



PRELIMINARY

TCCOM for Windows™

**Configuration Program for
Peltier- and Heating-Controllers**

User Manual

Document-Nr: 12144_01
Date: 30. November 2010

CoolTronic GmbH
Untere Sandstrasse 15
CH-5712 Beinwil am See
www.cooltronic.ch

Contents

1. Overview	1
1.1. Purpose of the program	1
1.2. Warning	1
1.3. About the documentation	1
1.4. Items supplied	1
1.5. System-Requirement s	1
1.6. Legal information	2
1.7. User support	2
2. Menu- and Command Structure	2
2.1. Overview	2
2.2. Menu "Datei"	3
2.3. Menu "TC0806", "TC2812", "TC3212"	4
2.4. Menu Protocol (Menu Protokoll)	4
2.4.1. Overview	4
2.5. Menu Analysis (Menu Analyse)	6
2.5.1. Overview	6
2.5.2. Control Loop (Regelstrecke)	6
2.6. Menu Options (Menu Optionen)	9
2.6.1. Overview	9
2.6.2. Communication (Kommunikation)	9
2.6.3. Program Settings (Programm-Einstellungen)	9
2.7. Menu Help (Menu Hilfe)	11
2.7.1. Overview	11
2.7.2. Help (Hilfe)	12
2.7.3. Info	13

1. Overview

1.1. Purpose of the program

The program TCCOM for Windows™ allows the operation and configuration of Peltier-Controllers TC2812 and TC0806, and of Heating-Controllers TC2812HT produced by CoolTronic GmbH. The program is provided to the customer together with the RS232-Option at no extra cost.

1.2. Warning

The program allows extensive changes of internal parameters. Misuse of the program may render the attached controller unusable.

Components attached to the controller or the controller itself may be destroyed. Risk of excessive currents and temperature. Risk of Fire hazard and Injuries !

Therefore it is mandatory to read and understand the manual prior to using the program. Please also consult the manual accompanying the controller and other components of the system. Be sure to understand what you are doing, before using the program

In case of unexpected effects or any unclarity disconnect the system from power supply and consult the manufacturer or his sales representative.

CoolTronic GmbH cannot be made liable for any damages caused by the use of the program.

1.3. About the documentation

This documentation is valid for TCCOM for Windows™ Version 1.8.1 Build 101 as of May 06, 2009. It does not contain specific information about the instruments. Please refer to the manual of the controller used.

General knowledge and experience with Windows™ programs is required.

Up to now we do not have a localized version of the program. We apologize that all text is still only available in German, including the online help.

1.4. Items supplied

Supplied items are:

- TCCOM for Windows™ on CD
- User manual TCCOM for Windows™ as PDF-document on CD

1.5. System-Requirements

Minimum requirement for the correct function of the program is a personal computer with a Pentium II processor, 32MByte of RAM and 5MByte of disc space running MS Windows™ 95 to MS Windows™ XT. The program has been used with Windows™ Vista and Windows™ 7, but the correct function is not guaranteed.

Depending on the Log-File-options disc space requirements may increase to several 100 MByte.

The personal computer must be equipped with a native RS232 interface, integrated on the motherboard or provided by internal PCI-slot based add-on-cards. PC-Card or USB-based RS232-Interfaces may work, but often cause strange effects or unreliable connection to the attached controller.

CoolTronic GmbH is unable to provide any support for such configurations. The customer should test such configuration at his own risk and switch to other type of converters of other manufacturers in case of any problems.

1.6. Legal information

CoolTronic GmbH and its subcontractors provide this program „as is“ without any guarantee. Any liability for any direct and consequential damages arising from the use of the program TCCOM for Windows™ is excluded.

The Copyright of this program is owned by jagdt engineering, CH-5712 Beinwil am See, Switzerland. The user is given a single users license for using the program together with controllers of CoolTronic GmbH only. It is strictly forbidden to use the program for other purposes, to change, analyze or reverse-engineer it. jagdt engineering reserves the right to cancel the above mentioned license at any time without the need of any justification.

The user may make backup copies for personal use and install the program on his personal computers. The program is not technically copy-protected to avoid problems typically observed with such limitations.

1.7. User support

In case of problems first contact the seller of the controller / program, who will initiate the necessary steps.

