

# Rexroth IndraControl VCH 05.1 Hand-Held Terminal

R9111337305  
Edition 02

## Operating Instructions



## Record of Revision

Edition	Release Date	Notes
First edition	04.2013	--
Edition 02	04.2014	Revision

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## Editorial Department

Development Automation Systems EH (KaWa/PiGe)

# Table of Contents

	Page
<b>1</b>	<b>About this Documentation..... 1</b>
<b>2</b>	<b>Product Identification and Scope of Delivery..... 2</b>
2.1	Product Identification..... 2
2.2	Scope of Delivery..... 3
<b>3</b>	<b>Using the Safety Instructions..... 3</b>
3.1	Safety Instructions – Structure..... 3
3.2	Explaining Signal Words and Safety Alert Symbol..... 4
3.3	Symbols Used..... 5
<b>4</b>	<b>Intended Use..... 5</b>
<b>5</b>	<b>Spare Parts, Accessories and Wear Parts..... 6</b>
<b>6</b>	<b>Ambient Conditions..... 6</b>
<b>7</b>	<b>Technical Data..... 7</b>
7.1	Hand-Held Terminal..... 7
7.2	Keyboard, Housing, Display..... 7
7.3	Stop and EMERGENCY STOP Pushbutton ..... 8
7.4	Enabling Button..... 8
7.5	Connection Modules..... 9
<b>8</b>	<b>Standards..... 9</b>
8.1	General Information..... 9
8.2	Used Standards..... 9
8.3	EC-Type Examination Certificate..... 10
8.4	CE Marking..... 11
8.4.1	Declaration of Conformity ..... 11
8.5	UL/CSA Certified..... 11
<b>9</b>	<b>Interfaces..... 12</b>
<b>10</b>	<b>Assembly, Disassembly and Electrical Installation..... 13</b>
10.1	Housing Dimensions..... 13
10.2	Cable Installation..... 13

	Page
10.3	Connecting to the Connection Module VAC..... 15
10.4	Software-Specific Settings..... 15
<b>11</b>	<b>Commissioning..... 15</b>
<b>12</b>	<b>Device Description..... 16</b>
12.1	General Information..... 16
12.1.1	View Hand-Held Terminal..... 16
12.1.2	Connection to the Control, Selecting the Connection Modules..... 16
12.2	Operating System..... 17
<b>13</b>	<b>Error Causes and Elimination..... 18</b>
<b>14</b>	<b>Maintenance..... 18</b>
14.1	General Information..... 18
14.2	Regular Maintenance Tasks..... 18
14.3	Display..... 19
14.4	Maintenance..... 19
14.5	Updating the Operating System..... 19
<b>15</b>	<b>Ordering Information..... 20</b>
15.1	Accessories and Spare Parts..... 20
15.2	Type Code..... 21
<b>16</b>	<b>Disposal..... 21</b>
16.1	General Information..... 21
16.2	Take-Back..... 22
16.3	Packaging..... 22
16.4	Batteries and Accumulators..... 22
<b>17</b>	<b>Service and Support..... 22</b>
	<b>Index..... 25</b>

# 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 "mechanic/electrician" can execute the activity "install" using this documentation.

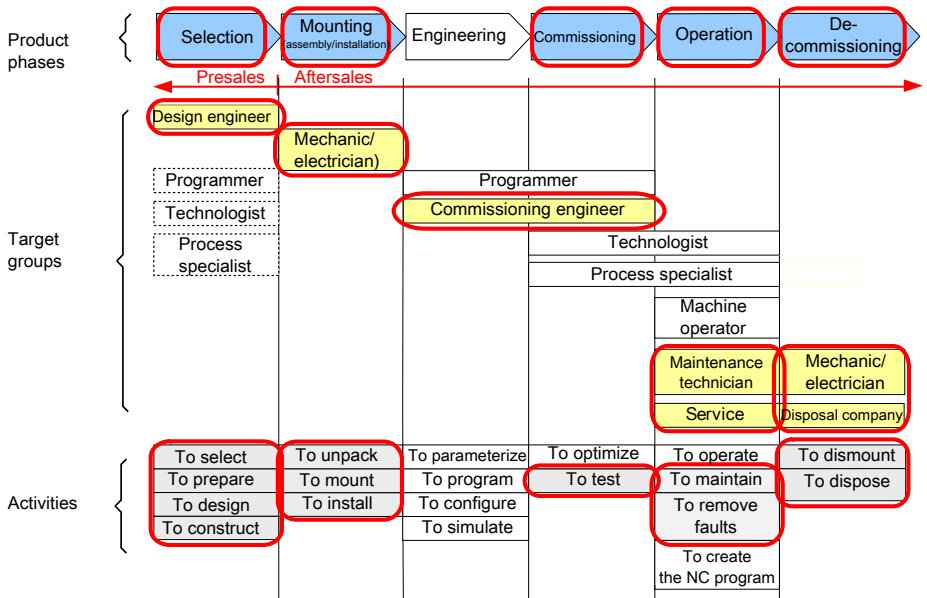


Fig. 1-1: Assigning the present documentation to the target groups, product phases and activities of the target group

### 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 hand-held terminal.

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.

