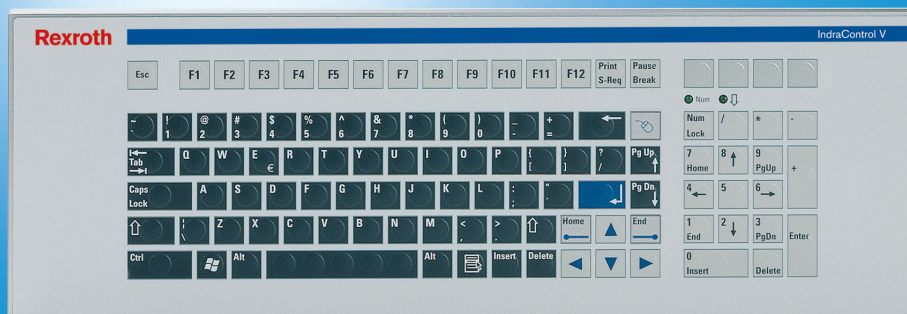


Rexroth IndraControl VAK 11.2, 41.2 Membrane Keyboard

R9111338465
Edition 01

Instructions



Title

Rexroth IndraControl

VAK 11.2, 41.2

Membrane Keyboard

Type of Documentation

Instructions

Document Typecode

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Development automation systems control hardware HB (MaKo/PiGe)

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1 About this Documentation

Overview – target groups and product phases

The activities, product phases and target groups that refer to the present documentation are marked in red color in the following figure.

Example: In the product phase "Mounting (assembly/installation)", the target group "mechanic/electrician" can execute the activity "install" using this documentation.

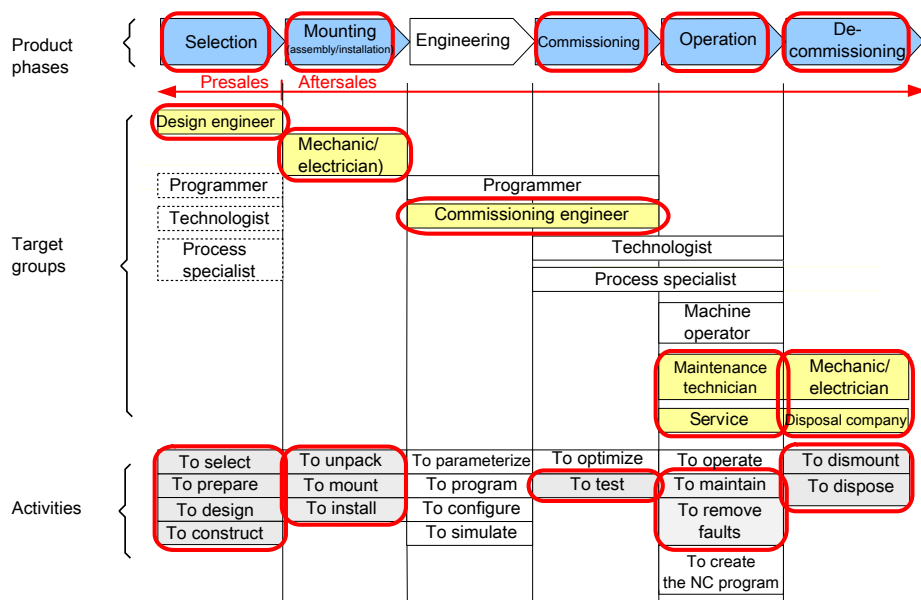


Fig.1-1: Assigning the present documentation to the target groups, product phases and activities of the target group

Purpose

This document instructs the technical staff of the machine manufacturer on how to perform the mechanic and electrical installation in a safe way and on how to commission the device.

Required qualifications: Individual who is able to assess the tasks assigned and identify possible safety risks owing to qualification in the subject, knowledge and experience. The individual should also be familiar with the standards and regulations.

Availability

This document is part of the present product delivery. This document has to be available to the user at any time. The product has to be passed on together with this document only.

