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Configuration for XVM400

GALILEO
Visualization software

Powering Business Worldwide

Impressum

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Original instructions
The German version of this document is the original instructions.

Translations of the original instructions
All non-German editions of this document are translations of the original instructions.

Editor
Monika Jahn

Contents

Contents

1 General

1.1 Purpose of this document

Our mobile panel XVM400 is based on the product KeTop T50 VGA from KEBA. In addition to the scope of delivery of the KeTop T50 VGA supplied by KEBA, a mobile panel XVM400 is also supplied with the following installations:

- 260 license points
  - For enabling certain device functions (→ Chapter 6 Licensing, 25)
- Software:
  - GALILEO Runtime System (GRS)
  - FTP Server
  - Remote Server
  - Remote Client
  - License Administrator

This document contains information required for the use of the mobile panel XVM400 with the GALILEO visualization software. The document describes:

- The standard procedure for creating projects with GALILEO and transferring the project from GALILEO to the device.
- Device setting.
- The procedure for reinstalling the GALILEO Runtime System (GRS) on the device.

1.2 Comments about this document

Please send any comments, recommendations or suggestions relating to this document to info-automation@eaton.com.

1.3 Additional documentation

The following documents provide helpful information on using the device in addition to this document:

[1] KeTop T50 VGA User Manual
(the operating instructions for the mobile panel XVM400 are provided on the KEBA home page (http://www.keba.com/en).)

[2] MN05010009Z-EN System Description Networks in Brief
(This document is available from www.moeller.net, www.eaton-automation.com and www.eaton.eu. The system description contains information on networks in general and on the integration of PCs and MICRO PANELs in networks.)

2 Creating a GALILEO project for XVM400

The mobile panel XVM400 is supported by GALILEO version V6.1.0 or higher.

1 Open a GALILEO project for the XVM400. See Chapter 2.1 Creating a new GALILEO project, 7.

2 Create your visualization project.
- Observe the content of Chapter 2.2 Important instructions on designing projects with GALILEO, 9.

2.1 Creating a new GALILEO project

Visualization projects are created on a PC on which the GALILEO visualization software is installed.

1 Launch GALILEO on the PC.

2 Click [Project] > [New].

3 Save the new project in the «New Project» window:

3.1 Create a new project folder.

3.2 Open the newly created project folder.

3.3 In the «File Name» field enter the required project name and click [OK].

4 In the «Panel Type» window select «XVM-4x0-65TVB (6.5", 640x480)» in the «Panel Type» field and click [OK].

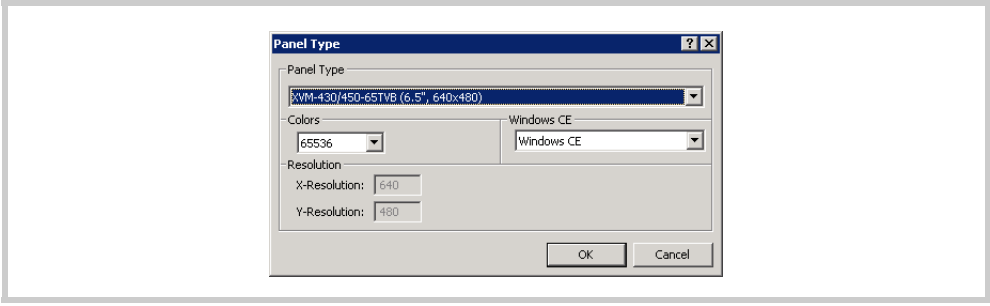

Fig. 1 «Panel Type» window

5 In the «Select PLC» window, select the communication[1)] to the PLC and to the membrane keypad of the XVM400:

5.1 Click [Add].

5.2 In the «Select Communication» window select the communication to the PLC and click [OK].
- The following picture shows as a selection example communication to a Eaton PLC.

1) To use the RS232 serial interface this must be specifically set on the device. See Chapter 4 Making the RS232 serial interface usable, 19.

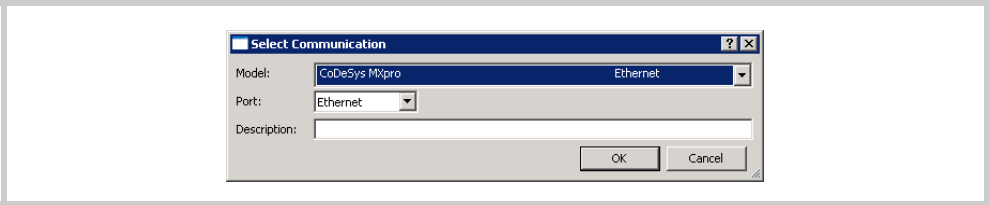

Fig. 2 Selecting communication to the PLC

5.3 Click [Add].

5.4 In the «Select Communication» window select «XVM-/KEBA KeTop Keypad» in the «Model» field and click [OK].

☞ **This setting is required so that the membrane keypad of the XVM400 can be controlled via the visualization project (→ Chapter 2.2.4, 🗎 10).**

