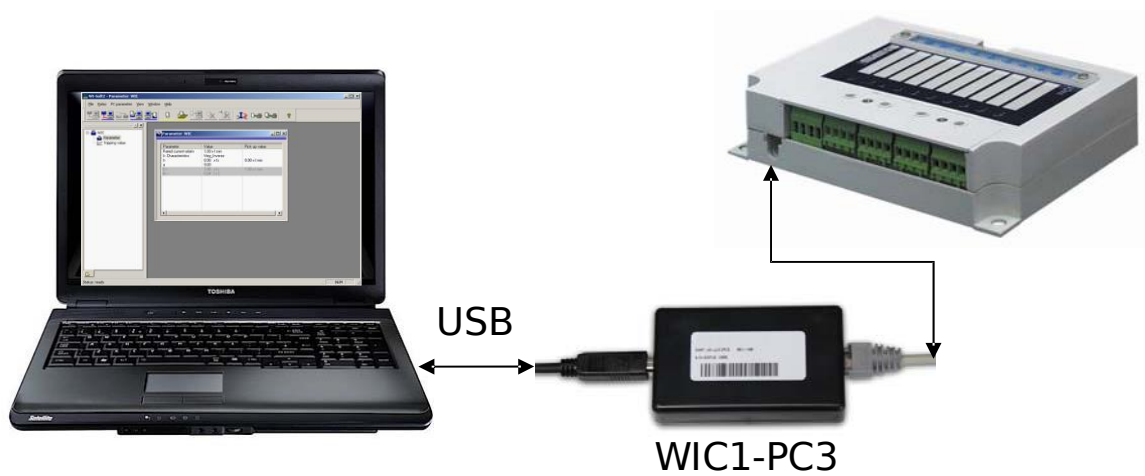# WI Line | PROTECTION TECHNOLOGY MADE SIMPLE

WI-SOFT2 | PARAMETERIZATION AND DIAGNOSIS SOFTWARE

USB

WIC1-PC3

Parameterization and Diagnosis Software

Original Document

English

User Manual (Original)

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Table of Contents

1   Foreword

WI LINE is a range of high-quality digital protection devices for medium-voltage applications. The devices in WI LINE combine all of the advantages that modern digital technology has to offer. As primary protection, "WI LINE" meets the highest demands that can be made of modern, digital secondary technology.

"WI LINE" does not just support the user with a wide range of easily selectable protection functions. The optimized design and the implementation of many functions in one device result in potential cost reductions in the planning, materials and installation areas. As well as consistent use of digital technology, the system philosophy focuses on good availability, self-monitoring, flexibility and an ergonomically designed user interface.

Because of their robust design, the protection relays of WI LINE can be directly installed in the switching system, meaning that the amount of wiring is reduced to a minimum.

2   Usage Area of WI-Soft2

"WI-SOFT2" provides easy, menu-controlled parameterization and evaluation of WIC1 and WIB1 re-lays. "WI-SOFT" makes consistent use of the options provided by digital protection technology, such as communication and data backup facilities. The Windows-oriented user interface means that the user is intuitively familiarized with the main functions of the program, whereby plausibility checks and password checks provide maximum security at all times. "WI-SOFT2" also makes it possible to plan and parameterize the device in offline mode for working in the office.
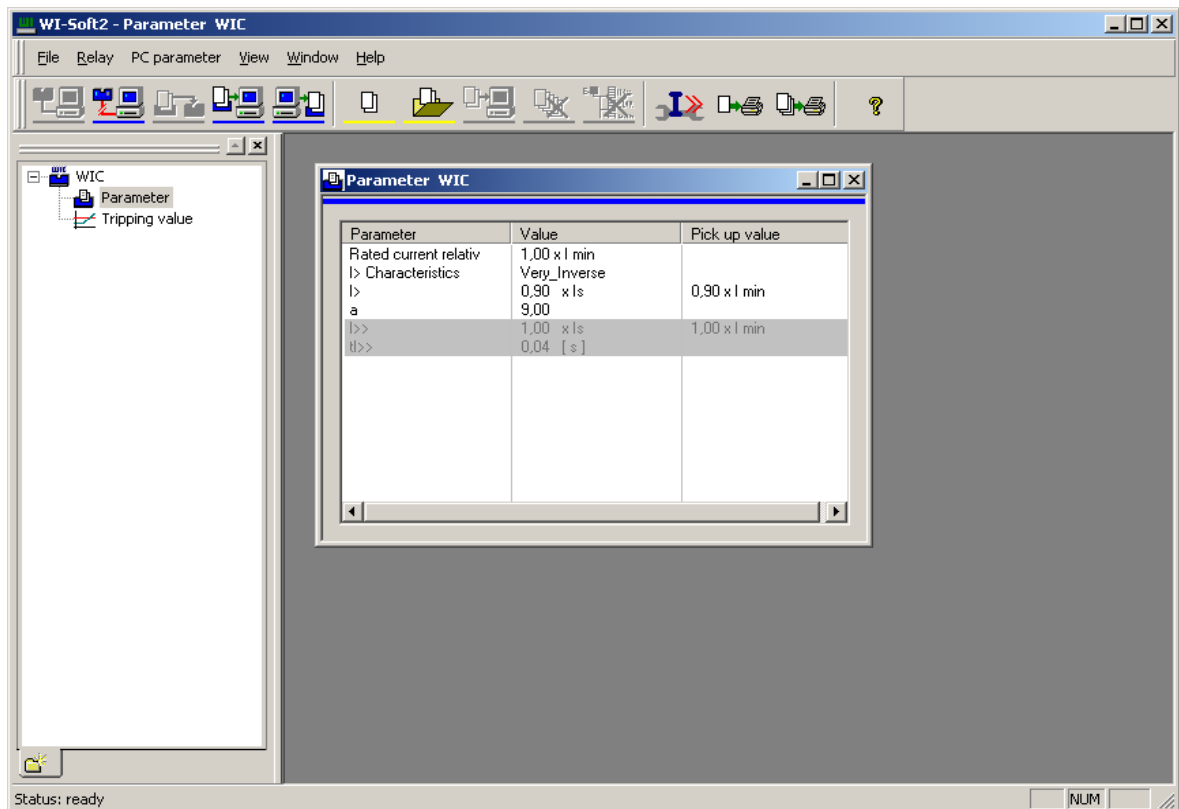
Figure 2.1: System – Example parameters

"WI-SOFT2" makes the following possible:

- easier and quicker handling of the WIC1 and WIB1 protection relays,
- user-friendly help functions,
- easy operation due to the familiar Windows interface/window technology,
- convenient backing up of data on various storage media,
- printing functions,
- good documentation options by means of printing and
- central use as an analysis and parameterization tool.

