Example**

1. In the **General Settings** section, select the entry **IO Settings**.
2. Using **Add**, open the list of I/O contacts.




The list also shows the I/O contacts.

3. Select the required inputs and outputs.
4. Assign for each required input and output contact a descriptive name and enter an additional description.



# Using other connections

## Analog Video Connections (optional)


Figure 5: AnalogKit-H16 BNC input sockets and Audio Line In

Connect FBAS cameras or other FBAS signal sources to the BNC input sockets of the video inputs "VID1", "VID2" etc.
Depending on the type of AnalogKit used they feature:

- **8 FBAS inputs on AnalogKit-H8 (Order-No. 1.02460)**
  **4 Audio Line In (3,5mm** audio jack**)**
- **16 FBAS inputs on AnalogKit-H16 /Art.-Nr. 1.02470)**
  **8 Audio Line In (3,5mm** audio jack**)**

## Connecting printers

Using the USB connections on the rear of the device, you can attach a suitable printer.

Figure 6: USB connections

Follow the installation instructions for the corresponding printer.

## Additional external connections

The following external connections are available on the rear of the device:

- **PS2-ports**

  PS2-Keyboard and Mouse can be connected to their PS2 port.

Figure 7: PS2 ports

- **USB (2.0 / 3.0)**

  External devices can be attached via the eight available USB ports (6 at back, 2 in front of the device).

Figure 8: USB ports (2x USB 2.0, 4x USB 3.0)

- **DisplayPort**

  Two Display Ports are available for connecting a PC monitor.

Figure 9: DisplayPort

- **DVI-D port**

  At the DVI-D port you can connect a DVI compatible monitor.

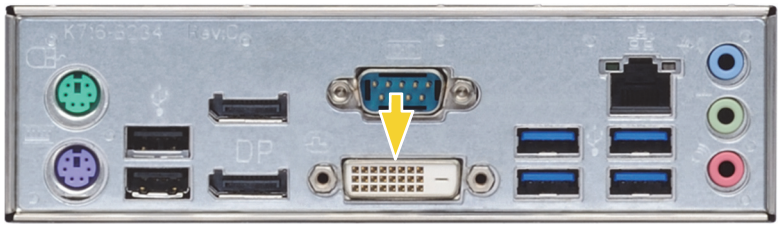


Figure 10: DVI-D

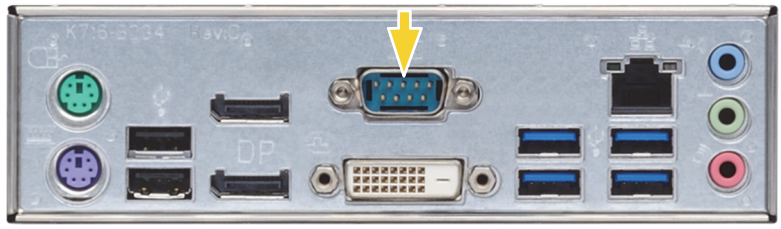
- **Audio**

  An audio source can be connected at the soundcard ports.


Figure 11: Audio connections

- **COM1**

  At the COM1 port, there is a RS-232 interface via a 9-pin Sub-D socket.



The 9-pin COM1 plugs are assigned by default as follows:

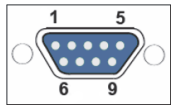



Figure 12: Pin assignment for COM1 connection – solder-side socket

| Pin | Function | Pin | Function | Pin | Function |
|---|---|---|---|---|---|
| 1 | JDCD | 4 | DTR | 7 | RTS |
| 2 | RxD | 5 | Signal ground (GND) | 8 | CTS |
| 3 | TxD | 6 | DSR | 9 | RI |

## Turning off the device

To turn off your G-ST, proceed in the following order:

1. Close all applications and click **Start** in the taskbar.
2. Select **Shut down** and press **OK**.

   The operating system will now shut down and all data will be stored.
3. Next, turn your device off completely with the **on/off switch** on the rear of the device.

# Resetting the system to factory settings

Recovery DVDs are provided with your device. This allows for the recovery of the software installed at delivery as well as the original settings.

Please note that the recovery process should only be carried out by qualified personnel, as all data on the C:\ drive will be overwritten!

