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1 Introduction

This technical file contains detailed descriptions on how to safely and correctly install and operate the product and remedy simple faults yourself.

The target group for this technical file is only specially trained and authorized specialists.

1.1 Manufacturer

The manufacturer of the product is:
Maschinenfabrik Reinhausen GmbH
Falkensteinstrasse 8
93059 Regensburg
Tel.: (+49) 9 41/40 90-0
Fax: (+49) 9 41/40 90-7001
E-mail: sales@reinhausen.com

Please contact this address or visit www.reinhausen.com if you require more information about the software and versions of this technical file.

1.2 Subject to change

The information contained in this technical file comprise the technical specifications released at the time of printing. Major changes are taken into account in a new user manual version. The document and version number of these instructions can be found in the footer.

1.3 Completeness

This technical file is incomplete without the supporting documentation.
1.4 Supporting documentation

The quick reference guide, the operating instructions and the accompanying connection diagrams also apply in addition to this technical file. All documents are part of the scope of delivery.

Also note the generally valid, statutory and other binding regulations in European and national legislation and the accident prevention and environmental protection requirements of your own country.

1.5 Storage site

This technical file and all supporting documentation must be kept to hand and accessible at all times for subsequent use.

1.6 Illustration conventions

This section contains an overview of the abbreviations, symbols and textual emphasis used.
1.6.1 Abbreviations used

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>CD</td>
<td>Compact Disc</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
<tr>
<td>TCP</td>
<td>Transmission Control Protocol</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>a/o</td>
<td>and/or</td>
</tr>
<tr>
<td>CAN</td>
<td>Controller Area Network</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>XLS format</td>
<td>Excel Format</td>
</tr>
<tr>
<td>MB</td>
<td>Megabyte</td>
</tr>
<tr>
<td>U</td>
<td>Voltage</td>
</tr>
<tr>
<td>T</td>
<td>Time</td>
</tr>
<tr>
<td>I</td>
<td>Current</td>
</tr>
<tr>
<td>s</td>
<td>Second</td>
</tr>
</tbody>
</table>

Table 1: Abbreviations
1.6.2 Information concept

Information is designed to simplify and improve understanding of particular operational procedures. In this technical file they are laid out as follows:

! Important information.

1.6.3 Typographic conventions

In this technical file typographic conventions are laid out as follows:

<table>
<thead>
<tr>
<th>Typographic conventions</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>...&gt;...&gt;...</td>
<td>Select subsequent software menu</td>
</tr>
</tbody>
</table>

Table 2 Typographic conventions
2 Installation

Once you have inserted the installation CD in your PC's disk drive and launched the setup.exe file, you can pick from 2 types of setup:

- Typical
- Custom

You can select the setup type which best meets your requirements. Both are described below.

2.1 Typical installation

If you select the "Typical" setup type, the software is installed in full.

Proceed as follows to perform the typical installation:

1. Select the "Typical" checkbox.

2. Select "Next >" button.

The visualization software is installed in full.
3. Once the installation is complete, please continue by going to Section 2.3 “Selecting device” on page 18.

2.2 Custom installation

If you select the "Custom" setup type, you can select the program features which are installed. Proceed as follows to perform the custom installation:

1. Select the "Custom" checkbox.

2. Select "Next >" button.
2 Installation

A dialog box with all features appears.

3. Click on the corresponding symbols to select the features needed.
4. If necessary select the installation path under "Change..." wählen.
5. Select "Next >" button.
   The visualization software is installed with all the selected features.
6. Once the installation is complete, please continue by going to Section 2.3 “Selecting device” on page 18.
2.3 Selecting device

Once the software has been installed, the MR TAPCON®-trol Suite can be started. The suite comprises all MR software installed on your PC.

![MR start screen]

Figure 4 MR start screen

All software installed for the respective devices can be found in the list function under "Equipment selection". Proceed as follows:

1. If necessary, select language

   ▶ Right-click.

   ▼ A list of all the languages available appears.
2. Select the corresponding device which is to communicate with the PC from the list function.

3. Select the "Execute" button.

4. The MR Suite starts the corresponding visualization.

You can undertake all other settings in the visualization.
3 Product description

The visualization serves as a link between the hardware and user. In principle all operations and settings can be undertaken in a similar way on the hardware itself.

