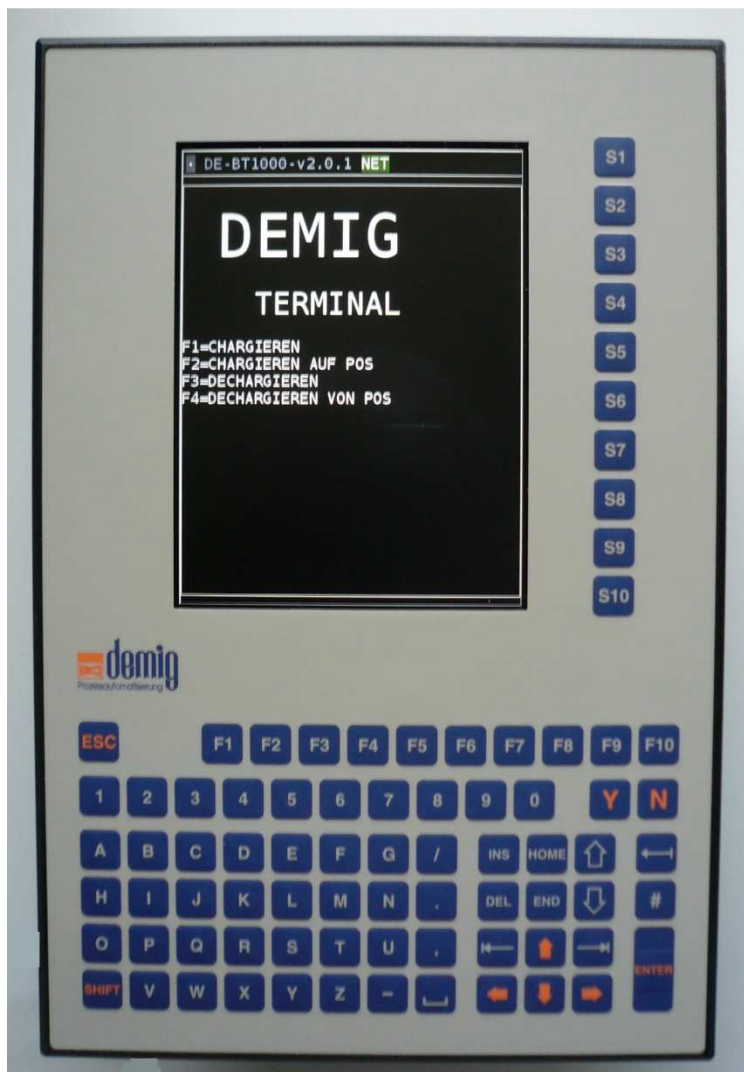


Terminal DE-BT 1000

By demig Prozessautomatisierung GmbH



from version 12.1.1 (2017)



Content

- 1. Chapter: Introduction 1**
 - 1.1 Basic Information 1
 - 1.1.1. General Handling 1
 - 1.1.2. CE-Conformity 1
 - 1.1.3. Installation Instructions 1
 - 1.1.4. Structure of the Operating Instructions 2
 - 1.1.5. Security Symbols 2
 - 1.1.6. Disclaimer 2
 - 1.2 Brief Explanation of the Industrial Terminal DE-BT 1000 3
 - 1.2.1. General Explanation 3
 - 1.3 General Handling of the DE-BT 1000 3
 - 1.3.1. Commands 4
 - 1.3.2. Status Line 7
 - 1.3.3. Menu 8
 - 1.3.4. Service Menu 9

- 2. Chapter: Service and Technical Data 11**
 - 2.1 General maintenance 11
 - 2.1.1. Cleaning and care of the keypad and of the screen 11
 - 2.1.2. Direct Support 11
 - 2.2 Update of the System Software 13
 - 2.2.1. Necessary Material 13
 - 2.2.2. Starting the Update 13
 - 2.2.3. Update History 14
 - 2.3 Technical Data 15
 - 2.3.1. Control System Unit 15
 - 2.3.2. Installation and mounting 15
 - 2.3.3. PIN Assignments 16
 - 2.4 Installation Dimensions and Measurements of Rack-Housing 17
 - 2.4.2. Connections 18

- 3. Chapter: Appendix 19**
 - 3.1 License Note 19

- Index 21**

1. Chapter: Introduction

1.1 Basic Information

1.1.1. General Handling

Please read the operating instruction carefully before installing or handling the industrial terminal DE-BT 1000, in order to avoid dangerous situations and damages due to operating errors. This operating manual is limited to the handling of the DE-BT 1000 and does not include all different applications.