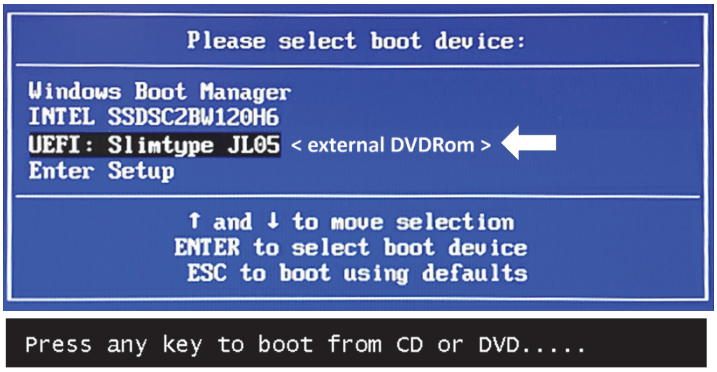
Back up your settings on an external disk beforehand.

The recovery image is assigned to the origin hardware (CPU, Windows licenses) of your G-ST. Subsequent modifications of the original hardware (such as CPU) are incompatible.

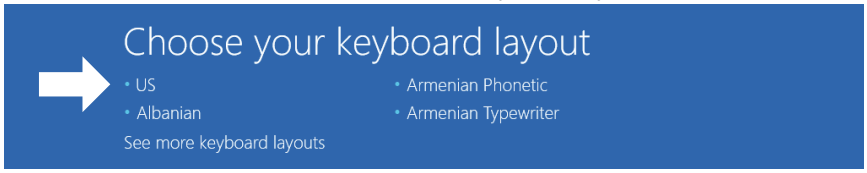
If you cannot access the Windows desktop or programs due to system problems, you can still start the recovery process.

To restore the device to factory settings, for example after a crash, please proceed as follows:

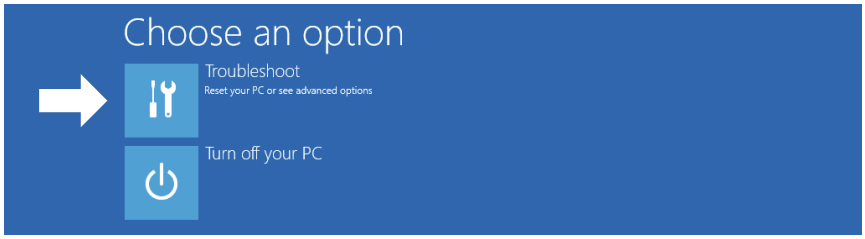
1. Connect the DVD drive to a USB socket in the machine according to the instructions provided by the manufacturer.
2. Switch on the device and place the recovery DVD into the DVD-ROM drive.
3. Now boot your G-ST from the recovery DVD. Start the PC, press a key (F11, F12…) for opening the Bios boot menus, and then select the appropriate boot device.