There is therefore no direct need to use the software to assist with input.

3.1 Scope of delivery

The following components are included in the scope of delivery:

<table>
<thead>
<tr>
<th>Scope of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD visualization software TAPCON®-trol</td>
</tr>
<tr>
<td>Operating Instructions</td>
</tr>
<tr>
<td>Serial cable RS232</td>
</tr>
<tr>
<td>USB adapter + installation CD</td>
</tr>
</tbody>
</table>

Table 3 Scope of delivery

Check the shipment for completeness on the basis of the shipping documents. The scope of functions of the software depends on the ordered equipment or device variant, not on the contents of this documentation.
3.2 Basic tasks of visualization software

The visualization software has the following basic tasks:

• Communication with the device
• Reading out the saved parameters and data
• Classifying and evaluating this data
• Archiving and preserving the data history (is overwritten in the module memory)
• Printing out and conversion of parameters and data into the formats PDF, XLS, BMP etc.
• Setting parameters
• Undertaking maintenance

The visualization software allows the status of remote hardware to be queried. Depending on the equipment of the TAPCON® 230, the computer can be linked with the hardware in various ways:

• Connection using 9-pole RS 232 interface
• Use of modem function
• TCP/IP communication

The visualization is a full graphics user interface for the following Microsoft operating systems:

• Windows 2000
• Windows XP
• Windows Vista
• Windows 7

The visualization can basically be split into a display section and a configuration section which can be used both online and offline.
As well as displaying the current measured values, calculated values can also be accessed in the display section. The data can either be presented in tables or if there is sufficient data in diagrams too. Once the memory content has been downloaded by the hardware during an online connection, you can view and edit the database contents in offline mode.

Parameters are presented in tables in the configuration section. Once the initialization data has been downloaded during an online connection, you can then edit or adapt this offline so that it can be transferred back to the hardware during a subsequent online connection.

When you commission the software, it contains no TAPCON® 230 entries. This includes connection settings and configurations. These should be initialized as detailed in these instructions.

Please also note the guidelines for the language selected and the communication settings for the computer you are using. In some dialogs, the software uses the standard format of the operating system such that the language settings in areas such as printing depend on the Microsoft user interface specification.
3.3 Description of basic structure

The software structure is split into 5 areas:

1. Menu bar
2. Toolbar with action buttons
3. Status bar
4. Window for displaying values
5. Function tree

All parts of the main screen can be enlarged or shrunk using the mouse as is standard in Windows. The last settings are restored when the software is restarted.
3 Product description

3.4 Description of toolbar

You can pick selected functions using the toolbar. To simplify and describe the control processes, a text box containing a description of the command is shown when the mouse pointer hovers above the corresponding symbol.

The bar contains the following action button:

![Toolbar with action button](image)

- Create device
- Open device
- Delete device
- Connect with device (active = connected)
- Download parameter set
- Upload parameter set
- Communication settings
- Password input (active - enter password)
- Print data
- Export data to Excel
- Delete data
4 Basic settings

Once the software has been installed, the basic settings need adapting. The following sections describe how to do this.

4.1 Selecting language

You can select the language you want from all languages currently implemented in the "Language" window shown below. This is done using a list function.

Proceed as follows to select the language:

1. Settings > Paths > Language

Since standard Microsoft operating system dialogs are sometimes used, the language cannot be changed in some dialogs. Such cases include:

- Setting up the printer
- Navigation when searching for directories
- Navigation when searching for files
- The manual communication interface setting

The current language set for the Microsoft operating system is used.

2. Select the language you want from the list function.

3. Press the "Apply" button to confirm.
4. Confirm with OK.
The requested language is set.

4.2 Menu item: Settings

You can use the “Settings” menu item for the following settings:
• Communication
• Serial communication
• Modem
• Update
• Quick parameter download

Proceed as described in the following sections.

4.2.1 Setting communication options

The following sections describe how you can set the communication options.
4.2.1.1 Setting communication

There are 3 ways of establishing communication with TAPCON® 230:

- Serial connection (RS232) via zero modem
- Modem
- TCP/IP network connection

Proceed as follows to set the communication options:

1. Settings > Communication
   - The "Communication options" dialog box opens.

   ![Communication options dialog box]

2. Select the type of communication you want.
3. Confirm with OK.
   - The communication option is set.
Once the corresponding communication mode has been selected, the following additional options apply:

**Displaying mode selection**

If you tick the "Display mode selection" checkbox, the mode selection is displayed when setting up the serial connection. Communication by modem or network is the standard mode selection.