### Scope

This document is valid for all variants whose type code starts with "VCH05.1...". The type designation code specifications are located on the type plate of the device, see also [chapter 2.1 "Product Identification" on page 2](#).

## Further documents

Title	Part number and document type
Rexroth IndraControl VAC 30.2, VAC 31.1, VAC 05.1 Connection Module	<a href="#">R911338408</a> Operating Instructions
Rexroth IndraControl VCH 08.1 Hand-Held Terminal	<a href="#">R911320190</a> Operating Instructions
Rexroth IndraControl V Devices Operating Systems	<a href="#">R911343901</a> Project Planning Manual

**Tab. 1-1:** Further documents

Also refer to the descriptions of the respective system or the component (e.g. MLC, IndraLogic, MTX, MLC, XLC or IndraLogic component).

### Customer feedback

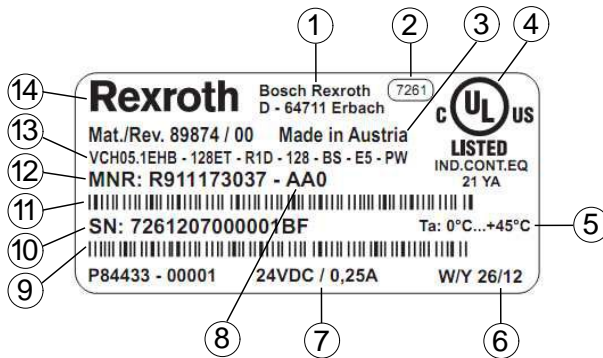
Customer requests, comments or suggestions for improvement are of great importance to us. Please email your feedback on the documentations to [Feedback.Documentation@boschrexroth.de](mailto:Feedback.Documentation@boschrexroth.de). Directly insert comments in the electronic PDF document and send the PDF file to Bosch Rexroth.

## 2 Product Identification and Scope of Delivery

### 2.1 Product Identification

The type plate is located at the rear side of the device.

## Type plate



- |   |                                     |   |                                   |
|---|-------------------------------------|---|-----------------------------------|
| ① | Company address                     | ⑧ | State of revision                 |
| ② | Division or plant number            | ⑨ | Serial number as barcode          |
| ③ | Designation of origin               | ⑩ | Serial number                     |
| ④ | Underwriters Laboratories Inc. mark | ⑪ | Part number as bar code           |
| ⑤ | Operating temperature               | ⑫ | Part number                       |
| ⑥ | Manufacturing data (wwyy)           | ⑬ | Type code (type designation code) |
| ⑦ | Nominal voltage and nominal current | ⑭ | Company name                      |

Fig. 2-1: Type plate

## 2.2 Scope of Delivery

- Hand-Held Terminal
- Connecting cable
- Safety instructions



The scope of delivery depends on the customer configuration.

## 3 Using the Safety Instructions

### 3.1 Safety Instructions – Structure

The safety instructions are structured as follows:

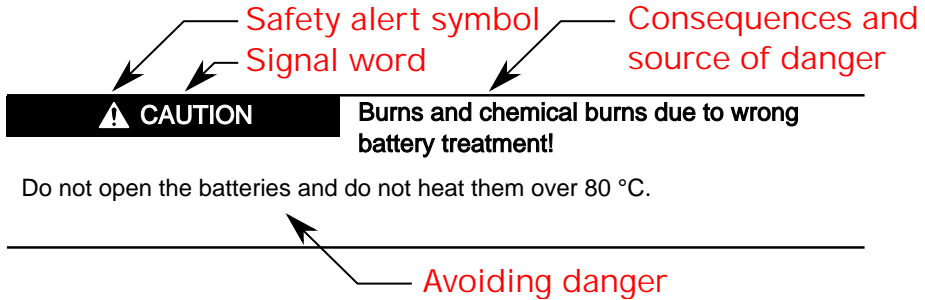


Fig. 3-1: Safety instructions – Structure

### 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.

#### **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.



### 3.3 Symbols Used

Notes are displayed as follows:



This is a note.

---

Tips are displayed as follows:



This is a tip.

---

## 4 Intended Use

Bosch Rexroth hand-held terminals are PC-based machine operator terminals.