1.1.2. CE-Conformity

The industrial terminal DE-BT 1000 corresponds to the standards and guidelines named in the conformity declaration. To make sure these are observed, please pay attention to the following:

- It is the responsibility of the installing person to observe all the standards and guidelines for the usage and installation of the industrial terminal DE-BT 1000.
- Make sure that only qualified staff installs the industrial terminal DE-BT 1000.
- Make sure that all the precautions stated in the chapter "Information for the installation" are observed.
- Reparations of the industrial terminal DE-BT 1000 by the customer are not allowed.
- By using the industrial terminal DE-BT 1000 for unintended purposes as well violating the regulations mentioned above, demig Prozessautomatisierung GmbH assumes no responsibility. The conformity declaration then loses its validity.

1.1.3. Installation Instructions

Please check the process control system immediately upon receipt. In case of any damages, the device must not be installed. Pay attention to the terms of installation in chapter service and technical data.

1.1.4. Structure of the Operating Instructions

All security advices in this operating manual are marked with this symbol:



Further information is shown in a frame with the headline information. Security functions are marked with the following symbol:

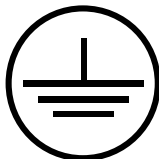


1.1.5. Security Symbols

The following security symbols are shown on the terminal:



Attention! An incorrect connection of the device may lead to system disturbances, - damages, quality losses as well as danger to persons and environment. The connections not marked directly at the controller are explained in the corresponding documentation (Operating Instructions, Pin Assignment Cards).



Protective ground wire (min. 6mm² cross section!)

1.1.6. Disclaimer

Possible errors cannot be excluded. demig Prozessautomatisierung GmbH assumes neither a legal responsibility nor the liability for misprints, wrong information and/or omissions or the resultant damages. Suggestions for improvement and advice are always welcome.

All rights reserved!

1.2 Brief Explanation of the Industrial Terminal DE-BT 1000

1.2.1. General Explanation

The industrial terminal DE-BT 1000 is a display and input terminal. As it is only a terminal, a further host system for the control is needed (e.g.: process supervisory system prosys/2). The host system transmits the messages/commands via different communication systems to the DE-BT 1000.

After receiving a message, the display is updated for the user. In case of an input mask on the screen, the keypad can be used to enter the data which then will be requested by the host system.

1.3 General Handling of the DE-BT 1000

The DE-BT 1000 has a main display, which is shown immediately after the start. This is also the range for masks and texts. Furthermore, it has a status line in which different information can be shown. From this main display, different instructions can be carried out by key shortcuts. The instructions and the corresponding key shortcuts are described in the menu point „*Commands*“.

Use the tab keys **→** and **←** to switch between the different input parts in a menu. The entry can be selected with the arrow keys after marking a selection field. Buttons can be confirmed by „**ENTER**“ and selections change the status with the space bar „**␣**“. Inputs in a text field are done by the keypad.

1.3.1. Commands

1.3.1.1. Delete Messages

Messages or errors in the status line can be blanked out by mouse click or by key shortcut **[SHIFT] + [F7]** ausgeblendet werden.

1.3.1.2. Configuration Menu

By the shortcut **[SHIFT] + [F8]** the configuration menu of the DE-BT 1000 is reached. First you have to answer the security request „*Do you really want to open the DE-BT 1000 configuration?*“ with „Yes“. In case of „No“ as answer, the user returns to the main display.

Different settings can be done in the configuration menu. The following list gives a short overview of the setting possibilities. In case of a selection field, the possible options are shown in the square brackets.