![Figure 11 Dialog box - communication selection](image)

**Updating parameters**

The dialog asks you to update the visualization parameters with the device parameters.
4.2.1.2 Setting serial communication

You can select the COM port in the "Serial communication" tab. Regardless of whether there is a modem or network communication card present, a TAPCON® 230 can be read out via the front interface using serial communication.

Proceed as follows to select the COM port:
1. Settings > Communication > Serial communication
2. Select COM port from the list function.

The dialog displays all known serial interfaces.

Figure 12 Automatic baud rate selection

The baud rate can be defined and/or established in 2 different ways. The easiest way is the automatic baud rate process, where the program always automatically establishes the baud rate before communication.

Proceed as follows to activate the automatic baud rate:
1. Tick "Automatic baud rate selection" checkbox.
2. Confirm with OK.

Automatic baud rate selection is activated.
If you know the device baud rate, you can undertake the setting yourself. Proceed as follows:

1. Settings > Communication > Serial communication
2. If necessary remove tick from "Automatic baud rate selection" checkbox.

Regardless of the type of communication selected, you can use further options to determine which transfer properties are in place for the online connection to the TAPCON® 230.

The visualization uses the Windows "Options" settings for the respective serial interface. These settings are identical for the serial interface and modem interface. Proceed as described on the next page:
3. Select "Option" in the dialog.

The "Port settings" window opens.

The settings for data bits, parity, stop bits and flow control must be identical to the settings in Figure 14 otherwise a connection cannot be established with the TAPCON® 230.

Figure 14 Properties of COM port
4.2.1.3 Setting modem

Modem communication functions regardless of modem management within Windows. In principle a COM port which can be configured in exactly the same way as the serial interface is assigned to the modem (see "Serial communication" communication options). Any kind of modem can therefore be used.

- Serial standard modem
- Mobile phone using infrared
- Mobile phone using Bluetooth
- etc.

An initialization string is needed to initialize a modem for communication. The precise initialization commands (Hayes code) for this can be found in the modem manual.

Init-string basic settings:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>Modem issues messages as words</td>
</tr>
<tr>
<td>X0</td>
<td>Modem only supplies the &quot;CONNECT&quot; message</td>
</tr>
<tr>
<td>L1</td>
<td>Modem volume</td>
</tr>
</tbody>
</table>

Table 4 Init-string basic settings

Proceed as follows to enter the initialization string:

1. Settings > Communication > Modem
2. Enter the initialization string in the "Init string" field (see Figure 15).
4 Basic settings

3. Confirm with OK.

   The initialization string is entered.
4.2.1.4 Update

The intervals for updating status information, current tap positions and active LEDs and the graphics (display screens for "TAPCON® 230 remote screen") are preset and should not be changed.

If these intervals are to be adapted nevertheless, proceed as follows:

1. Settings > Communication > Update

Note that times for downloads cannot be reduced below a certain level due to fixed retrieval mechanisms and how the software is used. The settings made in Figure 16 cannot therefore vary beyond the limits of a fixed and specified interval.

1. Enter interval for status information in ms units in the "Information status" field.

2. Enter interval for graphics display in ms units in the "Remote display" field.

3. Confirm with OK.

The intervals are entered.
4 Basic settings

4.2.2 Other settings

Alongside communication options, you need to define other settings. These include:

- Setting path
- Defining visualization language
- Setting report

Open the options dialog using the menu bar:

Settings > Language/Path/Report

![Menu bar settings](image)
4.2.2.1 Setting paths

You can specify the following directories and destination folders under "Paths":

- Main directory
- Device data
- Archive
- Download

Proceed as follows to define the path:

1. Settings > Path > Paths
2. Select any directory.
3. Look for path using the button after the respective directories and define (see Figure 18).
4. Confirm with OK once all directories have been defined.

The directories are defined.
4.2.2.2 Setting report options

An explanatory option dialog for the display can be called up when producing reports. This option dialog always appears as soon as you want to perform printing.