### **NOTICE**

**Danger of destruction of the device if not expressly stated accessories, mounting parts and other components, cables, lines, software and firmware are used.**

The hand-held terminals may be used only as intended and with the accessories, mounting parts and other components specified in this documentation. Components that are not expressly mentioned must neither be attached nor connected. The same applies to cables and lines.

Operation must only be carried out with the hardware component configurations and combinations that are expressly specified and with the software and firmware indicated and specified in the respective documentation and functional descriptions.

---

Typical fields of use of the hand-held terminals are:

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

The hand-held terminals 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**

Risk of destroying the touch screen or the front panel by using inappropriate items.

Operate the touch screen only with your finger or with a special touch pen (parts number 1070923266).

## 5 Spare Parts, Accessories and Wear Parts

Ordering code	Part number	Description
VAS05.1-006-1M5-CP	R911173036	1.5 m connecting cable for the hand-held terminal VCH 05.1, 17-pin, STOP button

Tab. 5-1: Connecting cable for the hand-held terminal

## 6 Ambient Conditions

	In operation	Transport	Storage
Maximum surrounding air temperature	0 °C to +45 °C	0 °C to +45 °C	-20 °C to +70 °C
Maximum temperature gradient	Temporal temperature changes up to 3 K per minute		
Humidity	5% to 95%		
Air pressure	Up to 2,000 m above sea level acc. to EN 61131-2	Up to 3000 m above sea level acc. to EN 61131-2	
Mechanical strength	Maximum vibration: 10 Hz ≤ f < 57 Hz with 0.15 mm 9 Hz ≤ f < 150 Hz with 2 g	Max. shock: 25 g / 11 ms according to IEC 60068-2-27	

Tab. 6-1: Ambient Conditions



The ambient air must not contain acids, alkaline solutions, corrosive agents, salts, metal vapours, and other electrically conductive contaminants in high concentrations.

The ambient air must be dust-free. Housings and installation compartments must at least comply with degree of protection IP 54 according to DIN VDE 0470-1.

**NOTICE**

Loss of production can occur due to a failure of the hand-held terminal. Failure of the hand-held terminal was caused by operation outside the specified temperature range.

Operation of the hand-held terminal is only permissible within the specified temperature range.

## 7 Technical Data

### 7.1 Hand-Held Terminal

Processor	Texas Instruments OMAP3503 600MHz (ARMCortex A8 architecture)
RAM	LPDDRAM: 128 MB
Flash memory	128 MB
Interfaces	Ethernet: 10/100 MBit
Housing material	ABS, resistant to grease, oil, lubricants, alcohol etc.
Enclosure rating	IP 65
Voltage supply	DC 24 V
Input voltage range	DC 24 V (DC +19,2 V to DC +30 V acc. to EN 61131-2)
Maximum inrush current (with current limiting)	5.6 A
Prescribed external protection	2-A-fusible cut-out, time-lag
Maximum power consumption at maximum configuration	6 W (250 mA at DC 24 V)
Protection class (according to EN 61131-2 or EN 50178)	III
Weight	Ca. 480 g (with EMERGENCY STOP pushbutton, without key switch, without handwheel, without rotary switch and without cable)

**Tab. 7-1:** Technical data of the hand-held terminal

### 7.2 Keyboard, Housing, Display

Display	3.4" (75 × 42 mm) 480 × 272 WQVGA graphics-enabled OLED display <sup>1)</sup> 65536 colors Touch screen operation
Keyboard type	<ul style="list-style-type: none"> <li>● Foil keyboard with tactile feedback</li> <li>● Operation for right hander and left hander</li> </ul>
Number of keys	33 buttons
Display elements	4 state LEDs
Surface - front panel	Color RAL 7035 light gray

Enclosure rating	IP 65 (entire device)
Dimensions	<ul style="list-style-type: none"> <li>● Width: 162 mm</li> <li>● Height: 226 mm</li> <li>● Depth: 55 mm</li> </ul>
Fire resistance	UL94-V0
Standard operating elements	A 3-stage enabling button, two-circuit, externally wired Stop button/EMERGENCY STOP pushbutton, two-circuit, externally wired

1) OLED = Organic Light Emitting Diode)

**Tab. 7-2:** Technical data of the keyboard, the housing and the display

### 7.3 Stop and EMERGENCY STOP Pushbutton

Nominal voltage	DC 24 V
Minimum current	10 mA (per contact)
Maximum current	1000 mA (per contact)
Usage category	DC-13 (acc. to IEC 60947-5-1)
IDEC XA series	B <sub>10d</sub> : 100 000

