

# Rexroth VSB 40.1

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Project Planning Manual



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# 1 System Presentation

## 1.1 Brief Description VSB 40.1

The VSB 40.1 is an industrial PC, that represents in combination with a display VDP 16, VDP 40 or VDP 60 a PC-based operator terminal, and that can – depending on the application or configuration – also perform control functionalities.



Fig. 1-1: VSB 40.1

The VSB 40.1 is connected with the operator panel interface GIGASTAR of the display VDP 16, VDP 40 or VDP 60 via a cable with a length of up to 30 m. Thus, the VSB 40.1 can be installed in the control cabinet and the display in its door or at the machine.

All components of the VSB including the hard disk and the power supply unit are accommodated in the so-called PC box. The PC box provides six PCI slots at the slots A1 to A6.

The plugboard is equipped with the PC standard interfaces. A plug-in card providing the GIGASTAR interface is inserted at slot A0.

Optionally, the VSB 40.1 can be equipped with a CD ROM drive or a DVD/CD-RW drive.

## 1.2 Operating System

For license reasons the VSB 40.1 devices are only delivered with already installed operating system.

## 1.3 Commissioning

Mount the device properly (for this, see chapter "Dimensions and Installation Notes as of page 5-1). Then, connect the device to the power supply and, if required, to the network.



## 2 Important Directions for Use

### 2.1 Appropriate Use

#### Introduction

Bosch Rexroth products represent state-of-the-art developments and manufacturing. They are tested prior to delivery to ensure operating safety and reliability.

The products may only be used in the manner that is defined as appropriate. If they are used in an inappropriate manner, then situations can develop that may lead to property damage or injury to personnel.

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**Note:** Bosch Rexroth, as manufacturer, is not liable for any damages resulting from inappropriate use. In such cases, the guarantee and the right to payment of damages resulting from inappropriate use are forfeited. The user alone carries all responsibility of the risks.

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Before using Bosch Rexroth products, make sure that all the prerequisites for appropriate use of the products are satisfied:

- Personnel that in any way, shape or form uses our products must first read and understand the relevant safety instructions and be familiar with appropriate use.
- If the product takes the form of hardware, then they must remain in their original state, in other words, no structural changes are permitted. It is not permitted to decompile software products or alter source codes.
- Do not mount damaged or faulty products or use them in operation.
- Make sure that the products have been installed in the manner described in the relevant documentation.

## Areas of Use and Application

VSB 40.1-type devices of Bosch Rexroth are industrial PCs, that represent in combination with a display VDP 16, VDP 40 or VDP 60 a PC-based operator terminal, that can – depending on the application or configuration – also perform control functionalities.

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**Note:** The VSB 40.1 may only be used with the accessories and parts specified in this document. If a component has not been specifically named, then it may not be either mounted or connected. The same applies to cables and lines.

Operation is only permitted in the specified configurations and combinations of components using the software and firmware as specified in the relevant function descriptions.

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Typical applications of the VSB 40.1 are:

- Handling and assembly systems,
- Packaging and foodstuff machines,
- Printing and paper processing machines,
- Machine tools,
- Wood working machines.

The VSB 40.1 may only be operated under the assembly, installation and ambient conditions as described here (temperature, system of protection, humidity, EMC requirements, etc.) and in the position specified.

## 2.2 Inappropriate Use

Using the VSB 40.1 outside of the above-referenced areas of application or under operating conditions other than described in the document and the technical data specified is defined as "inappropriate use".

The VSP 40.1 may not be used, if

- they are subject to operating conditions that do not meet the above specified ambient conditions. This includes, for example, operation under water, in the case of extreme temperature fluctuations or extremely high maximum temperatures or if
- Bosch Rexroth has not specifically released them for that intended purpose. Please note the specifications outlined in the general Safety Guidelines!

### 3 Safety Instructions for Electric Drives and Controls

#### 3.1 Introduction

Read these instructions before the initial startup of the equipment in order to eliminate the risk of bodily harm or material damage. Follow these safety instructions at all times.

Do not attempt to install or start up this equipment without first reading all documentation provided with the product. Read and understand these safety instructions and all user documentation of the equipment prior to working with the equipment at any time. If you do not have the user documentation for your equipment, contact your local Bosch Rexroth representative to send this documentation immediately to the person or persons responsible for the safe operation of this equipment.

If the equipment is resold, rented or transferred or passed on to others, then these safety instructions must be delivered with the equipment.



**WARNING**

**Improper use of this equipment, failure to follow the safety instructions in this document or tampering with the product, including disabling of safety devices, may result in material damage, bodily harm, electric shock or even death!**

#### 3.2 Explanations

The safety instructions describe the following degrees of hazard seriousness in compliance with ANSI Z535. The degree of hazard seriousness informs about the consequences resulting from non-compliance with the safety instructions.




Warning symbol with signal word	Degree of hazard seriousness according to ANSI
 <b>DANGER</b>	Death or severe bodily harm will occur.
 <b>WARNING</b>	Death or severe bodily harm may occur.
 <b>CAUTION</b>	Bodily harm or material damage may occur.

Fig. 3-1: Hazard classification (according to ANSI Z535)

### 3.3 Hazards by Improper Use



**DANGER**

**High voltage and high discharge current!  
Danger to life or severe bodily harm by electric shock!**

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**DANGER**

**Dangerous movements! Danger to life, severe bodily harm or material damage by unintentional motor movements!**

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**WARNING**

**High electrical voltage due to wrong connections! Danger to life or bodily harm by electric shock!**

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**WARNING**

**Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!**

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**CAUTION**

**Surface of machine housing could be extremely hot! Danger of injury! Danger of burns!**

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**CAUTION**

**Risk of injury due to improper handling! Bodily harm caused by crushing, shearing, cutting and mechanical shock or incorrect handling of pressurized systems!**

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**CAUTION**

**Risk of injury due to incorrect handling of batteries!**

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## 3.4 General Information

- Bosch Rexroth AG is not liable for damages resulting from failure to observe the warnings provided in this documentation.
- Read the operating, maintenance and safety instructions in your language before starting up the machine. If you find that you cannot completely understand the documentation for your product, please ask your supplier to clarify.
- Proper and correct transport, storage, assembly and installation as well as care in operation and maintenance are prerequisites for optimal and safe operation of this equipment.
- Only persons who are trained and qualified for the use and operation of the equipment may work on this equipment or within its proximity.
  - The persons are qualified if they have sufficient knowledge of the assembly, installation and operation of the equipment as well as an understanding of all warnings and precautionary measures noted in these instructions.
  - Furthermore, they must be trained, instructed and qualified to switch electrical circuits and equipment on and off in accordance with technical safety regulations, to ground them and to mark them according to the requirements of safe work practices. They must have adequate safety equipment and be trained in first aid.
- Only use spare parts and accessories approved by the manufacturer.
- Follow all safety regulations and requirements for the specific application as practiced in the country of use.
- The equipment is designed for installation in industrial machinery.
- The ambient conditions given in the product documentation must be observed.
- Use only safety features and applications that are clearly and explicitly approved in the Project Planning Manual. If this is not the case, they are excluded.

The following areas of use and application, for example, include safety features and applications: construction cranes, elevators used for people or freight, devices and vehicles to transport people, medical applications, refinery plants, transport of hazardous goods, nuclear applications, applications in which electrical devices with vital functions can be electromagnetically disturbed, mining, food processing, control of protection equipment (also in a machine).
- The information given in the documentation of the product with regard to the use of the delivered components contains only examples of applications and suggestions.

The machine and installation manufacturer must

  - make sure that the delivered components are suited for his individual application and check the information given in this documentation with regard to the use of the components,
  - make sure that his application complies with the applicable safety regulations and standards and carry out the required measures, modifications and complements.
- Startup of the delivered components is only permitted once it is sure that the machine or installation in which they are installed complies with the national regulations, safety specifications and standards of the application.
- Technical data, connections and operational conditions are specified in the product documentation and must be followed at all times.

- Operation is only permitted if the national EMC regulations for the application are met.  
The instructions for installation in accordance with EMC requirements can be found in the documentation "EMC in Drive and Control Systems".  
The machine or installation manufacturer is responsible for compliance with the limiting values as prescribed in the national regulations.

## 3.5 Protection Against Contact with Electrical Parts

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**Note:** This section refers to equipment and drive components with voltages above 50 Volts.

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Touching live parts with voltages of 50 Volts and more with bare hands or conductive tools or touching ungrounded housings can be dangerous and cause electric shock. In order to operate electrical equipment, certain parts must unavoidably have dangerous voltages applied to them.

---



**DANGER**

### High electrical voltage! Danger to life, severe bodily harm by electric shock!

- ⇒ Only those trained and qualified to work with or on electrical equipment are permitted to operate, maintain or repair this equipment.
  - ⇒ Follow general construction and safety regulations when working on high voltage installations.
  - ⇒ Before switching on power the ground wire must be permanently connected to all electrical units according to the connection diagram.
  - ⇒ Do not operate electrical equipment at any time, even for brief measurements or tests, if the ground wire is not permanently connected to the points of the components provided for this purpose.
  - ⇒ Before working with electrical parts with voltage higher than 50 V, the equipment must be disconnected from the mains voltage or power supply. Make sure the equipment cannot be switched on again unintended.
  - ⇒ The following should be observed with electrical drive and filter components:
    - ⇒ Wait thirty (30) minutes after switching off power to allow capacitors to discharge before beginning to work. Measure the voltage on the capacitors before beginning to work to make sure that the equipment is safe to touch.
    - ⇒ Never touch the electrical connection points of a component while power is turned on.
    - ⇒ Install the covers and guards provided with the equipment properly before switching the equipment on. Prevent contact with live parts at any time.
    - ⇒ A residual-current-operated protective device (RCD) must not be used on electric drives! Indirect contact must be prevented by other means, for example, by an overcurrent protective device.
    - ⇒ Electrical components with exposed live parts and uncovered high voltage terminals must be installed in a protective housing, for example, in a control cabinet.
-

To be observed with electrical drive and filter components:



**DANGER**

**High electrical voltage on the housing!  
High leakage current! Danger to life, danger of  
injury by electric shock!**

- ⇒ Connect the electrical equipment, the housings of all electrical units and motors permanently with the safety conductor at the ground points before power is switched on. Look at the connection diagram. This is even necessary for brief tests.
- ⇒ Connect the safety conductor of the electrical equipment always permanently and firmly to the supply mains. Leakage current exceeds 3.5 mA in normal operation.
- ⇒ Use a copper conductor with at least 10 mm<sup>2</sup> cross section over its entire course for this safety conductor connection!
- ⇒ Prior to startups, even for brief tests, always connect the protective conductor or connect with ground wire. Otherwise, high voltages can occur on the housing that lead to electric shock.

### 3.6 Protection Against Electric Shock by Protective Low Voltage (PELV)

All connections and terminals with voltages between 0 and 50 Volts on Rexroth products are protective low voltages designed in accordance with international standards on electrical safety.



**WARNING**

**High electrical voltage due to wrong  
connections! Danger to life, bodily harm by  
electric shock!**

- ⇒ Only connect equipment, electrical components and cables of the protective low voltage type (PELV = Protective Extra Low Voltage) to all terminals and clamps with voltages of 0 to 50 Volts.
- ⇒ Only electrical circuits may be connected which are safely isolated against high voltage circuits. Safe isolation is achieved, for example, with an isolating transformer, an opto-electronic coupler or when battery-operated.

## 3.7 Protection Against Dangerous Movements

Dangerous movements can be caused by faulty control of the connected motors. Some common examples are:

- improper or wrong wiring of cable connections
- incorrect operation of the equipment components
- wrong input of parameters before operation
- malfunction of sensors, encoders and monitoring devices
- defective components
- software or firmware errors

Dangerous movements can occur immediately after equipment is switched on or even after an unspecified time of trouble-free operation.

The monitoring in the drive components will normally be sufficient to avoid faulty operation in the connected drives. Regarding personal safety, especially the danger of bodily injury and material damage, this alone cannot be relied upon to ensure complete safety. Until the integrated monitoring functions become effective, it must be assumed in any case that faulty drive movements will occur. The extent of faulty drive movements depends upon the type of control and the state of operation.



### **Dangerous movements! Danger to life, risk of injury, severe bodily harm or material damage!**

- ⇒ Ensure personal safety by means of qualified and tested higher-level monitoring devices or measures integrated in the installation. Unintended machine motion is possible if monitoring devices are disabled, bypassed or not activated.
- ⇒ Pay attention to unintended machine motion or other malfunction in any mode of operation.
- ⇒ Keep free and clear of the machine's range of motion and moving parts. Possible measures to prevent people from accidentally entering the machine's range of motion:
  - use safety fences
  - use safety guards
  - use protective coverings
  - install light curtains or light barriers
- ⇒ Fences and coverings must be strong enough to resist maximum possible momentum, especially if there is a possibility of loose parts flying off.
- ⇒ Mount the emergency stop switch in the immediate reach of the operator. Verify that the emergency stop works before startup. Don't operate the machine if the emergency stop is not working.
- ⇒ Isolate the drive power connection by means of an emergency stop circuit or use a starting lockout to prevent unintentional start.
- ⇒ Make sure that the drives are brought to a safe standstill before accessing or entering the danger zone. Safe standstill can be achieved by switching off the power supply contactor or by safe mechanical locking of moving parts.



- ⇒ Secure vertical axes against falling or dropping after switching off the motor power by, for example:
  - mechanically securing the vertical axes
  - adding an external braking/ arrester/ clamping mechanism
  - ensuring sufficient equilibration of the vertical axes
 The standard equipment motor brake or an external brake controlled directly by the drive controller are not sufficient to guarantee personal safety!
- ⇒ Disconnect electrical power to the equipment using a master switch and secure the switch against reconnection for:
  - maintenance and repair work
  - cleaning of equipment
  - long periods of discontinued equipment use
- ⇒ Prevent the operation of high-frequency, remote control and radio equipment near electronics circuits and supply leads. If the use of such equipment cannot be avoided, verify the system and the installation for possible malfunctions in all possible positions of normal use before initial startup. If necessary, perform a special electromagnetic compatibility (EMC) test on the installation.

### 3.8 Protection Against Magnetic and Electromagnetic Fields During Operation and Mounting

Magnetic and electromagnetic fields generated near current-carrying conductors and permanent magnets in motors represent a serious health hazard to persons with heart pacemakers, metal implants and hearing aids.