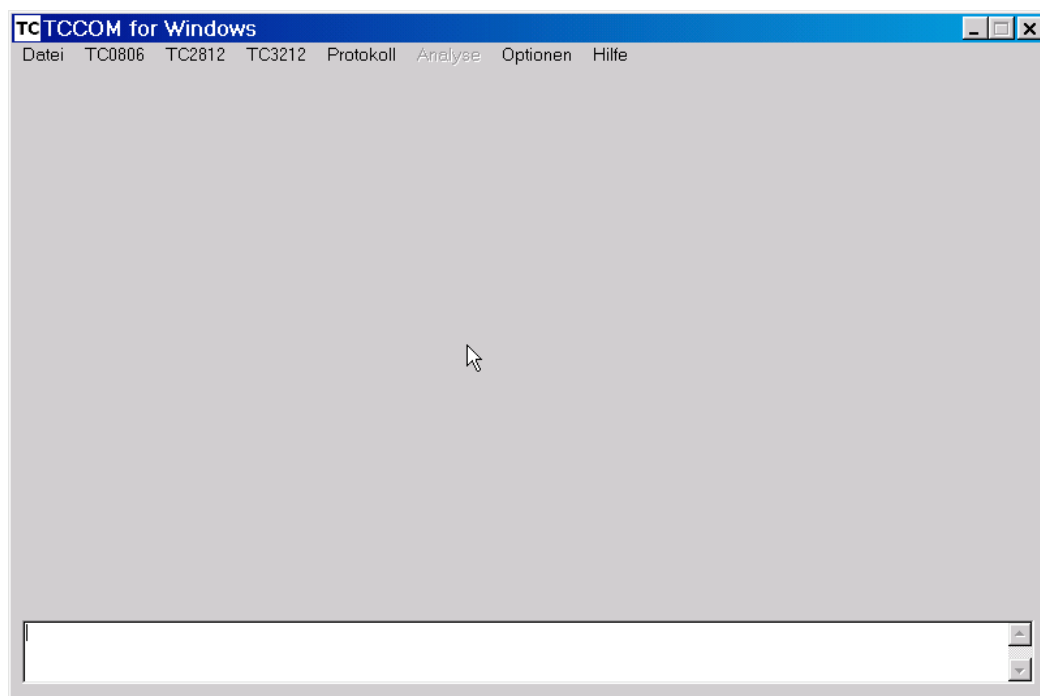
Assumed software bugs may be reported via email to tc@jagdt.com. Please include:

- program version, firmware-version of the attached controller (can be read out with the user interface) ?
- PC hardware and operating system ?
- try to describe at which point the assumed anomaly has occurred
- what operation was intended ?
- what exactly does not function correctly ?
- any other information which may be useful...