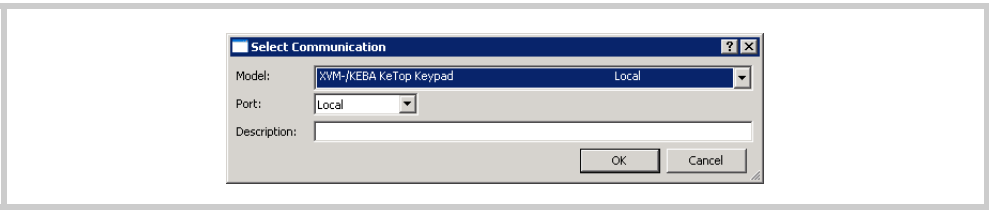

Fig. 3 Selecting communication to the membrane keypad

- The «Select PLC» window lists all communication channels assigned.

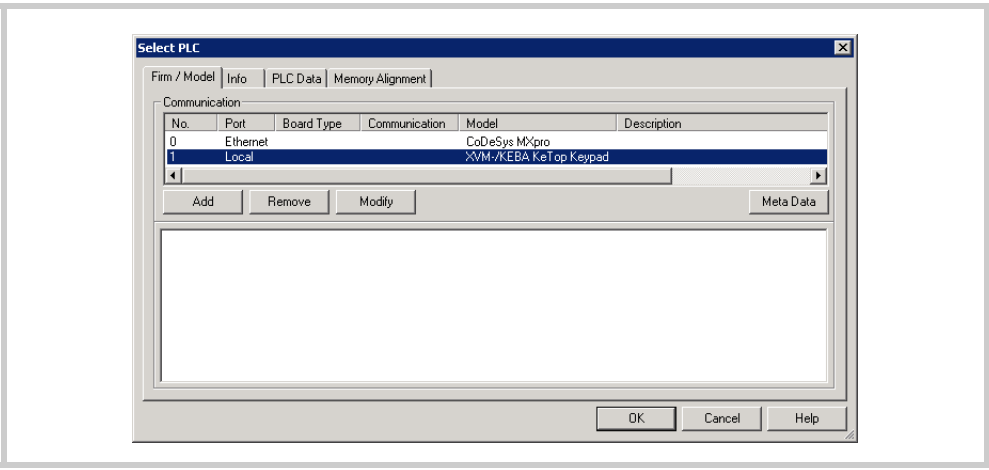

Fig. 4 «Select PLC» window

2.2 Important instructions on designing projects with GALILEO

2.2.1 GALILEO Help

The GALILEO Help provides all the general information required for designing projects with GALILEO.

The references in GALILEO Help to the Document «Micro Panel with Windows CE» (MN05010007Z-EN System Description Windows CE) only apply in part to the mobile panel XVM400. This is because the WindowsCE version of the KeTop T50 VGA supplied by KEBA is installed on the XVM400, and this does not comply with the WindowsCE image version described in the Document «Micro Panel with Windows CE» (MN05010007Z-EN System Description Windows CE).

2.2.2 «Shut down» function for GALILEO applications on the XVM400

A «Shut down» function must be programmed on the device in order to shut down the GALILEO application on the device (e.g. for setting and data handling tasks in the WindowsCE user interface). This is necessary as the GALILEO application is normally launched automatically when the device is restarted.

1 In the GALILEO project create a function key by selecting:
- Group: «Internals»
- Function: «Shut down»

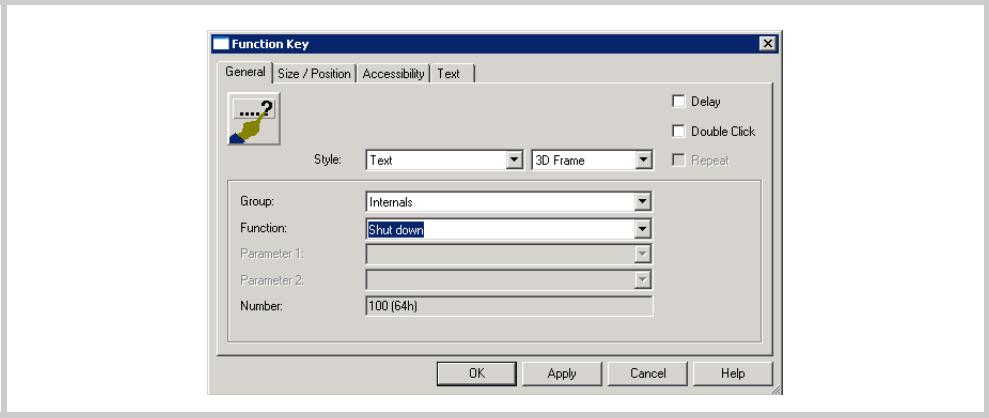

Fig. 5 «Shut down» function key

2.2.3 Hardware-related function key functions

Several hardware-related function key functions have no function for the mobile panel XVM400. Examples of hardware-related function key functions:
- Functions of the group «Info Displays»
- Functions of the group «Internals»