3   Installation/Uninstallation

3.1   Hardware and software prerequisites

"WI-SOFT2" will run on any IBM-compatible PC with Windows 2000/XP/Vista/7 operating systems. Communication takes place via the RS232* or USB** interface. The program can be operated using the mouse (Windows standard/Windows interface) and has user-friendly window displays/technology. "WI-SOFT" is simple to install, and is available in the German and English languages.

These instructions relate to software version 1.5.

*	*Communication via the RS232 interface with the WIC1 PC2 adapter.*
**	*Communication via the USB interface with the WIC1 PC3 adapter.*

3.2   Installing WIC1-Soft

The WI-SOFT2 installation program is started using Windows Explorer by means of double-clicking.

Figure 3.1: WI-Soft2 installation

Please comply with the instructions and questions in the installation menu.

The actual installation is started by means of another mouse click, and all of the files that are required are copied into your target directories. (WI-SOFT2 is now ready for operation)

3.3   Uninstallation

3.3.1   Option – uninstallation via the Start menu

The uninstallation of "WI-SOFT2" is started by clicking with the left mouse button on Start/Programs/SEG/WI-Soft2/Uninstall WI-Soft2. The "Automatic uninstallation" per-forms a full uninstallation of "WI-SOFT2".

3.3.2   Option – uninstallation via the control panel

The uninstallation is started using "Start/Settings/Control Panel/Add or Remove Programs".
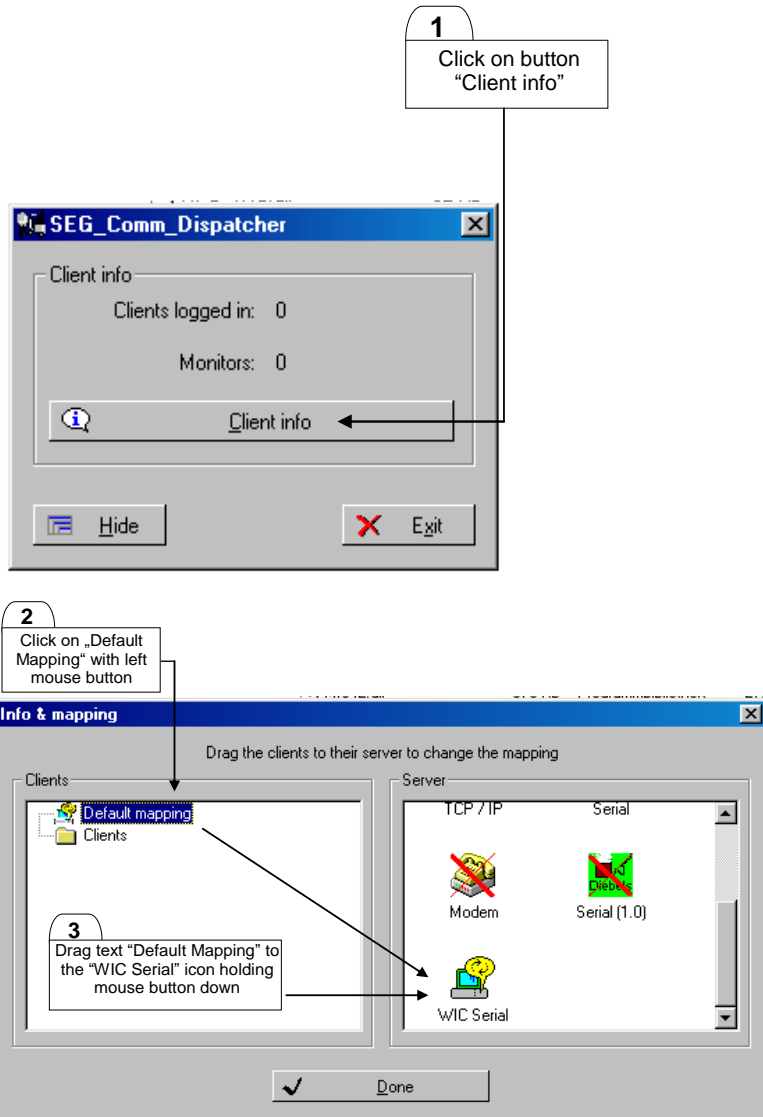
4   Required configuration

The communication between the PC/Laptop and the WIC1/WIB1 takes place via USB or a serial cable depending on the PC adapter that is used.

After WI-Soft2 has been installed, it must be configured and/or several parameters must be set. To do this, proceed as described in the following chapters.

4.1   Configuring the SEG_Communication_Dispatcher

The SEG Communication Dispatcher is called up using "Start/Programs/SEG/WI-Soft2".

1
Click on button "Client info"

2
Click on „Default Mapping" with left mouse button

3
Drag text "Default Mapping" to the "WIC Serial" icon holding mouse button down

4.2   Configuring the SEG_Serial_Server

Call up the SEG_Serial_Server using "Start/Programs/SEG/WI-Soft2". Select the COM interface to which you have attached the PC adapter. If a USB adapter such as the WIC-PC3 is being used, this is shown as an additional COM interface.

1 Selecting the serial interface (COM port)
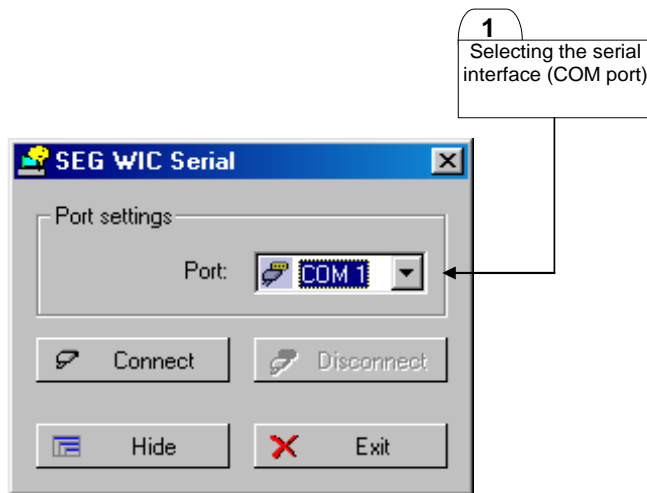
5　Starting the program/establishing a connection

5.1　Starting the program – communication via PC adapter

The following steps must be performed in the specified order to make the program run properly.