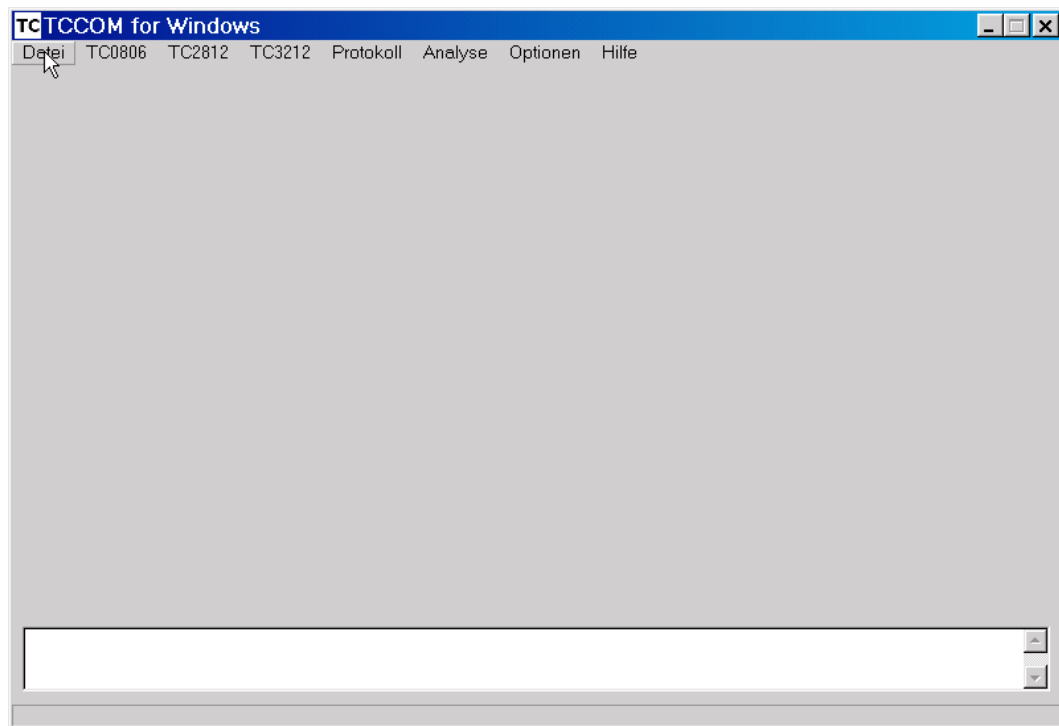
2. Menu- and Command Structure

2.1. Overview

At startup of the program you will see the application window according to the picture below. In the following chapters the menu structure will be explained in detail.



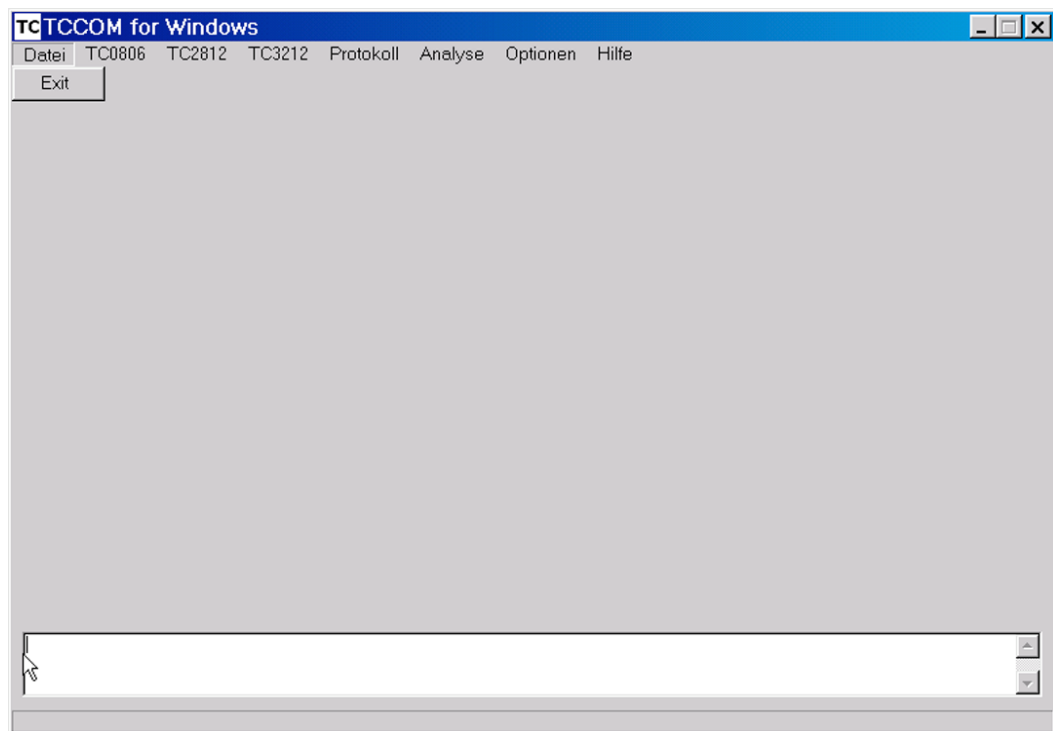
Application window with „expert mode“ activated



Application window in normal mode

2.2. Menu "Datei"

The Menu "Datei" has only one command - "Exit" to terminate the program.