Proceed as follows to call up the display:

1. Settings > Path > Report

![Setting report display](image)

Figure 19 Setting report display

2. If required, tick the "Show dialog box on options for report display" checkbox.
3. If required, tick the "Printing of parameter blocks" checkbox.
4. Confirm with OK.

The report options are set.
If you activate the "Option dialog for report display" in the report options, a dia-
log appears before every print operation (see Figure 20). You can change the
language for report control in this dialog. The report setting languages are inde-
pendent of the language settings for the visualization.

If you remove the selection before "Continue to display this dialog box", this
report is suppressed in subsequent operations. This definition can be reversed
using the menu item shown on the following screen under "Options".

The report display for parameters can also be structured using blocks, i.e. each
group of parameters is listed by page in the report.

You will find a detailed description of the print function under Section 5.5.1.2 on
Page 79.
5 Functions and settings

Once you have adapted the necessary options in the "Settings" menu as described in the "Basic settings" chapter, you can move onto the next sections which describe the visualization and its structure. This structure is based on the following basic categories:

- Group
- Device
- Parameter set
- Database modules

5.1 Menu item: Group

Groups are a way of creating order within the visualization. Devices and parameter sets can be combined into the respective groups.

5.1.1 Inserting groups

There are 2 ways of inserting a group - using the menu bar or mouse. If you want to insert a group or device using the menu bar, proceed as follows:

1. Group > Insert...

   The "Group details" dialog box opens (see Figure 21).

![Menu bar - insert group](image)

Figure 21 Menu bar - insert group
2. Enter abbreviation in "Abbreviation" field.
3. If necessary enter description in "Description" field.
4. Confirm with OK.

The group is inserted.
If you want to insert a group in the function tree, proceed as follows:

1. Right-click in the function tree.

2. Select "Add group". wählen.
   - The "Group details" dialog box opens (see Figure 22).

3. Enter abbreviation in "Abbreviation" field.

4. If necessary enter description in "Description" field.

5. Confirm with OK.
   - The group is added.
5.1.2 Opening group

If you have inserted groups, you can read in group data which has been saved in a directory.

Proceed as follows to display the group data:

1. Group > Open...

   ![Menu bar - open group](image)

   → The "Search for folder" dialog box opens.

2. Select the corresponding group directory.

3. Confirm with OK.

   → The "Archive integration" dialog box opens.
The group data is displayed in the "Archive integration" dialog. Alongside the current groups, you can also select groups and parameter sets.

Once you have clicked on the "Integrate" button, the selected data is transferred into the visualization database. If devices with the same ID code and/or name already exist, the ID and device name are automatically changed.

Figure 26 Archive integration
5.1.3 Deleting group

You can delete the groups you have previously created at any time. There are 2 ways of deleting a group - using the menu bar or mouse. If you want to delete a group or device using the menu bar, proceed as follows:

1. Highlight group which is to be deleted in the function tree.
2. Group > Delete

   The "Delete..." dialog box opens.

   The group requested is deleted.

When you delete a group, all the devices and data belonging to this group are also deleted. We would therefore recommend archiving the data before deleting a group.
If you want to delete a group or device using the mouse, proceed as follows:

1. Highlight group which is to be deleted in the function tree.
2. Right-click.

![Function tree - delete group](image)

3. Select "Delete group".
   - The "Delete..." dialog box opens.
4. Select the "YES" button.
   - The group requested is deleted.
5.1.4 **Saving group data**

The software allows both group data and device data to be saved. This function is identical to the "Save device data" function. You receive a compressed ZIP file. This file is saved in the archive directory.

Proceed as follows to save the group data using the menu bar:

1. Group > Archive

   ![Menu bar - archive group data](image1.png)

   The "File storage" dialog box opens.

   ![Dialog box - delete group](image2.png)

   2. If necessary state the directory to which the file is to be saved.
5 Functions and settings

3. Enter any name for the file in the "File name" field.
4. Select "Save" to save.
   ➔ The "Archive information" dialog box appears.

5. Confirm with OK.
   ➔ The file is saved in ZIP format.
5.2 Menu item: Device

There are 2 ways of adding a TAPCON® 230 into the visualization software:

- Download device data
- Import data from a file (Zip file)

The steps required for these 2 procedures are shown in the sections below.