**Tab. 7-3:** Technical data of the stop button and the EMERGENCY STOP pushbutton

### 7.4 Enabling Button

Output type	Solid-state output
Nominal voltage	DC 24 V (voltage tolerance DC 19.2 V to DC 30 V acc. to EN 61131-2)
Nominal current	Max. 500 mA
Switching cycles	<ul style="list-style-type: none"> <li>● Switch position 2: 10<sup>6</sup></li> <li>● Switch position 3: 10<sup>5</sup></li> </ul>
Actuating force	<ul style="list-style-type: none"> <li>● From switch position 1 to 2: 3 N typically</li> <li>● From switch position 2 to 3: 17 N typically</li> </ul>
Electrical isolation	<ul style="list-style-type: none"> <li>● AC 500 V</li> </ul>

**Tab. 7-4:** Technical data, enabling button

	Enable
B10d	Switch position 2: 1 000 000 Switch position 3: 100 000

**Tab. 7-5:** Enabling button, specifications acc. to EN ISO 13849-1:2008

## 7.5 Connection Modules

The technical data about the connection modules can be found in the respective operating instructions (see [tab. 1-1 "Further documents" on page 2](#)).

# 8 Standards

## 8.1 General Information

The products have been developed according to the current German edition of the standards at the time of product development.

## 8.2 Used Standards

### Enabling device and emergency stop button

The operating instructions comply with the Machinery Directive 2006/42/EC. The terms used in these operating instructions are derived from the new Machinery Directive (MD) 2006/42/EC. The following table compares the old standard to the new standard.

98/37/EC (ancient standard)	2006/42/EC (new standard)
Emergency stop	EMERGENCY STOP

**Tab. 8-1:** Comparing old and new standards

Standard	Meaning
European Union Directives	
98/37/EC and 2006/42/EC (valid from 29th December, 2009)	Directive on Machinery with amendment 98/79/EC and MD 2006/42/EC
2004/108/EC	EMC Directive
Examining the conformity regarding the Machinery Directive	
EN ISO 13850:2006	Safety of machinery – EMERGENCY STOP – principles for design

Standard	Meaning
EN ISO 13849-1:2008	Safety of machinery – safety-related parts of control systems – part 1: General principles for design
EN 60204-1:2006 (chapter 9, chapter 10)	Safety of machinery – electrical equipment of machines – part 1: General requirements
Examination of the conformity regarding the EMC Directive	
EN 61131-2:2007 (chapter 8, chapter 9)	Programmable logic controls – part 2: Equipment requirements and tests
In this way the accordance to following standards is also given:	
EN 61000-6-2:2006	EMC generic standards – noise immunity for industrial environments
EN 61000-6-4:2007	EMC generic standards - emission standard for industrial environments
General procedures and safety principles	
EN ISO 12100:2010	Safety of machinery – General principles for design – Risk assessment and risk reduction
Stability and impermeability of the enclosure	
EN 60529:1991	Degrees of protection provided by enclosures
Electrical safety and fire protection	
EN 50178:1997	Electronic equipment for use in power installations
UL examination for industrial control equipment	
UL 508, 17 <sup>th</sup> edition (=CSA C22.2 No. 14)	Industrial Control Equipment (NRAQ, NRAQ7)
UL examination for robotic applications	
UL 508, 17 <sup>th</sup> edition (=CSA C22.2 No. 14)	Industrial Control Equipment (NRAQ, NRAQ7)
UL 1740, 2007	(1998) Industrial Robots and Robotic Equipment E216950 (TETZ2, TETZ8)

**Tab. 8-2:** Standards

### 8.3 EC-Type Examination Certificate

A type examination was carried out by the certification body NSBIV AG SIBE Switzerland, Iseliquai 8, 6005 Lucerne, Switzerland.

The type-examination certificate No. is 1069/1.

### Safety specifications

EN ISO 13849-1:2008 Category 3 PL d

The safety function "enabling button" for the special operation mode control and the stop button meet the requirements of category 3 and PL according to EN ISO 13849-1 and the requirements of EN 60204-1 provided that the safety instructions in this document are complied with.

## 8.4 CE Marking

### 8.4.1 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:

- EC Directive relating to machinery 2006/42/EC
- EC Directive relating to electromagnetic compatibility 2004/108/EC

Conformity with the regulations of the Directive 2006/42/EG is established by the compliance with the following harmonized European standards for the EMERGENCY STOP pushbutton and the stop button as well as the enabling button:

- EN ISO 13850:2008
- EN 60204-1:2006

Conformity with the Directive 2004/108/EC is established by the compliance with the applicable parts of the following harmonized European standards:

- EN 61131-2:2007



**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.

Ask your representative for the Declaration of Conformity.