1.　The WIC/WIB relay must be connected to the PC/Laptop via the PC adapter using the provided USB (or serial) cable.

2.　WI-Soft2 is started using "Start/Programs/SEG/WI-Soft2". WI-Soft2 then loads the SEG_Communication_Dispatcher and the SEG_Serial_Server automatically.

NOTICE
Important information about a known error (WI-Soft2 Release 1.5): At the point in time when this document was produced, an error occasionally occurred when the connection was being established as de-scribed in this section. The error manifests itself in that the SEG_Serial_Server is not loaded automatically. In order to avoid this problem we recommend starting the WIC-Serial Server first as de-scribed in section 4.2, preparing it using "Connect" and then establishing the connection as described in the following paragraph.

3.　An active connection to the protection relay is created using the following icon.

The active connection is indicated by the appearance of the menu tree and the inverted display of the icon shown above. If no relay can be found at the configured COM port, an error message appears.
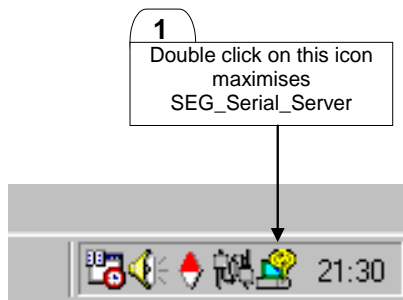
5.2   Stopping the program – communication via PC adapter

To stop the program, perform the following steps in the specified order.

1.   Stop the active connection to the relay using the following icon.

2.   Terminate WI-Soft2 using "File – Exit".

3.   The SEG_Serial_Server must then be called up via the status bar.

The connection to the relay is disconnected using the "Disconnect" button. The SEG_Serial_Server is exited by clicking on the "Exit" button.

4.   The SEG_Communication_Dispatcher is maximized using the following icon in the status bar.
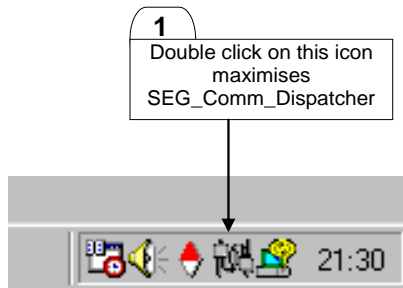

The "SEG_Communication_Dispatcher" is now also exited using the "Exit" button.

6   Menu structure

The user interface consists of five areas.

- Menu bar
- Button bar
- Tree structure
- Work area
- Status bar

Double clicking on individual branches within the tree structure causes the relevant window to open up in the work area. Several windows can be open at the same time. These can be arranged in accordance with requirements using the "Window" menu. Any open window can be made the "active working window" by clicking on the relevant window.
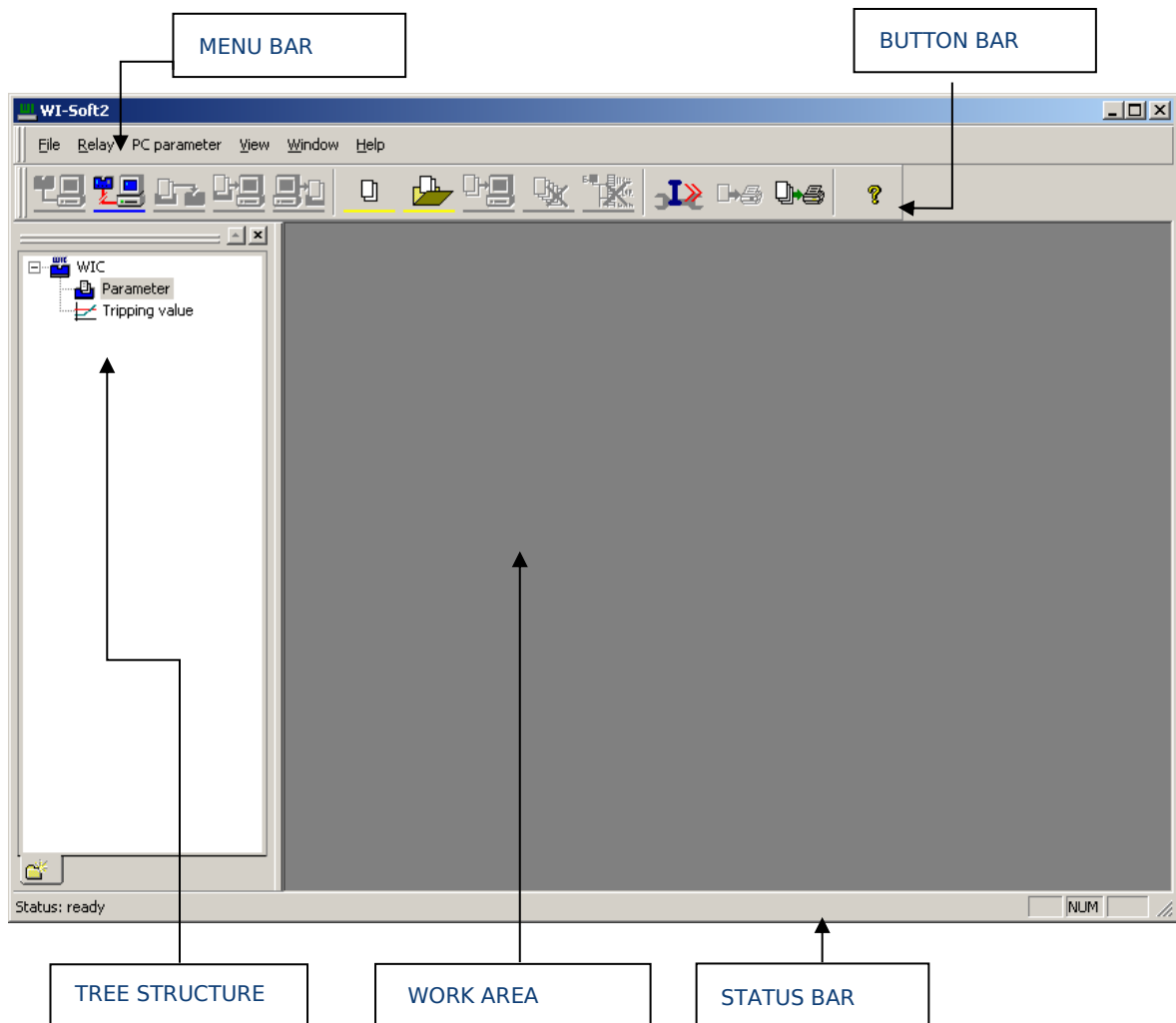
6.1   The button bar

The button bar provides quick and easy access to the most important functions of WI-Soft2 using the mouse.