Product Identification and Scope of Delivery

Scope

This document is valid for all variants, whose type designation code starts with "VAK11.2" or "VAK41.2".

The type designation code specifications are located on the type plate of the device, see also [chapter 2.1 "Product Identification" on page 4](#).

Further documents

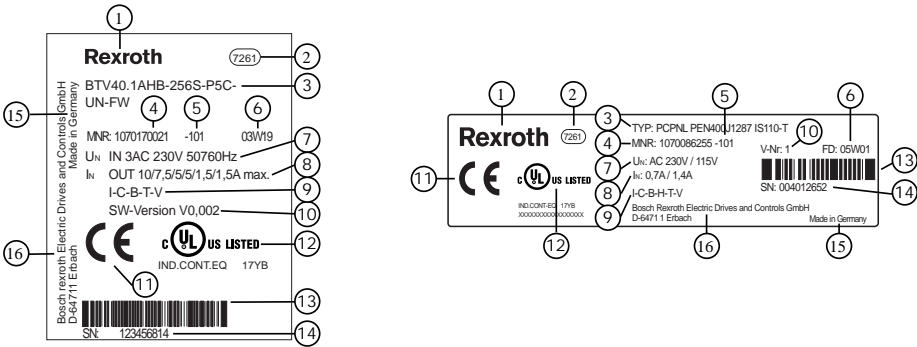
Title	Codes and notes
Rexroth IndraControl	DOK-SUPPL*-VAK*11/41**-PR03-EN-P
VAK 11.2/41.2	R911310336
Membrane keyboard	Project Planning Manual

Fig.1-1: Further documents

2 Product Identification and Scope of Delivery

2.1 Product Identification

The type plate is located on the rear panel.



- 1

Logotype
- 2

Division or plant number
- 3

Type code (type designation code)
- 4

Parts number
- 5

State of revision
- 6

Date of manufacture (yyWwww)
- 7

Nominal voltage
- 8

Nominal current
- 9

Test marking
- 10

Version number
- 11

CE marking
- 12

Underwriters Laboratories Inc. mark
- 13

Serial number as barcode
- 14

Serial number
- 15

Designation of origin
- 16

Company address

Fig.2-1: Type plates, example

2.2 Scope of Delivery

- Membrane keyboard
- Instructions
- Mounting kit

3 Using the Safety Instructions

3.1 Safety Instructions – Structure

The safety instructions are structured as follows:

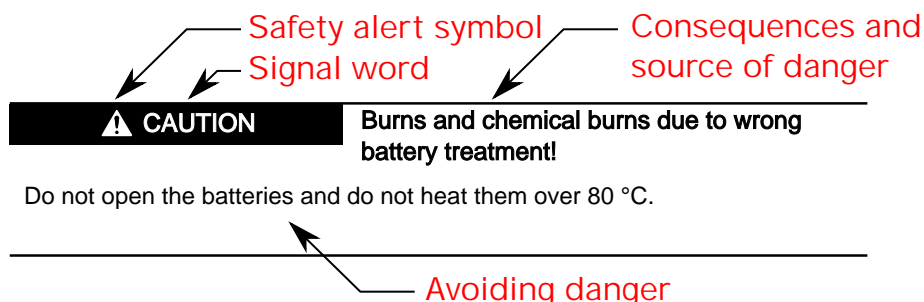


Fig.3-1: Safety instructions – structure

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 is meant to draw the reader's attention to the safety instruction and signifies the degree of danger.

The safety alert symbol (a triangle with an exclamation point), which precedes the signal words danger, warning and caution is used to alert the reader to personal injury hazards.

⚠ DANGER

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

Spare Parts, Accessories and Wear Parts

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 could occur.

NOTICE

In case of non-compliance with this safety instruction, property damage could occur.

4 Intended Use

The touch-sensitive membrane are intended as extended input optioni in connection with Bosch Rexroth visualization devices.

Both touch-sensitive membrane keyboard are intended for the following cases of application:

- To operate graphic user interfaces
- To navigate within graphic user interfaces

The touch-sensitive membrane keyboard may only be operated under the mounting and installation conditions, the position, and the ambient conditions (temperature, degree of protection, humidity, EMC etc.) specified in this documentation.