## 8.5 UL/CSA Certified



The devices are certified according to

- **UL508** (Industrial Control Equipment) and

- **C22.2 No. 142-M1987 (CSA)**

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.**

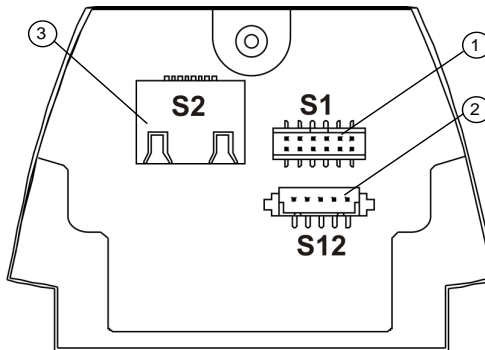
The UL- and CSA- marking is only valid for the device in its delivery status. After having modified the device the UL and CSA compliance is to be verified.



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

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

## 9 Interfaces



- ① S1 – Main terminal: Enabling device and EMERGENCY StOP pushbutton:
- ② S12 – External cabling (for options)
- ③ S2 – Communication interface

Fig. 9-1: Interfaces



- Note the safety instructions and the interface descriptions in the instructions for the connecting modules VAC 30.2, VAC 31.1, VAC 05.1, see [tab. 1-1 "Further documents"](#) on page 2.



## 10 Assembly, Disassembly and Electrical Installation

### 10.1 Housing Dimensions

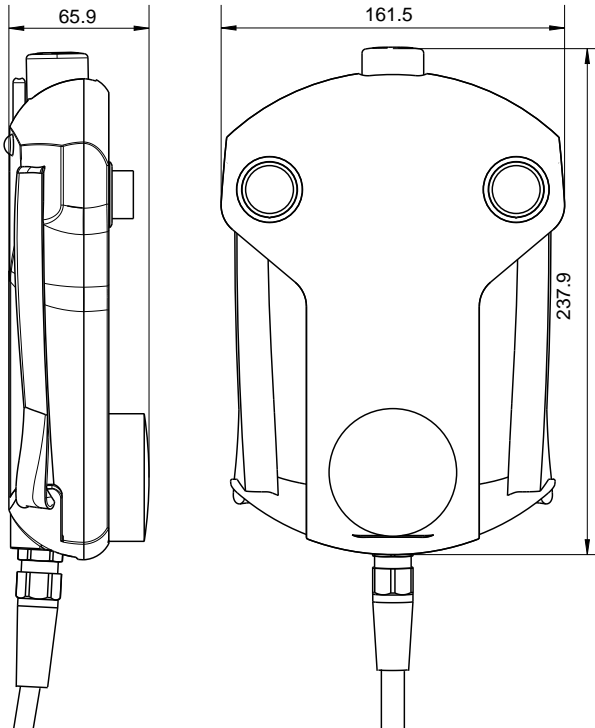


Fig. 10-1: Dimensions (in mm) of the hand-held terminal VCH 05.1

### 10.2 Cable Installation

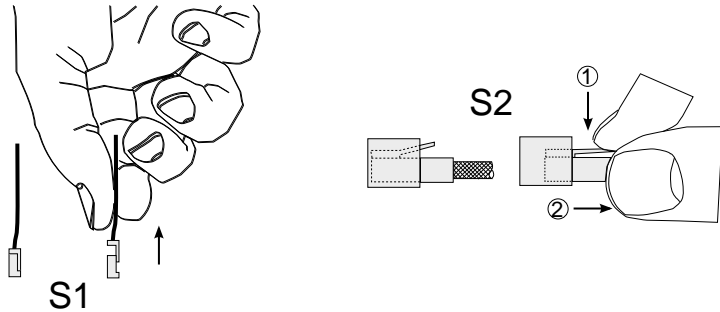
#### Opening the cable chamber

1. Place the hand-held terminal on an even and clean surface with the display facing downwards (e.g. ESD mat).
2. Use a screw driver type "six-lobe, size 10" to open and close the cable chamber.



### Modifications in the cable chamber:

- Manually remove the main connector (S1). Do not use any sharp or pointed objects
- When disconnecting the RJ-45 connectors (S2), make sure that the locking lever is pressed (see ① and ② in the following figure)



S1 Main connector  
S2 RJ-45 connector

Fig. 10-2: Disconnect the main connector from the RJ-45 connector

## Connecting the cable chamber

1. Fasten the cable chamber cover with three screws (torque: 0.4 to 0.5 Nm).

### **NOTICE**

Possible malfunctions due to incorrectly closed cable chamber and sporadical loss of degree of protection.

- Verify that the seal is clean and intact
- Ensure that the seal is positioned correctly in the cable chamber
- Ensure that no cable is crimped

### **NOTICE**

Possible malfunctions of the EMERGENCY STOP pushbutton and the enabling button due to incorrectly snapped in connectors.

