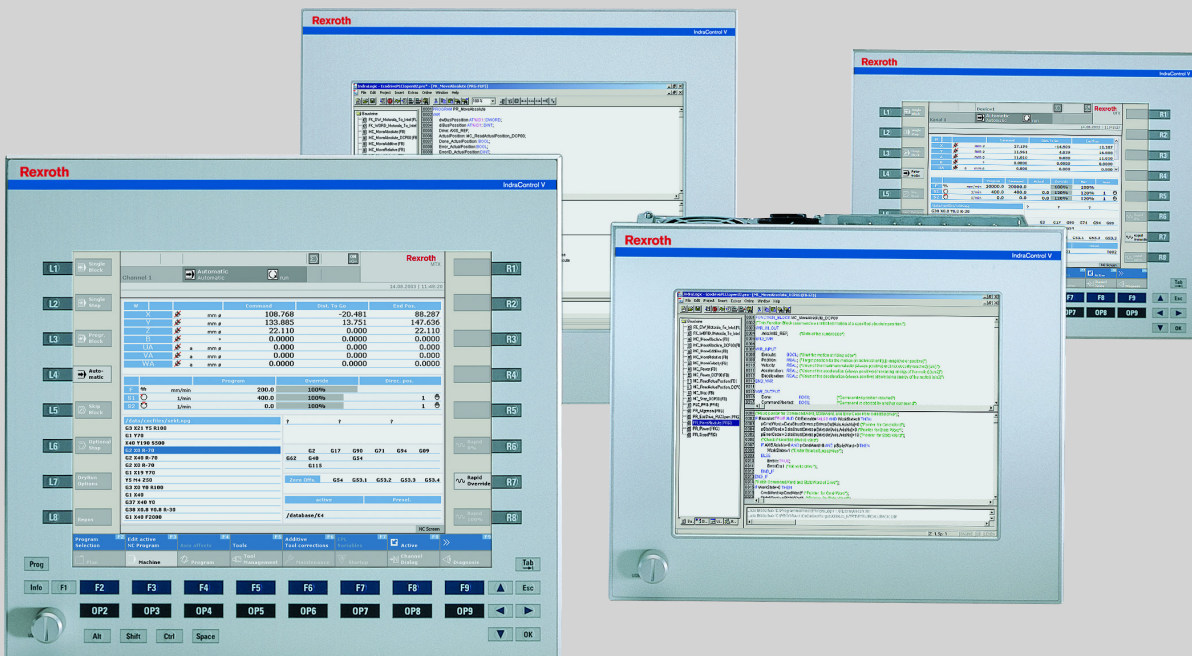


IndraControl VDP 16.3, VDP 40.3, VDP 60.3

Operator Display

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Edition 07



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Purpose of Documentation This documentation describes the operator displays IndraControl VDP 16.3, VDP 40.3 and VDP 60.3 as well as the Y-repeaters available as accessories.

Record of Revision

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Editorial Department Development Automation Systems Control Platform HoBr (MaKo/MePe)

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1 System presentation

1.1 Brief Description of the VDP 16.3, VDP 40.3 and VDP 60.3 Operator Displays

The VDP 16.3/40.3/60.3 operator displays are passive operator and visualization terminals. They form a PC-based operator terminal when used with a control cabinet PC equipped with a CDI or CDI+ interface. Currently, the VSB 40.3 and the VPB 40.3 devices are available as control cabinet PCs. While the VDP 16.3, VDP 40.3 and VDP 60.3 displays are mounted in the door of the control cabinet or on a bracket with little mounting depth, the control cabinet PC can for example be mounted in the control cabinet. The data transmission between control cabinet PC and a VDP 16.3, VDP 40.3 or VDP 60.3 operator display is carried out via the CDI interface.

1.1.1 Y-repeater

A Y-repeater is an accessory to connect VDP devices to a control cabinet PC with CDI interface (see [chapter 1.3 "Accessories" on page 5](#)). The Y-repeater can be used to connect two VDP devices to a control cabinet PC with CDI interface. For more information on the Y-repeater, refer to the operating instructions [R911336973](#).



The Y-repeater can only be connected to a control cabinet PC with CDI interface. An operation at the control cabinet PC with CDI+ interfaces is not possible.

1.2 Variants

The operator displays of the VDP xx.3 devices are available with CDI interface and CDI+ interface.

CDi	VDPxx.3xxx-D1-xx-xx
CDI+	VDPxx.3xxx-D2-xx-xx

Tab. 1-1: Type code for CDI interfaces and CDI+ interfaces

1.2.1 Characteristic features

The displays are available as different variants, see type designation code in [chapter 11 "Ordering information" on page 47](#). They differ in display size and touch screen capability.

VDP 16.3	DB	–	BK
Customized design for Bosch	–	AK	–
Display	304.8 mm TFT (12")		
Touch screen	Yes	Yes	No
Keys (foil keyboard)	No	No	16 machine function keys

Tab. 1-2: Characteristic features of the VDP 16.3 devices

VDP 40.3	DE	BI	DF
Display	381 mm TFT (15")		
Touch screen	Yes	No	Yes
Keys (foil keyboard)	No	16 machine function keys	

Tab. 1-3: Characteristic features of the VDP 40.3 devices

VDP 40.3	DG	DI	-
Customized design for Bosch	-	-	AL
Display	431.8 mm TFT (17")	381 mm TFT (15")	
Touch screen	Yes		
Switching elements	No	Yes	No

Tab. 1-4: Characteristic features of the VDP 40.3 devices

VDP 60.3	FE
Display	482.6 mm TFT (19")
Touch screen	Yes
Keys (foil keyboard)	No

Tab. 1-5: Characteristic features of the VDP 60.3 devices

1.2.2 Displays with Foil Keyboard

The front panel with foil keyboard consists of a 5 mm thick aluminum panel with beveled edges covered by a polyester foil with embossed keys. Machine functions keys are integrated in the application-oriented function keypad.

1.2.3 Displays with Touch Screen

The front panel with touch screen consists of a 5 mm thick aluminum panel with beveled edges as well. Devices provided with a customized front are equipped with a 4 mm thick aluminum front panel with rounded edges. The application software is operated via the touch-sensitive interface of the display.

NOTICE

Danger of destruction of the touch screen if operated with inappropriate objects.

Operate the touch screen only with your finger or with a touch pen suitable for capacitive touch screens.

1.2.4 Displays with Foil Keyboard and Touch Screen

The front panel with foil keyboard and touch screen consists of a 5 mm thick aluminum panel with beveled edges as well. The application software is operated via the foil keyboard or the touch-sensitive interface of the display.

NOTICE

Danger of destruction of the touch screen if operated with inappropriate objects.

Operate the touch screen only with your finger or with a touch pen suitable for capacitive touch screens.

1.2.5 VDP Variants

VDP with Touch Screen

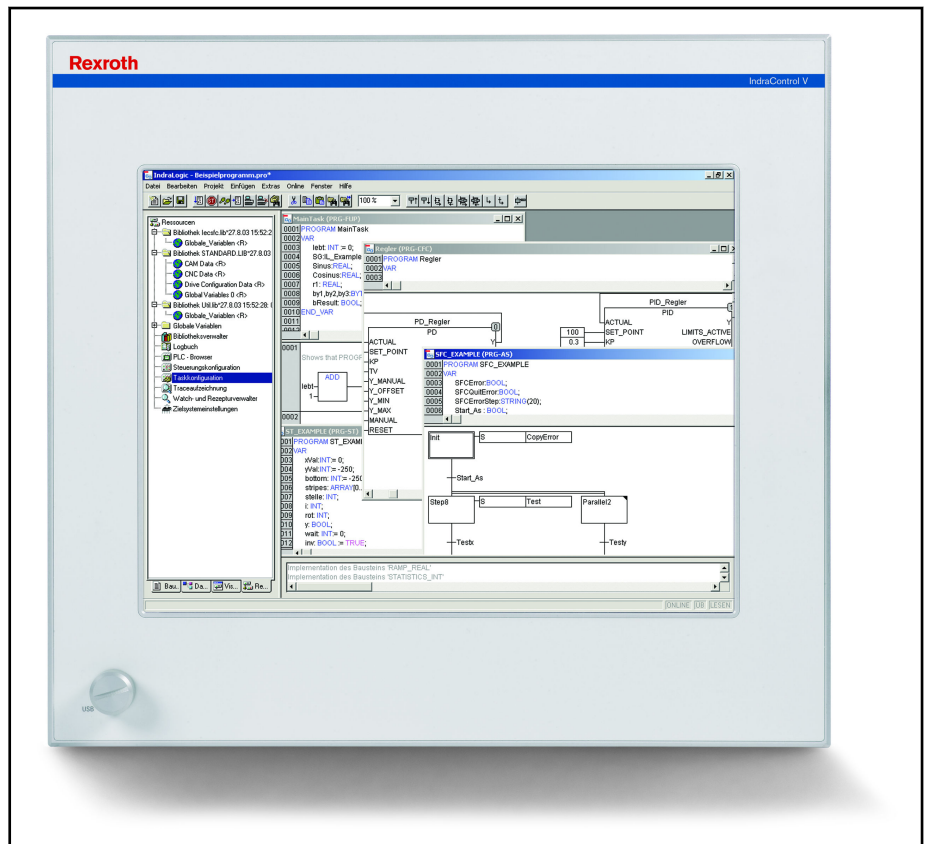


Fig. 1-1: VDP with touch screen

VDP With Foil Keyboard and 16 Machine Function Keys

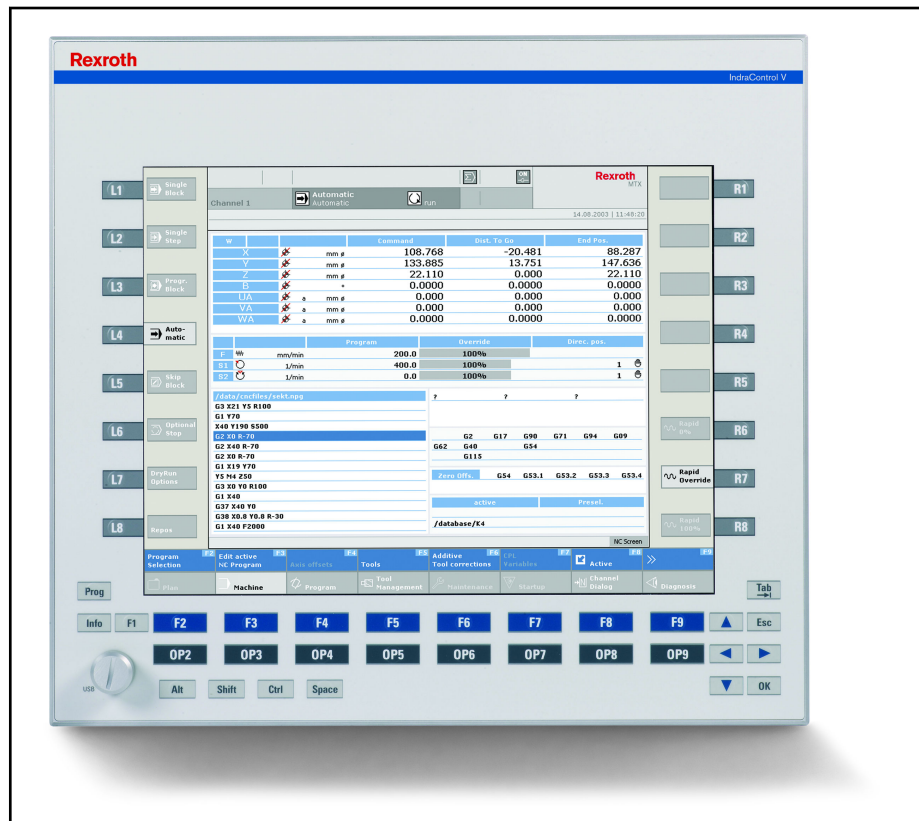


Fig. 1-2: VDP with foil keyboard and 16 machine function keys

VDP with Touch Screen and Customized Design

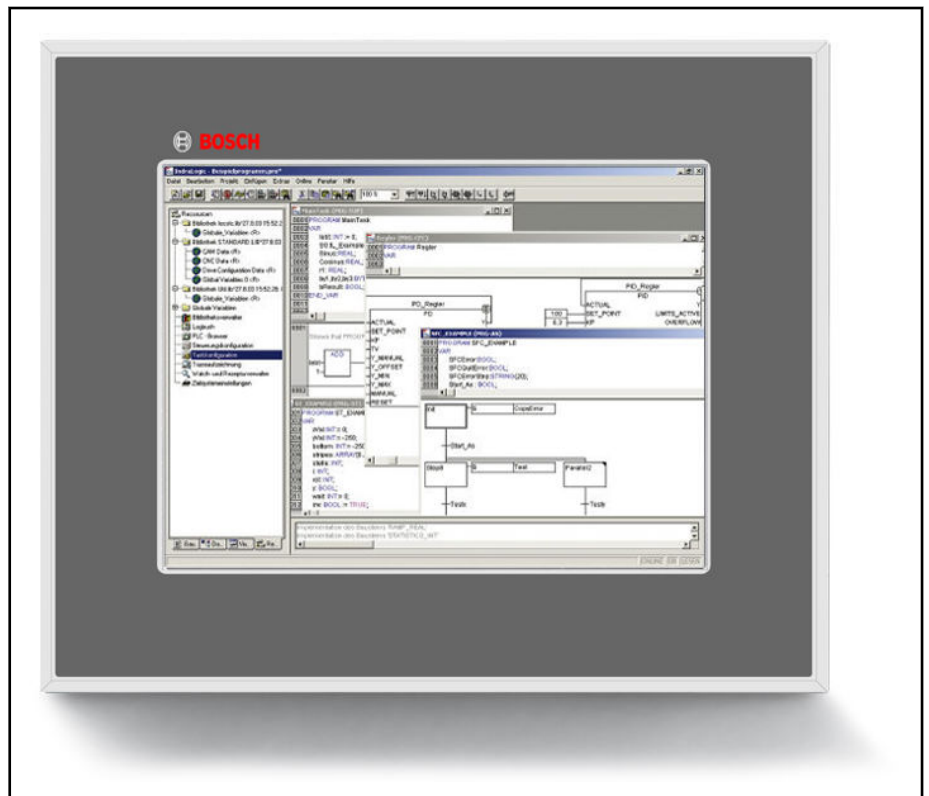


Fig. 1-3: VDP with touch screen and customized design

1.3 Accessories

Using the Y-repeater (VAC01.1S-YD1-NNNN) provided as accessory, two VDP displays can be connected to the control cabinet PC with CDI interface. The Y-repeater can be cascaded. Therefore, three or more VDPs can be connected to a control cabinet PC with CDI interface. Also refer to the operating instructions on the Y-repeater: [R911336973](#).