If you want to produce or add a new system, you need to distinguish between groups and devices:

Groups are used to combine several devices in the sense of a directory or folder. Individual parameter data records are saved under the devices.

Each TAPCON® 230 has a code, known as an Identcode. The software uses this code to distinguish devices when establishing a connection. You can change this code at any time either directly on the TAPCON® 230 or using the visualization software. Several devices cannot however be created with the same code.

If you want to change the code on the controller directly, please read the operating instructions for the TAPCON® 230.

When the mouse pointer hovers over a device entry or parameter data record, the associated code is shown.
5 Functions and settings

5.2.1 Creating new device

You can create the new device you want using the menu bar or the toolbar. If you want to create the device using the menu bar, proceed as follows:

- Device > New

Or using the toolbar:

- Select "Create device" button from toolbar.

Figure 33 Menu bar and toolbar - create new device

- The "Determine current device data" dialog box opens.
- The software automatically determines the basic configuration, parameter and module data.

Figure 34 Determining device data
If the software cannot assign a device after establishing a connection (see Section 5.2.2) and automatically retrieving the device-specific information or if it is not already available in the visualization database, it is read out automatically.

The download process can be shortened if the quick parameter download is activated in the communication options.

After the download process, the basic details for the TAPCON® 230 and the associated parameter set can be provided.

The following general data can be found in the "General settings" window:

- Name
- Location
- Device name
- Identcode (controller code)
5 Functions and settings

The user is free to select this Identcode. The Identcode must consist of a combination of digits and may have a maximum length of 4 characters. It is also used to further describe the TAPCON® 230 in the function tree. It is shown both in the status bar and in the right-hand overview window (central window of main screen).

In contrast, the user is free to select entries for "Location" and "Description" and these are used to differentiate between different TAPCON® 230. These are shown both in the status bar and in the right-hand overview window.

In addition to the general settings, the communication options can also be defined. The visualization can use the communication options to establish the connection. These details only serve as guidelines. They do not affect the visualization and device settings.

Figure 36  Dialog box - initialization: Communication
5.2.2 Opening device

The "Open" function allows archived (zipped) groups and devices to be inserted into the visualization. You can also insert devices using TAP files.

You can set the device you want to create using the menu bar or the toolbar.

If you want to open the device using the menu bar, proceed as follows:

1. Device > Open

Or using the toolbar:

1. Select "Open device" button from toolbar.

![Menu bar and toolbar - open device](image)

The "Open" dialog box opens.
5 Functions and settings

2. Select zip archive.

![Figure 38](image.png) "Open" dialog box

The "Archive integration" dialog box opens (see Figure 39).
If you select a zip archive, you can determine which archived devices you want to integrate. The table shows the group/Identcode and under this the brief description of the parameter set. Devices can also be inserted without the associated data.

If the "Integrate devices automatically" option is not used, the user must provide the general details. A check is run to establish whether the Identcode is present and whether the device name has already been issued.
During initialization, i.e. when adding new TAPCON® 230, the settings undertaken can be changed in any way later on.

Figure 40 Dialog box - initializing
Once the device information has been created, the information for the associated parameter set is defined.

If you insert a parameter set as a TAP file, you perform these steps in the same order.
5 Functions and settings

5.2.3 Deleting device

You can use the "Delete device" function to remove individual devices from the initialization structure. You can remove the device using the menu bar or the toolbar.

To delete a device group or an individual device using the menu bar, proceed as follows:

1. Highlight the device which is to be deleted in the function tree.
2. Device > Delete

Or using the toolbar:

2. Select the "Delete device" button.
   ➞ The "Delete..." dialog box opens.

When you delete a device, all the associated information about the device is deleted. We would therefore recommend archiving the data before deleting a device.

1. Highlight the device which is to be deleted in the function tree.
2. Device > Delete

Or using the toolbar:

2. Select the "Delete device" button.
   ➞ The "Delete..." dialog box opens.

3. Select the "YES" button.
   ➞ The device requested is deleted.
5.2.4 **Archiving device data**

The software allows device data to be saved. This function is identical to the "Save group" function. You receive a compressed ZIP file. This file is saved in the archive directory.