**WARNING**

#### **Health hazard for persons with heart pacemakers, metal implants and hearing aids in proximity to electrical equipment!**

- ⇒ Persons with heart pacemakers, hearing aids and metal implants are not permitted to enter the following areas:
  - Areas in which electrical equipment and parts are mounted, being operated or started up.
  - Areas in which parts of motors with permanent magnets are being stored, operated, repaired or mounted.
- ⇒ If it is necessary for a person with a heart pacemaker to enter such an area, then a doctor must be consulted prior to doing so. Heart pacemakers that are already implanted or will be implanted in the future, have a considerable variation in their electrical noise immunity. Therefore there are no rules with general validity.
- ⇒ Persons with hearing aids, metal implants or metal pieces must consult a doctor before they enter the areas described above. Otherwise, health hazards will occur.

### 3.9 Protection Against Contact with Hot Parts



CAUTION

**Housing surfaces could be extremely hot!  
Danger of injury! Danger of burns!**

- ⇒ Do not touch housing surfaces near sources of heat! Danger of burns!
- ⇒ After switching the equipment off, wait at least ten (10) minutes to allow it to cool down before touching it.
- ⇒ Do not touch hot parts of the equipment, such as housings with integrated heat sinks and resistors. Danger of burns!

### 3.10 Protection During Handling and Mounting

Under certain conditions, incorrect handling and mounting of parts and components may cause injuries.



CAUTION

**Risk of injury by incorrect handling! Bodily harm caused by crushing, shearing, cutting and mechanical shock!**

- ⇒ Observe general installation and safety instructions with regard to handling and mounting.
- ⇒ Use appropriate mounting and transport equipment.
- ⇒ Take precautions to avoid pinching and crushing.
- ⇒ Use only appropriate tools. If specified by the product documentation, special tools must be used.
- ⇒ Use lifting devices and tools correctly and safely.
- ⇒ For safe protection wear appropriate protective clothing, e.g. safety glasses, safety shoes and safety gloves.
- ⇒ Never stand under suspended loads.
- ⇒ Clean up liquids from the floor immediately to prevent slipping.

### 3.11 Battery Safety

Batteries contain reactive chemicals in a solid housing. Inappropriate handling may result in injuries or material damage.



**CAUTION**

#### **Risk of injury by incorrect handling!**

- ⇒ Do not attempt to reactivate discharged batteries by heating or other methods (danger of explosion and cauterization).
- ⇒ Never charge non-chargeable batteries (danger of leakage and explosion).
- ⇒ Never throw batteries into a fire.
- ⇒ Do not dismantle batteries.
- ⇒ Do not damage electrical components installed in the equipment.

**Note:** Be aware of environmental protection and disposal! The batteries contained in the product should be considered as hazardous material for land, air and sea transport in the sense of the legal requirements (danger of explosion). Dispose batteries separately from other waste. Observe the legal requirements in the country of installation.

### 3.12 Protection Against Pressurized Systems

Certain motors and drive controllers, corresponding to the information in the respective Project Planning Manual, must be provided with pressurized media, such as compressed air, hydraulic oil, cooling fluid and cooling lubricant supplied by external systems. Incorrect handling of the supply and connections of pressurized systems can lead to injuries or accidents. In these cases, improper handling of external supply systems, supply lines or connections can cause injuries or material damage.



**CAUTION**

#### **Danger of injury by incorrect handling of pressurized systems !**

- ⇒ Do not attempt to disassemble, to open or to cut a pressurized system (danger of explosion).
- ⇒ Observe the operation instructions of the respective manufacturer.
- ⇒ Before disassembling pressurized systems, release pressure and drain off the fluid or gas.
- ⇒ Use suitable protective clothing (for example safety glasses, safety shoes and safety gloves)
- ⇒ Remove any fluid that has leaked out onto the floor immediately.

**Note:** Environmental protection and disposal! The media used in the operation of the pressurized system equipment may not be environmentally compatible. Media that are damaging the environment must be disposed separately from normal waste. Observe the legal requirements in the country of installation.

## Notes

## 4 Technical Data

### 4.1 PC Box

PC box	Type E	
Processor	Celeron with minimum 2 GHz	
Chip set	Integrated graphic controller with maximum 8 MB video memory	
Main memory	512 MB	
Hard disk	Min. 20 GB	
Optional drives	CD ROM or DVD/CD RW	
Interfaces	<ul style="list-style-type: none"> <li>• 1 x GIGASTAR (25-pin, D-Sub)</li> <li>• 1 x parallel interface (25-pin, D-Sub)</li> <li>• 1 x VGA connection (15-pin, HD-Sub)</li> <li>• 2 x USB connection (type A)</li> <li>• 1 x Ethernet connection (RJ 45, 10/100 Base-T)</li> <li>• 1 x keyboard connection (PS/2)</li> <li>• 1 x mouse connection (PS/2)</li> <li>• 1 x serial standard interface RS232 (9-pin, D-Sub) <sup>1</sup></li> </ul>	
Slots	6 x PCI	
Power supply	90 ... 264 VAC	19...32 VDC
Max. power consumption	330 W (for 230 VAC)	380 W (for 19 VDC)
Degree of protection	PC box IP 00	

Fig. 4-1: Technical data: PC box

<sup>1</sup> This interface is used for the optionally available external UPS and is then no longer available to connect other devices.

## 4.2 Power Supply 115 V / 230 V

Nominal input voltage:	115 VAC / 230 VAC		
Input voltage range:	90 ... 264 VAC		
Input current:	2.5 A for nominal voltage 230 VAC 5.0 A for nominal voltage 115 VAC		
Inrush current:	100 A for 264 VAC		
Output voltages:	Current		Tolerances
	Min.	Max.	
+3.3 V	0.5 A	20 A	+/- 5 %
+5 V	0.5 A	25 A	+/- 5 %
+12 V	1.0 A	10 A	+/- 5 %
-12 V	0 A	0.8 A	+/-10 %
+5 V SB	0 A	2.0 A	+/- 5 %
Max. Output power:	250 W*		
Efficiency (under full load):	0.73 for 115 VAC, 0.76 for 230 VAC		

\*) Note: During specifying the maximum output currents please observe that the currents separately considered are the maximum possible currents of the respective output voltage. However, it is not possible to create the maximum current from all output voltages, as the maximum total output power (= 250 W) must not be exceeded. In addition, the maximum power at +3.3 V together with +5 V must not exceed 150 W or 33 A.

Fig. 4-2: Technical data of the power supply unit 115 V / 230 V

## 4.3 Power Supply Unit 24 V

Nominal input voltage:	24 VDC		
Input voltage range:	19 ... 32 VDC		
Input current:	20 A for 19 VDC		
Inrush current:	5 A		
Output voltages:	Current		Tolerances
	Min.	Max.	
+3.3 V	0 A	15 A	+ 2.93 V ... +3.40 V
+5 V	2 A	30 A	+4.80 V ... + 5.20 V
+12 V	0.1 A	15 A	+ 11.4 V ... + 12.6 V
-12 V	0 A	2.0 A	- 11.4 V ... - 12.6 V
-5 V	0 A	2.0 A	- 4.75 V ... - 5.25 V
+5 V SB	0 A	1.2 A	+ 4.75 V ... + 5.25 V
Max. output power:	300 W*		
Efficiency (under full load):	> 0,65		

\*) Note: During specifying the maximum output currents please observe that the currents separately considered are the maximum possible currents of the respective output voltage. However, it is not possible to create the maximum current from all output voltages, as the maximum total output power (= 300 W) must not be exceeded. In addition, the maximum power at +3.3 V together with +5 V must not exceed 150 W.

Fig. 4-3: Technical data of the power supply unit 24 V

## 4.4 Ambient Conditions

	In operation	Storage/Transport
Max. ambient temperature (surrounding air temperature) <u>Exception:</u> 230 V – UPS (see chapter 8.3)	+5 °C... +45 °C +0 °C... +40 °C	-20 °C to +60 °C +0 °C to +40 °C
Max. temperature gradient	Temporal temperature changes up to 3 °C per minute	Not defined
Relative humidity	Climatic class 3K3 according to EN 60721, condensation not permissible.	Climatic class 3K3 according to EN 60721, condensation not permissible.
Air pressure	Up to 2,000 m above MSL according to DIN 60204	
Mechanical strength	Max. vibration: Frequency range: 10...150 Hz Excursion: 0.025 mm for 10 ... 57 Hz Acceleration: 0.25 g for 57 ... 150 Hz According to EN 60068-2-6	Max. shock: 5 g according to DIN IEC 68-2-27, no disturbance of the function

Fig. 4-4: Ambient conditions

## 4.5 Used Standards

The system components of the industrial PCs correspond to the following standards:

### EN Standards

Standard	Meaning
EN 60 204-1	Electrical equipment of machines
EN 50 081-2	Basic technical standard, emitted interference (industrial environment)
EN 50 082-2	Basic technical standard, noise immunity (industrial environment)
EN 60 742	Transformer for 24 V power supply unit, protective separation
EN 60 950	Overvoltage category II
EN 61 131	Requirements concerning the 24 V outputs
EN 61 131-2	Requirements concerning the 24 power supply
EN 418	Machine safety, EMERGENCY STOP devices
EN 60 529	Degrees of protection (incl. housings and installation compartments)
EN 60 068-2-6	Vibration test
EN 60 068-2-27	Shock test

Fig. 4-5: Used standards

### CE Marking

**Note:** Concerning delivered VSB 40.1 devices all CE requirements are fulfilled. After plugging-in extension cards, however, a new CE test has to be executed.

**UL/CSA Certification** The devices of the VSB family are basically certificated according to



- **UL508** (Industrial Control Equipment) and
- **C22.2 No. 14-M95** (CSA)

However, it is possible that there are combinations or extension stages with restricted or missing certification. Thus, verify the registration according to the UL marking on the device.

**Note:** To guarantee an UL/CSA-compliant operation, you have to fulfill the following conditions:

- Use 60/75 °C copper wire only.
- Use Class 1 wire only or equivalent.

**Note:** The UL/CSA marking is only valid for the device in its delivery status. After having modified the device, e. g. after plugging-in additional extension cards, the UL compliancy has to be verified.

## 4.6 Wear Parts

**Wear parts without warranty** CMOS battery: 5 to 7 years

- The **hard disk** is an electromechanic wear part, that has to be changed during the operating time. According to the manufacturer's specifications the hard disk has been developed for a service life of 60 months in consideration of the following conditions:

Operating hours / month		Max. 720
Input/output cycles / month		833
Operating conditions	Temperature	< 60 °C
	Rel. humidity	< 90 %
	Height	< 3,000 m
	Accesses	50 % of the operating hours
Storage conditions	Temperature	< 70 °C
	Rel. humidity	< 95 %
	Duration	< 3 months

Fig. 4-6: Typical operating and storage conditions of the hard disk

The operation out of this typical conditions is permissible, whereby, however, the service life of the hard disk may be reduced. However, the ambient conditions specified for the overall device in chapter 4.4 have to be absolutely kept.

- **Fans** are mechanic wear components, whose service life is extremely temperature-dependent. For the fan integrated in the housing the manufacturer specifies the following service life:

Ambient temperature (surrounding air temperature)	Service life
40 °C	70,000 hours
70 °C	35,000 hours

Fig. 4-7: Service life of the fan



## 4.7 Compatibility Test

All Rexroth controls and drives are developed and tested according to the latest state-of-the-art.

As it is impossible to follow the continuing development of all materials (e.g. lubricants in machine tools) which may interact with our controls and drives, it cannot be completely ruled out that any reactions with the materials used by Bosch Rexroth might occur.

For that reason, test new lubricants, cleaning agents, etc. for compatibility with our housings / our housing materials before using the particular material concerned.



## 5 Dimensions and Installation Notes

To meet the various installation requirements, the VSB 40.1 equipped with an optional drive is available as different variants. Depending on the provided clearance for the opening drive, select the VSB 40.1 as variant NN (see Fig. 5-1) or as variant LS (see Fig. 5-2) with the drive in connector direction (position 12 of type code on page 10-1).

For safe mounting of the VSB 40.1 in variant NN, e. g. in a control cabinet two times four fastening holes are provided at the integrated mounting brackets, so that the VSB 40.1 can be horizontally or vertically mounted. The VSB 40.1 as variant LS with drive in connector direction has four mounting holes.

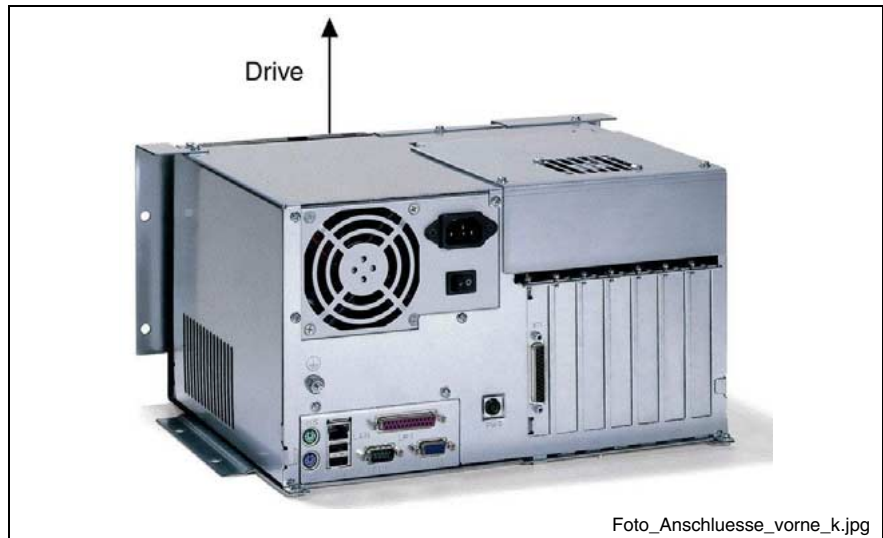


Fig. 5-1: VSB 40.1 as variant NN

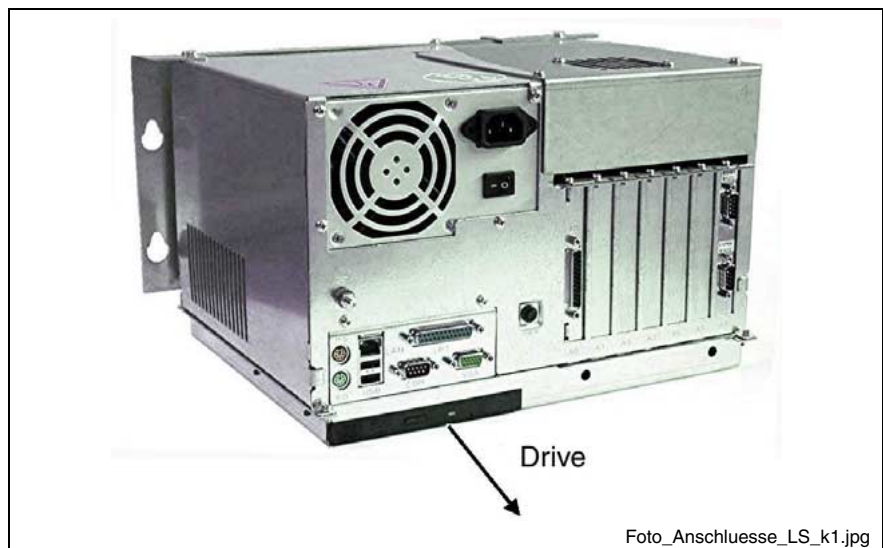


Fig. 5-2: VSB 40.1 as variant LS (drive in connector direction)

Each horizontal and vertical mounting direction is permissible. However, Bosch Rexroth recommends the mounting directions illustrated below.