The Y-repeater can only be connected to a control cabinet PC with CDI interface. An operation at the control cabinet PC with CDI+ interfaces is not possible.

1.4 Commissioning

Mount the device properly (see [chapter 5 "Dimensions, Installation and Wiring" on page 17](#)). Connect the device to the de-energized control cabinet PC; then connect the 24 V supply voltage.

2 Important Instructions on Use

2.1 Intended Use

2.1.1 Introduction

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

WARNING

Physical injury and material damage might result from an inappropriate use of the products!

The products are designed for the use in an industrial environment and may therefore only be used for the intended purpose. If they are not used as intended, situations causing personal injury as well as material damage can occur.



Rexroth disclaims as manufacturer any warranty, liability or damages occurring due to inappropriate use of the products. Furthermore, Rexroth is not paying any compensation. The user is responsible for any risks resulting from inappropriate use of the products.

Before using Rexroth products, the following requirements must be met to ensure appropriate use of the products:

- Anyone handling one of the Rexroth products in any way has to read and understand the respective safety-related guidelines as well as the instructions on intended use.
- Hardware products have to remain in their original state, in other words, no modification regarding the design are allowed. Software products must not be decompiled and their source codes must not be modified.
- Damaged or faulty products must not be implemented or put into operation.
- It must be ensured that the products are installed as specified in the documentation.

2.1.2 Areas of Use and Application

The Rexroth VDP 16.3/40.3/60.3 displays are passive operating and visualization terminals forming a PC-based machine operating terminal when used with an industrial PC.

NOTICE

Danger of destruction of the device if not expressly stated accessories, add-on components and other components, cables, conduits, software and firmware is used.

The VDP 16.3/40.3/60.3 displays may exclusively be used with the accessories and add-on components specified in this documentation. Components not named expressly mentioned must neither be mounted nor connected. The same applies to cables and conduits.

The products may only be operated with the expressly stated configurations and component combinations as well as with the software and firmware which is given and specified in the respective functional description.

Typical areas of application of the VDP 16.3/40.3/60.3 are:

- Handling systems and assembly systems
- Packaging and food processing machines
- Printing machines and paper converting machines
- Machine tools
- Wood processing machines

The VDP 16.3/40.3/60.3 operator displays may only be operated under the assembly conditions and installation conditions, in the specified position of application and under the specified ambient conditions (temperature, degree of protection, humidity, EMC etc.) given in this documentation.

2.2 Inappropriate Use

The application of VDP 16.3/40.3/60.3 that are not within the specified areas of application or under operating conditions deviating from the operating conditions and technical data specified in the documentation is considered as "inappropriate".

VDP 16.3/40.3/60.3 must not be used if ...

- it is exposed to operating conditions that do not fulfill the ambient conditions specified. For instance, operation under water, in case of extreme variations of temperature or in extreme maximum temperatures is not allowed.
- the intended applications have not expressly been allowed by Rexroth. It is imperative that you also note the information given in the general notes on safety!

3 Using safety instructions

3.1 Structure of the safety instructions

The safety instructions are structured as follows:

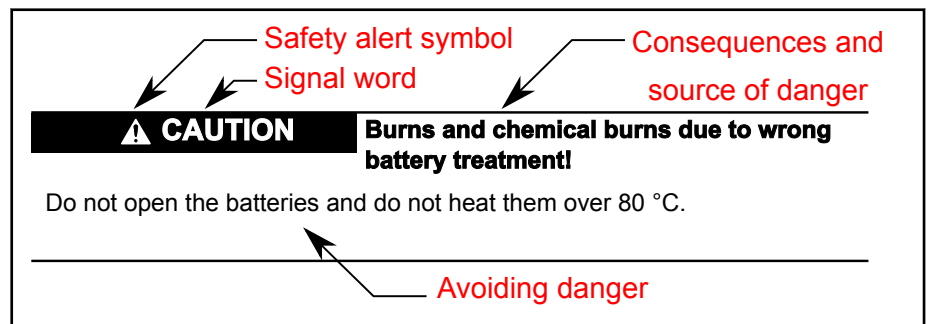


Fig. 3-1: Structure of the safety instructions

3.2 Explaining signal words and safety alert symbol

The safety instructions in this documentation contain specific signal words (danger, warning, caution, notice) and, if necessary, a safety alert symbol (according to ANSI Z535.6-2006).

The signal word draws attention to the safety instruction and indicates the risk potential.

The safety alert symbol (triangular safety reflector with exclamation marks), preceding the signal words Danger, Warning, Caution indicates hazards for persons.

⚠ DANGER

In case of non-compliance with this safety instruction, death or serious injury **will** occur.

⚠ WARNING

In case of non-compliance with this safety instruction, death or serious injury **can** occur.

⚠ CAUTION

In case of non-compliance with this safety instruction, minor or moderate injury can occur.

NOTICE

In case of non-compliance with this safety instruction, material damage can occur.

3.3 Symbols used

Pointers are displayed as follows:



This is a note.

Tips are displayed as follows:



This is a tip.

3.4 Explaining the signal alert symbol on the device



If this symbol is on your device, you have to observe the documentation on the device. The respective documentation informs on the type of hazard as well as the steps required to avoid this hazard.

4 Technical data

4.1 Front Panel

	VDP 16.3DB	VDP 16.3AK	VDP 16.3BK
Display	305 mm TFT (12"), 800 x 600 pixels, 256,000 colors		
Operation	Touch control		Key operation
Surface – front panel	Color RAL 7035 Light gray	Graphite gray (Bosch design)	Color RAL 7035 Light gray
Degree of protection	Front panel IP 65 acc. to DIN EN 60 529 Front Type 1 acc. to NEMA (UL)		
Interface	USB port, Cover, degree of protection IP 65	No USB	USB port, Cover, degree of protection IP 65
Weight	4.0 kg	4.0 kg	4.0 kg

Tab. 4-1: Technical data, front VDP 16.3

	VDP 40.3DE	VDP 40.3BI	VDP 40.3DF
Display	381 mm TFT (15"), 1024 × 768 pixels, 16 mill. colors		
Surface – front panel	Color RAL 7035 Light gray	Color RAL 7035 Light gray	Color RAL 7035 Light gray
Operation	Touch control	Key operation	Touch screen and key operation
Degree of protection	Front panel IP 65 acc. to DIN EN 60 529 Front Type 1 acc. to NEMA (UL)		
Interface	USB port, cover, degree of protection IP 65	USB port, cover, degree of protection IP 65	USB port, cover, degree of protection IP 65
Weight	5.8 kg	5.8 kg	5.8 kg

Tab. 4-2: Technical data, front of the VDP 40.3

	VDP 40.3DG	VDP 40.3DI	VDP 40.3AL
Display	432 mm TFT (17"), 1280 × 1024 pixels, 16 mill. colors	381 mm TFT (15"), 1024 × 768 pixels, 16 mill. colors	381 mm TFT (15"), 1024 × 768 pixels, 16 mill. colors
Surface – front panel	Color RAL 7035 Light gray	Color RAL 7035 Light gray	Graphite gray Bosch design
Operation	Touch control	Touch screen operation and switching elements	Touch control
Degree of protection	Front panel IP 65 acc. to DIN EN 60 529 Front Type 1 acc. to NEMA (UL)		

	VDP 40.3DG	VDP 40.3DI	VDP 40.3AL
Interface	USB port, cover, degree of protection IP 65	USB port, cover, degree of protection IP 65	No USB
Weight	5.8 kg	7.6 kg	5.8 kg

Tab. 4-3: Technical data, front of the VDP 40.3

VDP 60.3FE	
Display	483 mm TFT (19"), 1280 × 1024 pixels, SXGA
Operation	Touch control
Surface – front panel	Color RAL 7035 Light gray
Degree of protection	Front panel IP 65 acc. to DIN EN 60 529 Front Type 1 acc. to NEMA (UL)
Interface	USB connection (front panel) Cover, degree of protection IP 65
Weight	7.3 kg

Tab. 4-4: Technical data, front of the VDP 60.3

4.2 Voltage supply

The VDP operator display is supplied with a voltage of DC 24 V. The max. current consumption is 2 A.

The power consumption of the VDP 16.3 devices is 20 W. The power consumption of the VDP 40.3 devices is 35 W.

4.3 Ambient Conditions

	In operation	Transport	Storage
Max. ambient temperature	+5 °C to +45 °C	-20 °C to +60 °C	-20 °C to +60 °C
Max. temperature gradient	Temporal temperature changes up to 3 K per minute	Temporal temperature changes up to 3 K per minute	Temporal temperature changes up to 3 K per minute
Humidity	Min. relative humidity: 5 %	Min. relative humidity: 5 %	Min. relative humidity: 5 %
	Max. relative humidity: 85%	Max. relative humidity: 75%	Max. relative humidity: 85%
	Min. absolute humidity: 1 g/m ³	Min. absolute humidity: 1 g/m ³	Min. absolute humidity: 1 g/m ³
	Max. absolute humidity: 25 g/m ³	Max. absolute humidity: 25 g/m ³	Max. absolute humidity: 25 g/m ³
	Condensation not allowed	Condensation not allowed	Condensation not allowed
	Corresponds to climatic class 3K3 acc. to EN 60721-3-3	Corresponds to climatic class 2K2 acc. to EN 60721-3-2	Corresponds to climatic class 1K2 acc. to EN 60721-3-1
Air pressure	Up to 3,000 m above sea level acc. to EN 61131-2	Up to 3,000 m above sea level acc. to EN 61131-2	Up to 3,000 m above sea level acc. to EN 61131-2

	In operation	Transport	Storage
Mechanical strength	Max. vibration: Frequency range: 10...150 Hz Excursion: 0.075 mm from 10 Hz to 57 Hz Acceleration: 1 g at 57 Hz to 150 Hz Acc. to EN 600068-2-6	Max. shock: 15 g 11 ms Acc. to EN 60068-2-27, No malfunction	Max. shock: 15 g 11 ms Acc. to EN 60068-2-27, No malfunction
Contamination level	2	2	2
Overvoltage category	2	–	–

Tab. 4-5: Ambient conditions

4.4 Standards

4.4.1 Standards used

The system components of the Operator Display correspond to the following standards:

Standard	Description
EN 60 204-1	Safety of machinery - Electrical equipment of machines
EN 61 000-6-4	Generic standards - Emission standard (industrial environments)
EN 61 000-6-2	Generic standards – Noise immunity (industrial environments)
EN 61 558-2-6	Transformer for 24 V power supply unit, safe separation
EN 60 664-1	Overvoltage category II
EN 61 131-2	24 V output requirements
EN 61 131-2	24 V current supply requirements
ISO 13 850	Safety of machinery, E-STOP devices
EN 60 529	Degrees of protection (including housings and installation compartments)
EN 60 068-2-6	Vibration test
EN 60 068-2-27	Shock test
EN 60 721-3-1 and EN 60 721-3-3	Climatic class

Tab. 4-6: Standards used

4.4.2 CE Marking

Declaration of Conformity



The electronic products described in this project planning manual comply with the requirements and goals of the following EC directive and with the harmonized European standards:

EMC guideline 2004/108/EC

The electronic products described in this project planning manual comply with the requirements on the operation within the industrial environment:

Standard	Title	Edition
DIN EN 61000-6-4 (VDE 0839-6-4)	Electromagnetic compatibility (EMC) Volume: 6-4: Generic standards – emitted interference for industrial environments (IEC 61000-6-4:2006)	September 2007
DIN EN 61000-6-2 (VDE 0839-6-2)	Electromagnetic compatibility (EMC) Volume: 6-2: Generic standards – noise immunity for industrial environments (IEC 61000-6-2:2005)	March 2006

Tab. 4-7: Electromagnetic compatibility (EMC) standards

Note for the Machine Manufacturer

The electronic products described in this project planning manual do not fall under the machines listed in the EC machinery directive. Therefore, explanations are not required for the 2006/42/EC machinery directive and do not exist.

2006/42/EC, the EU directive for machines, specifies the requirements on a machine. In this directive, a machine is defined as a combination of the components or mechanisms combined with each other. The described products belong to the electrical equipment of a machine. Therefore, they have to be included in the declaration of conformity of the machine manufacturer.

The standard EN 60204-1 (safety of machinery, general requirements on the electrical equipment of the machines) can be used for the electrical equipment of the machines.

NOTICE

Loss of CE conformity due to modifications of the device.

The CE marking is only valid for the device in its delivery status (ex works). After modifying the device, the CE conformity has to be verified.

4.4.3 Certification, UL and CSA



The devices of the VDP 16.3/40.3/60.3 product family are certificated according to

- **UL508** (Industrial Control Equipment) and
- **C22.2 no. 142-M1987** (CSA)

UL file no. E210730

However, there can be combinations or extension stages with a limited or missing certification. Thus, verify the registration according to the UL marking on the device.



To guarantee an UL- and CSA-compliant operation, the following conditions have to be fulfilled:

- Use only insulated copper wire suitable for at least 60/75 °C.

NOTICE

Loss of UL/CSA conformity due to modifications at the device.

UL and CSA marking applies only to the device upon delivery. After modifying the device, verify the UL and the CSA conformity.

4.5 Wear parts

The wear parts as well as their service life are described in this section. Wear parts are not subject to any warranty.