The button bar operates interactively. If a function is available in the current mode, the icon is displayed in color. If a function is not available in the current mode, the icon is greyed out. This makes every-day-working with WI-Soft2 much easier.

The button bar provides visual indication of two mode variants. These are:

Online mode   blue   Offline mode yellow

The individual buttons and their functions are explained in the following. A detailed description of the individual functions can be found in chapter 8ff.

	Activate connection to relay (activate online mode)
	Deactivate connection to relay (deactivate online mode)
	Store active parameter set on relay (only in online mode)
	Store active parameter set on hard drive (only in online mode)
	Load a parameter set from the hard drive and stores it on the relay (online mode)
	Generate a new parameter set (offline mode)
	Open a parameter set from the hard drive (offline mode)
	Store active offline parameter set on hard drive (offline mode)
	Close open PC parameter window (offline mode)
	Remove PC parameter entries from work area (offline mode)
	Print current document
	Print selected parameters
	Password entry for the I>> protection level of the relay, enables the I>> parameters.
	Print selected parameter set
	Help for WI-Soft2

6.2 The menu bar

The menu bar allows the user to make basic WI-Soft2 settings. The individual menus and their functions are explained in the following.

6.2.1 File menu
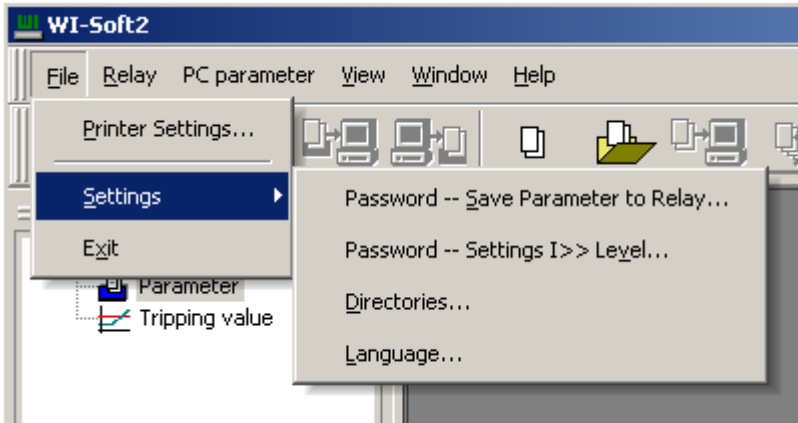

6.2.1.1 Printer settings

The "Printer Settings" function opens the standard Windows menu for selecting printers and entering printer settings. The usual settings can be made here.

6.2.1.2 Last open

The last parameter sets to be opened are displayed here. This gives the user an easy way of retrieving the last parameter set to be edited.

6.2.1.3 Settings

The basic settings for WI-Soft2 are made under this menu item.
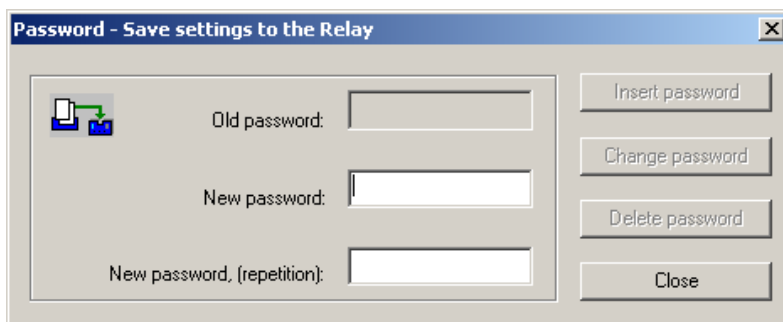
It is possible to protect the saving of a parameter on a relay using this password. The default setting by SEG is no password. If you wish to protect saving, enter a password in the dialogue window. If you wish to change the password, the old password has to be entered first as confirmation.
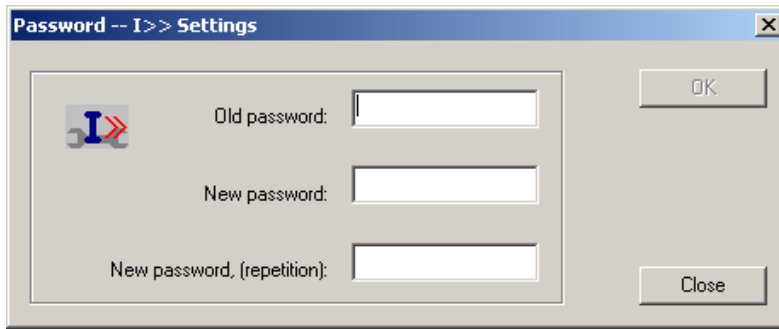
By way of additional protection, WI-Soft2 makes it possible to protect the short-circuit stage I>> separately. The factory settings can only be changed by entering the separate password for the I>> stage. The SEG factory setting for this password is "**seg**".
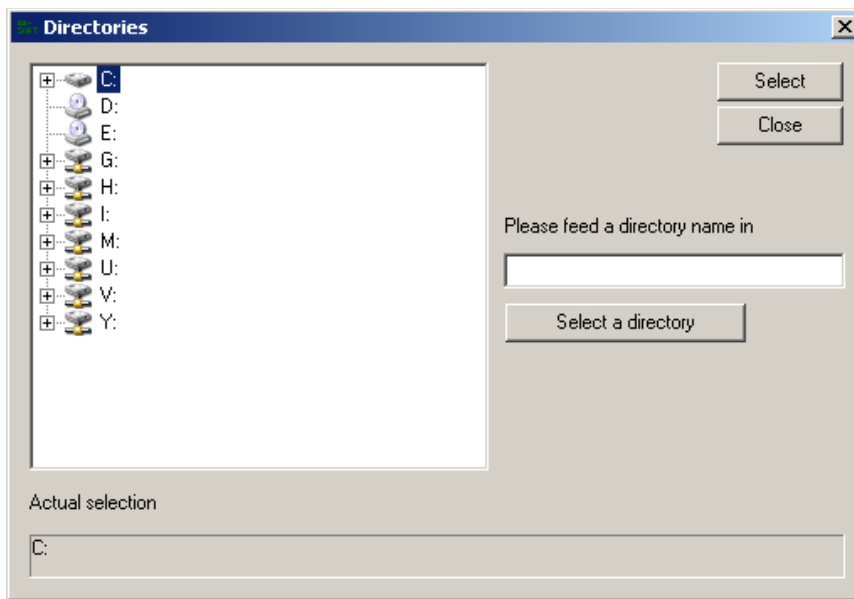
This function is used to define the default working directory in which WI-Soft2 stores the parameter sets on the hard disk and from which the parameter sets are read.