For all mounting positions observe the required clearance for connectors and cables as well as for the opened drive. To ensure sufficient cooling of the VSB 40.1, provide a minimum clearance of 50 mm.

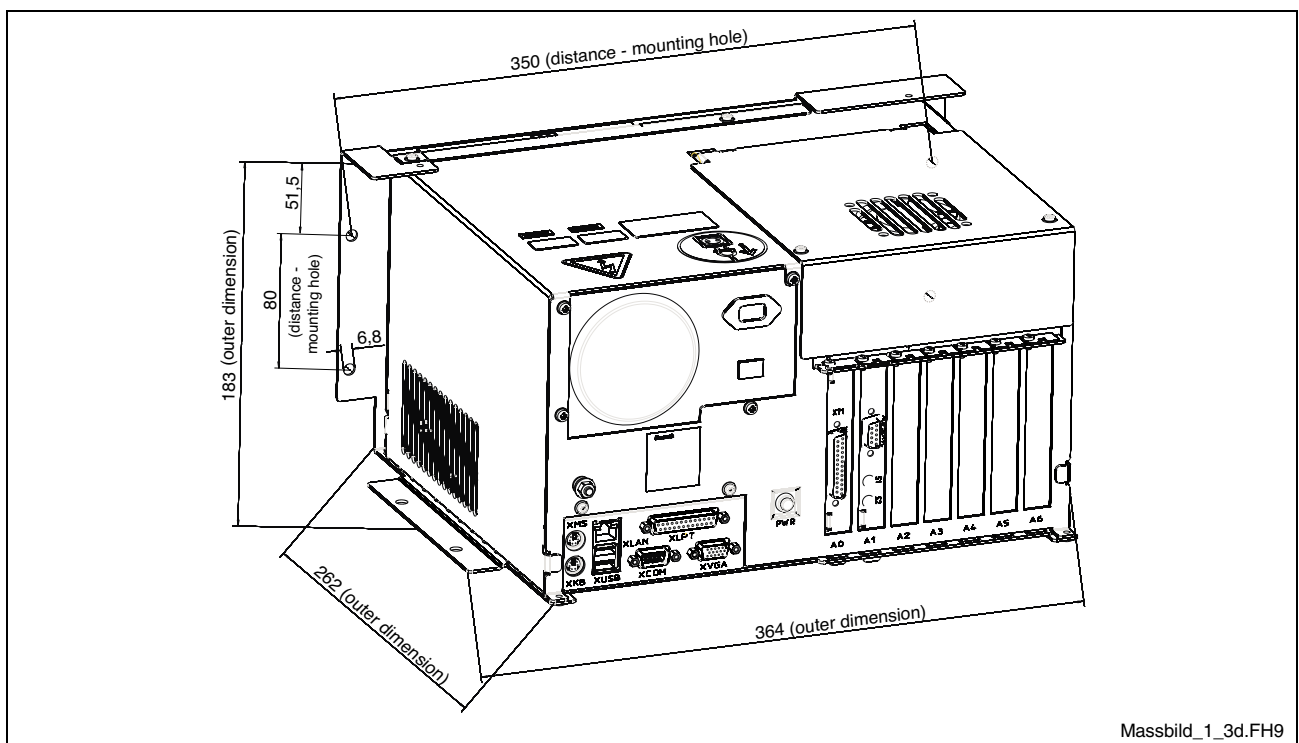
## 5.1 Mounting the VSB 40.1, Variant NN

### Mounting with Connector Panel in Forward Direction



Foto\_Anschluesse\_vorne.tif

Fig. 5-3: Connector panel in forward direction, optional drive at the top



Massbild\_1\_3d.FH9

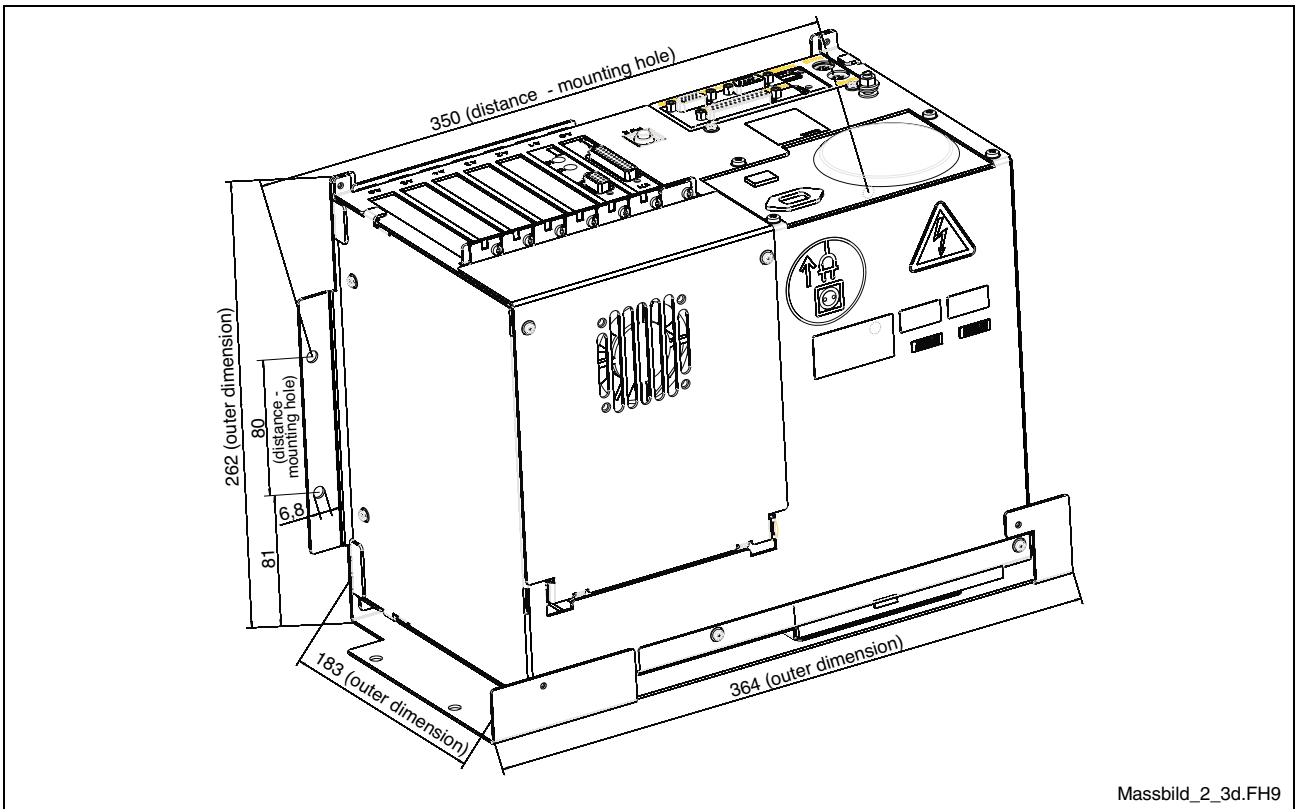
Fig. 5-4: Dimension when mounting the connector panel in forward direction

### Mounting with Connector Panel on the Top Side



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Fig. 5-5: Connector panel on the top side, optional drive in forward direction



Massbild\_2\_3d.FH9

Fig. 5-6: Dimension when mounting the connector panel on the top side

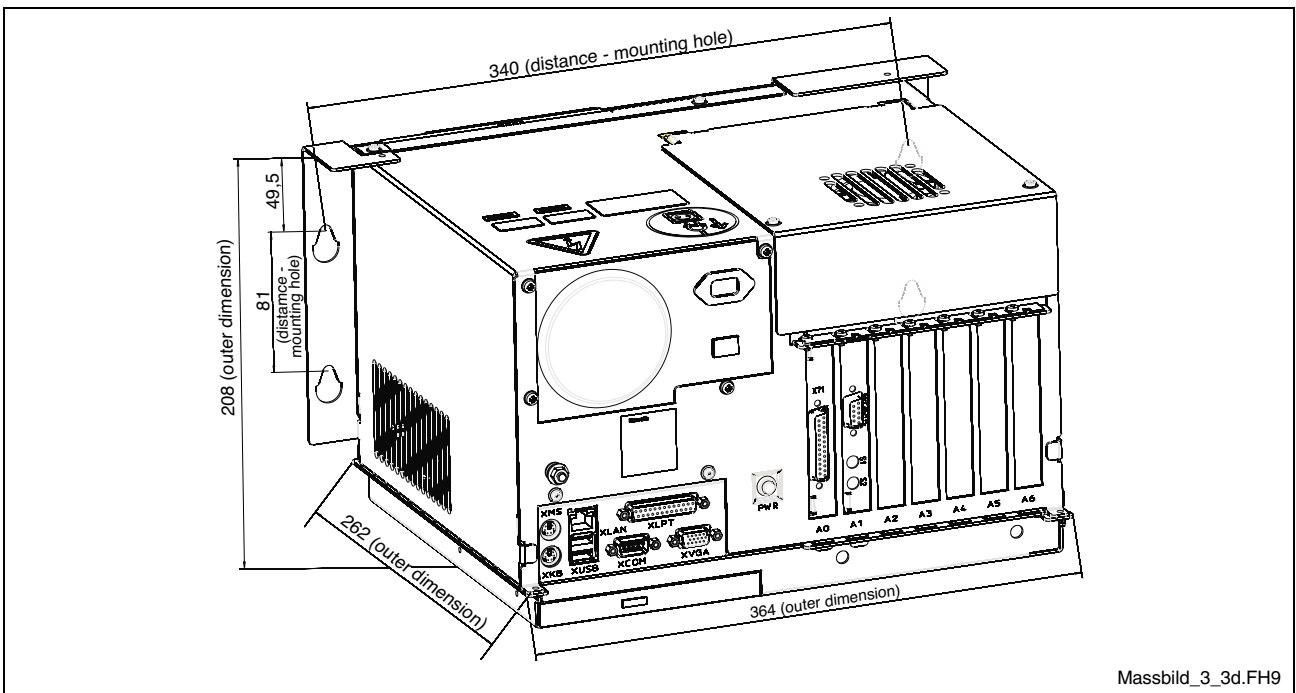
## 5.2 Mounting the VSB 40.1, Variant LS

### Mounting with Connector Panel in Forward Direction



Foto\_Anschluesse\_LS.jpg

Fig. 5-7: Mounting with connector panel in forward direction



Massbild\_3\_3d.FH9

Fig. 5-8: Dimension when mounting the connector panel in forward direction

## 5.3 Installation Notes

- Avoid installation locations exposed to direct sunlight, as additional heat development can occur.
- When determining installation location and mounting position observe, that the optionally available drive can be opened unobstructed.
- Install the VSB in a manner ensuring easy access to the connector panel.
- Provide a sufficient minimum clearance of 50 mm for cooling and cable routing around the device.
- Lay all connecting cables in loops and use strain reliefs for all cables.
- Keep a suitably large distance from sources of interference.
- Fasten the VSB with four screws M6 at the integrated mounting brackets.





## 6 Display and Operating Components

### 6.1 Power Button

Besides the connector panel (see Fig. 7-1) a button labeled with "PWR" is provided.

Usually, this power button has no function, as the VSB 40.1 is started by applying the supply voltage. This is preset in BIOS. If, for example, this BIOS setting has been changed by mistake, the VSB 40.1 can be started by activating this button.

To reset the original status, in which the VSB 40.1 also starts without pressing the power button immediately after applying the supply voltage, activate the BIOS setup during the booting process with the <Entf> or <DEL> key. There, activate menu "Power Management Setup". Select in this menu under item "PWRON After PWR-Fail" the setting "[Former-Sts]".

### 6.2 Display, Monitor and Keyboard

#### Display VDP

To display and operate the VSB 40.1 we recommend the displays VDP 16, VDP 40 and VDP 60 especially designed by Bosch Rexroth for industrial applications. The displays are connected with the VSB 40.1 via the GIGASTAR interface. Hence, you can install the display up to 30 meters away from the PC. The VDP-type displays are equipped either with a keypad or with a touch screen.

---

**Note:** Detailed information you will find in the corresponding documentation.

---

You can also connect mouse and keyboard to this displays.

#### VGA Monitor

You can connect a standard monitor (female connector XVGA), a PS2 keyboard (female connector XKB) and a PS2 mouse (female connector XMS) with the VSB 40.1.

---

**Note:** If a VDP is used, keyboard and mouse may only be connected to this display. The keyboard and mouse interfaces at the VSB 40.1 are then inactive.

---

#### Selection of the Graphic Driver

When the VSB is delivered, the settings allow to trigger both a connected monitor and a connected VDP.