4.5.1 Backlight

The service life of the backlight is limited. After this period, the backlight will produce only 50% of its original brightness. This time differs for the used displays. Service life at an ambient temperature is 25 °C:

Display size	Service life
304.8 mm (12")	50,000 hours
381 mm (15")	50,000 hours
482.6 mm (19")	50,000 hours

Tab. 4-8: Half-life period of the TFT displays

4.6 Compatibility test

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

As it is not possible 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 this reason, before using the respective material a compatibility test has to be carried out for new materials (e. g. lubricants and cleaning agents) and our housing or our housing materials.

5 Dimensions, Installation and Wiring

5.1 Housing dimensions

5.1.1 Housing dimensions VDP 16.3

VDP 16.3 standard version

Irrespective of the design of the VDP 16.3 standard variants with keys (M-keys, see [chapter 6.3.3 "VDP 16.3 Keys and VDP 40.3 Keys" on page 31](#)) or touch screen the front panel width is 350 mm and the height is 290 mm. All values in the illustrations are given in mm.

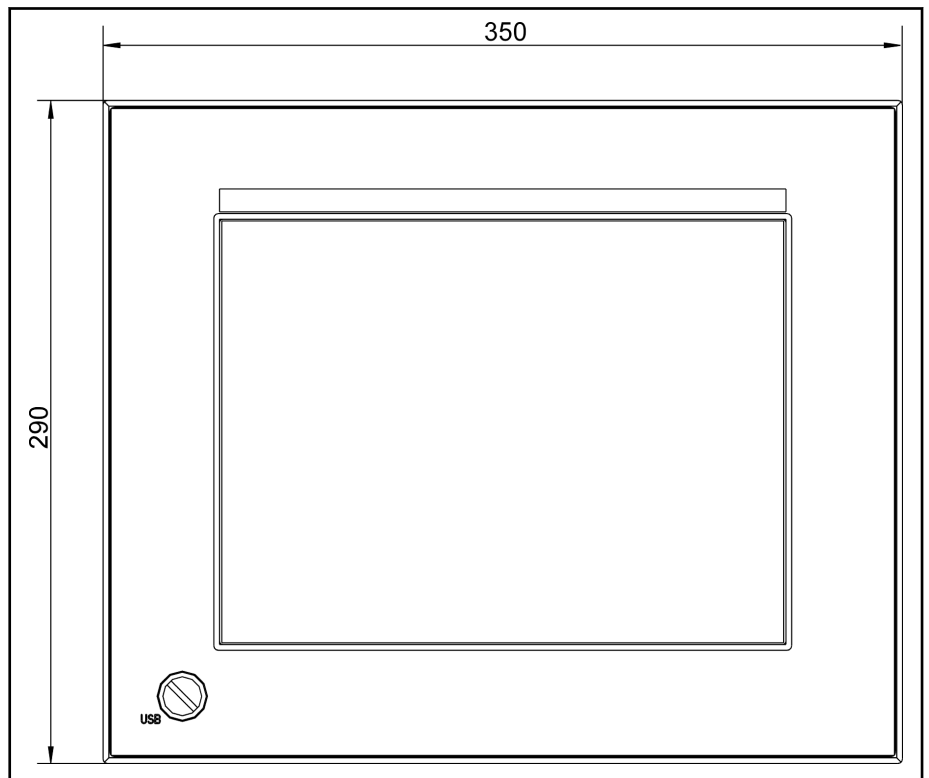


Fig. 5-1: Dimensions: Front panel of the VDP 16.3DB

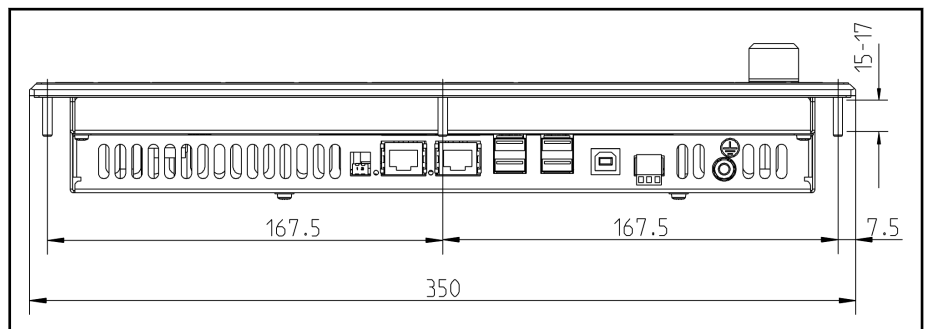


Fig. 5-2: VDP 16.3BK: Top view

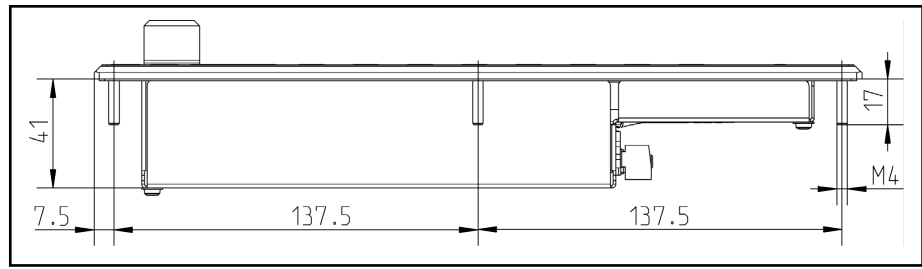


Fig. 5-3: VDP 16.3BK: Left view

VDP 16.3AK customized version

The front panel width of the VDP 16.3AK is 360 mm and the height is 300 mm. It has no USB connection.

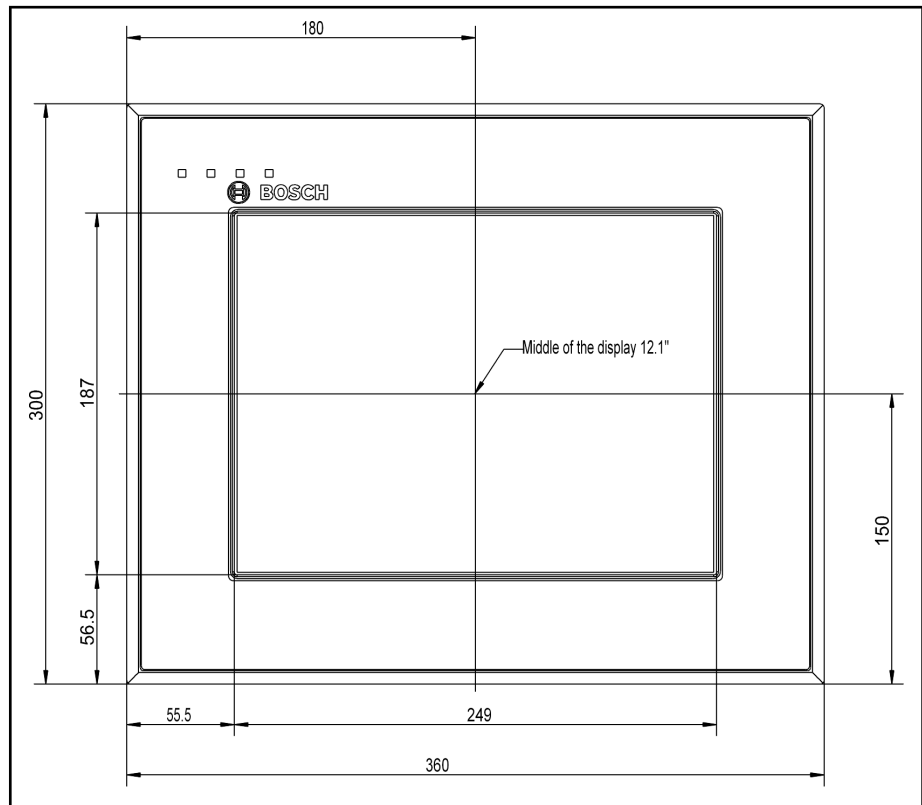


Fig. 5-4: Dimensions: Front panel of the VDP 16.3AK

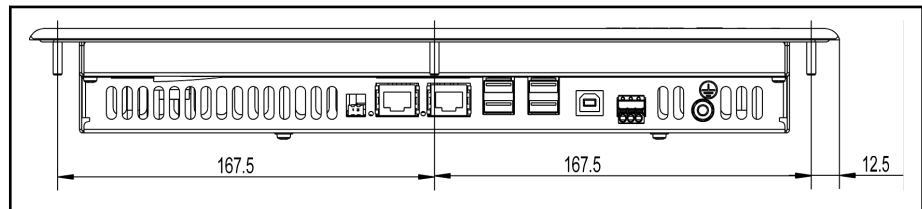


Fig. 5-5: VDP 16.3AK: Top view

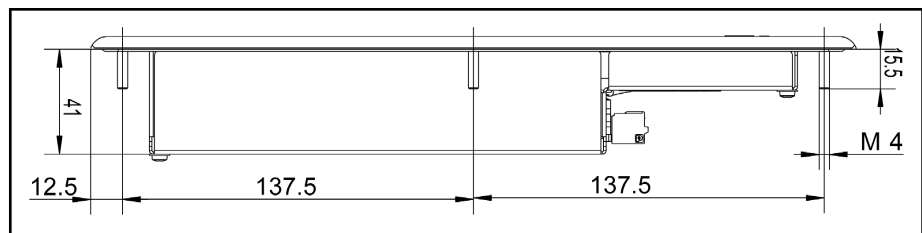


Fig. 5-6: VDP 16.3AK: Left view

	VDP 16.3BK + DB	VDP 16.3AK
Width	350 mm	360 mm
Height	290 mm	300 mm
Mounting depth	41 mm	

Tab. 5-1: Dimensions of the VDP 16.3 devices

5.1.2 Housing dimensions VDP 40.3

VDP 40.3 standard version

Irrespective of the design of the VDP 40.3 standard variants with keys (M-keys, see chapter 6.3.3 "VDP 16.3 Keys and VDP 40.3 Keys" on page 31) or with touch screen, the front panel width is 407 mm and the height is 370 mm. All values in the illustrations are given in mm.

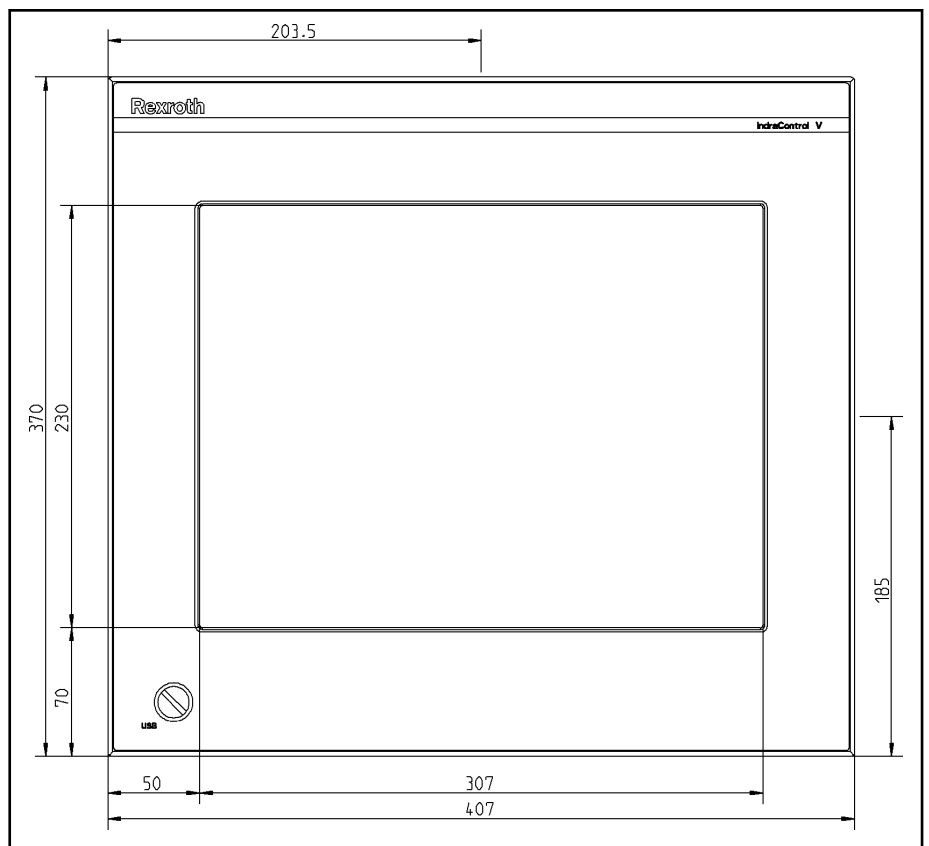


Fig. 5-7: Dimensions: Front panel of the VDP 40.3BI devices

The front panels of the VDP 40.3DE, -BI, -DF and VDP 40.3DG have the same dimensions.

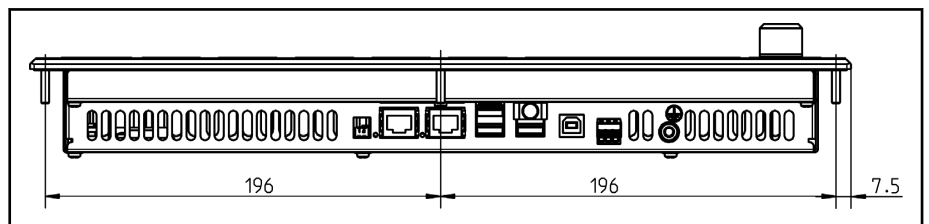


Fig. 5-8: VDP 40.3BI and VDP 40.3DE: Top view

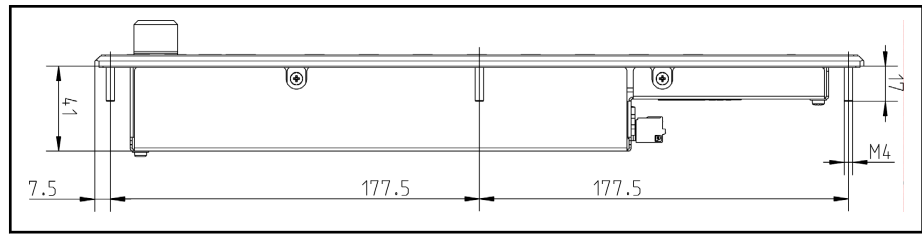


Fig. 5-9: VDP 40.3BI and VDP 40.3DE: Left view

VDP 40.3AL customized version

The front panel width of the VDP 40.3AL is 417 mm and the height is 380 mm. It has no USB connection.