Menu Datei

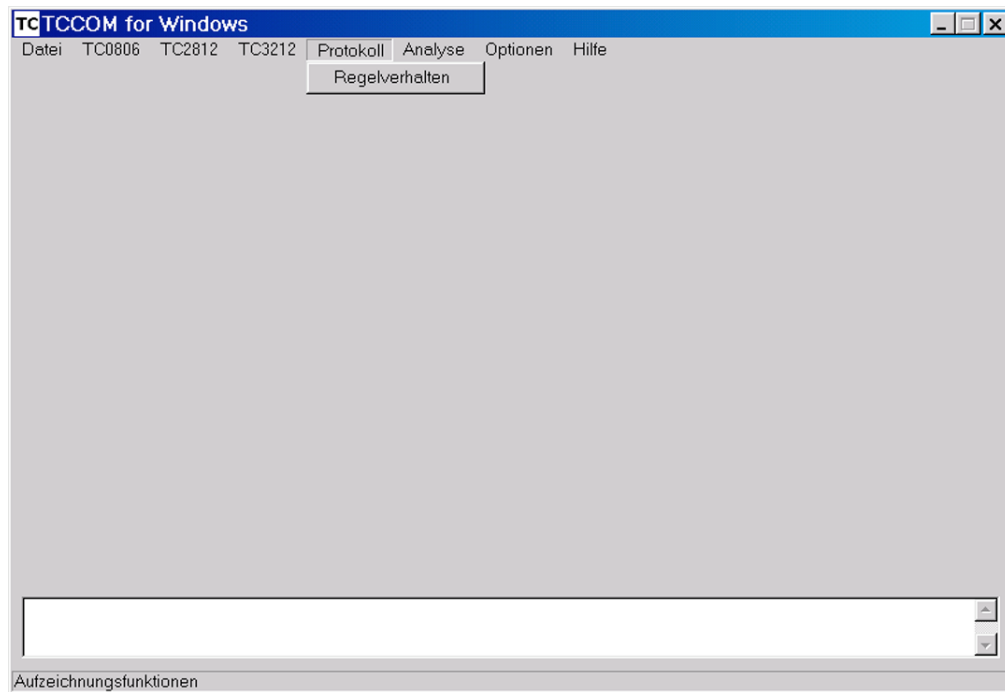
2.3. Menu "TC0806", "TC2812", "TC3212"

These menu give access to the controller-specific functions. Please refer to the manual of the controller used.

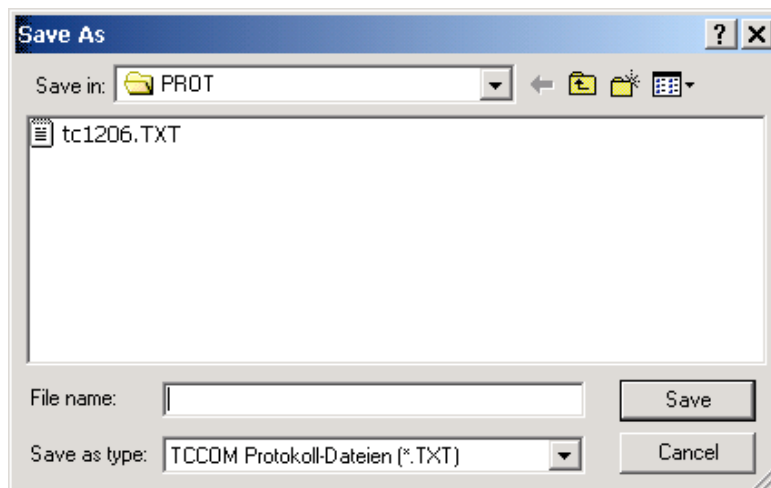
2.4. Menu Protocol (Menu Protokoll)