**Activation of the VDP or the external monitor**

If required, you can select, if the VDP connected with the GIGASTAR interface, the external monitor operated at the VGA connection or both can be addressed:

1. Select "Intel(R) Extreme Graphics" in the task bar.

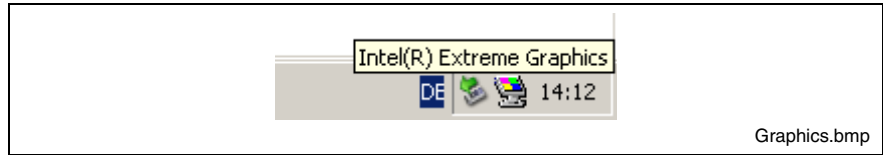


Fig. 6-1: Intel Extreme Graphics

2. Chose "Graphics Options" -> "Graphics Properties".

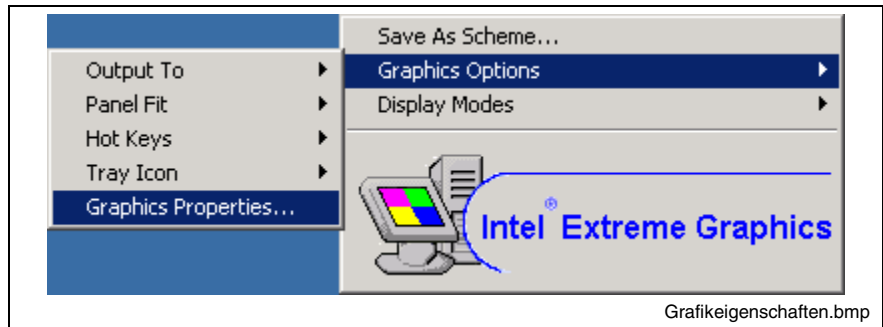


Fig. 6-2: Graphics Properties

3. The "Intel ... Graphics Controller Properties" window opens. There, select the "Devices" tab.

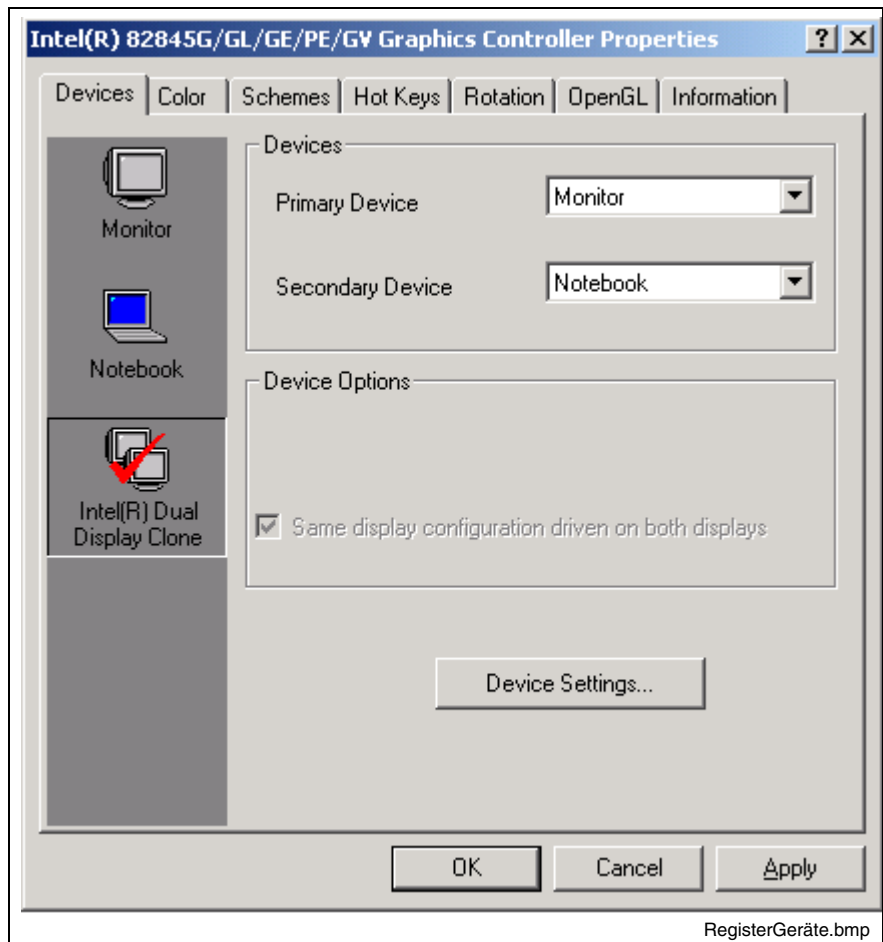


Fig. 6-3: "Devices" tab

4. If an external monitor is connected, you can select on the left side by clicking on the corresponding icons, if you want to address only the external monitor (select "Monitor"), only the screen of the connected VDPs (select "Notebook") or both screens (select "Intel(R) Dual Display Clone").
5. After confirming with <OK> another window opens, in which you have to confirm your selection once more with <OK>. Otherwise, the monitor selection is not applied.

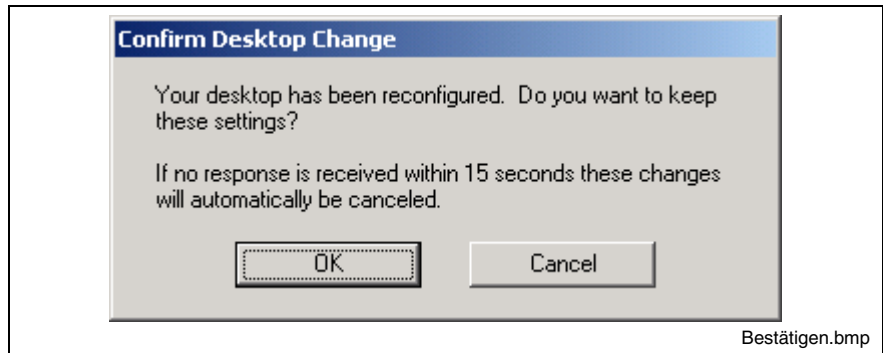


Fig. 6-4: Confirm Desktop Change

---

**Note:** If the connected external monitor or the connected VDP is black, as the corresponding graphic driver is not activated, you can also select the desired action blindly by using the key combinations illustrated in the figure on the next page in the "Hot Keys" tab.

Thereby, "Monitor" corresponds to the external monitor and "Notebook" to the VDP.

The key combinations can only be activated, if a user is logged in.

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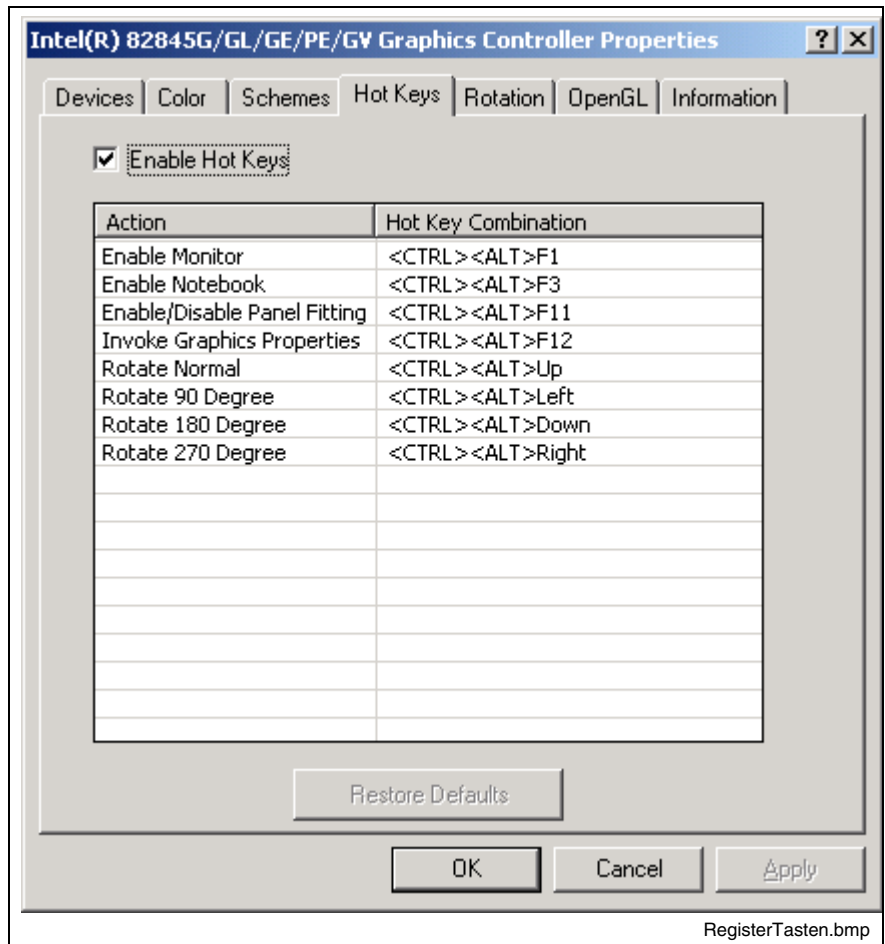


Fig. 6-5: "Hot Keys" tab

# 7 PC Box

## 7.1 View on the Connector Panel

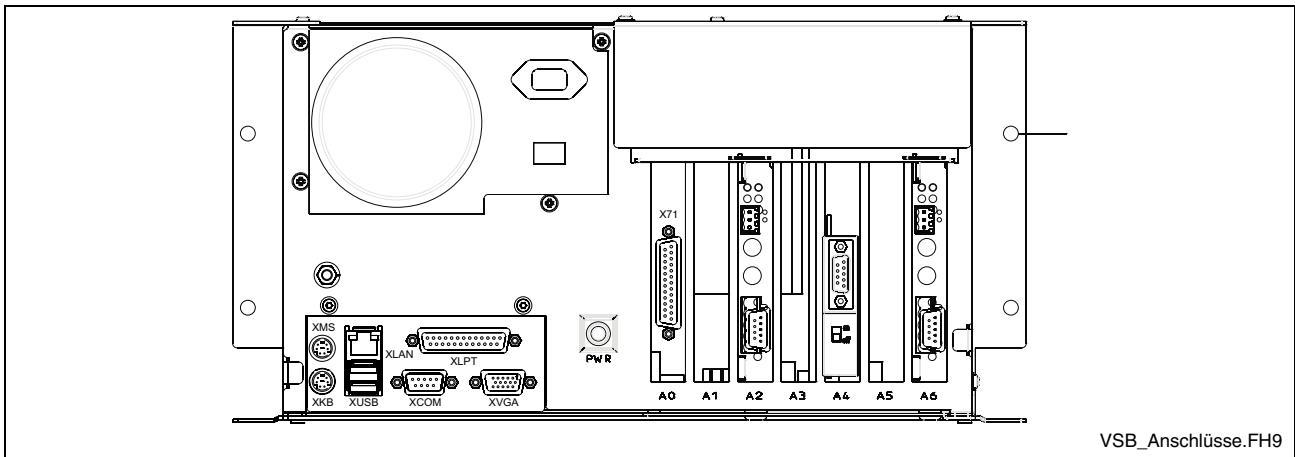


Fig. 7-1: Position of the interfaces

## 7.2 Interfaces

**Note:** Malfunctions caused by insufficient shielding! Use only shielded cables and metallic/conductive connector or coupling covers with large-area screen contact.

### Overview

	Des. on the housing	Type of connection	Type of connector (integrated)	Mating connector or cable (from outside)
o	XCOM	Serial interface: RS232 (UART 16550), not assigned	D-Sub male connector, 9-pin	D-Sub female connector, 9-pin
o	XLPT	Parallel interface: supports standard SPP-, EPP-, ECP-mode	D-Sub female connector, 25-pin	D-Sub male connector, 25-pin (e. g. printer cable)
o	XUSB	2 USB interfaces	USB female connector, 4-pin, type A	USB male connector, 4-pin
o	XLAN	Network connection: Ethernet 10Base T / 100Base X	RJ45 female connector, 8-pin	RJ45 male connector (twisted pair, 8-core)
o	XVGA	VGA connection of an external CRT monitor	VGA HD female connector, 15-pin	VGA HD male connector, 15-pin
o	XKB	PS/2 keyboard	Mini-DIN PS/2 female connector, 6-pin	Mini-DIN PS/2 male connector, 6-pin
o	XMS	PS/2 mouse	Mini-DIN PS/2 female connector, 6-pin	Mini-DIN PS/2 male connector, 6-pin
A0	X71	GIGASTAR interface (for VDP 16, VDP 40 or VDP 60)	D-Sub female connector, 25-pin	D-Sub male connector, 25-pin
		Alternative power supply:		
o		PC power supply: 24 VDC	Screw terminal	
o		PC power supply: 230/115 VAC	Inlet male connector for non-heating apparatus	Inlet female connector for non-heating apparatus

Connection point:

o= Top side of the housing, A0= Plug-in card on slot A0

Fig. 7-2: Connector type VSB 40.1

## Serial Interface XCOM

**XCOM:** A serial standard interface is provided at connection XCOM.  
**Serial interface**

<b>D-Sub male connector, 9-pin</b>	
Type:	RS232
Cable length:	Max. 15 m
Cable type:	Shielded, cross section min. 0.14 mm <sup>2</sup>
Transmission rate:	Max. 115200 bits/s
Handshake:	Hardware and software handshake (XON, XOFF)
Interrupt (IRQ):	4
I/O address:	AUTO (or 3F8H)
BIOS presettings:	Enabled

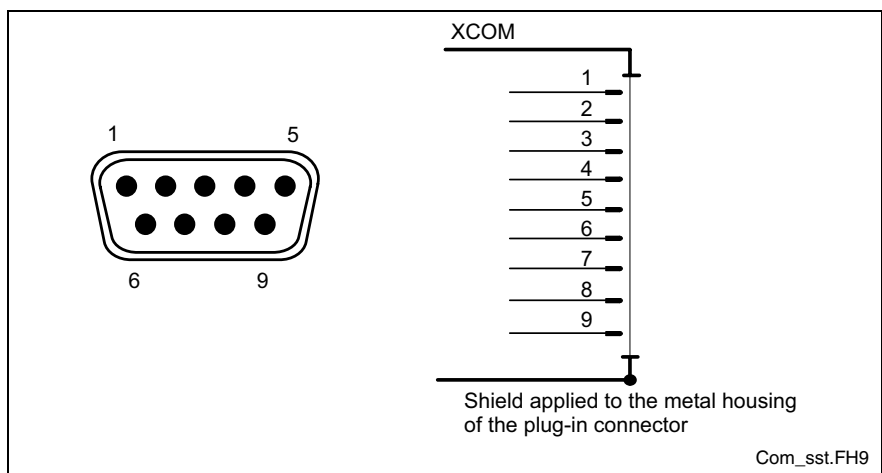


Fig. 7-3: Pin assignment COM

**Note:** If the uninterruptible power supply UPS is used, this interface is required for the communication with the UPS. The UPS is available as accessories.

## Settings of the Serial Interface

**Control Panel** To find out settings of the transfer parameters for the serial interfaces, please refer to the description of the installed operating system (for Windows under Settings/Control Panel, ...").

**BIOS** The standard BIOS setting of COM (Serial Port A) is **AUTO** (automatic parameter assignment). If a direct parameter assignment is required, you should choose the following settings:

- COM = 3F8H

**Note:** Interrupt (IRQ) and I/O address must coincide with the settings made in BIOS.

# Parallel Interface XLPT

XLPT – Parallel Interface for Printer, Scanner, etc.