- GID (device ID) [0-9]
- UID (user ID) [0-9]
- Baud rate RS485 [300, 600, 1200, 2400, 4800, **9600**, 19200, 38400]
- Parity RS485 [**o=Odd**, e=Even, n=None]
- Stop bits RS485 [1, **2**]
- Baud rate RS232 [300, 600, 1200, 2400, 4800, **9600**, 19200, 38400]
- Parity RS232 [**o=Odd**, e=Even, n=None]
- Stop bits RS232 [1, **2**]
- Active [RS232, **RS485**, NET]
- Port number [1024-65535]
- DHCP
- IP address
- Subnet mask
- Default gateway

The GID and UID are used for the device addressing. Furthermore, the interface configuration can be determined. That includes the serial interfaces RS232 and RS485, as well as the IP configuration. Moreover, the interface, which should be used for the communication with the host system, can be selected in the selection field „Active“. For a communication via network (NET) the selected **Port** is used.

1.3.1.3. Factory Settings

To set the terminal back to factory setting, use the shortcut **[SHIFT] + [F1]** in the configuration menu. In case the security request is answered with „Yes“ the DE-BT 1000 is set back to factory settings. The factory settings are as follows:

- GID = 1
- UID = 1
- Baud rate RS485 = 9600
- Parity RS485 = o
- Stop bits RS485 = 2
- Baud rate RS232 = 9600
- Parity RS232 = o
- Stop bits RS232 = 2
- Active = RS485
- Port number = 50000
- DHCP = Yes
- IP address = 0.0.0.0
- Subnet mask = 255.255.255.0
- Default gateway = 0.0.0.0

1.3.1.4. Information Display

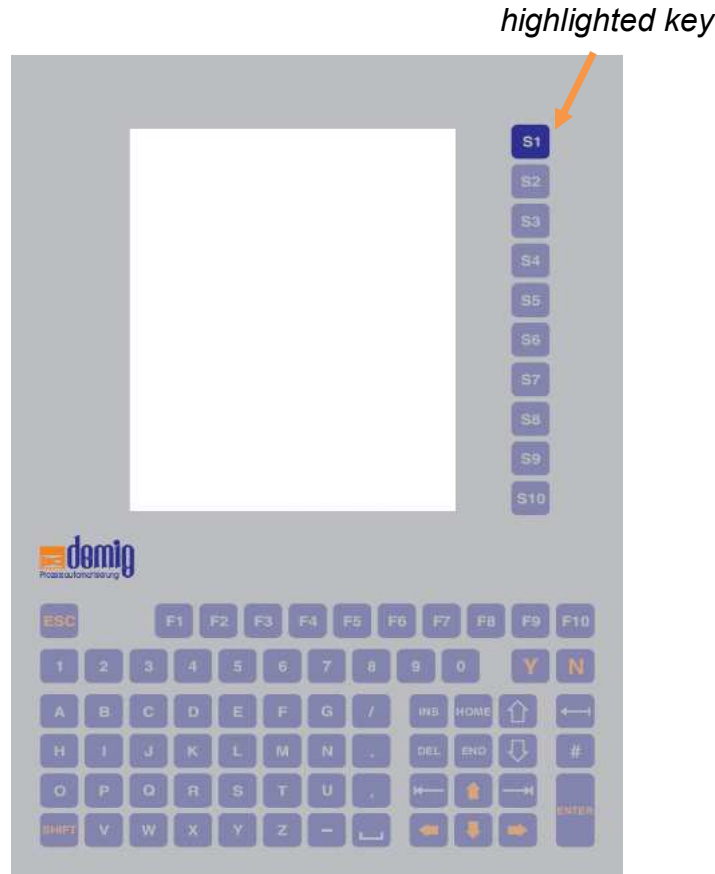
Information about the preset configuration can be displayed by **[SHIFT] + [F2]** in the configuration menu in case, the request was confirmed with „Yes“. Besides this information, also the current network configuration is shown.

```
GID: 1 UID: 1
Baud rate RS232: 9600
Parity RS232: o
Stop bits RS232: 2
Baud rate RS485: 9600
Parity RS485: o
Stop bits RS485: 2
Active: NET
Port: 50000
DHCP: Yes

Network-Configuration:
-----
em0: flags=8843 metric 0 mtu 1500
      options=9b
      ether 08:00:27:36:0f:62
      inet 192.168.148.202 netmask 0xffffffff broadcast
192.168.148.255
      nd6 options=29
      media: Ethernet autoselect (1000baseT )
      status: active
-----
```

1.3.1.5. Keyboard Test

The keyboard test can be called by **[SHIFT] + [F4]** and the following confirming with „Yes“. In the now appearing window the keys to be pressed on the softkeyboard are highlighted in color. After the successful pressing of a key, it will be deleted in the display. The keyboard test is closed automatically when no further key is shown.