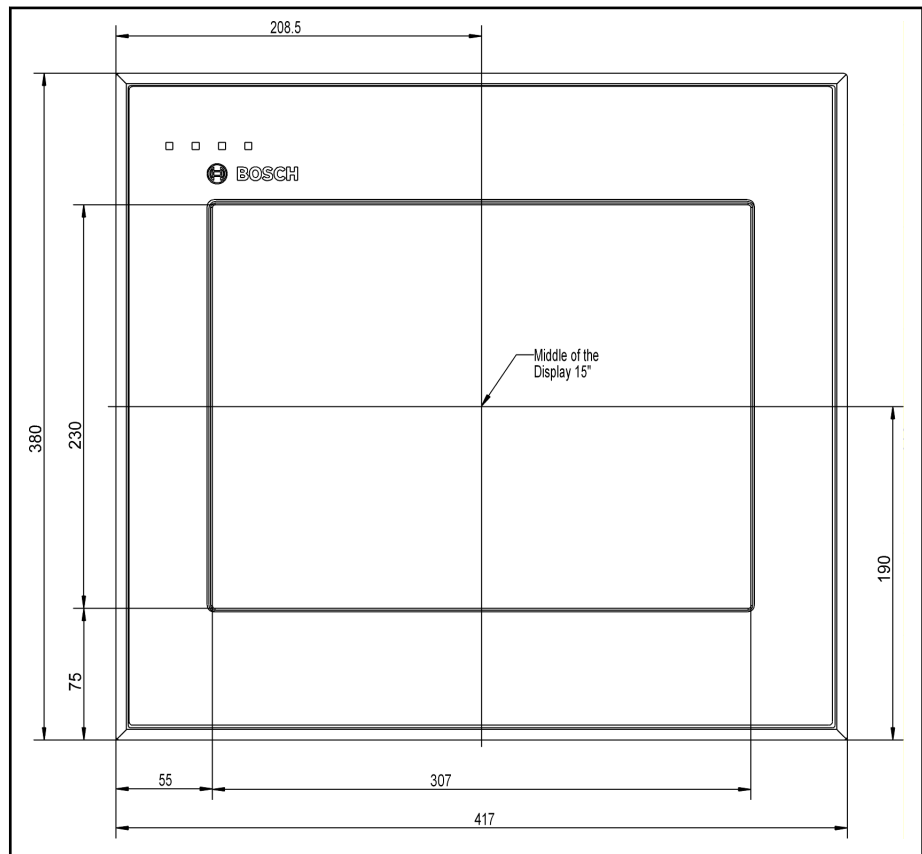


Fig. 5-10: Dimensions: Front panel of the VDP 40.3AL devices

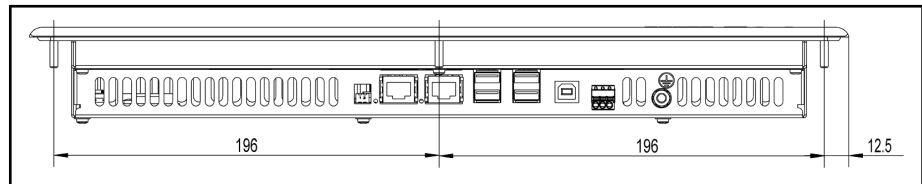


Fig. 5-11: VDP 40.3AL: Top view

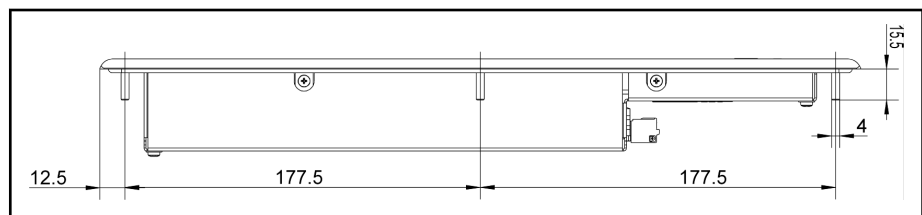


Fig. 5-12: VDP 40.3AL: Left view

	VDP 40.3DE + BI + DF +DG	VDP 40.3AL
Width	407 mm	417 mm
Height	370 mm	380 mm
Mounting depth	41 mm	

Tab. 5-2: Dimensions of the VDP 40.3 devices

5.1.3 Housing dimensions VDP 60.3

VDP 60.3 standard version

Irrespective of the design of the VDP 60.3 devices with keys (M-keys, see [chapter 6.3.3 "VDP 16.3 Keys and VDP 40.3 Keys" on page 31](#)) or with touch screen, the front panel width is 483 mm and the height is 400 mm. All values are given in mm.

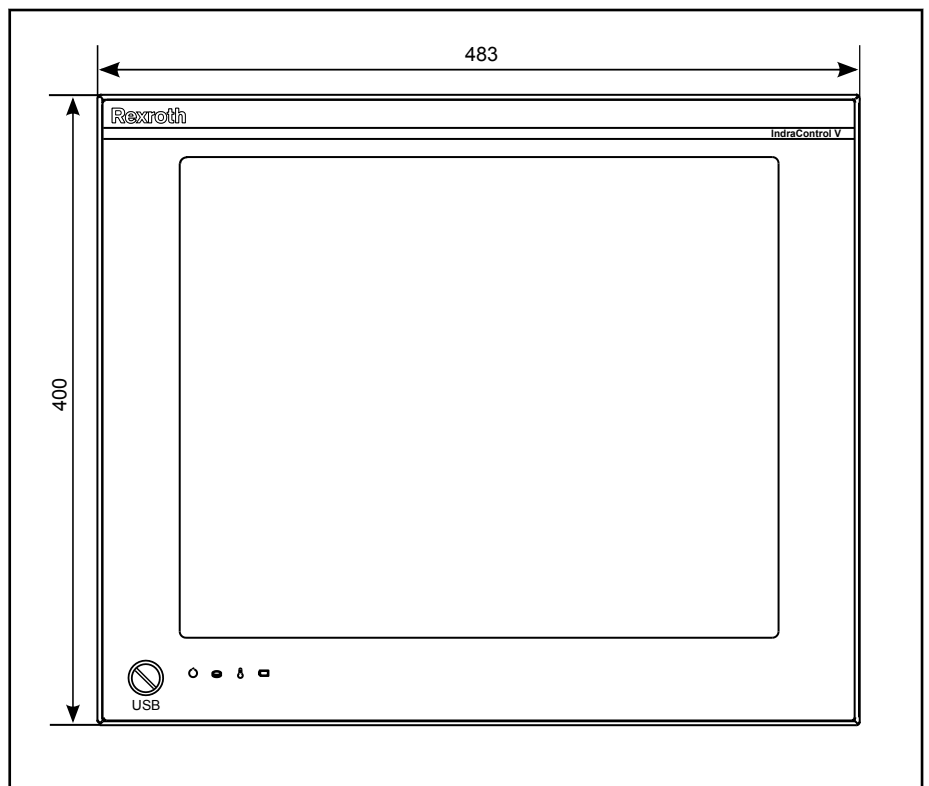


Fig. 5-13: Dimensions: Front panel of the VDP 60.3

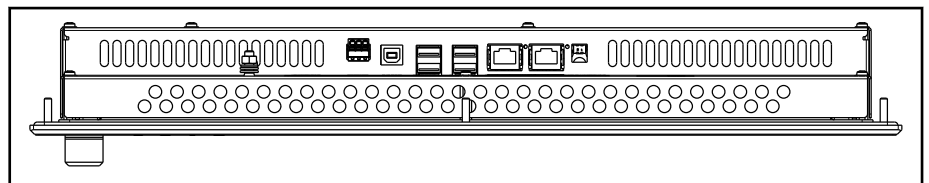


Fig. 5-14: VDP 60.3: top view

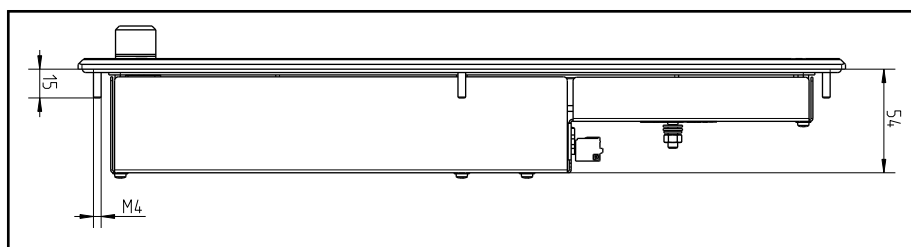


Fig. 5-15: VDP 60.3: left view

5.2 Installation

5.2.1 Installation Notes

- When mounting the display, ensure an ergonomic operation. Additionally, ensure that all moving machine components can be seen by the operator at any time!
- Avoid mounting locations exposed to direct UV or sunlight, as the screen readability is reduced and additional heat development can occur.
- Provide a space of 50 mm on all sides for sufficient cooling and cable routing.
- The LED displays on the operating panel must not be covered.
- Lay all connecting cables in loops and use strain reliefs for all cables.
- Keep the maximum distance possible from interference sources.

5.2.2 Mounting cut-out

Mount the display as follows:

⚠ WARNING

Loss of degree of protection IP 65!

The mounting surface of the operator display must be:

- free of impurities and
- has to be provided with sufficient mechanical strength and flatness

These criteria influence the required IP degree of protection to a great extent. Further required measures have to be taken depending on the mounting location, e. g. the stabilization of the mounting frame.

1. Create a mounting cut-out with 8 holes, diameter 5 mm, according to the illustrations "Mounting dimensions" on the following pages.
2. Remove the paper strip from the seal on the rear side of the front panel.
3. Insert the display from the front into the cut-out. The mounting bolts M4 are inserted into the drilled holes.
4. Fasten the display by screwing the nuts at the rear side of the mounting bolts.

NOTICE

Damage to the mechanics caused by wrong tightening torque.

Fasten the screws with the respective mounting torques specified in the following table.