D-Sub female connector, 25-pin	
Type:	SPP (ex works), EPP, ECP
Cable length:	Max. 3 m
Cable type:	Shielded, cross section min. 0.14 mm <sup>2</sup>
Interrupt (IRQ):	7
I/O address:	AUTO or 378H (recommended)

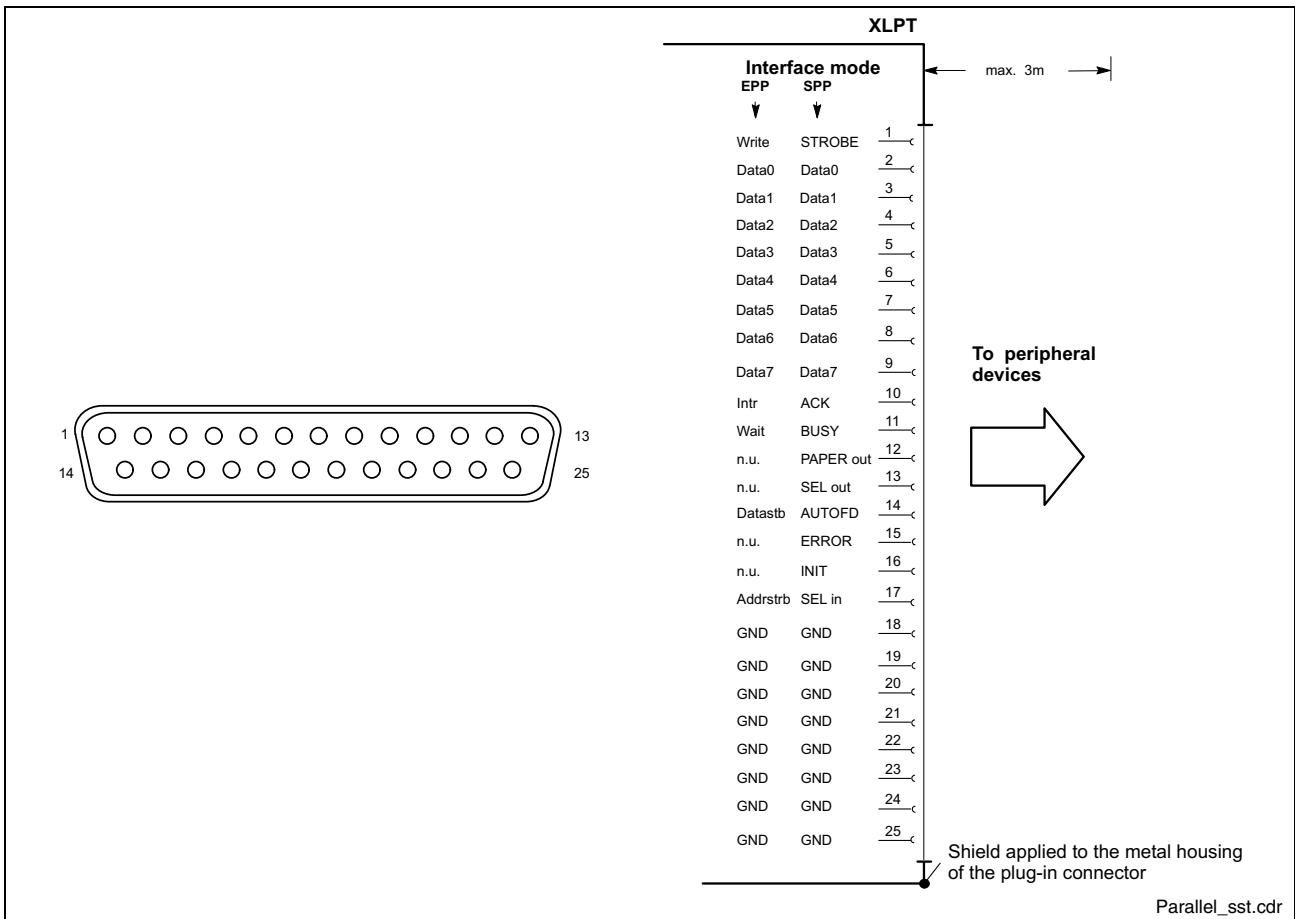


Fig. 7-4: LPT interface

The parallel interface normally runs in the standard mode SPP. Furthermore, it can be operated in the EPP mode (Enhanced Parallel Port) or in the ECP mode (Extended Capabilities Port), if the suitable peripheral equipment is available. The mode can be changed in the BIOS settings.

## XUSB Interfaces

LPT1 – Parallel Interfaces for  
Printer, Scanner, CD ROM Drive

The devices feature two USB interfaces on the connector panel (XUSB). These interfaces are compatible to USB 1.1 and USB 2.0.

**Note:** The maximum power consumption of the connected devices must not exceed 500 mA. If the load exceeds 500 mA, the internal current monitoring is activated.

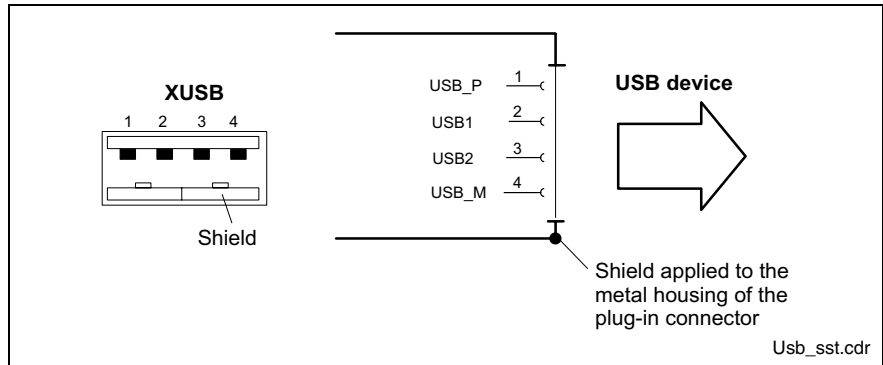


Fig. 7-5: USB interfaces

Pin	Function
1	USB power supply (max. 500 mA)
2	Data -
3	Data +
4	USB ground



## Ethernet Interface XLAN

**XLAN – Network Connection** The industrial PC can be connected with an Ethernet network via an Ethernet interface XLAN.

<b>RJ45 female connector, 8-pin</b>	
Type:	Ethernet 10Base T / 100Base X
Cable length:	Max. 100 m
Cable type:	Shielded, twisted pair
Transmission rate:	10 or 100 Mbits/s

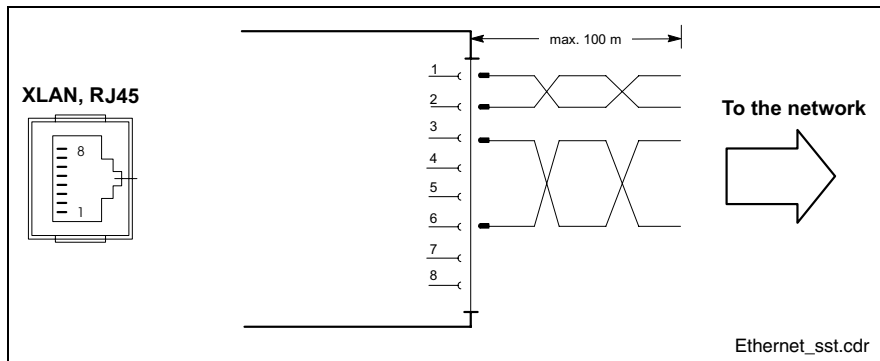


Fig. 7-6: Ethernet interface XLAN

The driver configuration of the network connection can be called up in the task bar or in the "Control Panel" with icon "Network Board". Here you can set among other values, if the data transmission shall occur with 10 Mbits/s and/or with 100 Mbits/s.

**Note:** Please observe that the network board of the outstation has to be able to process the same data transmission rate.

## XVGA Interface

**XVGA - Connection of an External Monitor** An external monitor (CRT) can be connected to the VGA connection (XVGA) and can be operated as an alternative or parallel to a VDP connected via the GIGASTAR interface.

- Video RAM: Max. 8 MB

**Note:** Before plugging-in a graphics card the video adapter integrated in BIOS has to be switched off.

<b>HD female connector, 15-pin</b>	
Cable length:	Max. 1.5 m
Cable type:	Shielded, cross section min. 0.14 mm <sup>2</sup>
Max. resolution:	1600 x 1200 Pixel, max. 4294 mill. colors

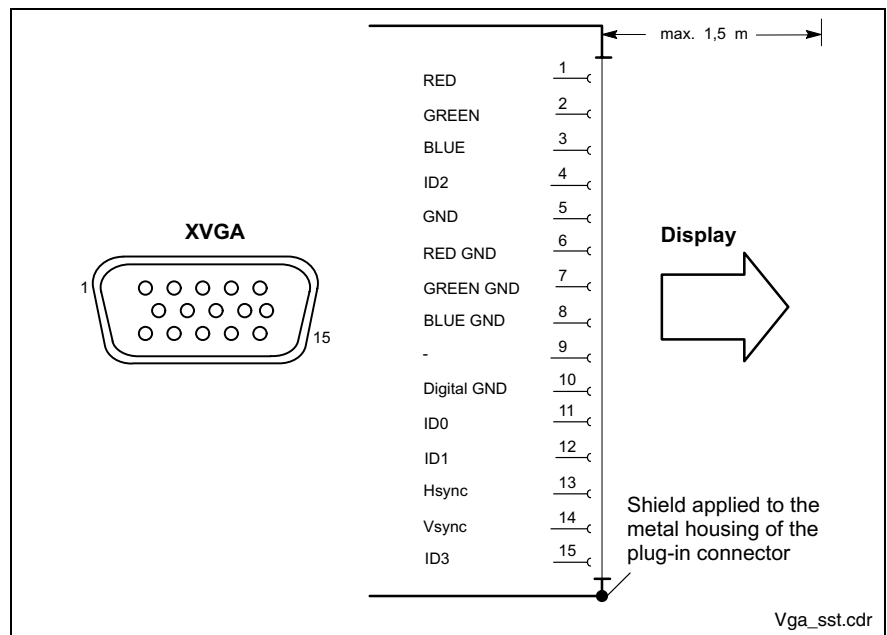


Fig. 7-7: XVGA interface

**CAUTION!**

### Setting incorrect resolutions and colors may destroy your monitor!

⇒ Please observe the technical data of your monitor and adapt the operating system parameters accordingly.

Recommended monitors for external use are low-radiation models according to TCO95. In addition, you should achieve the desired display resolution with a refresh rate of at least 72 Hz.

**Note:** When the VSB is delivered, the settings allow to trigger both a connected monitor and a connected VDP.

How to change this selection, if required, is described in section "Selection of the Graphic Driver" on page 6-1.

## Keyboard Interface XKB

XKB – PS/2 Mini DIN  
Keyboard/Mouse Interface

<b>PS/2 Mini DIN female connector, 6-pin</b>	
Cable length:	Max. 1.5 m
Cable type:	Shielded, cross section min. 0.14 mm <sup>2</sup>

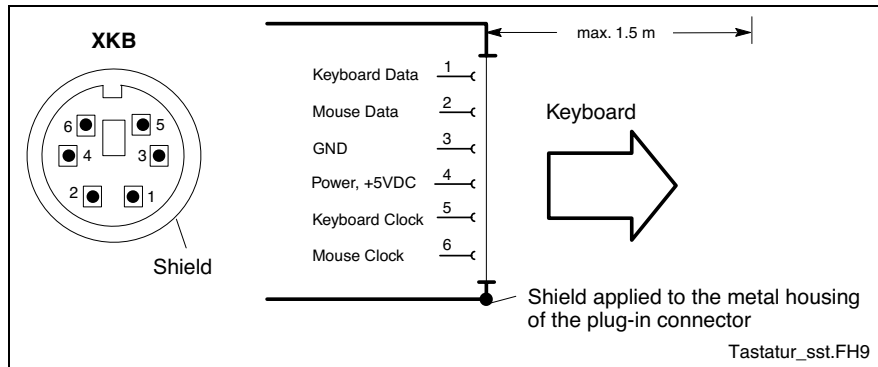


Fig. 7-8: Keyboard interface

**Note:** If a VDP display is used, keyboard and mouse may only be connected to this display. The keyboard interface XKB at the VSB 40.1 is then inactive.

## Mouse Interface XMouse

XMouse - PS/2 Mouse Interface

<b>PS/2 Mini DIN female connector, 6-pin</b>	
Cable length:	Max. 1.5 m
Cable type:	Shielded, cross section min. 0.14 mm <sup>2</sup>
Interrupt (IRQ):	12
BIOS presettings:	PS/2 mouse support: Enabled PS/2 mouse: Auto detect

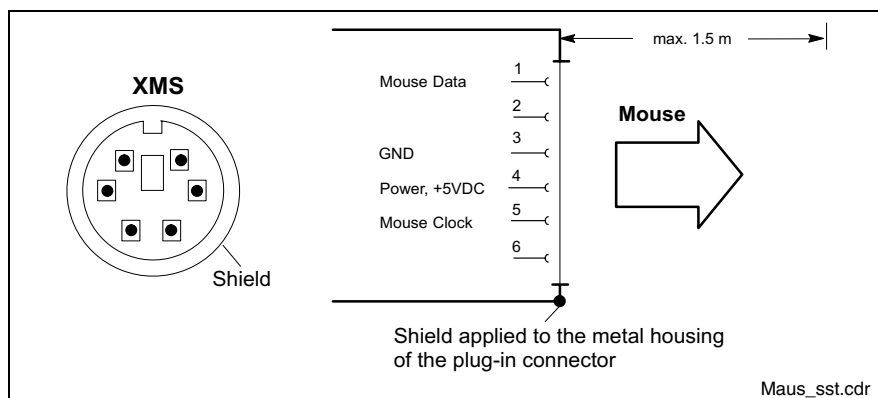


Fig. 7-9: Mouse interface XMS

If a PS/2 mouse is not recognized by the system, the mouse has to be activated in the BIOS by switching from "Disabled" to "Autodetect". The operating system will not recognize the plugging-in of an external mouse after completed startup, because the mouse initialization occurs during the booting process.

---

**Note:** The connected mouse must be PS/2-compatible. Normally, the BIOS reserves IRQ 12 for the PS/2 mouse. If there are address conflicts, e. g., if IRQ 12 has already been used by another PC extension card, you should change the IRQ of this extension card to another IRQ, that is still not-assigned.

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---

**Note:** If a VDP display is used, the mouse may only be connected to this display. The mouse interface XMS at the VSB 40.1 is then inactive.

---

## GIGASTAR interface X71

**X71 – GIGASTAR Interface** The GIGASTAR interface is assigned to the 25-pin D-Sub female connector X71. To this female connector you connect via a ready-made cable available as accessory (see page 10-2) a display VDP 16, VDP 40 or VDP 60.

---

**Note:** When the VSB is delivered, the settings allow to trigger both a connected monitor and a connected VDP.  
How to change this selection, if required, is described in section "Selection of the Graphic Driver" on page 6-1.

---

## PC Power Supply

### 24 VDC Power Supply

This screw connection is used for device variants for 24 VDC. All internally required voltages are generated from the 24 VDC supply.