Language

The user language for WI-Soft2 is defined using this menu item. At the moment, the following languages are available:

- German and
- English

Because of the modular structure of WI-Soft2, additional languages can be added at any time. Please contact your responsible sales partner on site if necessary.

The language that is required is selected by highlighting it with the mouse and confirming with the "OK" button. Then WI-Soft2 must be exited and restarted so that the user language can be changed.
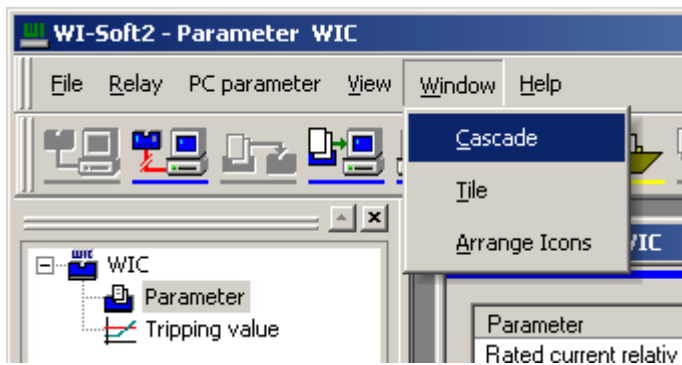
6.2.1.4   Exiting

WI-Soft2 is exited using the "Exit" function. The auxiliary communication tools must be exited separately as described above.

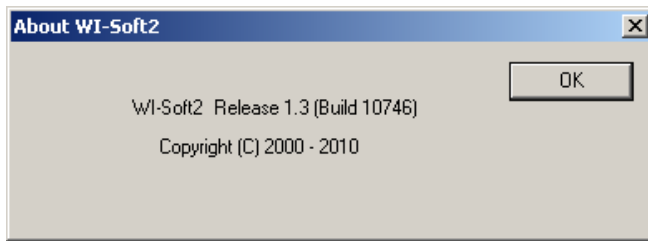### 6.2.1.5   "View" menu
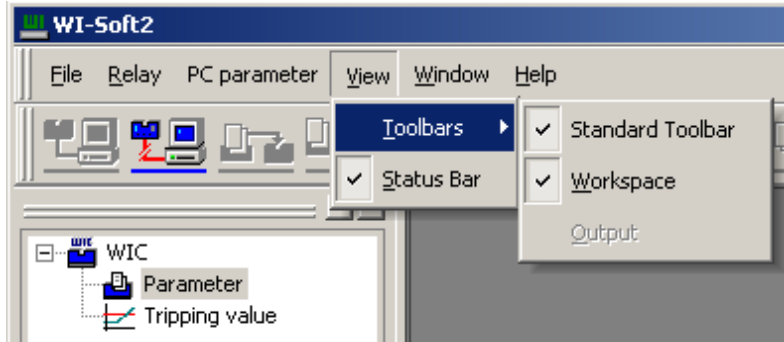
Display screen areas can be displayed and removed using the functions in the "View" menu.

6.2.1.6   "Window" menu

The functions in the "Window" menu make it easier to handle the opened windows in the working area.

6.2.1.7 "Help" menu

Version information about WI-Soft2 can be found under the Help menu.

The latest documentation and software updates can be found on the Internet at:
https://docs.SEGelectronics.de/wi_soft2

- Data sheet for the WIC1 PC3 adapter
- WI-Line product specifications
- WI-Line device descriptions
- USB driver
- WI-Soft2
- WIC1-Soft

7   Parameterization

7.1   Editing a parameter set

The editing of a parameter set is independent of the mode that WI-Soft2 is currently in. Editing can be carried out directly with the WIC1 or WIB1 relay online, or indirectly in offline mode.

> **NOTICE**
>
> **!** Only WIC1 and WIB1 device variants without DIP/HEX switches can be parameterized. These are device variants with order code WIC11xx or WIB11xx. At the point in time when this document was created, version1.5 of the WI-Soft2 software was the current release.
>
> Only parameter sets for WIC1xx protection relays can be created and edited with this release. The basic differences are noted in the rest of the description. With the device variants with order code WIC12xx, WIC13xx and WIB12xx, the parameters can only be read out of the device.

The basic steps are as follows:

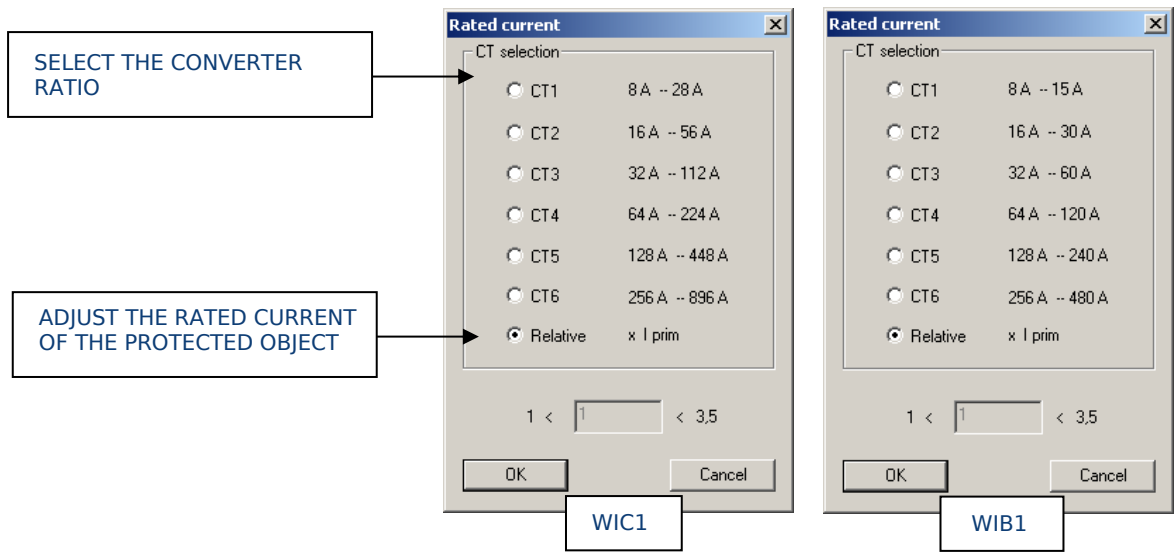1. The parameter set is opened by double clicking in the directory tree.
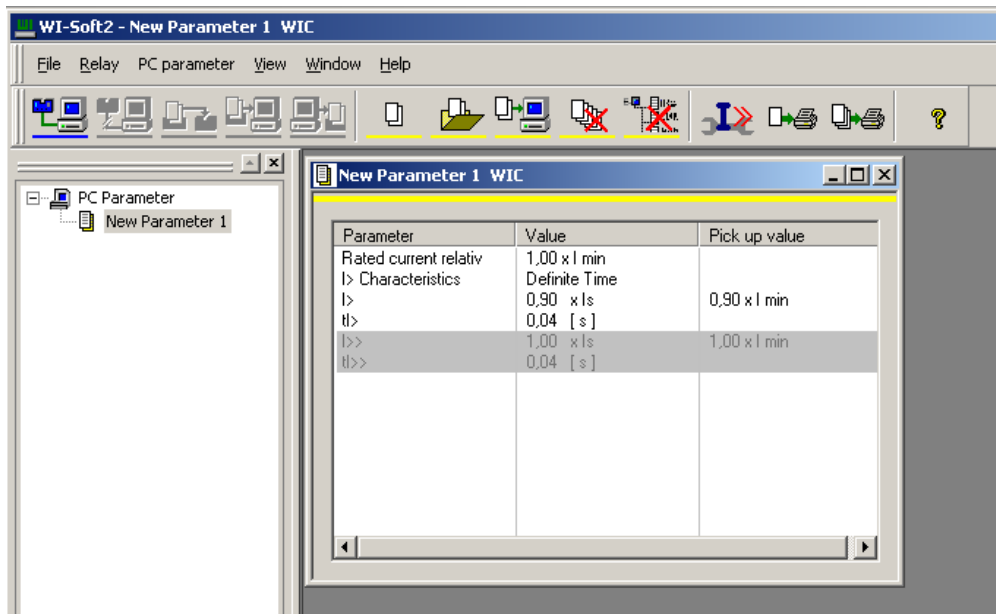
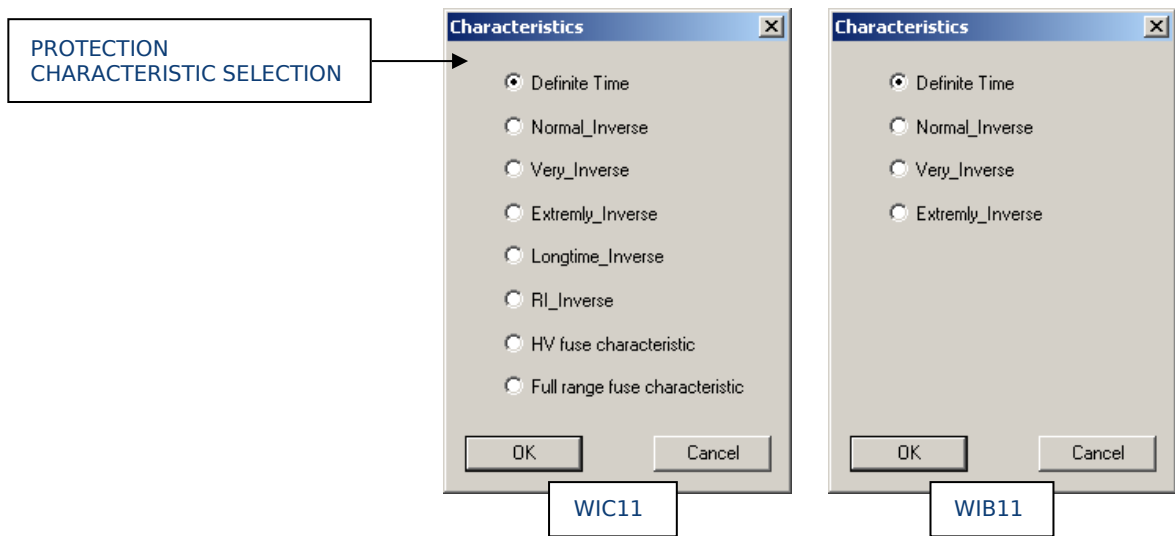2. The parameters are opened in the window of the parameter set window by double clicking.
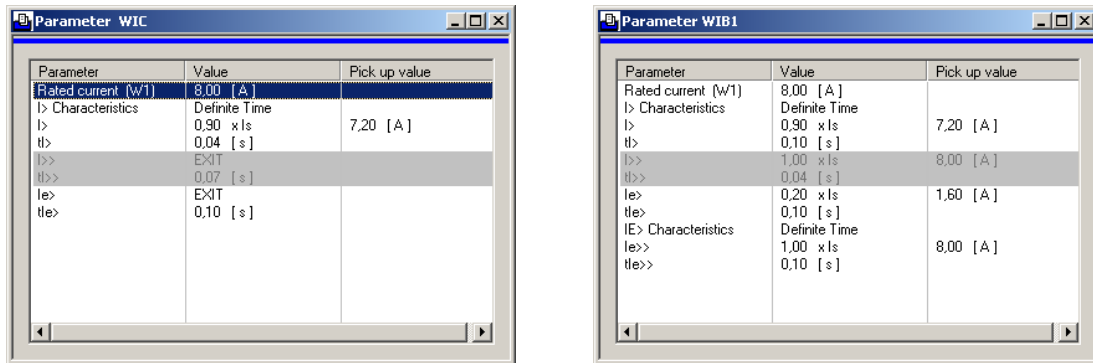
Parameter set of the WIC1 (left) and of the WIB1 (right) devices.

3.   Setting the rated current/selecting the converter ratio. The rated current of the protection object is the starting point for all other relative protection parameters.