Thread	Mounting torque
M2,5	0.4 Nm
M3	0.7 Nm
M4	1.4 Nm
M5	2.8 Nm

Tab. 5-3: Tightening torques

5.2.3 Mounting Dimensions VDP 16.3

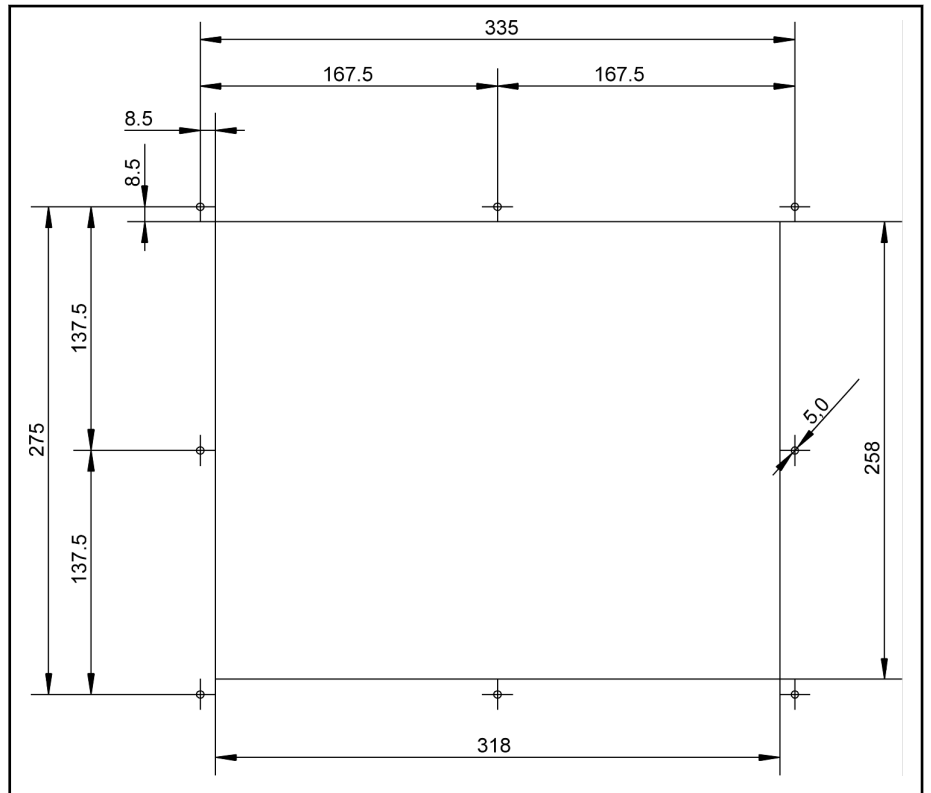


Fig. 5-16: Mounting dimensions of the VDP 16.3 devices

5.2.4 Mounting dimensions VDP 40.3

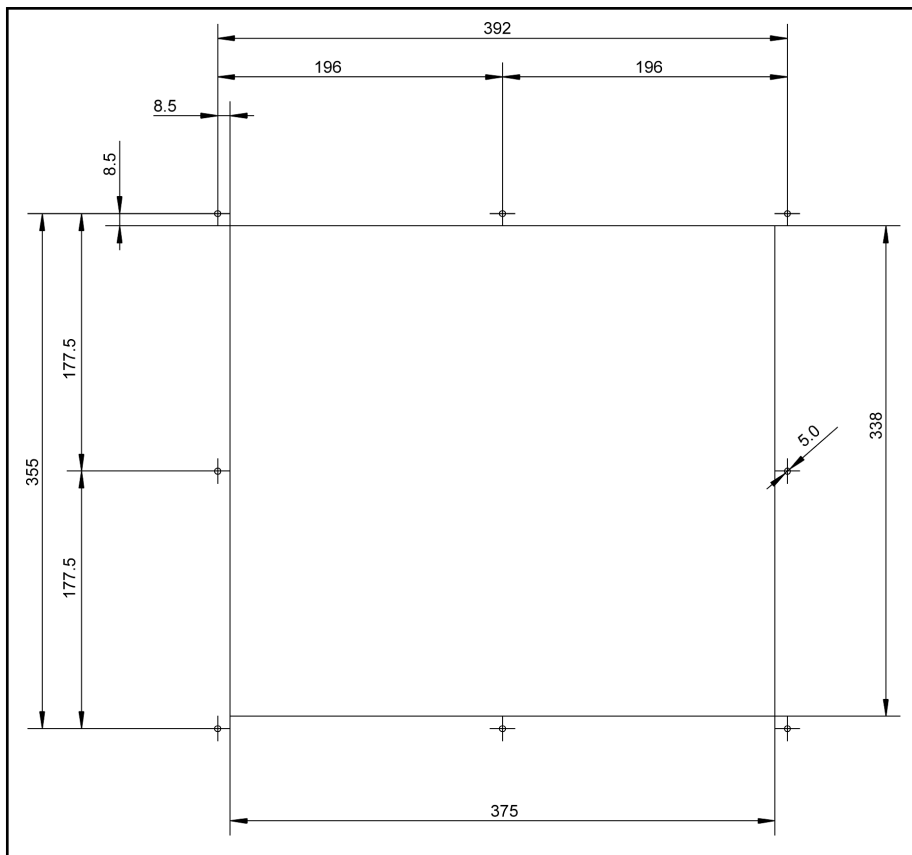


Fig. 5-17: Mounting dimensions of the VDP 40.3 devices

5.2.5 Mounting dimensions VDP 60.3

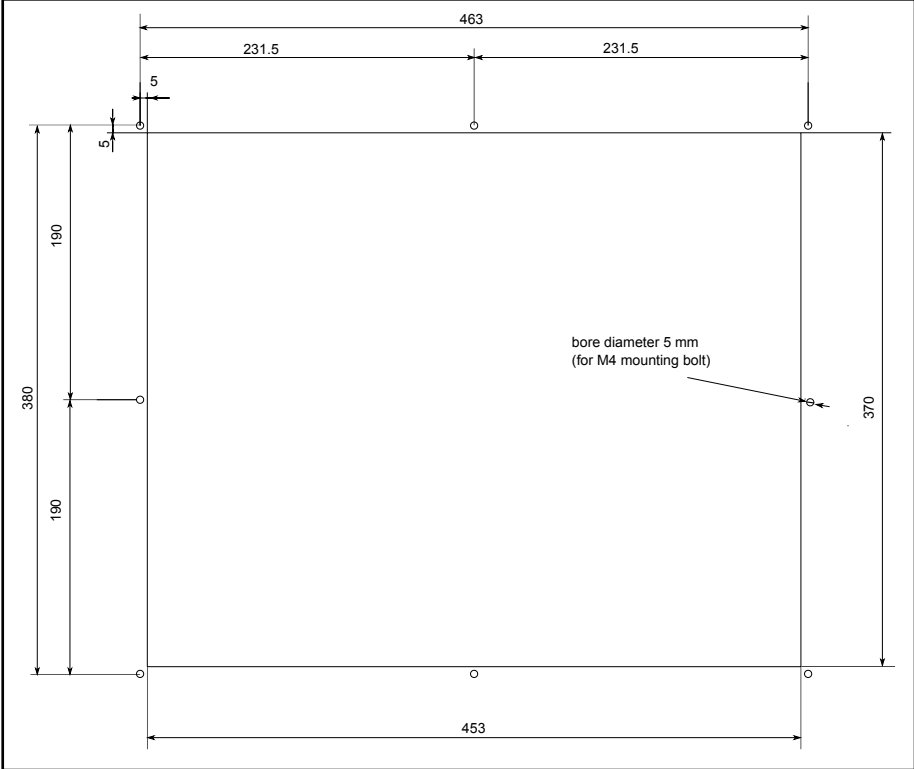


Fig. 5-18: Mounting dimensions of the VDP 60.3 devices

5.3.3 Control cabinet PC and display at UPS

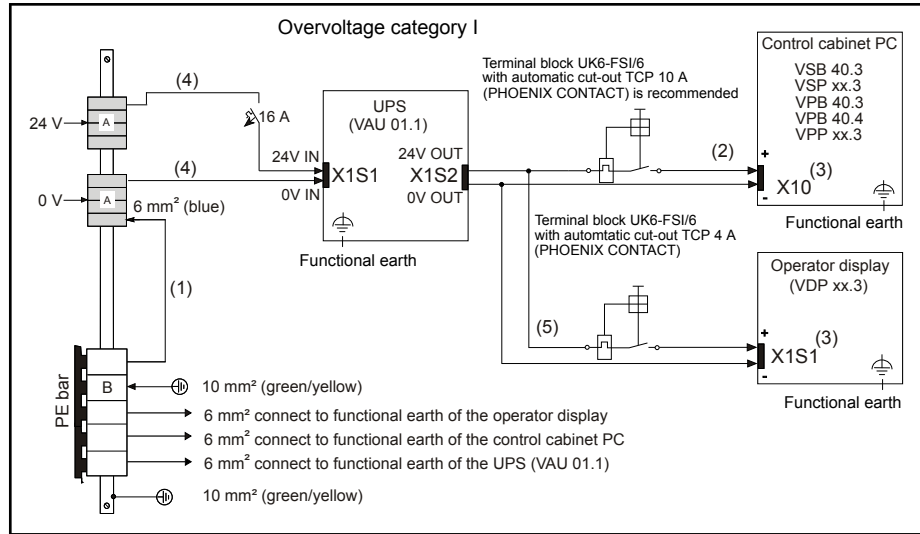


Fig. 5-21: PC (VSB 40.3, VSP xx.3, VPB 40.3, VPP xx.3) and display (VDP xx.3) connected to an UPS

5.3.4 Only control cabinet PC connected to UPS

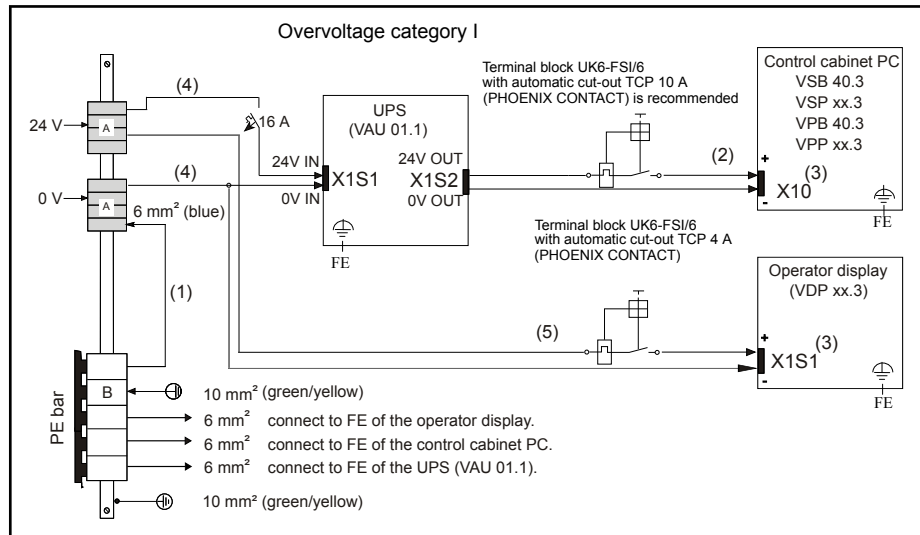


Fig. 5-22: PC (VSB 40.3, VSP xx.3, VPB 40.3, VPP xx.3) connected to an UPS. Display (VDP xx.3) not connected to an UPS

6 Display and operating components

6.1 Backlight switch-off

The service life of the backlight of the display is limited (see [chapter 4.5 "Wear parts" on page 15](#)).

To extend the service life of the LCD backlight, the flat screen display is provided with a backlight switch-off. This function "darkens" the display when the panel PC has been not operated for a certain period of time. The length of the time interval can be specified in the Windows Control Panel under "Power Options", see [fig. 6-1 "Setting the darkening mode of the display in the Windows Control Panel" on page 29](#).

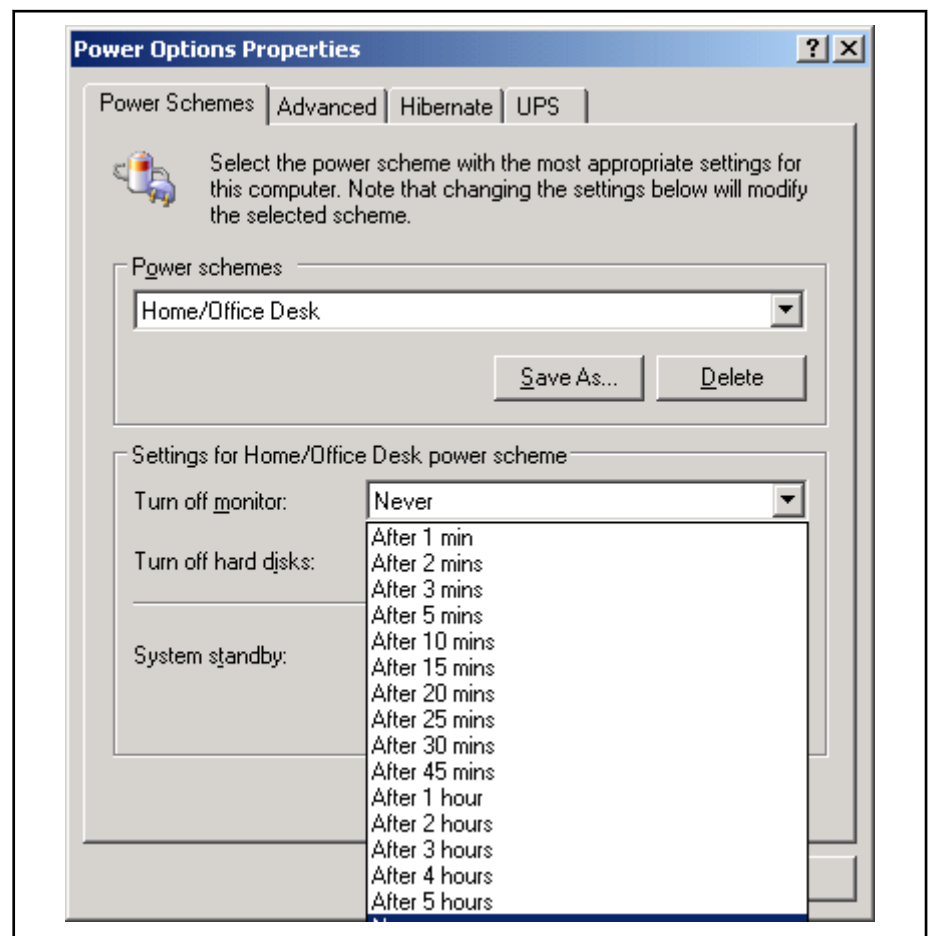


Fig. 6-1: Setting the darkening mode of the display in the Windows Control Panel

6.2 Operating and error displays





There are four LEDs as on the top of the front panel to display the device conditions and errors of the connected control cabinet PC. Take one of the following measures if one of the succeeding LEDs displays an error or a note.



Depending on the connected control cabinet PC, not all LEDs are activated. Therefore, not all messages are displayed.


For further information, please refer to the relevant documentation of the control cabinet PC.

6.2.1 CDI

Symbol, LED	Display	Description	Action
 Power	LED green	Normal operation With Y-repeater: This VDP is the active VDP	–
	LED off	No supply voltage of 24 V DC	Check supply voltage!
	LED flashing green	No serial connection to the control cabinet PC. With Y-repeater: This VDP is not the active VDP.	Check cables
 HDD	LED yellow	Hard disk access	–
	LED flashes yellow	Warning: SMART analysis identifies errors	Exchange hard disk
 Temp	LED off	Temperature in safe range Fan in control cabinet does not run or runs too slow	–
	LED flashes red	Temperature > 50 °C	Check the fan in the control cabinet PC Reduce the ambient temperature!
	LED red		
 UPS	LED off	Normal operation	–
	LED red	The control cabinet PC is currently operating in the UPS mode. I.e., the supply voltage is not available!	Restore the supply voltage, initiate a controlled restart of the control cabinet PC!

Tab. 6-1: LEDs for operating and error display on the front panel

6.2.2 CDI+

Symbol, LED	Display	Description	Action
 Power	LED green	Normal operation	–
	LED off	No supply voltage of 24 V DC	Check supply voltage!

Tab. 6-2: LEDs for operating and error display on the front panel

6.2.3

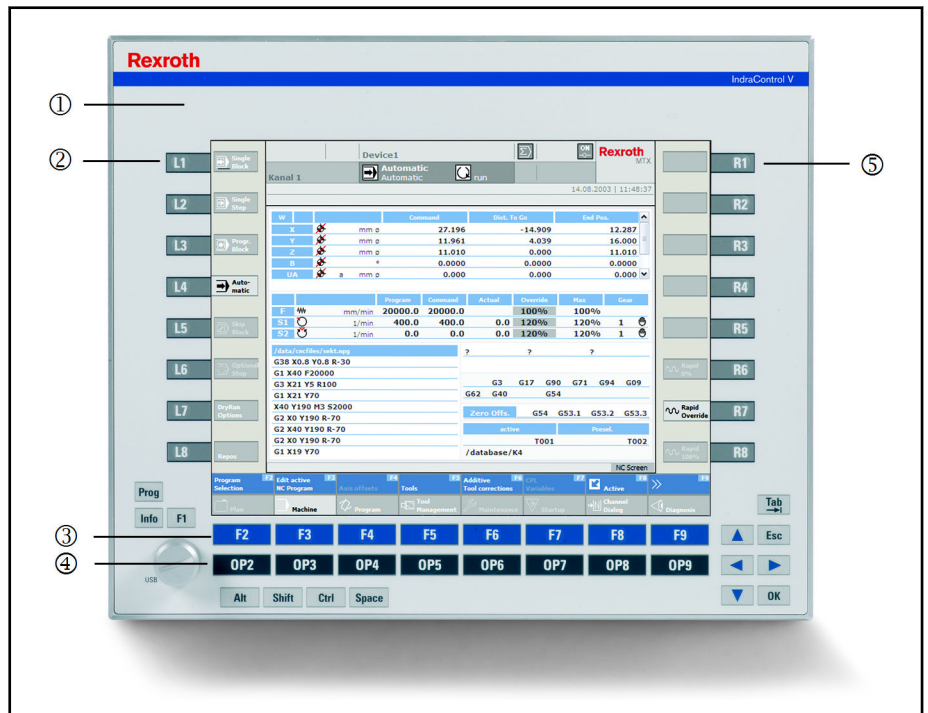
6.3 Foil Keyboard

6.3.1 System requirements

For the language-independent foil keyboard no language-dependent keyboard driver is to be installed. The preinstalled English keyboard driver can also be used for user interfaces of other languages. Therefore, do not change the delivery settings.