- Ensure that the S1 and S2 connectors correctly snap in when plugging them in
- Check the EMERGENCY STOP pushbutton and the enabling button functionality prior to using the hand-held terminal

## 10.3 Connecting to the Connection Module VAC

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Refer to the documentation about the connection modules.

---

## 10.4 Software-Specific Settings

The software settings are described in the project planning manual "Rexroth IndraControl V Devices Operating Systems" (see [tab. 1-1 "Further documents" on page 2](#)).

# 11 Commissioning

## General Information

For commissioning the control, further parameterization or programming is necessary.

## Commissioning steps

1. Before commissioning the hand-held terminal, the operator has to ensure that the plant, especially the safety devices, are in a correct state.

### **NOTICE**

**Stopping the system due to connecting a hand-held terminal with pressed stop button or EMERGENCY STOP pushbutton.**

Before commissioning the hand-held terminal, ensure that the stop button or the EMERGENCY STOP pushbutton is **not** pressed.

---

2. Connect the 17-pin connector to the VAC connection module.
  3. Set up the hand-held terminal and the connection module (see project planning manual "Rexroth IndraControl V Devices Operating Systems", [tab. 1-1 "Further documents" on page 2](#)).
- 



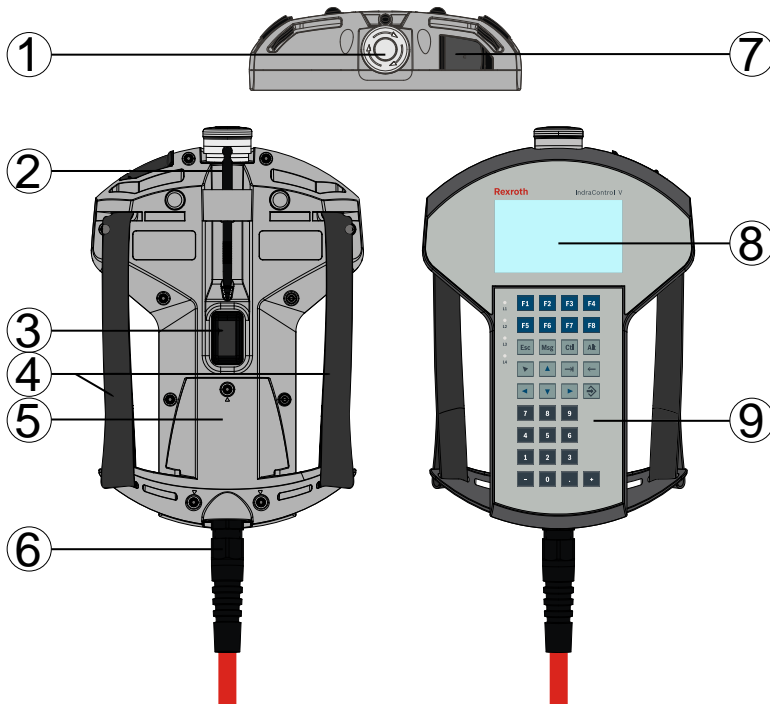
Find further details about the commissioning in the documentation of the device or system manufacturer.

---

## 12 Device Description

### 12.1 General Information

#### 12.1.1 View Hand-Held Terminal



- ① Stop button (two-circuit)
- ② Stylus with holder
- ③ 3-stage enabling button, two-circuit
- ④ Adjustable wrist straps
- ⑤ Cable chamber
- ⑥ Connecting cable with strain relief and strain relief sleeve
- ⑦ Protective cover of the USB interface and for the micro SD card
- ⑧ Color display with touch screen: 3.4" OLED display PSP resolution (480 × 272)
- ⑨ Membrane keyboard

**Fig. 12-1:** Views of the hand-held terminal

A figure of the connection module can be found in the operating instructions of the connection module VAC30/31/05 (see [tab. 1-1 "Further documents" on page 2](#)).

#### 12.1.2 Connection to the Control, Selecting the Connection Modules

The hand-held terminal is connected to the control via a connection module in front panel mounting. At the front side, a 17-pin female connector allows the

comfortable connection of a hand-held terminal. All clamps for fixed wiring to the control are located at the rear side of the connection module in the control cabinet.



**VAC 30.2 and VAC 05.1:** The connection module VAC 30.2 and VAC 05.1 for hand-held terminals with stop button is equipped with a fine thread screwed plug at the front side. For the VAC 30.2 connection module, the integrated "automatic stop button jumpering" allows temporary integration of the hand-held terminal into the safety circuit of the running machine without accidental stopping the machine.