NOTICE

Keyboard damage due to unapproved lubricant and cleaner.

Before use, check new lubricants or cleaners for compatibility with the material of the devices.

5 Spare Parts, Accessories and Wear Parts

No spare parts or accessory parts available for drawer keyboards.

6 Ambient Conditions

	In operation	Transport	Storage
Max. ambient temperature	+5 °C to +45 °C	-20 °C to +60 °C	
Max. temperature gradient	Temporal temperature changes up to 3 K per minute		
Humidity	Min. rel. humidity 5% Max. rel. humidity 85% Min. absolute humidity 1 g/m ³ Max. absolute humidity 25 g/m ³ Condensation not allowed Corresponds to climatic class 3K3 acc. to EN 60721-3-3	Min. rel. humidity 5% Max. rel. humidity 75% Min. absolute humidity 1 g/m ³ Max. absolute humidity 25 g/m ³ Condensation not allowed Corresponds to climatic class 2K2 acc. to EN 60721-3-2	Min. rel. humidity 5% Max. rel. humidity 85% Min. absolute humidity 1 g/m ³ Max. absolute humidity 25 g/m ³ Condensation not allowed Corresponds to climatic class 1K2 acc. to EN 60721-3-1
Air pressure	Up to 3000 m above sea level acc. to EN 61131-2		
Mechanical strength	Max. vibration: Frequency range: 10 up to 150 Hz Excursion: 0.075 mm for 10 to 57 Hz Acceleration: 1g for 57 to 150 Hz acc. to EN 60068-2-6	Max. shock: 15 g 11 ms acc. to EN 60068-2-27 no disturbance of the function	Max. shock: 15 g 11 ms acc. to EN 60068-2-27 no disturbance of the function
Degree of pollution according to EN 60664-1	2		
Overvoltage category according to EN 60664-1	2	-	

Fig.6-1: Ambient conditions

Standards

7 Technical Data

Weight	Approx. 1.0 kg
Degree of pollution	II
Keypad	<ul style="list-style-type: none"> • 85 keys alpha block • 4 special keys • Separate numeric keypad (17 keys) • Shift key for keyboard mouse
Status display	2 LEDs
Connector	USB type A connector with combined keyboard signal assignment
Voltage supply	5 V \pm 5 %
Current consumption	30mA
Length of cable	1.5 m
Surface front panel	Chemically resistant polyester film with raised embossing
Color	RAL 7035 light gray
Protection class front	IP 65
Protection class housing	IP 00

Fig.7-1: General technical data

8 Standards

8.1 Used Standards

Standard	Description
EN 60 61000-6-4	Generic standards - emission standard (industrial environments)
EN 60 61000-6-2	Generic standards – noise immunity (industrial environments)
EN 60950	Clearances and creepage distances office (environment)
EN 60 529	Degrees of protection (including housings and installation compartments)
EN 60,068-2-6	Vibration test
EN 60068-2-27	Shock test
EN 60721-3-3	Classification of ambient conditions, operation

Standard	Description
EN 60721-3-2	Classification of ambient conditions, transport
EN 60721-3-1	Classification of ambient conditions, storage
UL 508	Industrial Control Equipment

Fig.8-1: Used standards

8.2 CE Marking

8.2.1 Declaration of Conformity



The electronic products that are described in the present instructions, comply with the requirements and the target of the following EU directive and with the following harmonized European standards:

EMC directive 2004/108/EC

The electronic products described in the present instructions are intended for use in industrial environments and comply with the following requirements:

Standard	Title	Edition
DIN EN 61000-6-4 (VDE 0839-6-4)	Electromagnetic Compatibility (EMC) Part: 6-4: Generic standards – emission standard for industrial environments (IEC 61000-6-4:2006)	September 2007
DIN EN 61000-6-2 (VDE 0839-6-2)	Electromagnetic Compatibility (EMC) Part: 6-2: Generic standards – noise immunity for industrial environments (IEC 61000-6-2:2005)	March 2006

Fig.8-2: Standards for electromagnetic compatibility (EMC)



Non-compliance with CE conformity due to modifications to the device.