2.2.4 Hardware operating elements and LEDs of the XVM400

The following requirements must be fulfilled in order for the membrane keypad, the optional keyswitch and the optional handwheel of the XVM400 to be used or controlled via the visualization project:

- In the GALILEO project, the communication to the hardware operating elements and LEDs of the XVM400 is defined.
  - In the «Select PLC» window, «XVM-/KEBA KeTop Keypad» must be listed under «Model» ([Configure] > [Select Communication]). If «XVM-/KEBA KeTop Keypad» is not listed:
    - Click [Add] in the «Select PLC» window.
    - In the «Select Communication» window select «XVM-/KEBA KeTop Keypad» in the «Model» field and click [OK].
- Tags must be created with the appropriate address code in the GALILEO project for the following operating elements and LEDs of the XVM400:
  - All function keys and LEDs in the membrane keypad
  - Keyswitches (optional)
  - Handwheel (optional)

- **Refer to the topic «Definition of tags» in the GALILEO Help for information on how to create tags in GALILEO.**
- **The following keys of the keypad can be used without any special programming for value entries.**
  - **The keys in the right keypad**
  - **The navigation keys in the lower keypad.**
  - **Backspace**

Tag addressing of the hardware operating elements and LEDs of the XVM400

Tags	Operating elements and LEDs	Address	Address format	Controllable function
1 bit tag for each address or 1 or several bit array tags for function keys with a continuous address code	Function key [F1] … Function key [F10]	K112 … K121	K%d	Activate the function of the function.
1 bit tag for each address or 1 bit array tag	Keyswitch	K125	K%d	Activate function of the left keyswitch position.
		K126	K%d	Activate function of the right keyswitch position.
1 bit array tag with: ■ Number of elements: 4 ■ Start index: 0 or 1-bit array tag per LED with: ■ Number of elements: 2 ■ Start index: 0	LED «Run»	L3.0	L%d.%d	Switch LED on/off.
		L3.1	L%d.%d	LED flashes if the bit array tag element with address L3.0 is set to «1».
	LED «Error»	L4.0	L%d.%d	Switch LED on/off.
		L4.1	L%d.%d	LED flashes if the bit array tag element with address L4.0 is set to «1».
1 word tag	Handwheel	W1	W%d	Rotating the handwheel increments or decrements the tag (value change with each rotation: 50).

Tab. 1 Tag addressing of the hardware operating elements and LEDs of the XVM400

Overview of the address codes of all keys in the membrane keypad of the XVM400

Button	Address	Button	Address	Button	Address	Button	Address
←	K8	↓	K40	7	K55	F6	K117
↵	K13	0	K48	8	K56	F7	K118
Esc	K27	1	K49	9	K57	F8	K119
⤒	K33	2	K50	F1	K112	F9	K120
⤓	K34	3	K51	F2	K113	F10	K121
←	K37	4	K52	F3	K114	+/-	K189
↑	K38	5	K53	F4	K115	. ,	K190
→	K39	6	K54	F5	K116		

Tab. 2 Overview of the address codes of all keys in the membrane keypad of the XVM400

2.2.5 Date and time

Date and time are not backed up in the XVM400. If applicable, they must therefore be reset after a device restart. This can be done in two ways:

- Setting the date and time manually on the device, see KeTop T50 VGA User Manual.
- Transferring the date and time from the PLC, see Chapter Synchronizing the date and time from the PLC, 12

Synchronizing the date and time from the PLC

The date and time can be transferred from the PLC if the PLC connected to the device is programmed in the GALILEO project.

1. On the design PC: In GALILEO, address the «Date Time» system tag to the PLC that is connected to the device and transfer the GALILEO project to the device.
2. On the device, on the WindowsCE user interface (start screen):
   - **2.1** Double-click the «My Device» icon.
   - **2.2** Open the directory «\IPSM\runtime».
   - **2.3** Start the program «GrsDateTime.exe».

In the GALILEO project it is possible to set the transfer of the date and time from the PLC on device startup. See the topic «CE Configuration» in the GALILEO Help.

3 Transferring the project from GALILEO to the XVM400

GALILEO projects are transferred from the design PC to the mobile panel XVM400 via an Ethernet connection.

1 On the design PC: In GALILEO open the project to be transferred to the device.

2 Click [Generate] > [Compile].
- The GALILEO project is compiled. The compiler operation is logged in the «Compile Project» window.
  - Errors are displayed in red.
  - Warnings are displayed in green.