If you want to operate an external USB keyboard (e.g. VAK), the adequate keyboard driver has to be selected.

6.3.2 Position of the keys



- ① Status displays
- ② Machine function keys (M-keys) L1 to L8
- ③ Function keys F2 to F9
- ④ Operating keys OP2 to OP9
- ⑤ M-keys R1 to R8

Fig. 6-2: Position of the keys on the VDP 16.3 and VDP 40.3

6.3.3 VDP 16.3 Keys and VDP 40.3 Keys

Function and operating keys (F... + OP...)

The assignment of the function and operating keys (F... + OP...) is determined by the respective application software used.

OP-keys

The following key codes are transmitted to the operating system:

Key at the VDP 16.3, VDP 40.3	Key code
OP2	<CTRL> + <SHIFT> + <ALT> + <F2>
to	<CTRL> + <SHIFT> + <ALT> + <F9>
OP9	
Prog	<CTRL> + <SHIFT> + <ALT> + <Q>
INFO	<CTRL> + <SHIFT> + <ALT> + <I>

Tab. 6-3: Key code for the VDP 16.3 and VDP 40.3

M-keys

Eight M-keys (machine function keys, see [chapter 6.3.3 "VDP 16.3 Keys and VDP 40.3 Keys" on page 31](#)) are allocated on the right and the left side of the display. The keys on the right of the display are labeled with R1 to R8, the keys on the left side of the display with L1 to L8.

Addressing M-keys

The M-key state can be retrieved differently:

- Pressed M-keys are transmitted as USB keyboard signals to the PC.
- The M-keys transferred to the control cabinet PC via the serial connection of the CDI interface are bit-coded and can either be output via a Profibus-DP slave card or retrieved via a connector strip and transmitted to the corresponding extension card. The transmission protocol is ensured by the hardware. If there are interferences or if the connection is interrupted, the incoming M-key bits are disabled after 10 ms.

Requesting M-keys via Windows applications

The following key codes are transmitted to the operating system:

Key at the VDP 16.3 VDP 40.3	Key codes if "UpperClassFilter" is activated	Key codes if "UpperClassFilter" is deactivated
L1 to L8	<CTRL> + <ALT> + <SHIFT LEFT> + <1 to 8> (not on numeric block)	<F13> to <F20>
R1 to R8	<CTRL> + <ALT> + <SHIFT RIGHT> + <1 to 8> (not on numeric block)	<F21> to <F24> and four OEM special characters

Tab. 6-4: Shortcuts for the keys of the VDP 16.3 and VDP 40.3 devices



If a USB special keyboard is used, the incoming keyboard data stream is analyzed and if a M-key code is detected (F13-F24 or four OEM special characters) the corresponding Ctrl-LRShift-Alt-<n> code is inserted into the data stream, see [chapter 9 "IndraControl VDP 16.3/40.3/60.3/90.3/92.3" on page 43](#).

M-key output via Profibus DP (only for devices with CDI interface)

The M-keys can be output via an optional PCI plug-in card in the PC. The corresponding GSD file is delivered with the application. If M-keys are pressed, their value is one "1", otherwise "0".

Byte 1								Byte 0							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
R8	R7	R6	R5	R4	R3	R2	R1	L8	L7	L6	L5	L4	L3	L2	L1

Tab. 6-5: M-key assignment at the Profibus DP

6.4 Touch screen

In the VDP 16.3DB, VDP 16.3AK variants as well as VDP 40.3DE, -DF, -DG, -DI,- 40.3AL and VDP 60.3FE a touch screen is used allowing the operation of the application software via the touch-sensitive surface of the display.

Start the calibration via the preinstalled "IPCMnt.exe" maintenance program. The program is to be found under **Start ▶ Program Files ▶ Bosch Rexroth**.

The icons available on the touch screen depend on the used application software.

NOTICE

Danger of destruction of the touch screen if operated with inappropriate objects.

Operate the touch screen only with your finger or with a touch pen suitable for capacitive touch screens.

7 Interfaces

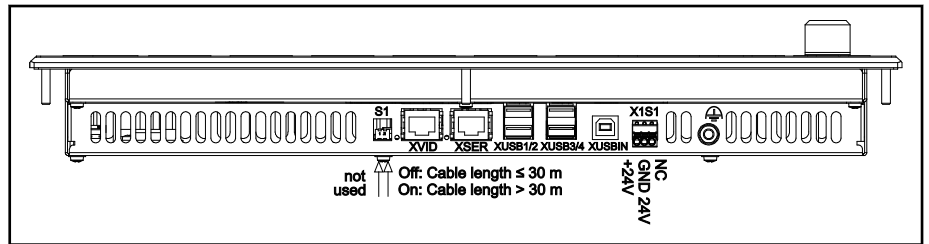


Fig. 7-1: Interface to the control cabinet PC with CDI interface

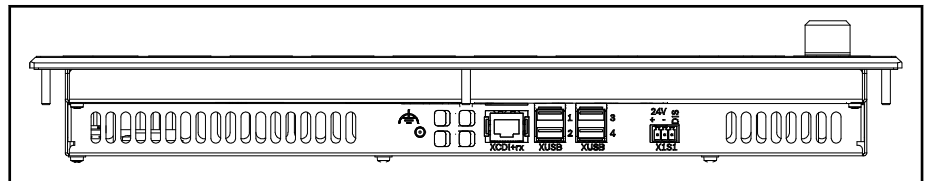


Fig. 7-2: Interface to the control cabinet PC with CDI+ interface

NOTICE Malfunctions due to insufficient shielding!

Use only shielded cables and metallic or conductive connector/coupling covers with large-area shield support.

NOTICE Material damages to electronics due to missing functional earth!

Ensure that the functional earth is connected, because otherwise the electronics can be destroyed by a potential difference between the VDP 16.3/40.3/60.3 and the PC if the voltage supply is interrupted to only one device and established again. A direct connection between the functional earth and the VDP xx.3 and the VPB 40.3 and VSB 40.3 is recommended. If the functional earth is wired at a neutral point, also connect the control cabinet PC (VPB 40.3, VSB 40.3) to this neutral point.

7.1 Interfaces at the VDP

7.1.1 Overview

Name at the housing	Availability	Connection type	Connector type, integrated	Mating connector or cable (from outside)
X1S1	At all devices	24 V DC voltage supply	Phönix connector strip, 3-pin, MC1,5/3-G-3,5 THT	Phönix socket strip, 3-pin, FK-MCP 1,5/3-ST-3,5
XUSB1/2	At all devices	2 USB interfaces	USB socket, 4-pin, type A	USB plug, 4-pin, type A
XUSB3/4	At all devices	2 USB interfaces	USB socket, 4-pin, type A	USB plug, 4-pin, type A

Name at the housing	Availability	Connection type	Connector type, integrated	Mating connector or cable (from outside)
XSER	Only at CDI devices	CDI interface, data	RJ45 socket	RJ45 plug
XVID	Only at CDI devices	CDI interface, image	RJ45 socket	RJ45 plug
XUSBIN	Only at CDI devices	USB2.0 connection to the control cabinet PC. Length of 5 m max. Only high-speed USB2.0 cables may be used (see chapter 11 "Ordering information" on page 47)	USB socket, 4-pin, type B	USB plug, 4-pin, type B
XCDI+rx	Only at CDI+ devices	CDI+ interface, image and data	USB socket, 4-pin, type B	USB plug, 4-pin, type B

Tab. 7-1: Interfaces at IndraControl VDP 16.3 and IndraControl VDP 40.3

7.1.2 S1 DIP switch



There is only a DIP switch at devices with a CDI interface. The DIP switch is not available at devices with CDI+ interface.

Overview

Name at the housing	Switch type	Function
S1/switch 1	DIP switch	No function
S1/switch 2	DIP switch	OFF: Cable length to the control cabinet PC < 30 m ON: Cable length to control cabinet PC > 30 m

Tab. 7-2: DIP switch at the VDP

Operating Modes

Cable length max. 5 m between control cabinet PC and VDP

If the distance to the control cabinet PC does not exceed 5 m, the USB connection to the VDP can be executed in the USB 2.0 mode (High Speed, max. 480 Mb/s) by using an additional USB 2.0 cable. The S1 switch 2 must be in the "OFF" position. If the cable is not used, the USB connection is executed using USB 1.1. (max. data rate at full speed: 12 Mb/s).

Cable length max. 30 m between control cabinet PC and VDP (standard USB mode)

The USB connection is executed in the USB1.1 mode. The S1 switch 2 must be in the "OFF" position.

NOTICE Malfunctions in the standard USB mode caused by hubs!

No internal hubs are to be integrated into the connected USB device (because of the additional runtime) so that the standard USB mode works with a cable length of 30 m!

Cable length between control cabinet PC and VDP greater than 30 m (extended USB mode)

The USB connection is executed in the limited full speed mode. Only keyboards and mice can be connected to the VDP. No internal hubs may be integrated into these USB devices. Other USB devices, such as memory sticks, are not supported and may not be plugged in. Otherwise, the correct function cannot be guaranteed. The S1 switch 2 must be in the "ON" position.

For information on the cable lengths related to the display resolution, refer to the operating instructions of the Y-repeater [R911336973](#).

7.1.3 24 V DC voltage supply

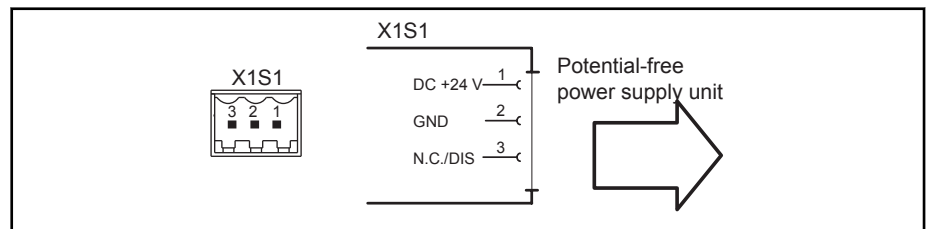


Fig. 7-3: Interface to the control cabinet PC

Pin	Function
1	+24 V supply voltage
2	0 V supply voltage
3	If the CDI interface is available: n. c. If the CDI+ interface is available: DIS

An ordinary 24 V power supply unit can be used.

NOTICE If the distance between VDP and control cabinet PC exceeds 50 m, equalizing currents can flow when using a non-isolated power supply unit, as pin 2 is internally connected to the housing.

In this case an isolated power supply unit is to be used.

There are two possibilities to connect the VDP 16.3/40.3/60.3 external operator display to the 24 V voltage supply:

1. Connection to the 24 V Out of the external UPS (if available).
For this variant, the display and the control cabinet PC are switched off at the same time by the UPS. The user can carry out actions manually when there is a power failure of 24 V or if the control cabinet PC is switched off while the PC is shut down.
2. Direct connection to the 24 V supply voltage.

If there is no supply voltage of 24 V, the operator display immediately darkens. The user cannot execute any actions via the operator display during the shutdown of the control cabinet PC.

3. DIS function

The operation at the VDP as well as all USB end devices connected at the VDP via XUSB1 up to XUSB4 or connected to the front USB port are disabled.

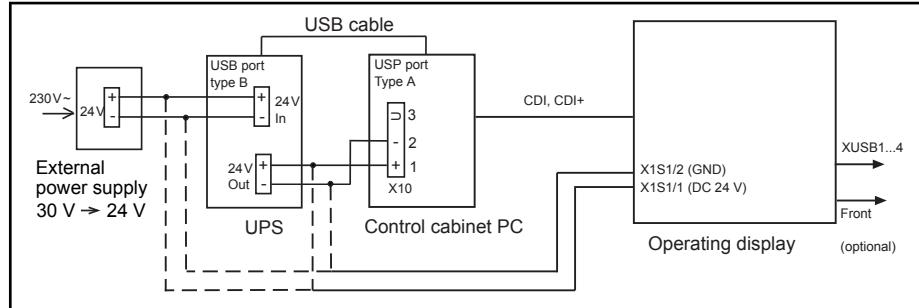


Fig. 7-4: Voltage supply

7.1.4 XUSB Interfaces

The devices feature four USB interfaces on the connector panel (XUSB1/2 and XUSB3/4), and, depending on the version, one interface on the front panel.



USB devices (e.g. keyboard) switch off if the power consumption of all USB connectors exceeds 1 A.

The maximum power consumption of one USB connector must not exceed 500 mA. The total current of all USB connectors must not exceed 1 A. The voltage supply of other VDP function units are not impaired by the switched-off USB voltage.

- The USB devices are enabled as soon as the total current is below 1 A (time delay approx. 30 seconds) or as soon as the power consumption of one connector is below 500 mA.
- In the taskbar **no** message is displayed that the USB devices are disabled.