**VAC 31.1:** Hand-held terminals with red-yellow EMERGENCY STOP pushbuttons can only be temporarily integrated into the safety circuit if the plant is in safe state or if a certified jumpering mechanism is available. The connection module VAC 31.1 is equipped for such devices with a bayonet ending with additional short-circuit connector. The hand-held terminal may be only connected if the plant is in safe state. Plugging or unplugging a hand-held terminal during the operation would immediately set the system to standstill.

The connection modules depend on the safety components of the hand-held terminal:

	IndraControl VAC 30.2	IndraControl VAC 31.1	IndraControl VAC 05.1
Actuating element stop button, EMERGENCY STOP pushbutton	For hand-held terminals with black-gray stop button	For hand-held terminals with red-yellow EMERGENCY STOP pushbutton	For hand-held terminals with black-gray stop button
Jumpering the safety circuit if the hand-held terminal is disconnected	Automatic stop button bridging	Short-circuit connector screwed on	–
17-pin front connector	Fine thread	Bayonet ending	Fine thread
Enabling device	Lead-through isolated	Lead-through isolated	Lead-through isolated

**Tab. 12-1:** Connection module design for the hand-held terminal

## 12.2 Operating System

Due to license reasons, the hand-held terminals are only delivered with an installed operating system. For more information about the operating system, refer to the project planning manual "Rexroth IndraControl V Devices Operating Systems" (see [tab. 1-1 "Further documents" on page 2](#)).

## 13 Error Causes and Elimination

Error	Measures for error elimination
Enabling button not available	Enabling button defective, replace device
STOP function not available	STOP button defective, replace device
Communication with network not available	<ul style="list-style-type: none"> <li>● Check entries in Rexroth settings</li> <li>● Screw on connection plug completely. If the contacts are bent, replace the connection cable</li> <li>● Check the cable and replace if required</li> <li>● Network topology</li> </ul>
Safety circuits cannot be closed	<ul style="list-style-type: none"> <li>● Completely insert the connector</li> <li>● If the contacts are bent or in case of a cable break, replace the connection cable</li> <li>● If a safety component is defective, replace the device</li> </ul>

Tab. 13-1: Error causes and error elimination

## 14 Maintenance

### 14.1 General Information

#### **NOTICE**

Maintenance work in the device is only permissible by skilled staff!

If hardware or software components have to be exchanged, please contact the Bosch Rexroth Service or ensure that only skilled staff changes the respective components.

#### **NOTICE**

Dissolution of the foil surface as well as the seal by solvents or by high pressure cleaning devices!

- Do not use any solvents (e. g. diluents)!
- Do not use compressed air, steam jet and high pressure cleaning devices!

### 14.2 Regular Maintenance Tasks

- 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. Replace damaged parts immediately.

### 14.3 Display

#### **NOTICE**

**Damaging the touch screen due to incorrect cleaning**

Do not use any solvent, scouring agent or scouring pads for cleaning. Use a soft cloth, moistened with water or a mild cleaning agent.

A fading backlight causes a progressive deterioration display readability, so that a replacement is required. For further information, please contact the Bosch Rexroth Service, see [chapter 17 "Service and Support" on page 22](#).

### 14.4 Maintenance

The hand-held terminal is designed for use in the industrial environment. No special maintenance is required.

Keep the device away from humidity, oils and emulsions.

To ensure safe and non-slip handling, the hand-held terminal has to be cleaned after it has been soiled. Use a soft, dry and lint-free rag for cleaning.

### 14.5 Updating the Operating System

The operating system is updated using a micro SD card. The image of the operating systems can be obtained from Bosch Rexroth.

#### **Installation instruction**

1. Switch off the system the hand-held terminal is connected to.
2. Backup all available local data and applications.
3. Save the new image on the micro SD card in the root directory under the name "ce.bin".
4. Insert the micro SD card in the hand-held terminal. The operating system is automatically installed after the micro SD card has been inserted. The hand-held terminal cannot be used during the installation.

#### **⚠ CAUTION**

**System standstill due to inserting of the micro SD card!**

Switch the system off before the operating system installation.

---

***NOTICE***

**Damage to the device due to failed update**

Do not disconnect the device from the power supply during the update.

---

## 15 Ordering Information

### 15.1 Accessories and Spare Parts

For ordering information about accessories and spare parts, please refer to [chapter 5 "Spare Parts, Accessories and Wear Parts" on page 6](#).