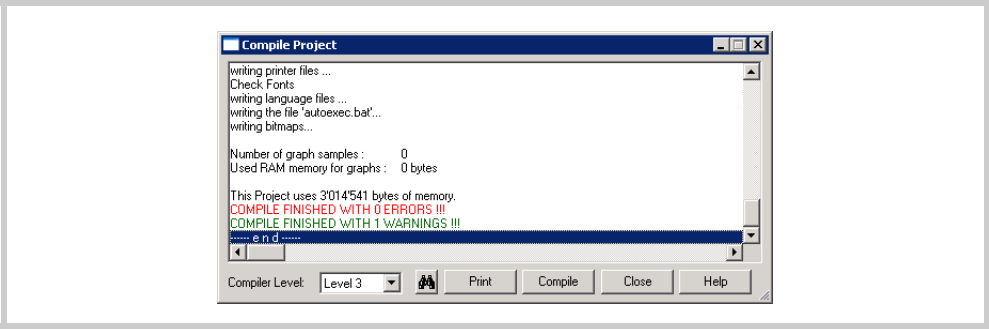

Fig. 6 «Compile Project» window

3 Establish an Ethernet connection between the device and the design PC:

General information on setting up an Ethernet connection is provided in the Document «MN05010009Z-EN System Description Networks in Brief».

3.1 Set the network parameters (IP address) of the device for the Ethernet connection. See Chapter 3.1 Setting the network parameters of the device, 14.

3.2 Connect the device with the design PC.

3.3 Start the FTP server on the device. See Chapter 3.2 Starting the FTP server on the device, 15.

4 Transfer the GALILEO project from the PC to the device. See Chapter 3.3 Transferring the GALILEO project, 16.

3.1 Setting the network parameters of the device

CAUTION

Serious network faults

The double assignment of IP addresses in the same network can cause serious faults in the network.

- ▶ Only assign each IP address once in the same network.
- ▶ Contact your network administrator to adjust the IP address and subnet mask of the device for the corporate network.

1 Start the device.

2 Press [Start] > [Settings] > [Network and Dial-up Connections] on the WindowsCE user interface of the device.

3 Double-click the «SMSC911X1» (Ethernet adapter)» icon.

4 In the «'SMSC11X Ethernet Driver' Settings» window choose «Specify an IP address».

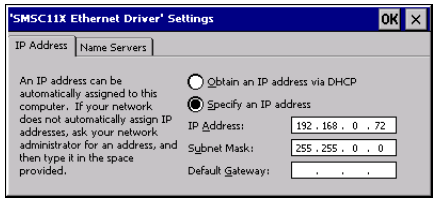

Fig. 7 «'SMSC11X Ethernet Driver' Settings» window

5 Change the IP address, and if necessary the subnet mask of the device so that it can communicate with the required PC(s) and/or devices in the network.

6 Close the open windows.

7 Save the WindowsCE settings durable with the «Registry Backup» tool:

7.1 Press [Start] > [Programs] > [KeTop] > [Registry Backup].

7.2 In the «Enter OK To Save Registry» window press [OK].

- ■ All current WindowsCE settings are durable stored.

Fig. 8 «Enter OK To Save Registry» window

3.2 Starting the FTP server on the device

The automatic startup of the FTP server when the device is started up can be set in the GALILEO project. See the topic «CE Configuration» in the GALILEO Help.

Starting the FTP server manually

1 On the device: Double-click the «My Device» icon on the WindowsCE user interface (start screen).

2 Open the directory «\IPSM\OS».

3 Start the program «FtpSvr.exe».

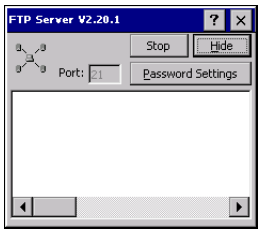

Fig. 9 «FTP Server» window

The icon at the bottom right in the taskbar of the WindowsCE user interface indicates that the FTP server has started.

3.3 Transferring the GALILEO project

Requirements

- The GALILEO project to be transferred to the device is opened in GALILEO.
- The GALILEO project has been compiled.
- The Ethernet connection between the device and the design PC has been established.

Procedure

1 In GALILEO click [Generate] > [Download (local, FTP)].

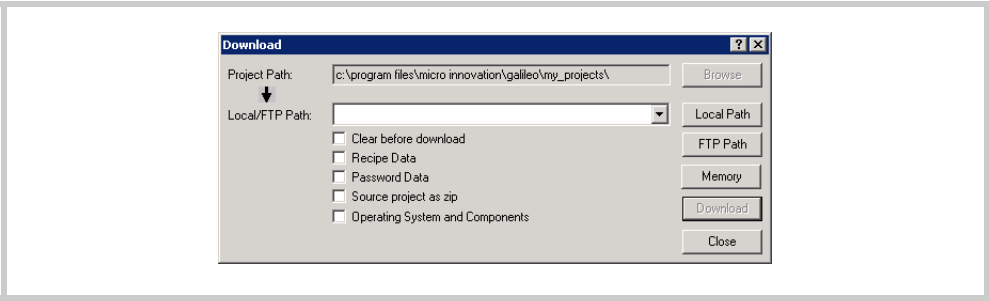

Fig. 10 «Download» window

2 In the «Download» window click [FTP Path].

3 In the «Local/FDP Path» drop-down menu, choose the FTP path of the device to which you wish to transfer the GALILEO project. If the required path is not available for selection, set up the Ethernet connection to the device:

3.1 In the «FTP Connections» window, click [New Connection].

3.2 In the «Properties: FTP Connections» window make the following settings:

Field	Setting
Title	Any name for the communication setting
Server / IP Address	IP address of the XVM400
User Name	«anonymous» or user name according to the selected FTP login
Directory	«/IPSM» (memory path for the GALILEO project on the XVM400. **Attention! Does not correspond to the default value.**)

Tab. 3 «Properties: FTP Connections» window

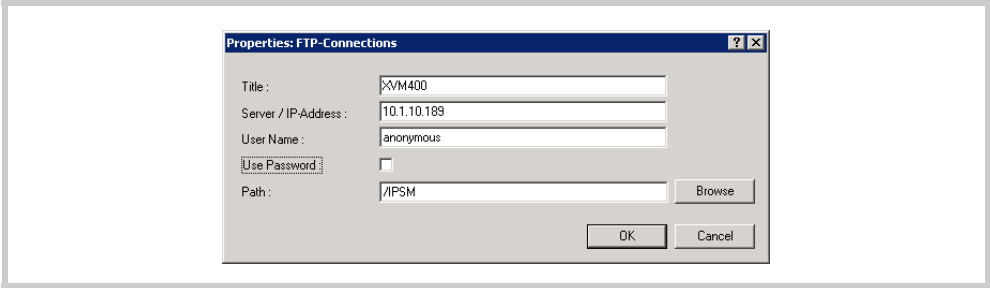

Fig. 11 «Properties: FTP Connections» window

3.3 Click [OK].
- The «FTP Connections» window displays the title that you have defined in the «Properties: FTP Connections» window.

3.4 Click [Close].
- The new FTP path is set in the «Download» window.

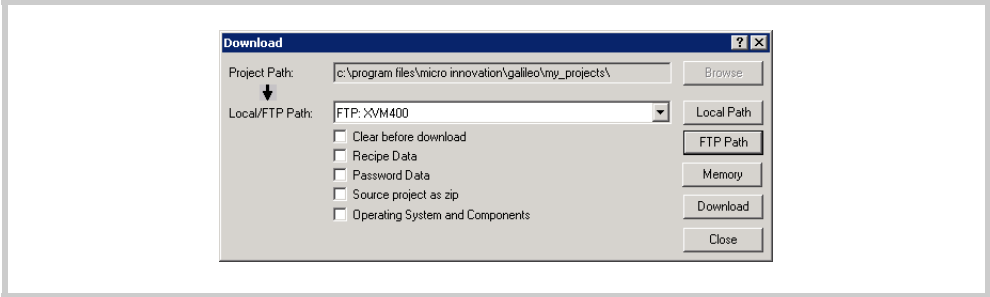

Fig. 12 «Download» window

4 If you are transferring the GALILEO project for the first time, activate the following options:
- Clear Before Download
- Recipe Data
- Password Data

5 Click [Download].

6 Wait for the write operation to be completed.
- Once the project has been transferred completely, a dialog window appears indicating that the project was successfully transferred.

7 Click [Start GRS] to start the GALILEO project on the device.

☞ **Alternatively, the GALILEO project can also be started by double-clicking the «GSW3» icon on the start screen of the WindowsCE user interface of the device.**

8 If the WindowsCE taskbar on the device appears above the GALILEO application, you can deactivate this in the following way:

8.1 On the WindowsCE user interface press [Start] > [Settings] > [Taskbar and Start menu]

8.2 In the «Taskbar and Start Menu Properties» window deactivate the «Always on top» option.

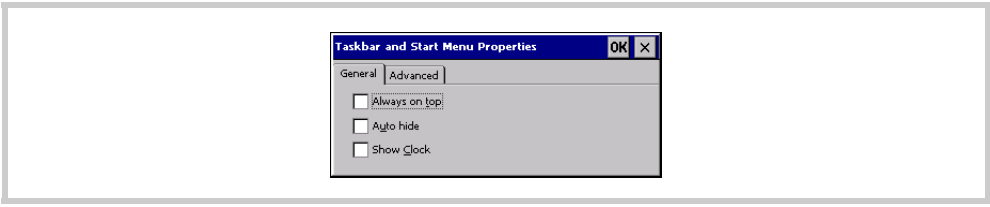

Fig. 13 «Taskbar and Start Menu Properties» window

8.3 Press [Start] > [Programs] > [KeTop] > [Registry Backup].

8.4 In the «Enter OK To Save Registry» window press [OK].

- All current WindowsCE settings are durable stored.