Proceed as follows to save the device data using the menu bar:

1. **Device > Archive.**
   - The "Open" dialog box opens.

2. Open file which is to be saved.
   - The "File storage" dialog box opens.

3. State the directory to which the file is to be saved.
4. Enter any name for the file in the "File name" field.
5 Functions and settings

5. Select "Save" to save.
6. Close dialog box with "Finish".

The file is saved in ZIP format.

You can insert archive files using the "Device > Open" menu item (see Section 5.2.2).
5 Functions and settings

5.2.5 Connecting

You can establish the connection to the device using the "Connection" button in the toolbar or using the menu bar.

Proceed as follows to establish the connection using the menu bar:

1. Device > Connect

Or using the toolbar:

1. Select the "Connection with device" button.

![Menu bar and toolbar - connect](image)

The "Select communication" dialog box opens.

![Dialog box - select communication](image)
5 Functions and settings

A connection can be established if you have correctly undertaken the communication settings and if you know the device communication options:

2. Select the "Connect" button.

The connection to the device is established.

Once you have installed the software, the "Automatic baud rate selection" is activated for communication. COM1 has been preselected as the communication interface. You can however change the settings at any time.

Using the automatic speed query, starting at 115,200 bauds, the PC software tries to query all possible speeds down to 9600 bauds without you needing to know the baud rate set on the TAPCON® 230. The baud rate currently set is saved within the software and used as a guideline for active "Automatic baud rate selection". This guideline is extended if the connection does not come about using the speed search described. The following window ("Connect...") opens:

![Figure 47 Window - connecting](image)

Once the baud rate has been established, the visualization software automatically initiates querying of the device data.
If the visualization has connected with a device, you receive status information as in Figure 48.

Figure 48  Status information about the device

1  Connection exists (yes/no)
2  Enter password (yes/no)
3  Last 4 digits of serial number of TAPCON® 230
4  LED status indicator (if there is a connection)
5  Current level
5 Functions and settings

5.2.6 Changing device data

If you want to change the name of the device or move the device into another group for example, you can change the settings for the newly inserted voltage regulator in any way later on. There is a systematic division here with regard to assignment to groups or directories and to TAPCON® 230.

Proceed as follows to change the device data:

1. Highlight directory in middle window.
   ➔ The "Change description.." button appears in the bottom part of the window
2. Select the "Change description..." button. wählen.
   ➔ The "Initializing" dialog box opens.

![Dialog box - initializing](image)

Figure 49 Dialog box - initializing

Changing the data stated here only relates to the structure within the visualization. The structure of the data in TAPCON® 230 is not changed.

3. Change device data.
4. Confirm with "Finish".
   ➔ The changed associations are saved in the software.
5.2.7 Changing parameter information

If you want to change the name of the parameter set, the location or the description for example, you can change them later in any way you want.

Proceed as follows to change the parameter information:

1. Highlight parameter set in middle window.
   - The "Change description..." button appears in the bottom part of the window
2. Select the "Change description..." button. wählen.
   - The "Edit parameter set..." dialog box opens.

![Figure 50 Dialog box - edit parameter set](image)

Changing the data stated here only relates to the structure within the visualization. The structure of the data in TAPCON® 230 is not changed.

4. Confirm with "Finish".
   - The changed associations are saved in the software.
5 Functions and settings

5.3 Menu item: Parameter set

As soon as systems have been fully added to the existing structure on the computer, they can be duplicated, moved or deleted again using the main and context menu. These functions are described in detail below.

5.3.1 Cutting

All selected objects are moved into the interim storage. This includes the module data. There are 2 ways of cutting the parameter set.

To cut the parameter set with the aid of the menu bar, proceed as follows:

1. Highlight parameter set in function tree.
2. Parameter set > Cut.

![Menu bar - cut parameter set](image)

The parameter set is cut and can be pasted somewhere else if required.
To cut the parameter set directly in the function tree, proceed as follows:

1. Highlight parameter set in function tree.
2. Right-click.

3. Select "Cut".

   ➔ The parameter set is cut and can be pasted somewhere else if required (for pasting, see Section 5.3.3).

### 5.3.2 Copying

Visible markings, parameters and configurations are copied to the computer's interim storage for further use free from historical measurements. The original data is not affected by the following steps.