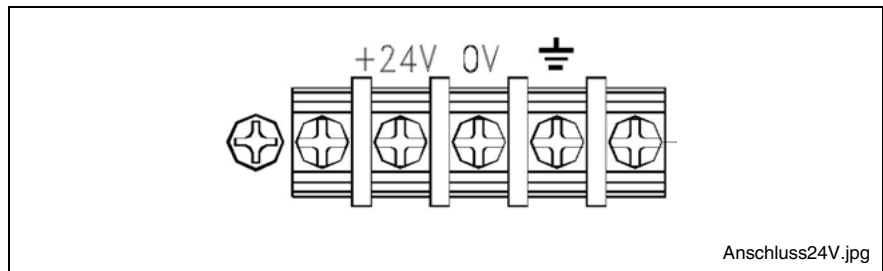


Fig. 7-10: Connection terminals for the 24 VDC supply

Parameters	Value
Input voltage $U_N$	24 VDC ; (19 ... 32 VDV)
Residual ripple for $U_N$	See figure on the following page
Power consumption for 19 VDC	Max. 20 A
Overload protection	Deactivation with automatic restart
Short-circuit protection	Deactivation with automatic restart

Fig. 7-11: Technical data 24 VDC connection



**DANGER**

**Danger without protective separation!**

- ⇒ The 24 VDC input voltage must comply with the requirements of the "Protective separation".
- ⇒ Plug and unplug the connector only in no-voltage condition!

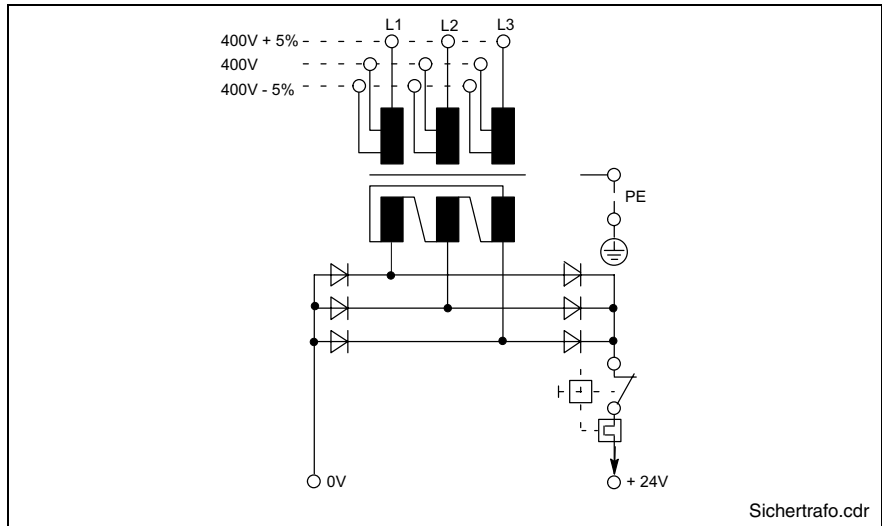


Fig. 7-12: Safety transformer according to EN 60742

Interfering AC voltage components such as resulting from an uncontrolled 3-phase current bridge connection without smoothing with a ripple factor (see DIN 40110/10.75, section 1.2) of 5 % are permissible.

It follows from the above that as upper voltage limit the greatest absolute value is 30.2 V and as lower voltage limit the lowest absolute value is 18.5 V.

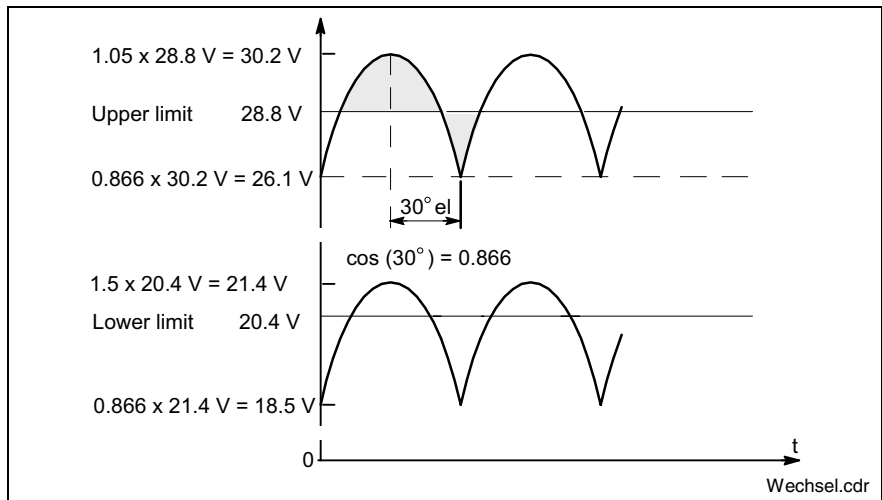


Fig. 7-13: Illustration of the limit values for the 24 VDC voltage

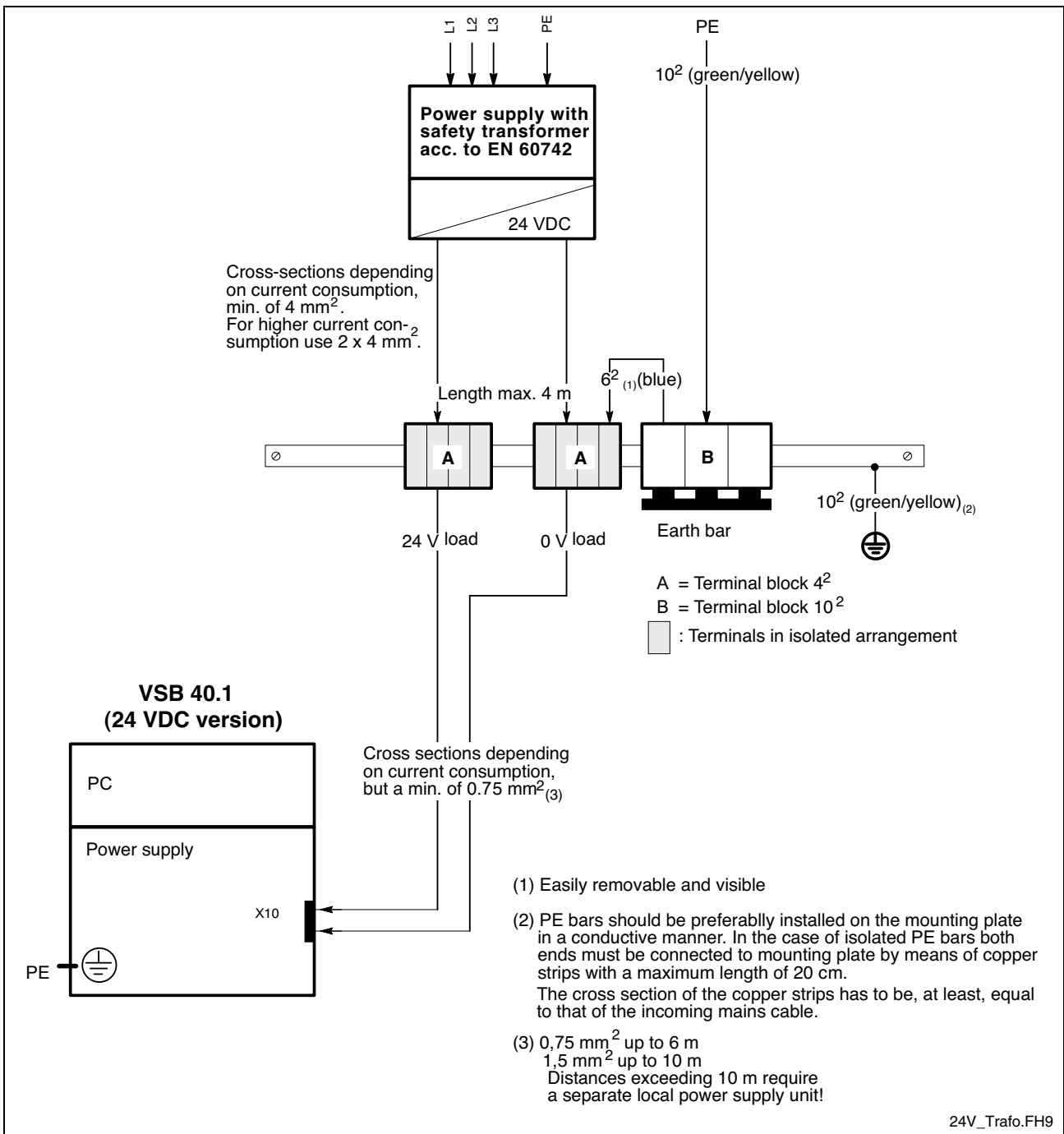


Fig. 7-14: Wiring of the power connection 24 VDC to the VSB 40.1

**230/115 VAC Power Supply**

This connection is used for device variants for 230/115 VAC.

All internally required voltages are generated by the 230/115 VAC power supply unit.



**CAUTION**

**The supply voltage must comply with overvoltage category II! Otherwise the integrated power supply unit might be destroyed.**

⇒ Use an isolating transformer to generate the 230/115 VAC (see following page).

The 230/115 VAC connection occurs via a 3-pin inlet connector for non-heating apparatus on the connector panel. The maximum cable cross section for the connected cables is 1.5 mm<sup>2</sup>.



Fig. 7-15: Pin assignment of the 230/115 VAC connection X20

Parameters	Value
Rated voltage	85 VAC ... 264 VAC auto range
Power consumption for $U_N = 230$ VAC	2.5 A
Power consumption for $U_N = 115$ VAC	5 A
Inrush current for 264 VAC	100 A
Overload protection	As of 135 %, deactivation
Short-circuit protection	At all outputs, deactivation

Fig. 7-16: Technical data 115/230 VAC connection



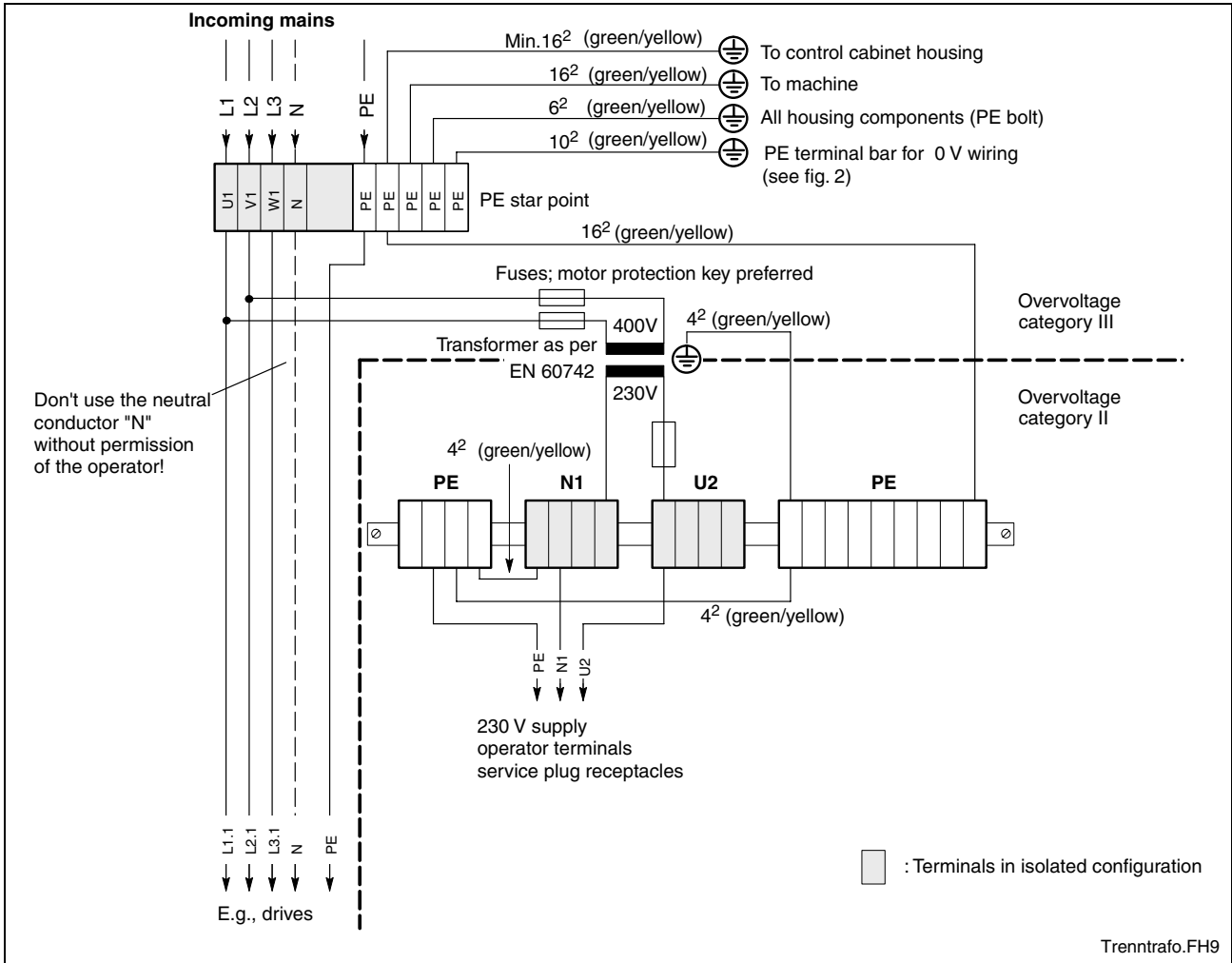


Fig. 7-17: Voltage connection 230 VAC via isolating transformer



## 8 Maintenance and Installation

### 8.1 General Information

VSB-type industrial PCs are maintenance-free. However, some components are subject to wear and must be replaced (see chapter "Wear parts" on page 4-4).

**Maintenance** Include the following measures in your maintenance schedule:

- At least once a year, check all plug and terminal connections for proper tightness and damage. Check that cables are not broken or crushed. Replace damaged parts immediately.
- Check the fan at least once a year.



**DANGER**

#### **Risk of injury through rotating fan impeller!**

⇒ Keep hands and fingers clear of the fan impeller, and do not insert any items.

- 
- Ensure that the VSB 40.1 is connected to a working uninterruptible power supply unit.

---

**Note:** The accessories of Bosch Rexroth include uninterruptible power supplies for the 230 V supply as well as for the 24 V supply (see chapter "Connection of the Uninterruptible Power Supply" on page 8-2).

---

## 8.2 CMOS Battery

The battery, with which RAM and clock are buffered, has a limited service life (see chapter "Wear parts" starting on page 4-4).

This lithium battery may not be changed by the user. The battery may only be exchanged by the Bosch Rexroth Service (see chapter "Service & Support") or by personnel specially trained and authorized by the Service.