The CE marking is only valid for the device in its delivery status. After having modified the device, the CE conformity is to be verified.

8.3 UL/CSA Certified



The devices are certified according to

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

Mounting

UL File No. E210730

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



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

The UL and CSA marking is only valid for the device in its delivery status. After modifying the device, the UL and CSA conformity is to be verified.

9 Interfaces

9.1 General Information

NOTICE

Material damages to electronics due to missing functional earth ground connection!

Connect the functional earth ground.



To avoid malfunctions, use only shielded cables and metallic or conductive connector/coupling covers with large-area shield support.

9.2 Overview

The following connecting cable is provided at the drawer keyboard:

Connection type	Connection type (at the cable)	Connection, external
USB ...-U-....	USB A	USB-A female connector

Fig.9-1: Interface at the drawer keyboard

10 Mounting

10.1 Installation Notes

- Lay all connecting cables in loops and use strain reliefs for all cables.
- Keep as much distance as possible to noise sources.

10.2 Fitting Dimensions

Mount the operator display as follows:



Loss of degree of protection IP 65!

The housing in which the operator display is installed, has to fulfil the following conditions:

- free from impurities
- sufficient mechanical strength and flatness

These criteria influence the required degree of protection IP to a great extent.

Further required measures are to be taken depending on the mounting location, e. g. the stabilization of the mounting frame.

1. Create a mounting cut-out with six holes, diameter 4.5 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 operating display from the front into the cut-out. The M4 mounting bolts have to be inserted into the drilled holes.
4. Fasten the operating display by screwing the nuts at the rear side of the mounting bolts.

NOTICE

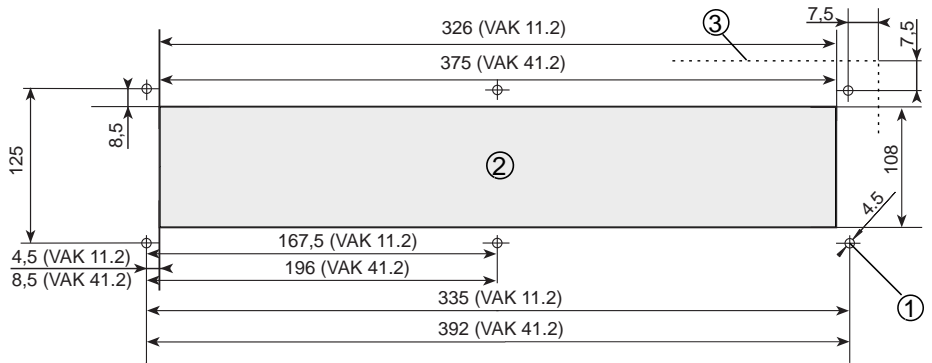
Mechanic damage due to incorrect mounting torque.

Tighten the screws and nuts with the corresponding torque according to the following table.

Threads	Mounting torques
M4	1.4 Nm

Fig.10-1: Mounting torques

Mounting



- ① Drilled hole for the mounting bolts, bore diameter 4.5 mm
② Mounting cut-out
③ Exterior edge, housing

Fig.10-1: Fitting dimensions

10.3 Housing Dimensions

10.3.1 Front View



Fig.10-2: Front view

10.3.2 Side View

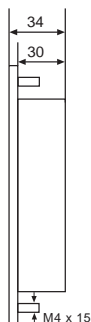


Fig.10-3: Side view

10.4 Electrical Wiring



To avoid malfunctions, use only shielded cables and metallic or conductive connector/coupling covers with large-area shield support.

To connect the touch-sensitive membrane to the equipment cabinet PCs VSP16/40 and VPP16/40 as well as VPB40, VDP16/40 and VSB40, the USB male connector of the keyboard has to be connected to the female connector of the USB of the equipment cabinet PCs.