If you want to copy the parameter set, this function is identical to the "Cut" function (see Section 5.3.1):

1. Highlight parameter set in function tree.
2. Parameter set > Copy

   ➔ The parameter set has been copied into the computer's interim storage and can be pasted somewhere else if required (for pasting, see Section 5.3.3).
5 Functions and settings

5.3.3 Pasting

All entries in the computer’s interim storage are pasted along with the associated files at the location or group you select.

Proceed as follows to paste the entry into the desired location:

1. Highlight the location where the entry is to be pasted.
2. Parameter set > Paste

   The entry is pasted at the location you want.

5.3.4 Deleting

If you delete a group, device or parameter data record, any files and structures related to the elements are deleted from the computer’s hard disk along with the visible entries.

Proceed as follows to delete an element:

1. Highlight the element in question (group, device, parameter data record).
2. Parameter set > Delete

   The element selected is deleted.
5.3.5 Downloading parameters

This semi-automatic function is explained in the previous sections. You can also update the parameters in the visualization directly using the menu bar or toolbar. An update is required if you are connecting the visualization to the device.

Once the parameters have been updated, the parameter visibilities are also aligned. Once the current TAPCON® 230 parameters have been downloaded, those parameters which differ from the parameters saved in the visualization are displayed in the update dialog (see Figure 54). Identical parameters are not displayed. You can download the parameters using the menu bar or toolbar.

Proceed as follows to update and download the parameters using the menu bar:

- Parameter set > Download

Or using the toolbar:

- Select the "Download" button.

When you download the parameters, log files are created in the device directory and these log the parameter transfers.

- Parameter set > Download

Or using the toolbar:

- Select the "Download" button.

The "Download parameters ..." dialog box opens (see Figure 54).
5 Functions and settings

The data is updated automatically.

The device parameters are updated.

Figure 54 Dialog box - download parameters
5.3.6 Uploading parameters

Once all the parameter changes are complete, the updated data can be collected and transferred to the TAPCON® 230 during online communication. As well as the menu bar and toolbar, the "Upload configuration..." button which is located in the bottom left part of the parameter screen can also be used for this purpose.

You can transfer the parameters using the menu bar or toolbar.

Proceed as follows to upload the parameters using the menu bar:

1. Parameter set > Upload

Or using the toolbar:

1. Select the "Upload parameter set" button.

With regard to parameter redundancy, the current device parameters are adopted by the respective parameter set. Parameters not selected and therefore not transferred are aligned with device values.

When you upload the parameters, log files are created in the device directory and these log the parameter transfers.

The "Upload parameters ..." dialog box opens.
The data is compared with the software parameters to be transferred.

Figure 56 Dialog box - upload parameters

1 Service parameters

After the upload, there is another alignment to check whether the selected parameters have been adopted.
5.4 Parameter and data structure of visualization

Alongside the menu, the function tree is the most important element of the visualization:

![Function Tree Diagram]

- **Device group, collection of several devices**
- **Device entry (location, description)**
- **Parameter set with parameter structure**
- **Parameter of voltage regulator structure corresponds precisely to the menu structure in the voltage regulator**

Figure 57 Function tree
5 Functions and settings

5.4.1 Parameter groups

Just as you can change parameters on the device itself, the visualization also allows you to do this. The structure in which the parameters are displayed is based on the device-specific guidelines.

The main and sub-groups of the parameters can be selected using the function tree and group table. These parameter groups are adopted when reading out device data and basically correspond to the division of groups within devices.

If you select a main group entry, the associated parameter groups are displayed in the table area on the right-hand side.

![Diagram of parameter groups]

Figure 58 Groups, main and sub-groups of parameters

1 Function tree
2 Device-specific details
3 Table showing parameter groups and parameters
5.4.2 Parameters

Once you have selected a parameter group, the parameters belonging to this group appear in the table display. You can change the parameter selected by double-clicking or using the "Change parameters..." button.

The parameters can only be changed in line with their specification (e.g. min. max). These parameter limits are checked during input.

The "All parameters" item also allows the parameter values saved in the groups to be displayed in one common list.