## 8.3 Connection of the Uninterruptible Power Supply

The accessories of Bosch Rexroth include uninterruptible power supplies (UPS) for the 230 V supply as well as for the 24 V supply (see section "Accessories" on page 10-2).

These UPS units are able to override brief voltage breakdowns. In case of longer voltage breakdowns, they initiate and facilitate a proper powering down of the operating system. Therefore, Bosch Rexroth recommends to use an UPS.

The uninterruptible power supply is connected to the voltage supply line and communicates with the VSB 40.1 via the COM interface XCOM.

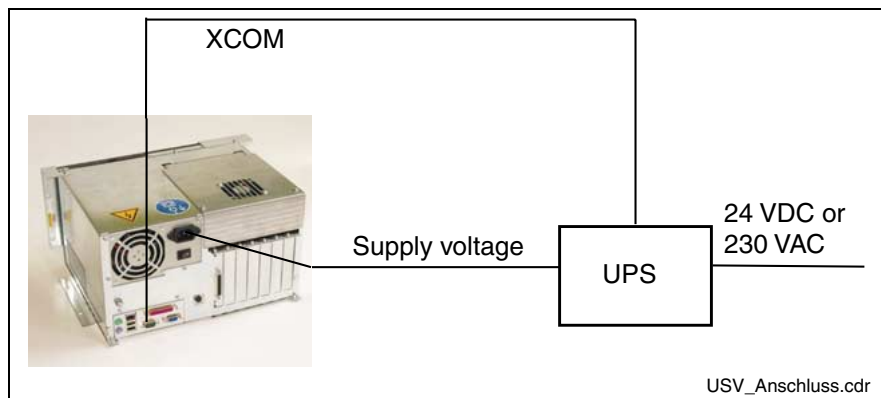


Fig. 8-1: Connection of the UPS

## Mounting the UPS

To mount the UPS for 230 V, a holder is available as accessories. This holder can be engaged in a top-hat rail or can be fastened to a rear panel with two M6 screws.

After mounting the holder, lift the angle bracket and insert the UPS. Now, close the angle bracket and fix it with the enclosed nut.

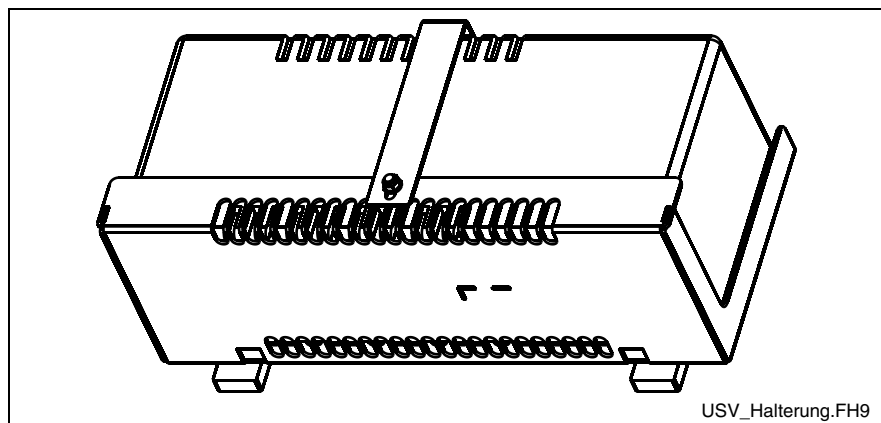


Fig. 8-2: View of the UPS inserted in the holder

## 8.4 Hard Disk

The installation frame of the hard disk can be accessed from the rear side of the VSB 40.1 or for variant LS from the bottom side of VSB 40.1.



**CAUTION!**

### Loss of data!

⇒ Back-up all required application data as well as operating system settings to an external storage medium!



**CAUTION!**

### Risk to damage the VSB 40.1 by electrostatic discharges!

⇒ Comply with all ESD-protection measures during working with modules and components! Avoid electrostatic discharges!

---

**Note:** To store user data and to avoid the re-installation of the operating system and application programs after a hard disk exchange, you should back-up the well-working hard disk at regular intervals.

---

**Note:** The hard disk to be inserted must already have an installed operating system, if no external boot medium is connected to the industrial PC. In any case, it is recommended to have a completely installed operating system on the hard disk, to shorten the installation time!

---

The change of the hard disk for the two variants is not identical, as the hard disk is located at different positions.

### Changing the Hard Disk of the VSB 40.1, Variant NN

1. Save all required user data as well as the operating system settings of your system on an external storage medium or via the network connection!
2. Shutdown the operating system.
3. Wait until the power supply unit switches off and then, switch off the supply voltage. If required, unplug all connectors.
4. Put the VSB 40.1 on a solid mat, so that the connector panel looks in your direction.

5. Loosen the four screws with which the hard disk frame is fixed at the VSB 40.1:

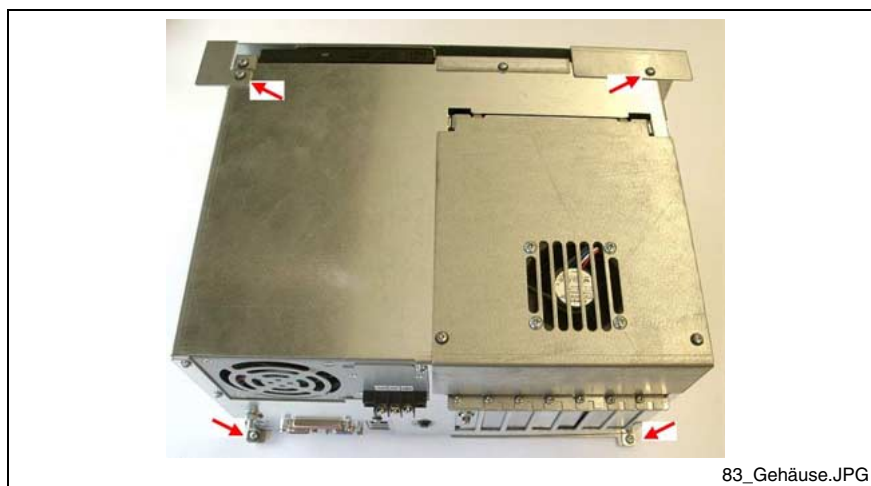


Fig. 8-3: Loosen the fastening screws at the mounting frame

6. Remove the VSB 40.1 from the mounting plate (mounting frame), so that it is turned away from you.
7. Loosen the fastening screws of the hard disk frame. The hard disk and (depending on the device design) the CD/DVD drive are mounted on this plate:

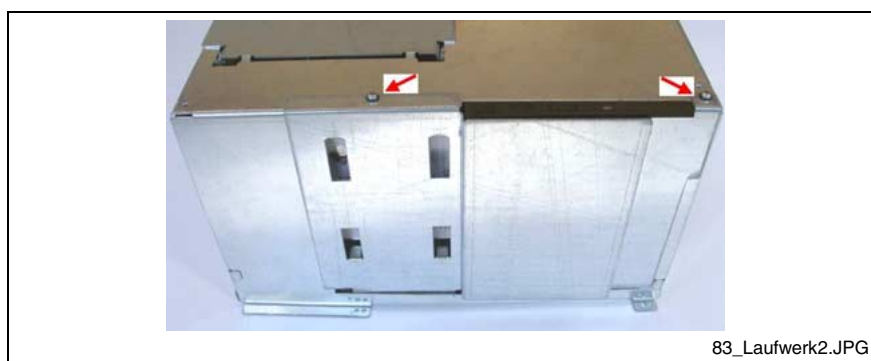


Fig. 8-4: Fastening screws of the hard disk frame

8. Lift the hard disk frame:



Fig. 8-5: Lifted hard disk frame

9. Loosen the two cables (IDE and power supply) from the hard disk.
10. Now, remove the old and insert the new hard disk.
11. Connect the two cables. Observe that you don't bend the connection pins.

---

**Note:** Check the cable connections leading to the hard disk for tightness.

---

12. After having re-connected the cables, put the hard disk frame into the housing by using the claws provided at its bottom. While closing the housing, observe not to squeeze any cables.
13. Fasten the hard disk frame with the two screws.
14. Put the VSB 40.1 in the mounting plate (mounting frame) and fix it with the four screws.
15. The new hard disk parameters are automatically recognized by the system. If the operating system does not boot automatically after switching on the VSP, interrupt the power supply for at least 10 seconds and restart.
16. After properly booting the PC the user data and the operating system settings for the normal operating mode have to be restored.

### Changing the Hard Disk of the VSB 40.1, Variant LS

1. Save all required user data as well as the operating system settings of your system on an external storage medium or via the network connection!
2. Shutdown the operating system.
3. Wait until the power supply unit switches off and then, switch off the supply voltage. If required, unplug all connectors.
4. Put the VSB 40.1 on a solid mat, so that the connector panel looks in your direction.
5. Loosen the four screws with which the hard disk frame is fixed at the VSB 40.1:



Fig. 8-6: Loosen the fastening screws at the mounting frame

6. Remove the VSB 40.1 carefully from the mounting plate (mounting frame), because the hard disk drive is fastened in the mounting frame.



Fig. 8-7: Loosen the VSB 40.1 from the mounting plate



7. Tip the VSB 40.1 to the left side.

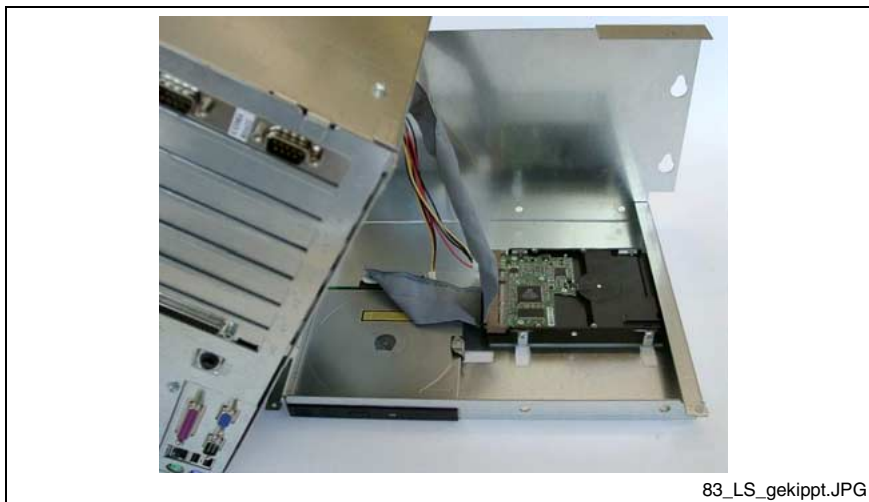


Fig. 8-8: Tip the VSB 40.1 to the left and remove it from the mounting plate

8. Now, you can loosen the cables (IDE and power supply) from the hard disk and put the VSB 40.1 on its left side. If necessary, you must loosen the cables from the CD-DVD drive to be able to position the VSB 40.1.



Fig. 8-9: Loosen the cable from the hard disk

9. Loosen the screws, with which the hard disk is mounted, with a Philips screwdriver by inserting it through the holes in the mounting frame.



Fig. 8-10: Loosen the fastening screws of the hard disk

10. Remove the old and insert the new hard disk.
11. Plug-in the cables at the hard disk and, if necessary, at the CD/DVD drive. Observe that you don't bend the connection pins.

---

**Note:** Check the cable connections leading to the hard disk for tightness.

---

12. After having plugged-in the cables, put the VSB 40.1 in the mounting plate (mounting frame). Observe not to squeeze any cables.
13. Connect the mounting plate (mounting frame) and VSB 40.1 with the four screws.
14. The new hard disk parameters are automatically recognized by the system. If the operating system does not boot automatically after switching on the VSP, interrupt the power supply for at least 10 seconds and restart.
15. After properly booting the PC the user data and the operating system settings for the normal operating mode have to be restored.

## 8.5 Extension Cards

To place extensions cards slots for PCI bus are available.



**CAUTION!**

**Risk of damage to the operator terminal or the extension cards by electrostatic discharges!**

⇒ Comply with all ESD-protection measures during working with modules and components! Avoid electrostatic discharges!



**CAUTION!**

**Risk of damage to the operator terminal or corruption of application software by integrating not-released extension cards!**

⇒ Install only released extension cards, and have them installed by skilled employees.

### Insert an Extension Card

1. Shutdown the operating system.
2. Wait until the power supply unit switches off automatically and then, switch off the supply voltage. If required, unplug all connectors from the VSB 40.1.
3. Put the VSB 40.1 on a solid mat, so that the connector panel looks in your direction.
4. Loosen and remove the two fastening screws of the cover:



84\_Deckel.JPG

Fig. 8-11: Loosen the fastening screws of the cover

5. Lift up the cover with the fan.



Fig. 8-12: Lift the cover with fan

6. Loosen the fastening screw of the corresponding slot plate and remove it:

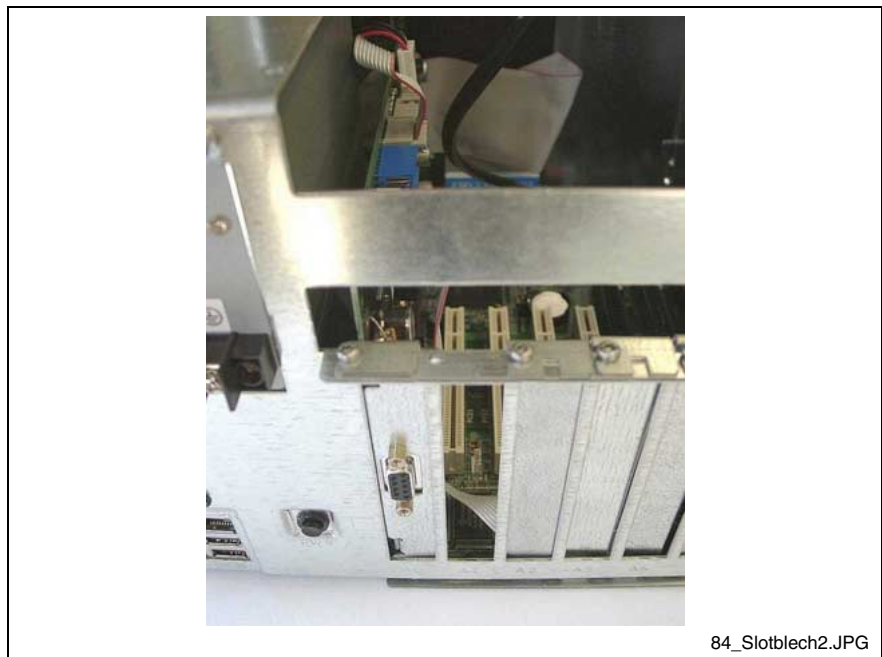


Fig. 8-13: Remove the slot plate

7. Insert the plug-in assembly from the top. Don't use force. Observe that the connections are inserted in the connector on the main board.