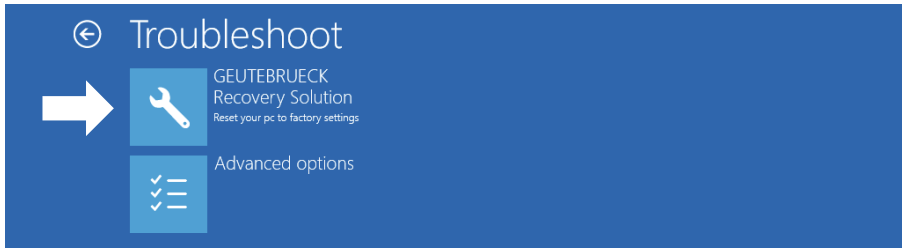

4. At the **Windows RE Tools** menus, select a keyboard layout, for example, **US**.



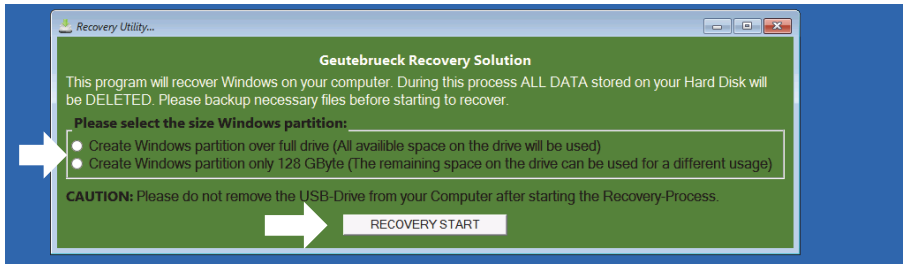

5. In the next menu click on the menu button "**Troubleshoot**"



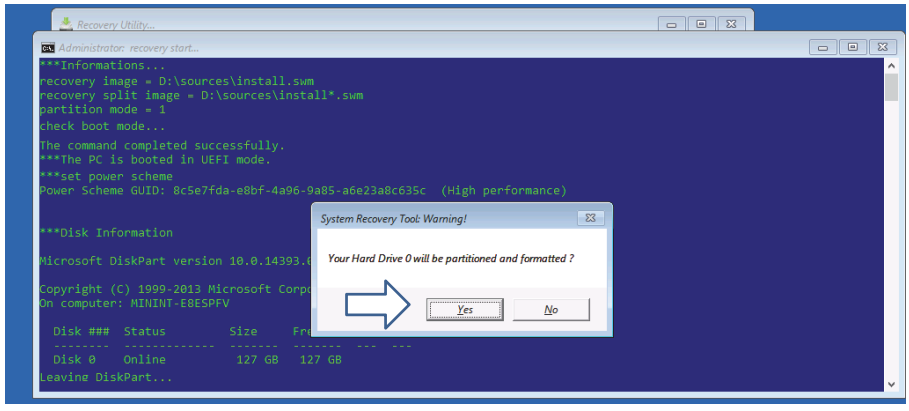
**6**. In the menu "**Troubleshoot**" click on the menu button
" **GEUTEBRUECK Recovery Solution "**.



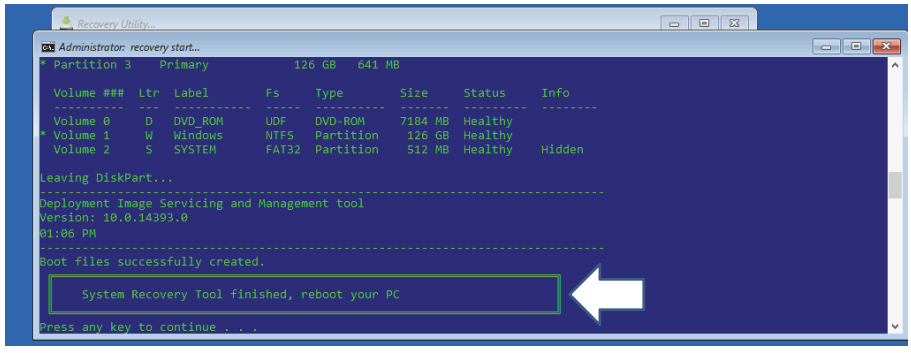

**7.** Select the size of the Windows partition, click **RECOVERY START**




**8.** Confirm disk partition by clicking **YES**.




Now the system recovery starts.
During the recovery process, the device may be rebooted several times.




Follow the instructions till the recovery is completed and your system restarts.

# Appendix

## Technical data

| | |
|---|---|
| **Audio sources** | |
| Audio inputs (analog) | 1 x stereo (system audio)<br>Sampling rates: 32 kHz, 44,1 kHz and 48 kHz, 16 bit |
| **Video & audio (output)** | |
| Video outputs | DVI-D, 2 x Display Port |
| Audio outputs | 1 x stereo (line out, phone jack, 3.5 mm) |
| **Interfaces** | |
| Control inputs | 16 internal floating input contacts, tamper-monitored (switchable) |
| Relay outputs | 8 internal relay outputs, 24 V DC, 1 A |
| Serial | 1 x serial interface (RS-232) expandable with additional card<br>to 4 x RS-232 (e.g., for remote camera control) |
| USB | 4 x USB 3.0, 2 x USB 2.0 (rear) / 2 x USB 3.0 (front) |
| Ethernet | 1 x Ethernet 10/100/1000 base-TX interface, expandable with additional card |
| PC keyboard, mouse | USB ports on the back of the unit / alternative PS/2 |
| **Storage media** | |
| Internal | 1 x 128 GB SSD for the operating system and the SQL database<br>Optional: 4 x 3.5" HDD for the image database in standard disk retainer |
| **General** | |
| Operating system | Windows 10 IoT Enterprise Embedded (64 Bit) |
| Processor | INTEL Core i3 inside or better |
| Main memory | 2 x 4 GB DDR4 RAM |
| Voltage supply | Power supply unit: 110 - 240 V AC / 60 - 50 Hz ±10%, 300 W |
| Power consumption | Approx. 210 W fully equipped (1x SSD, 4 x HDD) / Approx. 140 W (1 x SSD, 1x HDD) |
| Power input | IEC connector according to IEC 320 C13 |
| Ambient temperature | max. 4HDD 0 °C to + 35 °C / max. 2HDD 0 °C to + 40 °C |
| Dimensions in mm:<br>as 19" installation unit<br>as a desktop unit | <br>3 U x 415 mm (depth)<br>443 x 140 x 436 (W x H x D) incl. pedestals and front cover |
| Weight | Approx. 11.6 kg net (1x SSD, 1x HDD) |
| **Order no.** | **0.60300** |

GEUTEBRÜCK

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Technische Änderungen vorbehalten.

Technical alterations reserved.

Sous réserve des modifications.

Suministro sujeto a modificaciones técnicas o disponibilidad.

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