1.3.1.6. Exit terminal mode

To exit the terminal mode and go to the menu (see chapter 1.3.3) use the key combination **[SHIFT] + [F8]** in the configuration menu. You only reach the service menu after confirming the following request with „Yes“.

1.3.1.7. Update

The update program is started with **[SHIFT] + [F9]** from the configuration menu and by confirming the appearing request with „Yes“. After that the update can be installed by the File Transfer Manager (FTM).

1.3.2. Status Line

At the upper edge of the display is the status range of the DE-BT 1000. This range is consisting of one line and directly after the start it looks as follows:



Then the version and the communication channel are updated.



The communication channel shows on which interface the communication with the host system is expected. A red highlighting shows an inactive communication. An active communication is shown in green.



Messages can contain information or errors. They are shown in a ticker right to the communication channel. To mark an error, the text is shown in red letters instead of white letters.

1.3.3. Menu

After leaving the terminal surface (see chapter 1.3.1.6) the menu follows, which looks as follows:



In this menu the user can select between three menu points.

Description of the menu points:

1.3.3.1. **START** start BT1000

Selecting the first menu point „*start BT1000*“ the menu is left and the DE-BT 1000 application is started.

1.3.3.2. **LOG** show logfile

The second menu point „*show logfile*“ serves to show the last log-entries. They are shown in a new window.

1.3.3.3. **SERVICE** maintenance

By selecting the last menu point „*maintenance*“ the service menu is opened.

1.3.4. Service Menu

In this dialog maintenance work at the DE-BT 1000 can be done. The dialog is as follows:

```

DE-BT 1000 - demig Prozessautomatisierung GmbH
( maintenance )

DHCP          activate DHCP
SHOW_NET      show network settings
UPD_MOD       start update mode
INST_UPD      install update []
SHOW_UPD      show update history
RMMSK         remove ALL mask files
DATETIME      set date/time
REBOOT        reboot
HALT          halt

< OK >      <Abbruch>
  
```

When leaving this dialog with “Cancel” you return to the menu. Furthermore, you have the possibility to select one of the following nine menu points with “OK”.

1.3.4.1. DHCP activate DHCP

Selecting this menu point, the DHCP-server assigns a new IP address to the terminal. Thus, the terminal is achievable with the new IP address.

1.3.4.2. SHOW_NET show network settings

In this menu point, you can see the current network configuration. The IP-address, the subnetmask and the network status are shown.

1.3.4.3. UPD_MOD start update mode

To install new updates, the terminal can be set in the update mode (in addition to the way described in 1.3.1.7) by means of the menu point „start update mode“. The update can be installed with the File Transfer Manager (FTM).

1.3.4.4. INST_UPD install update

In case the update was transferred to the terminal and not directly installed you can do the now with the menu point „install update []“. Between the square brackets is the update’s file name.

1.3.4.5. SHOW_UPD show update history

The update history (installation dates of the updates) can be shown by the menu point „show update history“.

1.3.4.6. RMMSK remove ALL mask files

All masks existing in the storage are deleted with this menu point. Therefore, all masks have to be sent again to the terminal.

1.3.4.7. DATETIME set date/time

To set the date and the time manually use the menu point „*set date/time*“. In the now following dialog enter first the date and in a further dialog the time.

1.3.4.8. REBOOT reboot

After selecting this menu point the terminal reboots .

1.3.4.9. HALT halt

This menu point shuts down the terminal.

2. Chapter: Service and Technical Data

2.1 General maintenance

2.1.1. Cleaning and care of the keypad and of the screen

The front panel with the keypad is a laminated surface (according to DIN 40050 IP protection 65). This surface, as well as the screen of the monitor, may be cleaned with a damp cloth and customary neutral detergent (glass cleaning agent).