Fig. 14 «Enter OK To Save Registry» window

4 Making the RS232 serial interface usable

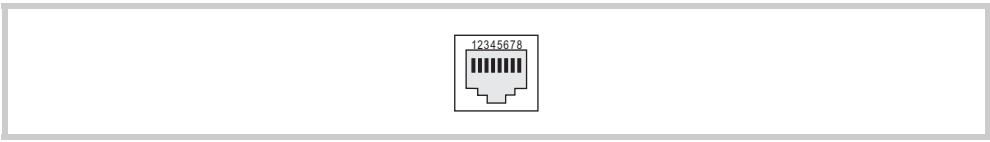

Fig. 15 RS232 interface (RJ45 socket)

Pin	Signal	Assignment
1	TxD	Transmit Data
2	RTS	Request to Send
3	RxD	Receive Data
4	GND	Ground
5	GND	Ground
6	CTS	Clear to Send
7	GND	Ground
8	GND	Ground

Tab. 4 Pin assignment of the RS232 interface

Not all the signals of the serial interface are available on the RJ45. DCD, DTR, DSR and RI are missing! This means that communication with the Moeller easy800 PC-CAB is not possible.

In order to use the RS232 serial interface of the XVM400, the following adjustments are necessary:

- Dip switches. See 4.1 Setting Dip switches, 20.
- Registry entries in Windows CE. See 4.2 Setting registry entries in Windows CE., 21.

4.1 Setting Dip switches

⚠WARNING

Live parts in the device

When the device is opened, there is a risk of electric shock if live parts are touched.

- ▶ Only open the device with the power supply switched off.
- ▶ Observe and follow the safety instructions and instructions stated in the KeTop T50 VGA user manual.

1 Disconnect the device from the power supply.

2 Place the device with the display facing downward onto a flat clean surface so that the device and its operating elements are not damaged (e.g. ESD mat).

3 Open the terminal chamber with a suitable Phillips screwdriver.

4 Set the Dip switches for the RS232 interface.

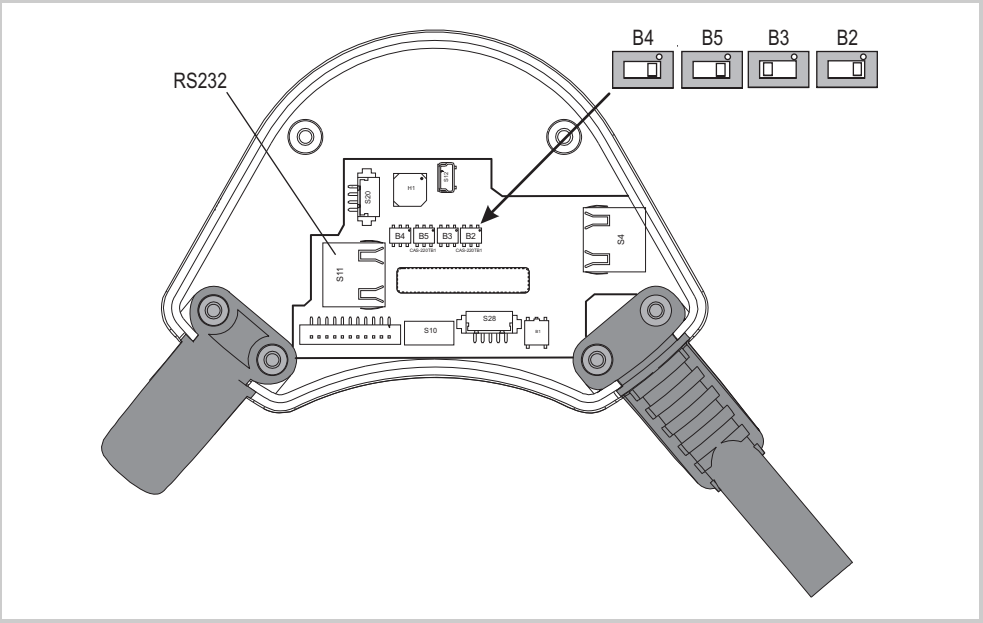

Fig. 16 Settings of Dip switches B2, B3, B4 and B5 for RS232

5 Close the terminal chamber.

When closing the terminal chamber, observe the following:

- **The seal must be clean and undamaged, as well as being correctly seated in the cover of the terminal chamber.**
- **None of the cables should be jammed.**
- **The terminal chamber cover must be screwed back with 6 screws (torque: 0.4 to 0.5 Nm). Only in this way can the stated degree of protection be guaranteed.**