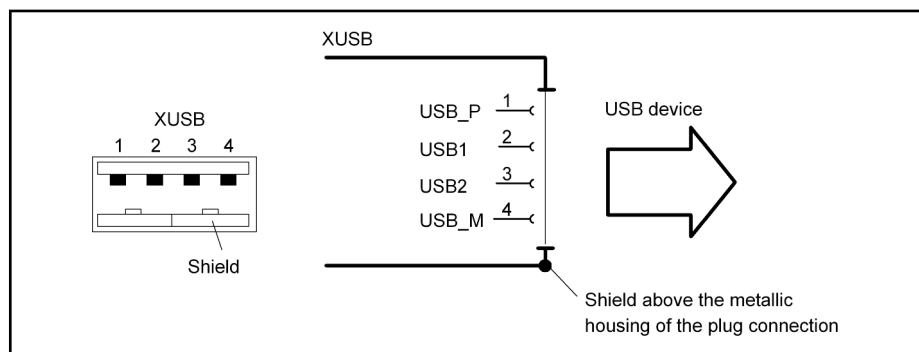


Fig. 7-5: USB interfaces XUSB1/2 and XUSB3/4

CDI: Operating the USB connections on the VDP 16.3/40.3 in USB2.0 mode

The USB connections on the VDP 16.3/40.3/60.3 only support USB1.1 because the data is transferred to the control cabinet PC by using the XSER interface. If USB2.0 is required on the VDP 16.3/40.3/60.3, it can be implemented by connecting the XUSBIN connection to the

VDP 16.3/40.3/60.3 to one USB connection (XUSB1 up to XUSB6) of the control cabinet PC by using an USB cable. The USB cable can be ordered as accessory, see [chapter 11.5.6 "Connecting cables for the USB interface"](#) on [page 51](#).

NOTICE

Malfunctions of the USB2.0 connection if USB cables longer than 5 m are used.

The maximum USB cable length of 5 m must not be exceeded for the USB2.0 cable!

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

NOTICE

The general function of non-specification-compliant USB devices can not be guaranteed, even if they are functioning e.g. at the USB interface directly at the control cabinet PC.

Connect only USB devices that meet the USB specification. However, also USB devices are commercially available that e.g., do not have the response times specified in the USB specification.

CDI+: Operating the USB connection at the VDP

The USB2-0 mode is available for all cable lengths.

7.1.5 XSER and XVID interfaces

CDI interface

The CDI interface is assigned to the two RJ45 sockets XSER and XVID. The connection between the control cabinet PC and the operator display is established at these sockets via two ready-made cables available as accessory, see [chapter 11.5.5 "Connecting cables for CDI interface"](#) on [page 50](#).

The CDI interface includes the data interface (XSER) as well as the image interface (XVID).

NOTICE

Destruction of the CDI interface in the VDP and in the control cabinet PC if CDI cables are plugged and removed when voltage is applied without using a functional earth for both devices.

The functional earthing (FE) is always to be used.

NOTICE

Screen output interference due to VDP device exchange at runtime if the resolution of the exchanged device is different.

The identification of the display resolution is only active once after switching on the control cabinet PC. Consequently, if a VDP is plugged and then removed or if a VDP is connected when starting the control cabinet PC, only a VDP with the same resolution can be connected again. Thus, it is ensured that the screen output at the connected VDP is executed automatically without changing the screen output to the VDP via keyboard.

NOTICE

Malfunctions caused by using inappropriate cables.

Use only cables listed in [chapter 11 "Ordering information" on page 47](#).

XVID and XSER Assignment

All connections of the XVID and XSER interface are assigned.

For information on the cable lengths related to the display resolution, refer to the operating instructions of the Y-repeater [R911336973](#).

XVID and XSER marking

The CDI interfaces are color-coded on the device:

CDI interface, data (XSER)	Violet
CDI interface, image (XVID)	Black

Tab. 7-3: Color-coding of the interface

NOTICE

Breakdown of the operation due to incorrect cables.

To clearly identify cables, label them, e.g. with cable markers or clips.

7.1.6 XCDI+rx interface

The CDI+ interface includes the data interface as well as the image transfer. Connect the control cabinet PC to the operating display using the ready-made cables (see [chapter 11.5.5 "Connecting cables for CDI interface" on page 50](#)) available as accessory.

8 Maintenance

The operator terminals VDP 16.3/40.3/60.3 are maintenance-free. However, some components are subject to wear and are to be replaced.

NOTICE

Loss of IP degree of protection due to incorrect maintenance.

The degree of protection IP is to be guaranteed during maintenance!

NOTICE

Damage to the mechanics caused by wrong tightening torque.

If screws were removed because of maintenance works, fasten them again with the corresponding tightening torque according to the following table.

Thread	Mounting torque
M2,5	0.4 Nm
M3	0.7 Nm
M4	1.4 Nm
M5	2.8 Nm

Tab. 8-1: Tightening torques

8.1 Maintenance plan

Include the following tasks into the maintenance schedule:

- Clean the screen at least once a week using an antistatic fabric or a cleansing agent containing alcohol.

NOTICE

The surface of the foil as well as the display cover are dissolved by solvents!

- Do not use any solvents (e. g. diluents)!
- Do not use high pressure cleaning devices!

- Check all plug and terminal connections of the components for proper tightness and possible damage at least annually. Check that cables are not broken or crushed. Replace damaged parts immediately.
- Check the fan at least once a year, if existent.

⚠ CAUTION

Risk of injury by rotating fan impeller!

Do not touch the fan impeller with your hands and ensure that it does not come into contact with other objects.

8.2 LCD display

A fading backlight causes a progressive deterioration of the readability of the LCD display, so that a backlight replacement is necessary. For further information, please contact the Bosch Rexroth Service.

9 IndraControl VDP 16.3/40.3/60.3/90.3/92.3

9.1 Touch screen

A touch screen is integrated into the operating displays of the IndraControl VDP 16.3/40.3/60.3/90.3/92.3 allowing the operation via the touch-sensitive surface of the display.

The touch screen controller communicates with the control cabinet PC via the CDI or CDI+ interface using the USB interface internally in the control cabinet PC.

No driver software has to be installed. For more detailed information, please refer to the respective documentation of the control cabinet PC (also see [chapter 6.4 "Touch screen" on page 33](#)).

NOTICE

Danger of destruction of the touch screen if operated with inappropriate objects.

Operate the touch screen only with your finger or with a touch pen suitable for capacitive touch screens.

9.2 VDP USB monitor service

9.2.1 Function

Due to interferences on the CDI-cable, operating the VDP operating display might not be possible anymore (touch screen, keys and connected USB devices).

If the service "VDP_USB_Monitor_Service" is installed, data transfer from and to the VDP operating display is monitored. If a connection abort is detected, a USB connection reset is initiated by the control cabinet PC. The USB communication is running again.

Supported hardware:

All VDP operating displays delivered after the 1st of April 2015.

9.2.2 Installing, uninstalling and exiting the service

Bosch Rexroth provides the file "VDP_USB_Monitor_Service_1.2.0.0.zip" upon request.

To install, proceed with the following steps:

1. Create a "VDP_USB_Monitor_Service" folder in the "C:\Support\Rexroth\" folder.
2. Copy the file "VDP_USB_Monitor_Service_1.2.0.0.zip" to the directory "C:\Support\Rexroth\VDP_USB_Monitor_Service".
3. Unzip the file "VDP_USB_Monitor_Service_1.2.0.0.zip" to this folder.
4. Press **Start** to open the start menu.
5. Enter "Cmd" into the "Search programs/files" search box.
6. Next, select "Cmd" in the search results, right-click to open the context menu and select "Run as administrator".
7. Click on **Yes** to confirm the user account control prompt.
8. Go in the command line window to "C:\Support\Rexroth\VDP_USB_Monitor_Service" and then enter "DP_USB_Monitor_Service.exe - install".

9. To start the service, enter "Net start VDP_USB_Monitor_Service" or restart the control cabinet PC.



To use the VDP USB monitor service, install the "VCredist 2010 SP1" (Microsoft Visual C++ redistributable package) provided upon delivery.

If VCredist 2010 SP1 is not yet installed on your PC, double-click on "vcredist_2010_SP1_x86.exe" in the folder "C:\Support\Rexroth\VDP_USB_Monitor_Service".

To exit the service, proceed as follows:

1. Press **Start** to open the start menu.
2. Enter "Cmd" into the "Search programs/files" search box.
3. Next, select "Cmd" in the search results, right-click to open the context menu and select "Run as administrator".
4. Click on **Yes** to confirm the user account control prompt.
5. Go in the command line window to "C:\Support\Rexroth\VDP_USB_Monitor_Service" and then enter "Net Stop VDP_USB_Monitor_Service".

To uninstall, proceed with the following steps:


1. Press **Start** to open the start menu.
2. Enter "Cmd" into the "Search programs/files" search box.
3. Next, select "Cmd" in the search results, right-click to open the context menu and select "Run as administrator".
4. Click on **Yes** to confirm the user account control prompt.
5. Go in the command line window to "C:\Support\Rexroth\VDP_USB_Monitor_Service" and then enter "VDP_USB_Monitor_Service - remove".

10 Environmental protection and disposal

10.1 Environmental protection

Production processes	The products are manufactured in energy- and resource-optimized production processes which allow re-using and recycling the resulting waste. We regularly try to replace pollutant-loaded raw materials and supplies by more environment-friendly alternatives.														
No release of hazardous substances	Our products do not contain any hazardous substances which may be released in case of appropriate use. Normally, our products will not have any negative influences on the environment.														
Significant components	Significant components of our products are: <table> <tr> <td>Electronic devices</td> <td>Motors</td> </tr> <tr> <td>• Steel</td> <td>• Steel / Stainless steel</td> </tr> <tr> <td>• Aluminum</td> <td>• Aluminum</td> </tr> <tr> <td>• Copper</td> <td>• Copper</td> </tr> <tr> <td>• Plastics</td> <td>• Brass</td> </tr> <tr> <td>• Electronic components</td> <td>• Magnetic materials</td> </tr> <tr> <td></td> <td>• Elektronic components</td> </tr> </table>	Electronic devices	Motors	• Steel	• Steel / Stainless steel	• Aluminum	• Aluminum	• Copper	• Copper	• Plastics	• Brass	• Electronic components	• Magnetic materials		• Elektronic components
Electronic devices	Motors														
• Steel	• Steel / Stainless steel														
• Aluminum	• Aluminum														
• Copper	• Copper														
• Plastics	• Brass														
• Electronic components	• Magnetic materials														
	• Elektronic components														

10.2 Disposal

Return of products	<p>Our products can be returned to us for disposal free of charge. However, this requires that the products be free from oil, grease or other dirt.</p> <p>Furthermore, the products returned for disposal may not contain any undue foreign material or foreign components.</p> <p>Deliver the products "free domicile" to the following address:</p> <p style="text-align: center;">Bosch Rexroth AG Electric Drives and Controls Buergermeister-Dr.-Nebel-Straße 2 97816 Lohr am Main, Germany</p>
Packaging	<p>Packaging materials consist of cardboard, wood and polystyrene They can be recycled anywhere without any problem.</p> <p>For ecological reasons, please refrain from returning the empty packages to us.</p>
Batteries and accumulators	<p>Batteries and accumulators can be labeled with this symbol.</p> <p> The symbol indicating "separate collection" for all batteries and accumulators is the crossed-out wheeled bin.</p> <p>End users in the EU are legally bound to return used batteries and accumulators. Outside the validity of the EU Directive 2006/66/EC, the particularly applicable regulations must be followed.</p> <p>Batteries and accumulators can contain hazardous substances which can harm the environment or people's health when improperly stored or disposed of.</p> <p>After use, the batteries or accumulators contained in Rexroth products must be properly disposed of according to the country-specific collection systems.</p>

Recycling Most of the products can be recycled due to their high content of metal. In order to recycle the metal in the best possible way, the products must be disassembled into individual assemblies.

Metals contained in electric and electronic assemblies can also be recycled by means of special separation processes.

Plastic parts of the products may contain flame retardants. These plastic parts are labeled according to EN ISO 1043. They have to be recycled separately or disposed of according to the applicable legal provisions.

11 Ordering information

11.1 Type code

The VDP 16.3, VDP 40.3 and VDP 60.3 displays are available in different variants according to the following type codes.