SELECT THE CONVERTER RATIO

ADJUST THE RATED CURRENT OF THE PROTECTED OBJECT

Rated current   ✕
┌─ CT selection ──────────────────────────┐
│   ○ CT1   8 A -- 28 A   │
│   ○ CT2   16 A -- 56 A   │
│   ○ CT3   32 A -- 112 A   │
│   ○ CT4   64 A -- 224 A   │
│   ○ CT5   128 A -- 448 A   │
│   ○ CT6   256 A -- 896 A   │
│   ● Relative   x I prim   │
│   │
│   1 < [1   ] < 3,5   │
│   [OK]   [Cancel]   │
└───┘
WIC1

Rated current   ✕
┌─ CT selection ──────────────────────────┐
│   ○ CT1   8 A -- 15 A   │
│   ○ CT2   16 A -- 30 A   │
│   ○ CT3   32 A -- 60 A   │
│   ○ CT4   64 A -- 120 A   │
│   ○ CT5   128 A -- 240 A   │
│   ○ CT6   256 A -- 480 A   │
│   ● Relative   x I prim   │
│   │
│   1 < [1   ] < 3,5   │
│   [OK]   [Cancel]   │
└───┘
WIB1

4.   Select the protection characteristic

PROTECTION CHARACTERISTIC SELECTION

Characteristics   ✕
   ● Definite Time
   ○ Normal_Inverse
   ○ Very_Inverse
   ○ Extremly_Inverse
   ○ Longtime_Inverse
   ○ RI_Inverse
   ○ HV fuse characteristic
   ○ Full range fuse characteristic
   [OK]   [Cancel]
WIC11

Characteristics   ✕
   ● Definite Time
   ○ Normal_Inverse
   ○ Very_Inverse
   ○ Extremly_Inverse
   [OK]   [Cancel]
WIB11

5.   Select the overcurrent excitation factor I>

The excitation factor I> can be set variably within the adjusting range. The excitation factors are not stored in the protection relay as graduated values. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.

The overcurrent stage I> can be deactivated by selecting it. This means that the WIC1 relay can be as short-circuit protection only.
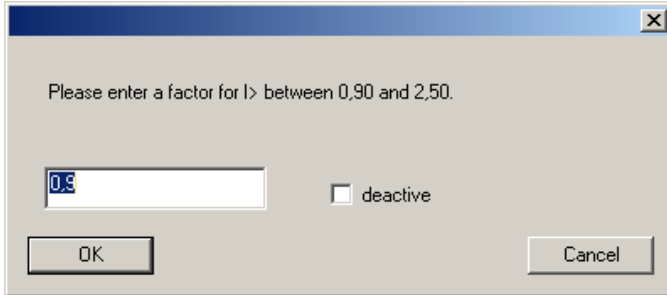

6.   Set the tripping delay tl> and time multiplicator factor a for the overcurrent stage.

Depending on the selected protection characteristic, the tripping delay tl> is set with this parameter with an independent characteristic (UMZ). With a dependent characteristic (AMZ) "Factor a" is set for the time multiplicator. Parameter values are stored in stages in the protection relay. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.
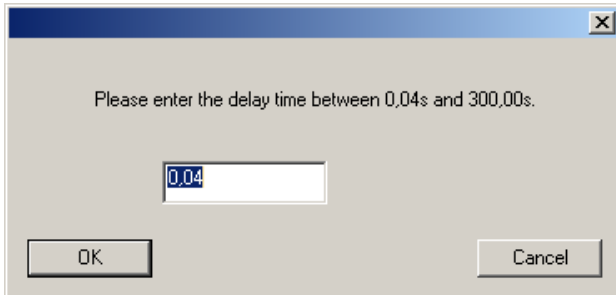
Setting of the factor "*a*" for AMZ protection
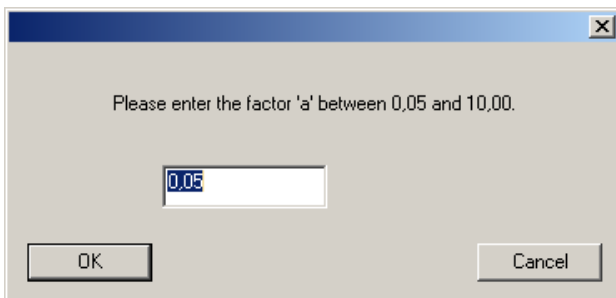
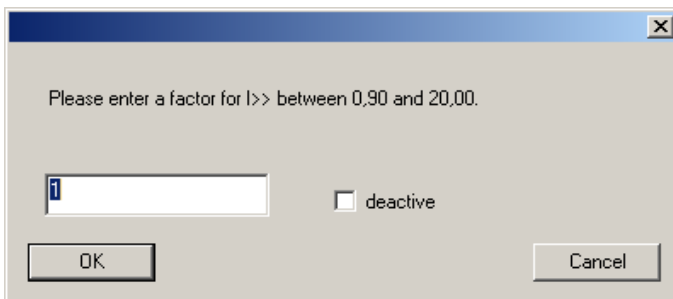7.   Setting the short-circuit excitation value I>>

The excitation value I>> for the short-circuit stage can only be modified if the correct password has been entered beforehand. If the values for I>> have a grey background, setting the I>> value is not permitted. Please close the parameter set window and click on the Password button to open the dialogue window for parameter entry:

After successfully entering the password, open the parameter set window again by double clicking on the parameter set in the directory tree. Now the parameters for the short-circuit stage no longer have a grey background, and entries are permitted.

The short-circuit stage I>> can be deactivated by selecting it. This makes it possible for the user to protect the entire current range by means of the dependent characteristic curve with AMZ protection characteristics.

The excitation factors are not stored in stages in the protection relay. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.

8.   Entering the tripping delay tI>> for the short-circuit stage

Parameter values are stored in stages in the protection relay. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.

Please enter the delay time between 0,04s and 3,00s.

0,04

OK   Cancel
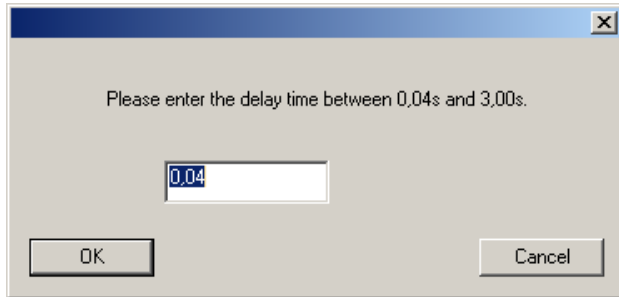
9.   Setting the excitation value IE> for earth current protection

The earth current measurement protection function can be deactivated by selecting it. Relay WIC1 then only operates in phase current protection without the earth current measurement. The earth current protection is designed as single-stage UMZ protection.

The excitation factors are not stored in stages in the protection relay. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.

Please enter a factor for Ie> between 0,20 and 2,50.