8. Fasten the plug-in assembly with the screw, with which the slot cover was fixed.

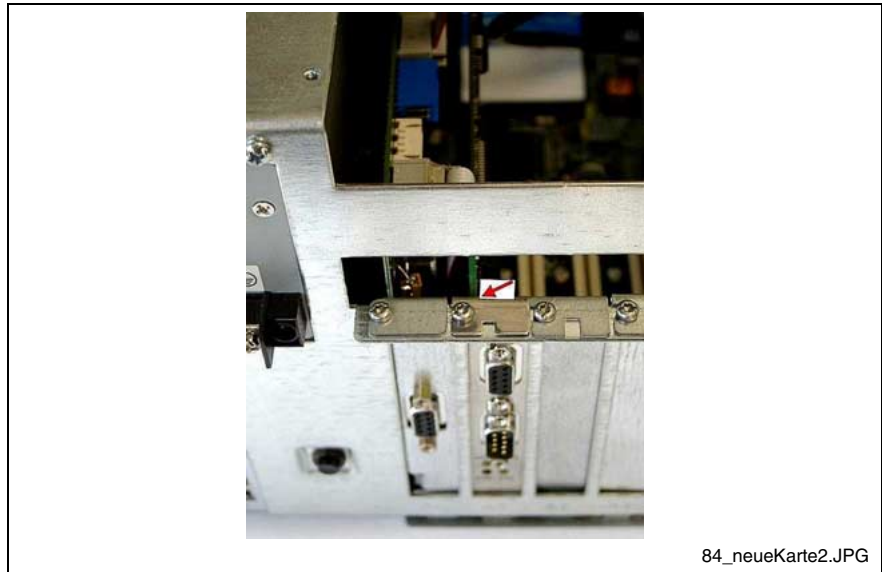


Fig. 8-14: Fix the new PCI card with the screw

9. Close the top cover and fasten it with the two screws.

If the card is equipped with a Plug and Play (PnP) function, it is automatically recognized by the operating system and integrated in the system, provided that no hardware conflicts (IRQ etc.) with other extension cards or connected devices occur.

In the event that after a system reboot the functions based on the new card are not available, there may be several reasons:

- The card is not properly seated in the PCI slot.
- The driver software of the card has not been installed or its installation is faulty.
- IRQ (Interrupt) conflict with other PC hardware components.
- The software of the card has not been installed.



**CAUTION!**

**Risk of destruction of the main board or the extension cards because of address conflicts (IRQ, memory access, I/O address)!**

⇒ Observe the information provided by the card manufacturer. You may have to set new configurations in the BIOS and the operating system (e. g. Control Panel of WindowsXP).

## BIOS Settings

If the BIOS settings have to be changed, you will find the required information in the manual about the used motherboard delivered with the VSB 40.1 and, if necessary, in the documents about the PCI card mounted by yourself.



## 9 UPS Software

The software required for the optionally available UPS (see chapter 8.3 "Connection of the Uninterruptible Power Supply" on page 8-2 and section chapter "Uninterruptible Power Supply" on page 10-2) is stored on the hard disk of the VSB 40.1. Before being able to use this software, you have to install it. Start the installation of this UPS software with the corresponding \*.cmd file. At present, it is file C:\Support\UPS\Bicker\BRCSetup.cmd.

To install software you must have administrator rights.

If after selecting the desired language you confirm during the further installation process the requests with "OK", "Ja" or "Yes", the UPS software named "UPSMON for Windows" is installed in folder "C:\Programme\UPSMON" or "C:\ProgrammFiles\UPSMON" and then started with the standard settings.

After the installation of the software, the following icon appears on the task bar:



Fig. 9-1: Icon of the UPS software in the task bar

Via the right mouse button you can call up the two programs UpSetup and UpsView. You can also start the two programs via "Start -> Programs -> UPSMON". In program group UPSMON you will also find help files, which provide information on possible settings or changes in the system configuration.





# 10 Ordering Information

## 10.1 Type Code VSB 40.1

The industrial PC VSB 40.1 is available in various variants according to the following type code.

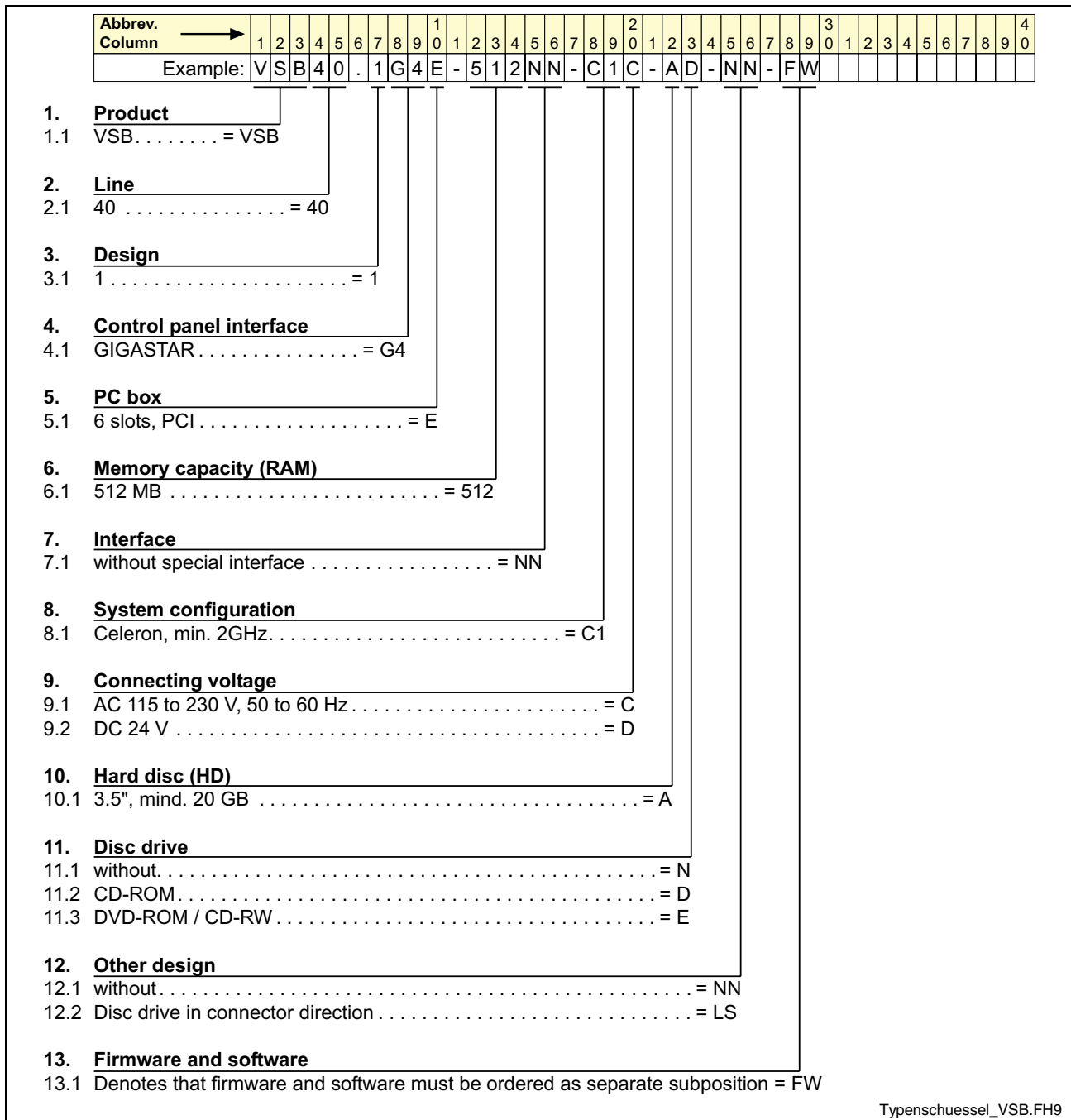


Fig. 10-1: Type code VSB 40.1

## 10.2 Accessories

### Network Connection

Ordering designation	Part number	Description
B-AC STECKER NETZ 230V	1070 912881	Mains connector 230 V, male inlet connector for non-heating apparatus, angular, for self-mounting
BKS-U-N-NTZKAB-IPCRHO-002,5-P	1070 048937	Mains cable 230 V with female inlet connector for non-heating apparatus, angular, cable length 2.5 m

Fig. 10-2: Connectors and cables for VSB 40.1

### Connecting Cables to the VDP 16.1, VDP 40.1 and VDP 60.1 (GIGASTAR Interface)

Ordering designation	Part number	Description
BKS-U-H-G4****-IPCVDP-001,0-P	R911307684	Connecting cable IPC – VDP, high-flexible, 1 m
BKS-U-H-G4****-IPCVDP-005,0-P	R911306043	Connecting cable IPC – VDP, high-flexible, 5 m
BKS-U-H-G4****-IPCVDP-010,0-P	R911306046	Connecting cable IPC – VDP, high-flexible, 10 m
BKS-U-H-G4****-IPCVDP-015,0-P	R911308482	Connecting cable IPC – VDP, high-flexible, 15 m
BKS-U-H-G4****-IPCVDP-020,0-P	R911306047	Connecting cable IPC – VDP, high-flexible, 20 m
BKS-U-H-G4****-IPCVDP-030,0-P	R911306048	Connecting cable IPC – VDP, high-flexible, 30 m

Fig. 10-3: Connecting cables to the VDP 16.1, VDP 40.1 and VDP 60.1

### Uninterruptible Power Supply

Ordering designation	Part number	Description
VAU01.1S-024-024-240-NN	R911307090	UPS 24 VDC, 240 W
VAU01.1S-230-230-255-NN	R911307239	USV 230 VAC, 255 W
SUP-M01-VAU01.1S-230	R911307240	Holder for control cabinet mounting of the UPS 230 VAC

Fig. 10-4: Uninterruptible power supply

### Storage Media

Ordering designation	Part number	Description
MC OSFLASHUSB-064M	1070 170184	USB memory stick 64 Mbytes

Fig. 10-5: Storage media for VSB 40.1

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## 13 Service & Support

### 13.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- telefonisch - by phone:  
über Service Call Entry Center  
- via Service Call Entry Center **+49 (0) 9352 40 50 60**  
Mo-Fr 07:00-18:00  
Mo-Fr 7:00 am - 6:00 pm
- per Fax - by fax: **+49 (0) 9352 40 49 41**
- per e-Mail - by e-mail: [service.svc@boschrexroth.de](mailto:service.svc@boschrexroth.de)

### 13.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

After helpdesk hours, contact our service department directly at

**+49 (0) 171 333 88 26**  
oder - or **+49 (0) 172 660 04 06**

### 13.3 Internet

Unter [www.boschrexroth.com](http://www.boschrexroth.com) finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen \*) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

- Verkaufsniederlassungen
- Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

\*) Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At [www.boschrexroth.com](http://www.boschrexroth.com) you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses \*) of our sales- and service facilities figuring on the following pages.

- sales agencies
- offices providing service

Please contact our sales / service office in your area first.

\*) Data in the present documentation may have become obsolete since printing.

### 13.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

## 13.5 Kundenbetreuungsstellen - Sales & Service Facilities

### Deutschland – Germany

**vom Ausland:**

(0) nach Landeskennziffer weglassen!

from abroad:

don't dial (0) after country code!

Vertriebsgebiet Mitte Germany Centre	SERVICE AUTOMATION	SERVICE AUTOMATION	SERVICE AUTOMATION
Rexroth Indramat GmbH Bgm.-Dr.-Nebel-Str. 2 / Postf. 1357 97816 Lohr am Main / 97803 Lohr <b>Kompetenz-Zentrum Europa</b>  Tel.: +49 (0)9352 40-0 Fax: +49 (0)9352 40-4885	<b>CALL ENTRY CENTER Helpdesk MO – FR</b> <b>von 07:00 - 18:00 Uhr</b> from 7 am – 6 pm  <b>Tel. +49 (0) 9352 40 50 60</b> <b>Fax +49 (0) 9352 40 49 41</b> <a href="mailto:service.svc@boschrexroth.de">service.svc@boschrexroth.de</a>	<b>HOTLINE 24 / 7 / 365</b>  <b>außerhalb der Helpdesk-Zeit</b> out of helpdesk hours  <b>Tel.: +49 (0)172 660 04 06</b> oder / or <b>Tel.: +49 (0)171 333 88 26</b>	<b>ERSATZTEILE / SPARES</b> verlängerte Ansprechzeit - extended office time - ♦ nur an Werktagen - only on working days - ♦ von 07:00 - 18:00 Uhr - from 7 am - 6 pm - <b>Tel. +49 (0) 9352 40 42 22</b>
Vertriebsgebiet Süd Germany South  Bosch Rexroth AG Landshuter Allee 8-10 80637 München  Tel.: +49 (0)89 127 14-0 Fax: +49 (0)89 127 14-490	Vertriebsgebiet West Germany West  Bosch Rexroth AG Regionalzentrum West Borsigstrasse 15 40880 Ratingen  Tel.: +49 (0)2102 409-0 Fax: +49 (0)2102 409-406 +49 (0)2102 409-430	Gebiet Südwest Germany South-West  Bosch Rexroth AG Service-Regionalzentrum Süd-West Siemensstr. 1 70736 Fellbach  Tel.: +49 (0)711 51046-0 Fax: +49 (0)711 51046-248	
Vertriebsgebiet Nord Germany North  Bosch Rexroth AG Walsroder Str. 93 30853 Langenhagen  Tel.: +49 (0) 511 72 66 57-0 Service: +49 (0) 511 72 66 57-256 Fax: +49 (0) 511 72 66 57-93 Service: +49 (0) 511 72 66 57-783	Vertriebsgebiet Mitte Germany Centre  Bosch Rexroth AG Regionalzentrum Mitte Waldecker Straße 13 64546 Mörfelden-Walldorf  Tel.: +49 (0) 61 05 702-3 Fax: +49 (0) 61 05 702-444	Vertriebsgebiet Ost Germany East  Bosch Rexroth AG Beckerstraße 31 09120 Chemnitz  Tel.: +49 (0)371 35 55-0 Fax: +49 (0)371 35 55-333	Vertriebsgebiet Ost Germany East  Bosch Rexroth AG Regionalzentrum Ost Walter-Köhn-Str. 4d 04356 Leipzig  Tel.: +49 (0)341 25 61-0 Fax: +49 (0)341 25 61-111

## Europa (West) - Europe (West)

**vom Ausland:** (0) nach Landeskennziffer weglassen, **Italien:** 0 nach Landeskennziffer mitwählen  
**from abroad:** don't dial (0) after country code, **Italy:** dial 0 after country code

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