11.2 VDP 16.3

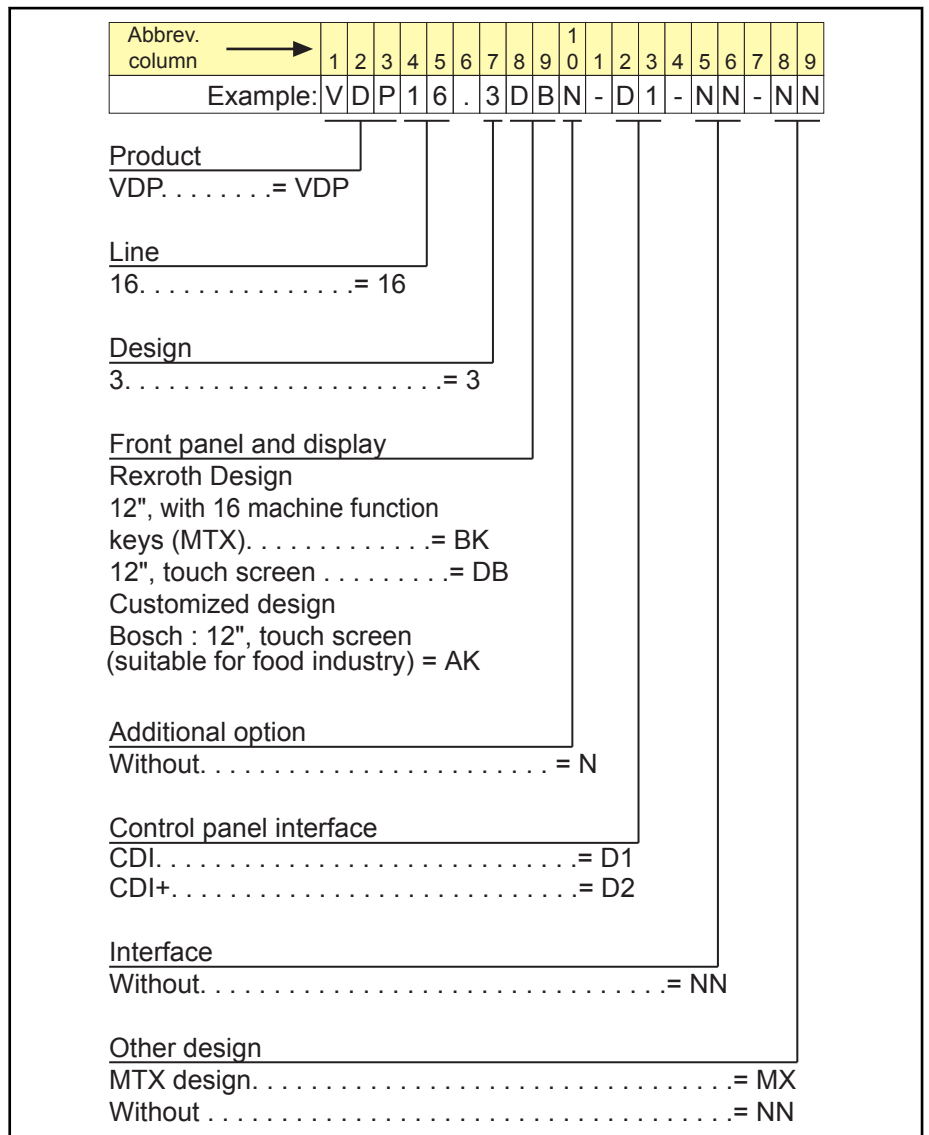


Fig. 11-1: Type code VDP 16.3

11.3 VDP 40.3

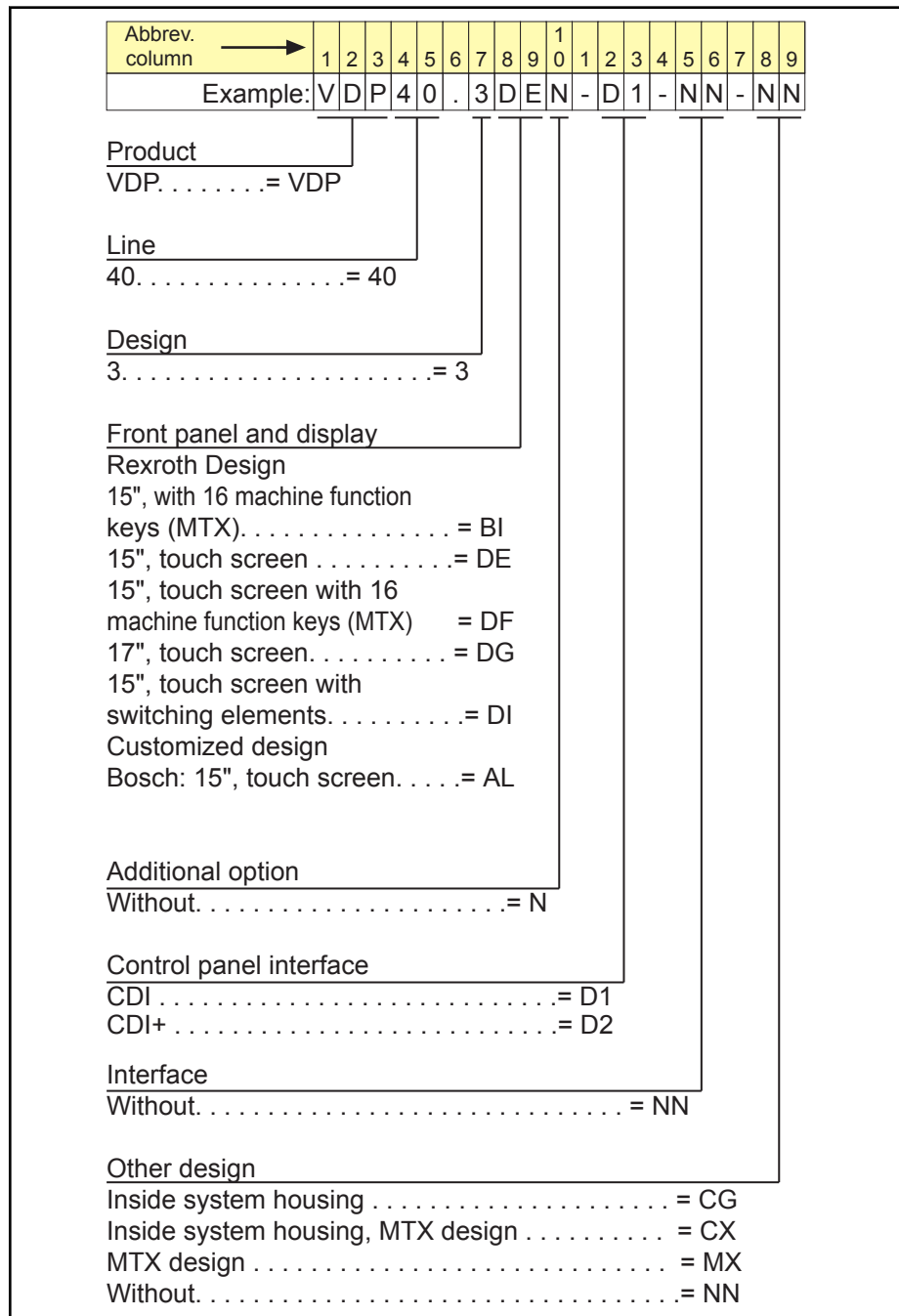


Fig. 11-2: Type code VDP 40.3

11.4 VDP 60.3

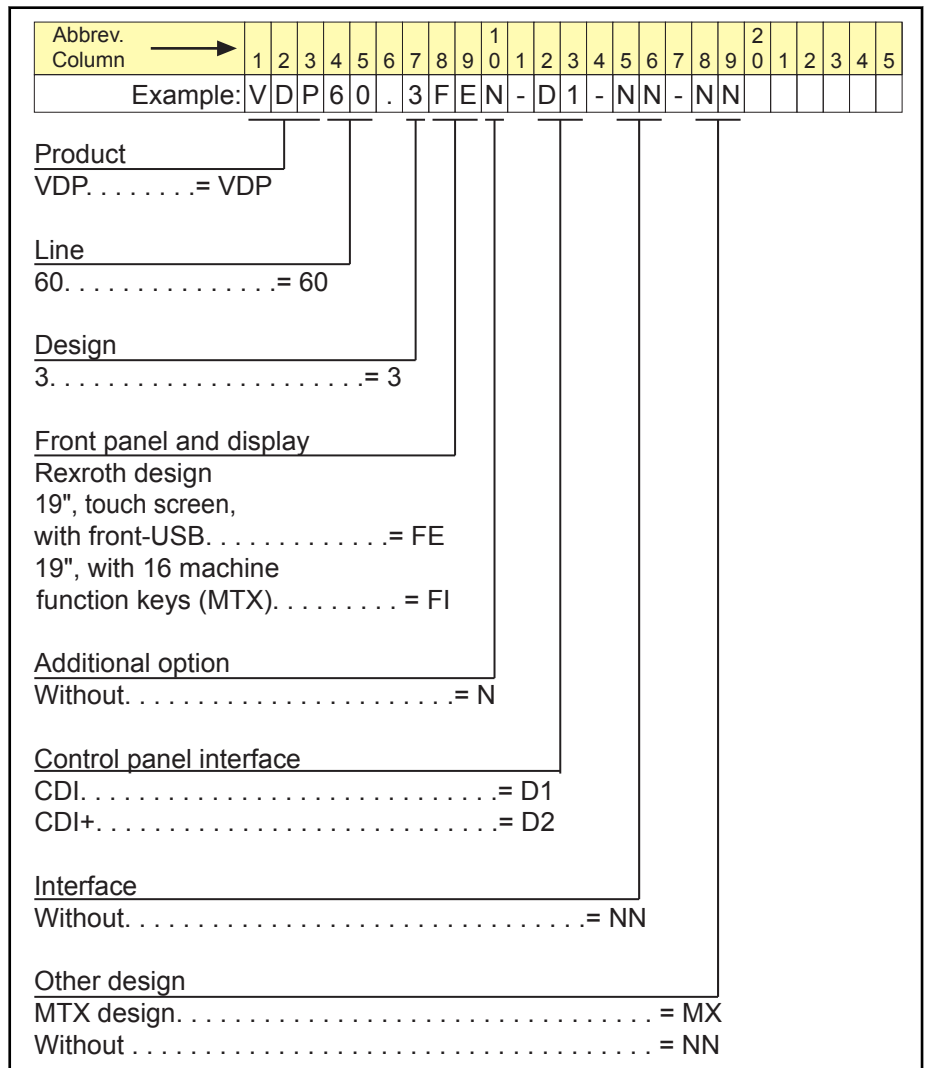


Fig. 11-3: Type code VDP 60.3

11.5 Accessories

11.5.1 Y-repeater

Connection unit to connect two operating units (VDP 16.3/40.3/60.3) with the same resolution and of the same design with a control cabinet PC (VSB 40.3 or VPB 40.3).

Ordering code	Part number	Description
VAC01.1S-YD1-NNNN	R911171187	Y-repeater for CDI interface

Tab. 11-1: Y-repeater

11.5.2 Splitter

Connection unit to connect two operating units (VDP 16.3/40.3/60.3) with the same resolution and of the same design with a control cabinet PC (VSB 40.3 or VPB 40.3).

Bestellbezeichnung	Materialnummer	Beschreibung
VAC08.1SSP-HDM-2D2-NNNN	R911175117	Splitter for CDI+ interface

11.5.3 External 24 V power supply unit

External 24 V power supply unit for VDP 16.3/40.3/60.3.

Ordering code	Part number	Description
VAP01.1H-W23-024-010-NN	R911171065	External 24 V power supply unit for the IndraControl V devices

Tab. 11-2: External 24 V power supply unit for VDP 16.3/40.3/60.3

11.5.4 Uninterruptible power supply (UPS)

Ordering code	Part number	Description
VAU01.1U-024-024-240-NN	R911171024	Uninterruptible power supply DC 24 V, 240 watt with USB interface

Tab. 11-3: Uninterruptible power supply (UPS)

11.5.5 Connecting cables for CDI interface

Connecting cable for the connection between control cabinet PC and VDP 16.3/40.3/60.3 operator display.

Ordering code	Part number	Description
RKB0008/000,5 (*****_*****_*****)	R911171484	Length: 0.5 m
RKB0008/001,0 (*****_*****_*****)	R911171485	Length: 1 m
RKB0008/002,5 (*****_*****_*****)	R911170151	Length: 2.5 m
RKB0008/005,0 (*****_*****_*****)	R911170152	Length: 5 m
RKB0008/010,0 (*****_*****_*****)	R911170153	Length: 10 m
RKB0008/015,0 (*****_*****_*****)	R911171183	Length: 15 m
RKB0008/020,0 (*****_*****_*****)	R911171184	Length: 20 m

Ordering code	Part number	Description
RKB0008/025,0 (*****_*****_*****)	R911170154	Length: 25 m
RKB0008/030,0 (*****_*****_*****)	R911171381	Length: 30 m
RKB0008/035,0 (*****_*****_*****)	R911171369	Length: 35 m
RKB0008/040,0 (*****_*****_*****)	R911171382	Length: 40 m
RKB0008/050,0 (*****_*****_*****)	R911171383	Length: 50 m
RKB0008/055,0 (*****_*****_*****)	R911173779	Length 55 m
RKB0008/060,0 (*****_*****_*****)	R911173780	Length 60 m
RKB0008/065,0 (*****_*****_*****)	R911173781	Length 65 m
RKB0008/070,0 (*****_*****_*****)	R911173781	Length 70 m

Tab. 11-4: Connecting cables to control cabinet PC, panel PC and operator display

Further cable lengths are available upon request.

NOTICE

No operation or no screen output if only one cable is used.

Two cables are always required to establish a connection between the VxB and the VDP.

11.5.6 Connecting cables for the USB interface

Connecting cables for control cabinet PC and UPS (VAU 01.U). The connecting cable can be used also for the USB2.0 connection between control cabinet PC (VSB 40.3, VPB 40.3) and operator display (VDP 16.3/40.3/60.3).

Ordering code	Part number	Description
RKB0019/000,5 (*****_*****_*****)	R911171165	USB connecting cable, Length 0.5 m
RKB0019/001,0 (*****_*****_*****)	R911171166	USB connecting cable, Length 1 m
RKB0019/003,0 (*****_*****_*****)	R911171167	USB connecting cable, Length 3 m
RKB0019/005,0 (*****_*****_*****)	R911171168	USB connecting cable, Length 5 m

Tab. 11-5: Connecting cables to the control cabinet PC

NOTICE

Malfunctions of the UPS if USB cables longer than 3 m are used.

The maximum length allowed for the USB connecting cable for the UPS is 3 m.

11.5.7 USB connecting cable with increased noise immunity

NOTICE

If the UPS is used in noisy environment, malfunctions are possible.

Use only USB cables with high noise immunity for the connection between control cabinet PC and uninterruptible power supply (VAU01.1U) with communication interface.

Ordering code	Part number	Description
RKB0023/001,0 (*****_*****_*****)	R911171627	USB connecting cable with increased noise immunity, Length 1 m
RKB0023/003,0 (*****_*****_*****)	R911171414	USB connecting cable with increased noise immunity, Length 3 m

Tab. 11-6: Connecting cables to the control cabinet PC

12 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts offer you advice and assistance should you have any queries. You can contact us **24/7**.

Service Germany Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Hotline** and **Service Helpdesk** under:

Phone: **+49 9352 40 5060**
Fax: **+49 9352 18 4941**
E-mail: service.svc@boschrexroth.de
Internet: <http://www.boschrexroth.com>

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

Service worldwide Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

Preparing information To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances
- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)

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Notes

Bosch Rexroth AG

Electric Drives and Controls

P.O. Box 13 57

97803 Lohr, Germany

Bgm.-Dr.-Nebel-Str. 2

97816 Lohr, Germany

Phone +49 9352 18 0

Fax +49 9352 18 8400

www.boschrexroth.com/electrics



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