0,2   ☐ deactive

OK   Cancel
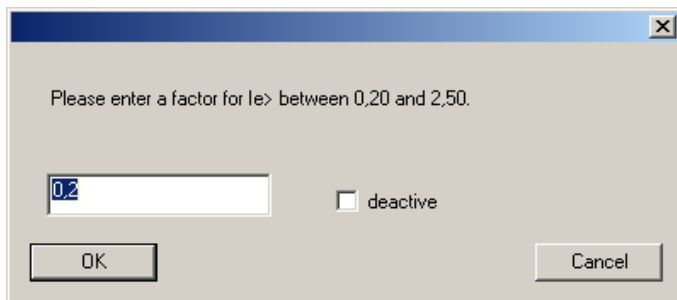
10.   Entering the tripping delay tIE>> for the earth current stage

Parameter values are stored in stages in the protection relay. The step width depends on the absolute setting. After entry, WI-Soft2 automatically rounds to next permitted value.

Please enter the delay time between 0,10s and 20,00s.

0,1

OK   Cancel
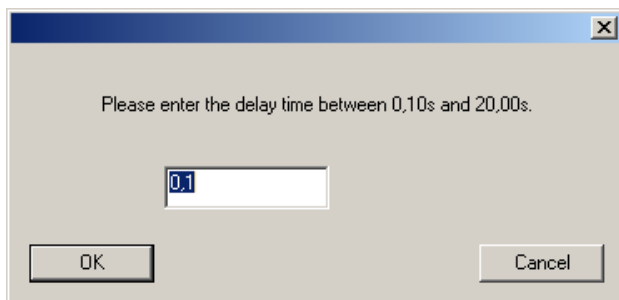
11.   Saving the parameter set

The modified parameter set can now be saved. The following storage variants are available de-pending on the mode.

Online mode:

The parameter set is stored on the WIC1 relay with this button.

Offline mode:

The parameter set is stored on the hard drive with this button. The typical Windows dialogue window for entering a name and selecting the directory appears.

If the parameter set window is closed using the close icon at the top right, you are asked whether you wish to save the parameter set or whether the changes are to be discarded. If the changes are to be saved, they are automatically saved on the source that has been called up.

7.2   Parameterizing a WIC1 (online mode)

7.2.1   Opening/loading the parameter set from the WIC1

After successfully establishing a connection between a PC/laptop and the WIC 1 relay, the WIC1 with parameter set and fault memory is displayed in the directory tree.

Double-click to open parameter set
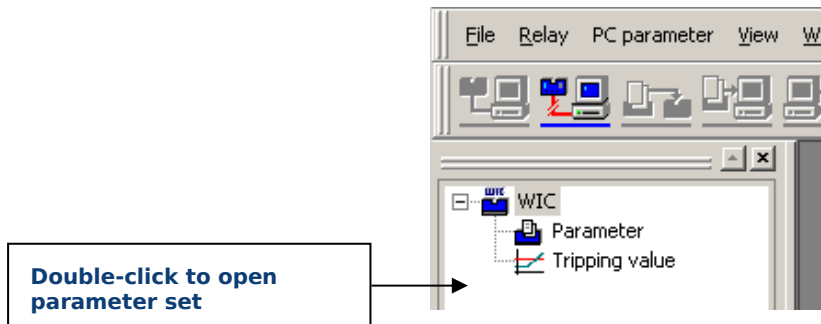
7.2.2   Storing the parameter set on the hard drive

If the parameter set has been modified, it can now be saved on the hard drive for documentation purposes.

This is done by activating the dialogue for storing the parameter set on the hard drive by clicking on the Save icon:

The typical Windows dialogue opens.

7.2.3   Saving the parameter set on the WIC1

To save the WIC1 parameter set again after making a change, all you need to do is click on the Online Save icon:

The values are written to the WIC1 relay and read back with a check-sum.

7.2.4   Loading a parameter set and saving on the WIC1 relay

If you would like to transfer a parameter set that has been edited offline directly from the hard drive to the WIC1 rely, all you need to do is click on the Online icon:

This opens the following dialogue window for selecting a parameter file from the hard drive. The parameter set is copied from the hard drive to the WIC1 by clicking on the "Open" button.

7.3   Parameterizing with a parameter set (offline mode)

7.3.1   Creating a parameter set for offline editing

To create a parameter set without a WIC1 relay connected, click on the Offline Icon:

This opens a new parameter set in the directory tree. The new dialogue window for selecting the WIC1 relay type is opened by double clicking on the "New Parameter" directory. The selection is restricted to relay types with and without earth current. After selecting the relay type and confirming with "OK", the new parameter set is displayed in the work area.
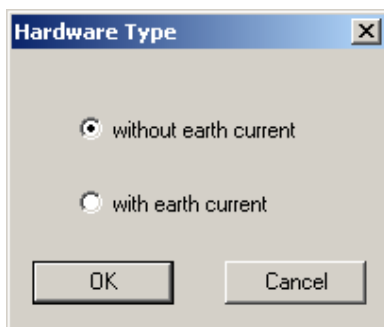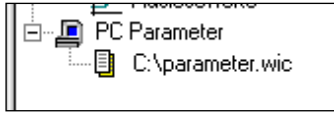
7.3.2   Opening a parameter set from the hard drive for offline editing

To open a parameter set from the hard drive, click on the Offline icon:

This opens a typical Windows dialogue window for selecting a parameter file. After selecting a file, it is displayed below the "PC Parameters" item in the directory tree together with its name and storage location.

7.3.3   Storing the active parameter set on the hard drive

If you wish to save the parameter set that has been edited offline, click on the Offline icon with the parameter set window open:

It opens the menu window for selecting the target directory and a filename in the typical Windows style.

8   Fault memory

The WIC1 protection relays all have a simple but effective fault memory. This writes the measurements to non-volatile memory at the moment of tripping. Only the last tripping can be saved. The fault memory can only be read out via the relay interface.

8.1   Reading out the fault memory

To read out the fault memory, perform the following steps:

Double clicking in the "Tripping values" directory in the directory tree causes a window containing the tripping values to be opened in the working area
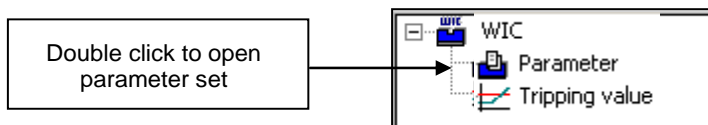
The binary information about the reason for the tripping is specified in the top half of the tripping values window. The parameter marked with logical I was the reason for the last tripping of the protection relay. In this example it was external tripping via the tripping input.

The measurements at the moment of tripping are displayed in the bottom half. The tripping values are displayed as primary values depending on the selected converter ratio in the parameter set of relay WIC1/WIB1.

WI Line

https://docs.SEGelectronics.de

USER MANUAL | WI-SOFT2