**Warning:****Absolutely to be avoided:**

- Dripping wet treatment
- Aggressive cleaning agents
- Treatment of the keypad with peaked things

2.1.2. Direct Support

We offer the following possibilities for a direct support:

a) Telephone Support

Many malfunctions are caused by incorrect settings or improper handling. They may often be corrected in cooperation with the service technician via telephone.

b) E-Mail Support

Use the direct support by e-mail with our service technician.

c) Service on site

You may request the help of a service technician directly at demig or at the manufacturer. This relates to all software and hardware questions.

2.1.2.1. Contact:

Telephone: +49 271 77202-25 or +49 271 77202-29

Fax: +49 271 74704

E-Mail: service@demig.de

URL: www.demig.com

2.2 Update of the System Software

2.2.1. Necessary Material

- External PC or Laptop with FTM (File Transfer Manager) and a connection to the DE-BT 1000. This connection can be serial or via network.
- Update file (e.g. via E-Mail) from demig Prozessautomatisierung GmbH. There are 3 different update types:
 - **File name:**
 - **update for:**
 - 200727os.tbz • Operating system and Kernel modules
 - 200727xs.tbz • Surface
 - 200735bt.tbz • Terminal Application
- The first 6 figures of the file name describe the release date (year and calendar week) of the update. Depending on the current software status of the DE-BTK 1000 it is not necessary to install all 3 update types. In case of several updates the following sequence of the updates should be noted:
 - ***os.tbz → *xs.tbz → *bt.tbz**

2.2.2. Starting the Update

1. Start the FTM on the computer.
2. Set the DE-BT 1000 in the update mode, see chapter 1.3.1.7.
3. Now connect the FTM with DE-BT 1000. As it is the same procedure as for the controller, see the operation manual of the FTM.
4. Transmit then, by the FTM, the update to the DE-BT 1000. The question whether to send the files or also to start the update has to be answered with „Make update“. The update is then transmitted and automatically installed!
5. For the installation of further updates please repeat steps 1-4.

2.2.3. Update History

Delivery date ex works: _____
Software version at delivery: _____

No:	Date	Installed File	Software Version after Update
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

2.3 Technical Data

2.3.1. Control System Unit

- COM-Express CPU module
- AMD G-Series 1,6 GHz

2.3.1.1. Storage

- 2 GB RAM (operating store)
- 8 GB Industrial Grade Flash for operating program and configuration storage

2.3.1.2. Optional mass storage

- USB mass storage

2.3.1.3. Interfaces/Connections

- All interfaces are galvanically isolated from the supply and system potential.
- DIN-RS232, up to 38400 Baud
- DIN-RS422/RS485, compatibel up to BT485, half and full duplex, up to 38400 Baud
- 2x USB, for keyboard, printer, scanner, etc.
- Power supply unit: 24V DC, $\pm 15\%$, max. eo W, protective earth connection
- Gigabit-Ethernet interface

2.3.1.4. Display

- 6,5" TFT LCD-color display with extra large viewing angle
- resolution 640x480 pixles

2.3.1.5. Operation

- Membrane keyboard (according to DIN EN 60529 IP protection 65)
- Extern connectable PC keyboard and mouse

2.3.2. Installation and mounting

- Ambient temperature 0...+45°C
- Relative humidity 0 - 90% non condensing at +40°C and below 3000m
- Supply voltage 24V DC, $\pm 15\%$, power consumption 20W (normal mode)
- Storing temperature -20...+60°C
- Integrated seal at the rear of the front panel
- Mounting space in the switch gear cabinet to the top and the bottom 15 cm

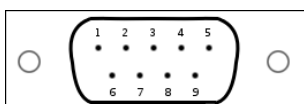
2.3.2.1. Potentials

In order to guarantee an undisturbed operation (electromagnetic compatibility EMC), it is important to connect the protective grounding cable (min. diameter 6 mm², superiorly earth wire).

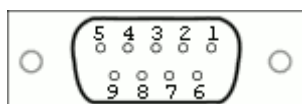
2.3.3. PIN Assignments

2.3.3.1. Serial Interfaces

Male Connector:



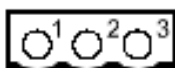
Female Connector:



Pin:	RS232	RS485/422	
1	DCD	5V	
2	RXD	GND	
3	TXD	-	
4	DTR	-	
5	GND	-	
6	DSR	Y	} Sender
7	RTS	Z	
8	CTS	A	} Receiver
9	RI	B	

2.3.3.2.