Checks are not undertaken within the visualization to establish whether the parameters are correct for the particular system configuration. The values may only vary within the stated limits. The entries are monitored, i.e. an error message is produced if the current value entered is not in the defined range. All further actions, other than a correction, are prohibited.
5 Functions and settings

5.5 Description of further menu structure

5.5.1 Menu: File

5.5.1.1 Converting values into XLS format

In principle all values recorded can be converted into a format compatible with MS Excel.

If the modules contain diagrams and tables, this information can be converted into Excel format (XLS). The conversion process can be undertaken using the menu bar or toolbar.

Proceed as follows to undertake conversion via the menu bar:

1. File > Export data to Excel

Or using the toolbar:

1. Select "Export data to Excel" button.

For reasons of compatibility, Excel97 is the selected format. Current Excel versions can easily evaluate this format.

![Figure 60 Menu bar - Export data to Excel](image)

The "Conversion" dialog box opens.

![Figure 61 Dialog box - conversion](image)
2. Enter name and storage location.
3. Click on the "Conversion" button.
   The process is complete.
5 Functions and settings

5.5.1.2 Printing

As is typical for Windows, the print functions are in the two menu elements - the menu bar and toolbar.

Proceed as follows to undertake the print function via the menu bar:

○ File > Print…

Or using the toolbar:

○ Select "Print data" from the toolbar.

The printer can either be set with the aid of the control panel (Microsoft operating system) or using the visualization software.

The print function can basically be performed for 2 areas:

• Parameters and configuration data
• Graphics and tables of values

Depending on the area of the visualization software selected (module data, parameters etc.), the print symbol and/or function are active or inactive. The printing of parameter data is started automatically if there is no defined print function in areas.
Once you have selected the "Display" button, the print preview appears (see Figure 64).

![Print preview](image)

**Figure 64** Print preview

1. Start printing process
2. Zoom function for print view
3. Select page to be displayed
4. Close print preview

The corresponding table and/or graphics are printed depending on the current display. If there is no print function provided for a display, the print function of the parameters of the parameter record currently selected is automatically activated.
6 Troubleshooting

If faults arise during operation on the visualization TAPCON-trol® System, you will be able to resolve most of them yourself. The table below should offer you help in detecting and remedying problems.

<table>
<thead>
<tr>
<th>Error</th>
<th>Characteristic</th>
<th>Detail</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No communication possible</td>
<td>Communication between visualization and device not possible.</td>
<td>Software</td>
<td>Settings incorrect.</td>
<td>Check communication interface and COM port settings under &quot;Tools&quot; and &quot;Communication&quot;. Check defined transfer rates to determine whether the transfer rates within the software and on the monitoring system are identical.</td>
</tr>
<tr>
<td>Hardware</td>
<td>Incorrect connection cable used.</td>
<td></td>
<td></td>
<td>Check whether an uncrossed 3-pole RS232 cable with 9-pole connector socket (included in scope of delivery) is actually being used in the event of a serial connection.</td>
</tr>
<tr>
<td>Monitoring of function</td>
<td>Interrupt to communication due to self-monitoring of device's monitoring systems.</td>
<td></td>
<td></td>
<td>Set communication to &quot;Offline mode&quot; and wait 30 seconds until the device is again ready for communication.</td>
</tr>
<tr>
<td>Parameters cannot be changed</td>
<td>Change protection</td>
<td>Change protection can block unauthorized parties from accessing parameters and configuration data.</td>
<td></td>
<td>This function is deactivated by entering a code. Values with protection from change are only possible using visualization software.</td>
</tr>
<tr>
<td>Message: &quot;Not all values have been transferred correctly!&quot;</td>
<td>Error message in visualization</td>
<td>Software</td>
<td>Problems have arisen during the parameter comparison after uploading.</td>
<td>You will find information about these parameters in the LOG file for the transfer process. Archive device data. Delete device in visualization and create anew. If the problem persists, please get in touch with the service team.</td>
</tr>
<tr>
<td>Incomplete print-outs</td>
<td>No diagrams or tables on the printed page.</td>
<td>Printer/driver problem</td>
<td>Printing problems have been experienced in some Hewlett-Packard printers.</td>
<td>Update driver for printer in question. For further information, please go to the Hewlett-Packard website <a href="http://www.hp.com/software.html">http://www.hp.com/software.html</a>.</td>
</tr>
</tbody>
</table>

Table 5 Troubleshooting