## 15.2 Type Code

Short text column	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3
Example:	V	C	H	0	5	.	1	E	H	B	-	1	2	8	E	T	-	R	1	D	-	1	2	8	-	C	S	-	E	2	-	P	W
<b>Product</b>																																	
VCH..... = VCH																																	
<b>Line</b>																																	
05 ..... = 05																																	
<b>Design</b>																																	
1 ..... = 1																																	
<b>Frontplate and display</b>																																	
3.4", Touchscreen, with 33 keys..... = EH																																	
3.4", Touchscreen, with 20 keys..... = EJ																																	
<b>Additional option</b>																																	
USB interface..... = B																																	
<b>Memory capacity (RAM)</b>																																	
128 MB..... = 128																																	
<b>Interface</b>																																	
Standard Ethernet..... = ET																																	
<b>System configuration</b>																																	
OMPA 3503 ARM Cortex A8..... = R1																																	
<b>Nominal connecting voltage</b>																																	
24 V DC supply voltage ..... = D																																	
<b>Compact flash size</b>																																	
128 MB..... = 128																																	
<b>Function design</b> <sup>1)</sup>																																	
STOP-button and enabling device, three-stage, dual-circuit..... = BS																																	
Override, STOP-button and enabling device, three-stage, dual-circuit..... = CS																																	
Override, handwheel, STOP-button and enabling device, three-stage, dual-circuit = DS																																	
Override, emergency-stop button and enabling device, three-stage, dual-circuit ... = FS																																	
Override, handwheel, emergency-stop button and enabling device, three-stage, dual-circuit..... = GS																																	
<b>Other design</b>																																	
Ethernet control cable, 8 m, bayonet lock..... = B1																																	
Ethernet control cable, 0.5 m, bayonet lock..... = B2																																	
Ethernet control cable, 8 m..... = E1																																	
Ethernet control cable, 0.5 m..... = E2																																	
Ethernet control cable, 1.5 m..... = E5																																	
<b>Firmware</b>																																	
With pre-installed firmware ..... = PW																																	
<b>Note:</b> 1) = Function designs "FS" or "GS" are only available with Other designs "B1" or "B2"																																	
= Function designs "DS" or "GS" are only available with Front plate and display "EJ"																																	

Fig. 15-1: Type code for VCH 05.1

## 16 Disposal

### 16.1 General Information

Dispose of the products according to the respective national standard.

## 16.2 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

## 16.3 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 Bosch Rexroth.

## 16.4 Batteries and Accumulators

Batteries and accumulators can be labelled with this symbol.



The symbol indicating "separate collection" for all batteries and accumulators is the crossed-out wheeled bin.

The end user within the EU is legally obligated to return used batteries. Outside the validity of the EU Directive 2006/66/EC keep the stipulated directives.

Used batteries can contain hazardous substances, which can harm the environment or the people's health when they are improperly stored or disposed of.

After use, the batteries or accumulators contained in Rexroth products have to be disposed of according to the country-specific collection system.

## 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](mailto: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)



## Index

### A

Accessories.....	6
Accumulators.....	22
Ambient conditions.....	6
Assembly.....	13

### B

Batteries.....	22
----------------	----

### C

Cable installation.....	13
CE marking.....	11
Complaints.....	2
Connecting to the connection module VAC.....	15
Connection to the control.....	16
Criticism.....	2
Customer Feedback.....	2

### D

Declaration of conformity.....	11
Device description.....	16
Disassembly.....	13
Disposal.....	21
Documents, further.....	2

### E

Electrical connection.....	13
Electrical safety and fire protection Standards.....	10
EMC Directive Examination of conformity.....	10
Error causes.....	18
Error elimination.....	18

### F

Feedback.....	2
Further documents.....	2

### H

Housing dimensions.....	13
-------------------------	----

### I

Intended use.....	5
-------------------	---

Interfaces.....	12
-----------------	----

### M

Maintenance.....	18
------------------	----

### O

Operating system.....	17
Order information.....	6
Ordering information.....	20

### P

Product identification.....	2
-----------------------------	---

### S

Safety alert symbol.....	4
Safety instructions.....	3, 4
Scope of delivery.....	3
Selecting the connection modules.....	16
Settings.....	15
Signal words.....	4
Software-specific settings.....	15
Spare parts.....	6
Standards.....	9
EMERGENCY STOP push- button.....	9, 10
Suggestions.....	2
Support See service hotline.....	22
Symbols.....	5

### T

Target groups.....	1
Technical data.....	7
EMERGENCY STOP pushbutton	8
Enabling button.....	8
Hand-held terminal.....	7
Keyboard, housing, display.....	7
Stop button.....	8
Type code.....	21
Type plate.....	3

### U

UL/CSA certified.....	11
Updating the operating system.....	19

Use, intended..... 5

**V**

View hand-held terminal..... 16

**W**

Wear parts..... 6

## Notes

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R911337305

DOK-SUPPL\*-VCH\*05\*\*\*\*\*-IT02-EN-P