2.3.3.3. Power Supply



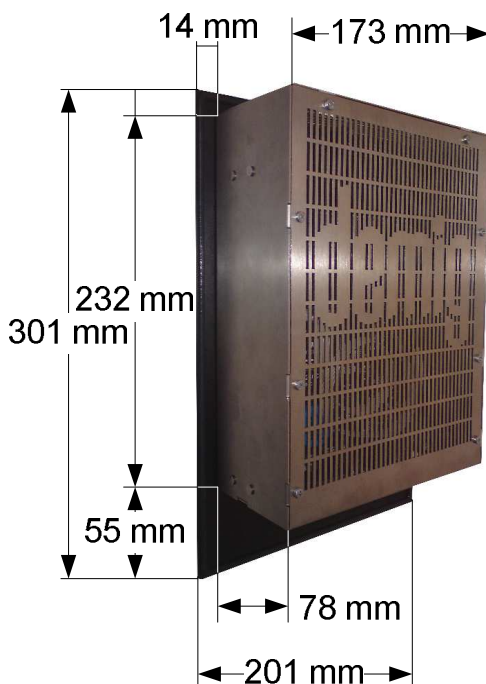
Pin:	
1	24V
2	Ground
3	PE

2.4 Installation Dimensions and Measurements of Rack-Housing

2.4.1.1. DE-BT 1000



Required mounting space to the top and the bottom 15 cm!



The connections of the DE-BT1000 are on the bottom side of the device.

Assembly measurements:

176 x 240 x 80 mm

W x H x D

Wall thickness for mounting
10mm max

2.4.2. Connections



3. Chapter: Appendix

3.1 License Note

The software USB Software Library for AT90USBxxx by Atmel Corporation has been used for the firmware. It is based on the following license:

/* Copyright (c) 2007, Atmel Corporation All rights reserved.

*

* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions are met:

*

* 1. Redistributions of source code must retain the above copyright notice,
* this list of conditions and the following disclaimer.

*

* 2. Redistributions in binary form must reproduce the above copyright notice,
* this list of conditions and the following disclaimer in the documentation
* and/or other materials provided with the distribution.

*

* 3. The name of ATMEL may not be used to endorse or promote products derived
* from this software without specific prior written permission.

*

* THIS SOFTWARE IS PROVIDED BY ATMEL "AS IS" AND ANY EXPRESS OR IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
* MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY AND
* SPECIFICALLY DISCLAIMED. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT,
* INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
* (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
* ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
* THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

*/

Pywebsocket has been used for the WebSocket Server. It is based on the following license:

```
# Copyright 2011, Google Inc.
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are
# met:
#
# * Redistributions of source code must retain the above copyright
# notice, this list of conditions and the following disclaimer.
# * Redistributions in binary form must reproduce the above
# copyright notice, this list of conditions and the following disclaimer
# in the documentation and/or other materials provided with the
# distribution.
# * Neither the name of Google Inc. nor the names of its
# contributors may be used to endorse or promote products derived from
# this software without specific prior written permission.
#
# THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
# "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
# LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
# A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
# OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
# SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
# LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
# DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
# THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
# (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
# OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```


Index

A

Appendix 19
Assign IP-Address 9

B

Brief Explanation 3

C

CE-Conformity 1
Commands
 Delete Messages 4
 Exit terminal mode 6
Configuration 4

D

Disclaimer 2

F

Factory Settings 5

G

General Explanation 3
General Handling 3
General maintenance 11

H

Halt Terminal 10

I

Information Display 5
Installation
 Dimension 17
 Potentials 16
Installation and mounting 15
Installation Instructions 1

K

Keyboard Test 6

M

Measurements of the rack-housing 17
Menu 8
Mounting 15

P

Pin Assignments 16
Power Supply 16

R

Reboot Terminal 10

S

Security Symbols 2
Serial Interfaces 16
Service and technical Data 11
Service Menu 9
Set date 10
Set time 10
Status Line 7
Structure of the Operating Instructions 2
Support data 12

T

Technical Data 11, 15
 Connections 15
 CPU 15
 Interfaces 15
 mass storage 15

U

Update 6
Update History 10
Update of the System Software 13
 Handling 13
Updatehistory 14