4.2 Setting registry entries in Windows CE.

1 Change the registry entries for the RS232 interface as follows:
- [HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Serial1]
  "Index"=dword:2
  "FriendlyName"="Debug UART on COM2"
- [HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Serial1\Unimodem]
  "FriendlyName"="UART on COM2:"
- [HKEY_LOCAL_MACHINE\Drivers\BuiltIn\Serial2]
  "Index"=dword:1
  "FriendlyName"="RS422 on COM1:"

2 Save the WindowsCE settings durable with the «Registry Backup» tool:

2.1 Press [Start] > [Programs] > [KeTop] > [Registry Backup].

2.2 In the «Enter OK To Save Registry» window press [OK].
- All current WindowsCE settings are durable stored.

Fig. 17 «Enter OK To Save Registry» window

3 Restart the device.

5 Programs on the mobile panel XVM400

5.1 GALILEO Runtime System (GRS)

The GALILEO Runtime System, or GRS, is the runtime program that is run on the HMI devices. The project must be generated and compiled with the GALILEO visualization software.

5.2 FTP Server

The FTP Server (File Transfer Protocol) is used for transferring files via the Ethernet. The server program for WindowsCE is called «FtpSvr.exe». On the XVM400, the server is located in the directory «IPSM\OS\».

For detailed information refer to the Document «MN05010007Z-EN System Description Windows CE», Chapter «FTP Server».

If a login with password is configured for the connection setup, a path to the configuration file must be specified with the command line option –i. The default path is invalid for the XVM400! For this, create a shortcut to «FtpSvr.exe» with the command line parameter (e.g. «xx#»\IPSM\OS\FtpSvr.exe» -i \IPSM\OS\FtpSvr.ini» or create a BAT file with the appropriate entry.

5.3 Remote Server

The Remote Server/Client programs enable devices to be operated remotely. For example, an XVM400 with Windows CE can be operated from a PC. The server program for Windows CE is called «CERemoteSvr.exe» and provides the services for a PC or an additional MICRO PANEL. On the XVM400, the server is located in the directory «IPSM\OS\».

For detailed information refer to the Document «MN05010007Z-EN System Description Windows CE», Chapter «Remote Server».

If a login with password is configured for the connection setup, a path to the configuration file must be specified with the command line option –i. The default path is invalid for the XVM400! For this, create a shortcut to «CERemoteSvr.exe» with the command line parameter (e.g. «xx#»\IPSM\OS\CERemoteSvr.exe» -i \IPSM\OS\CERemoteSvr.ini» or create a BAT file with the appropriate entry.

5.4 Remote Client

The Remote Server/Client programs enable devices to be operated remotely. For example, a panel can be operated from the XVM400. The client program for WindowsCE is called «CERemoteClient.exe». On the XVM400, the client is located in the directory «IPSM\OS\».

For detailed information refer to the Document «MN05010007Z-EN System Description Windows CE», Chapter «Remote Client».

6 Licensing

The mobile panel XVM400 are provided with an integrated licensing system. A certain number of license points are required according to the functions used. The current number of license points is indicated by the licensing administrator tool.

☞
- **Relicensing is only necessary if the communications used require more than 120 license points.**
- **Each individual device must be relicensed separately.**
- **The license code supplied for relicensing can only be used on the mobile panel XVM400 with the corresponding serial number.**

6.1 License points

License points are required in order to activate certain functions of the device. When a mobile panel XVM400 is supplied, the device is already provided with 260 license points. The 260 license points are required as follows:

- 100 license points for the GALILEO Runtime System (GRS) software
- 40 license point for reading the membrane keypad and controlling the LEDs in the membrane keypad
- Additional license points for the communication with one or several controllers via Ethernet (the required number of license points depends on the protocols used)

If the number of license points on the device is not sufficient for the functions required (as other communication types are to be activated or the required communication requires more than 120 license points), the number of license points must be increased. See Chapter 6.3 Increasing the number of license points (relicensing), 27.

6.2 License Administrator (LICENSE.CPL)

The License Administrator tool provides information on the license points of the device and is required for relicensing.

1 On the device, on the WindowsCE user interface (start screen):
   1.1 Double-click the «My Device» icon.
   1.2 Open the directory «\IPSM\OS».
   1.3 Start the program «LicAdmin.exe».
2 Double-click the «License» icon.
   - The «License Administrator» window will appear.

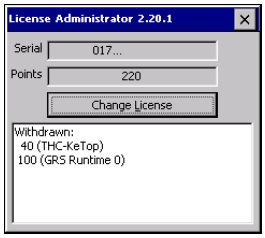

Fig. 18 «License Administrator» window

Display, Button	Description
Serial	The number for the licensing was calculated from the device specifications. **Note, this number does not correspond to the serial number on the device!**
Points	Shows the current number of license points of the device (number of installed license points).
[Change License]	Pressing this button opens a window with a keypad. This is used for entering the license code. Confirm the entry by pressing [OK].
Display field	Shows a list of applications and drivers that are currently active and require license points: - Withdrawn Number of license points for these currently running applications and drivers. - Rejected The device does not have enough license points at present for these applications and drivers.