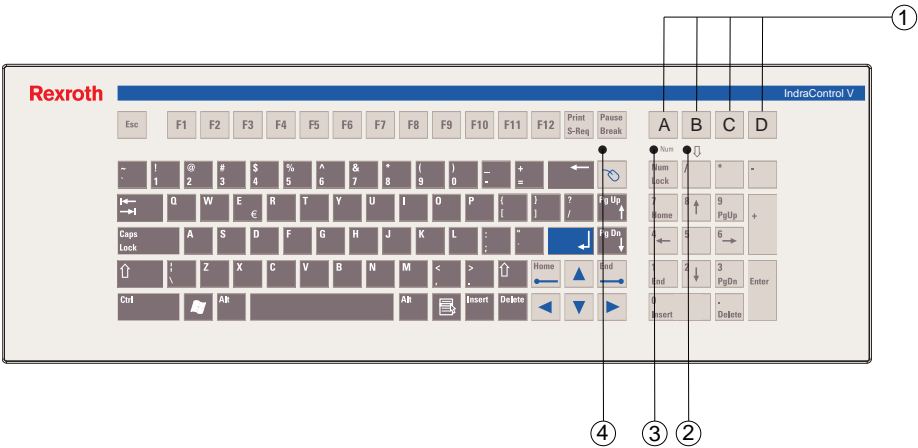
11 Commissioning

The product can be used directly, no configuration is required.

Device Description

12 Device Description

12.1 General Information



- ①

Special keys
- ②

LED caps-lock
- ③

LED numerical pad
- ④

LED mouse simulation via keyboard

Fig.12-1: Device view

Keyboard

The keyboard has all functions of a conventional PC keyboard.

Special Keys

The four special keys are intended for customer-specific functions. In IndraMotion MTX, the special keys can, for example, be assigned to interface screens.

The special keys can be labelled using insertable strips.

The special keys A, B, C or D provide the scan code of the key combination <Ctrl (left)> + <Shift (left)> + <Alt (left)> + <A>//<C>/<D>.

12.2 Operating and Error Displays

Three LEDs are provided on the keyboard for the status displays.

LED	Display	Description
Num	LED on	Numerical keypad enabled
	LED off	Numerical keypad disabled

LED	Display	Description
↓	LED on	Caps-lock enabled
	LED off	Caps-lock disabled
Mouse	LED on	Mouse simulation enabled via the keyboard
	LED off	Mouse simulation disabled via the keyboard

Fig.12-1: LEDs for keyboard status display

13 Error Causes and Elimination

No typical application errors upon mounting are known.

14 Maintenance



Ensure that the IP degree of protection of the device is kept during maintenance.

NOTICE

Keyboard damage due to unapproved lubricant and cleaner.

Before use, check new lubricants or cleaners for compatibility with the material of the devices.

Include the following measures in the maintenance schedule:

- At least once a year, all plug and terminal connections of the components are to be checked regarding proper tightness and possible damage. Check that cables are not broken or crushed. Damaged parts must be replaced immediately.

Service and Support

15 Ordering Information

Product features	Product	Production series		Equipment	Housing design		Language version		Interface		Additional equipment
Type designation code	VAK	11	.	2	F	-	EN	-	U	-	NNNN
		41									

Fig.15-1: Type designation code

16 Disposal

16.1 Take-Back

Our products can be returned to our premises free of charge for disposal. However, the products must be free of impurities like oil, grease or other impurities.

Furthermore, the products returned for disposal must not contain any undue foreign material or foreign components.

Send the products "free domicile" to the following address:

Bosch Rexroth AG
Electric Drives and Controls
Bürgermeister-Dr.-Nebel-Straße 2
D-97816 Lohr am Main, Germany

16.2 Packaging

The packaging materials consist of cardboard, plastic material, wood or expanded polystyrene (EPS). The packaging materials can be recycled without any problem.

For ecological reasons, please refrain from returning the empty packages to us.

17 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 Helpdesk & Hotline** 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 resulting in the malfunction
- Type plate name of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your email address)

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