Tab. 5 «License Administrator» window

- **Once license points have been assigned to an application, these are reserved for this application until the next device restart after the application has been closed.**
- **The number of license points on the device cannot be reduced.**

6.3 Increasing the number of license points (relicensing)

1. Order the required license products from your Eaton representative.
   - Necessary ordering information:
     - That the license points are for an XVM400 device
     - Number of required license points
     - The number in the «Serial» field of the «License Administrator» window (→ Chapter 6.2, 26). **Note, this number does not correspond to the serial number on the device!**
     - Current number of license points of the device (→ Chapter 6.2, 26)
     - Your email address
2. After placing your order you will receive a license code for activating the license points.
3. Enter the license code via the License Administrator tool on the device. See Chapter 6.2 License Administrator (LICENSE.CPL), 26.
4. Restart the device.

☞ **The additional number of license points are not available until the device is restarted.**

7 Reinstalling the GALILEO Runtime System

Proceed as follows when the GALILEO Runtime System (GRS) has to be reinstalled on the mobile panel XVM400:

1. Insert an empty USB memory stick (must not contain any files or directories) into the USB interface of your design PC.
2. On the design PC: In GALILEO open a GALILEO project for the XVM400.
3. Click [Generate] > [Compile].
   - The GALILEO project is compiled. The compiler operation is logged in the «Compile Project» window.
4. Transfer the GALILEO project to the USB memory stick:
   - **4.1** Click [Generate] > [Download (local, FTP)].

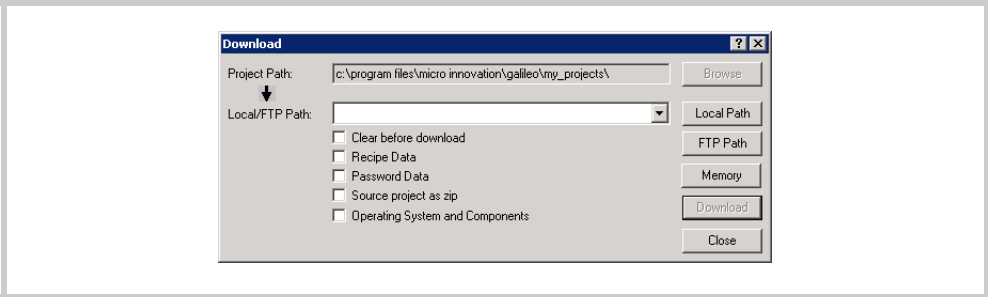

Fig. 19 «Download» window

   - **4.2** In the «Download» window click [Local Path].
   - **4.3** In the «Search Folder» window select the drive of the USB memory stick and click [OK].
   - **4.4** In the «Download» window activate the following options:
     - Clear Before Download
     - Recipe Data
     - Password Data
     - Operating System and Components

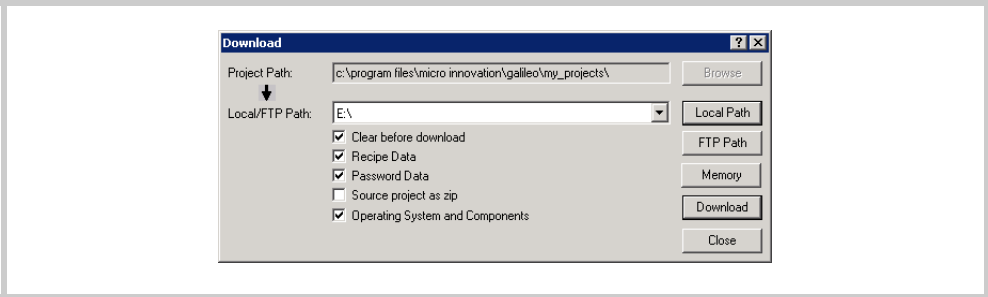

Fig. 20 «Download» window

4.5 Click [Download].

4.6 Wait for the write operation to be completed.

- Once the project has been transferred completely, a dialog window appears indicating that the project was successfully transferred.

5 Insert the USB memory stick into the USB interface of the XVM400 (top left of the device, underneath a rubber cover).

6 Transfer the GALILEO Runtime System (GRS) software and the GALILEO project to the XVM400:

6.1 On the device: On the WindowsCE user interface (start screen), double-click the «My Device» icon.

6.2 Open the drive «Hard Disk».

6.3 Start «CopyToIPSM.bat».

- Once the project has been transferred completely, a dialog window appears indicating that the project was successfully transferred.

Fig. 21 «KeTopInit» window

7 Restart the device.