2.4.1. Overview

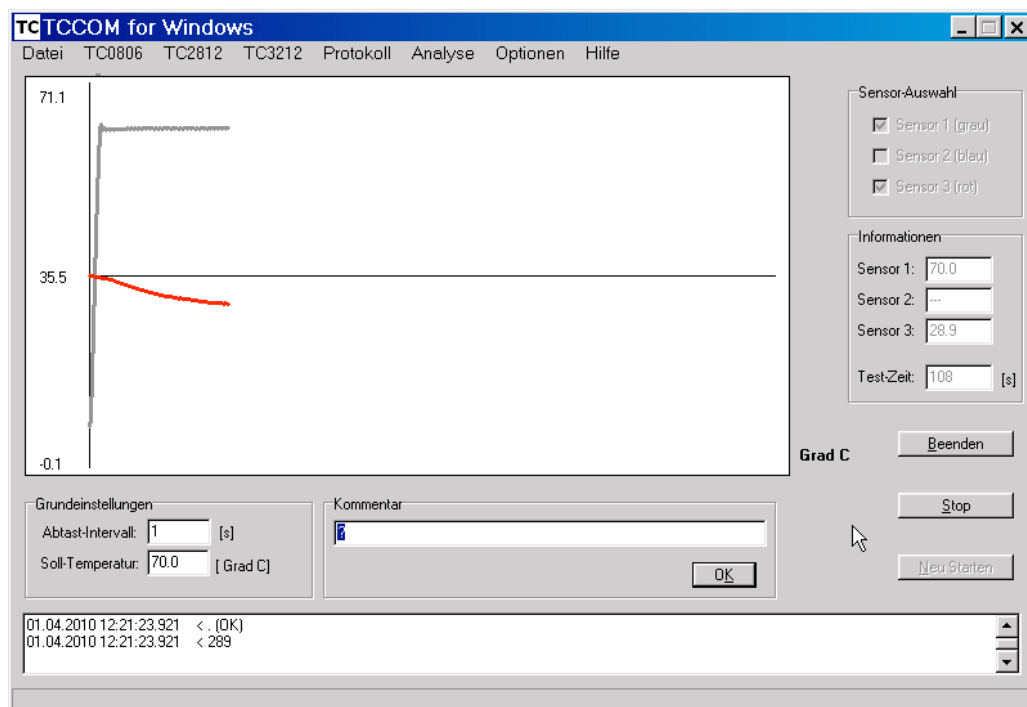
This function allows to record the temperature values over time.



2.6.2 Control behavior (Regelverhalten)



Dialog to select the name of the file and its place on the personal computer (file extension "TXT")



Graphic window for "Protokoll / Regelverhalten"

This function allows to record the temperature values over time. Only functional with a TC2812-S014 attached to the serial communication line.

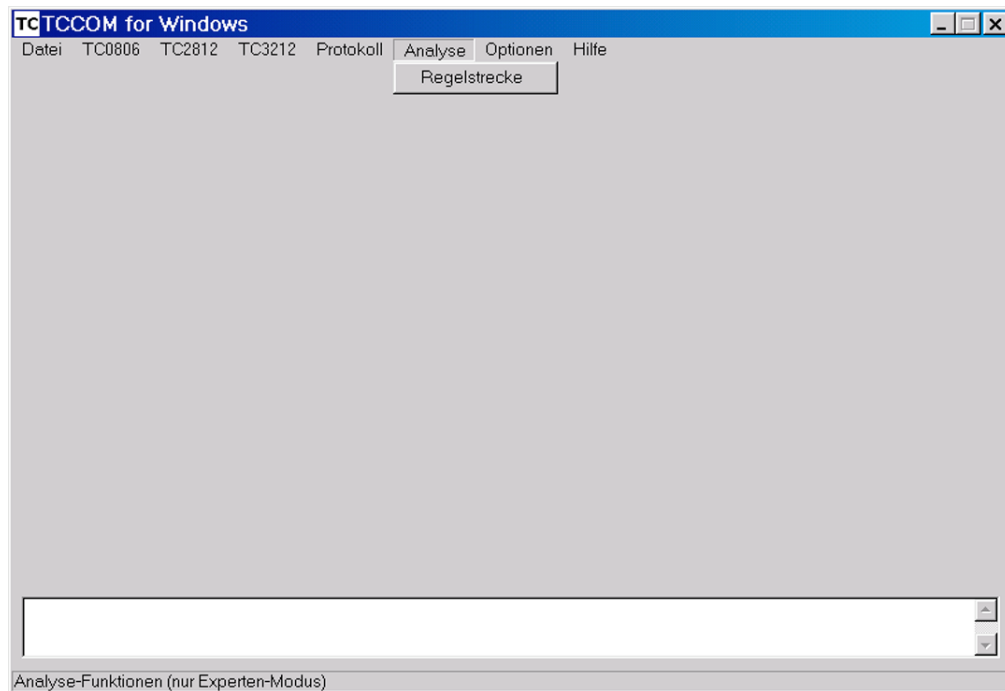
The temperature over time is shown in the graph. In the background all values are stored together with a time stamp in the file specified at start.

Item (German expression)	Description
Beenden	close the window display
Stop	stops recording, closes the file
Neu starten	start the process, first ask for file name then starts the recording with the values given
Sensor-Auswahl	if the controller supports more than one sensor, the user may select, which sensor to watch and record
Abtast-Intervall	(sample interval) time between two samples of the temperature, is the resolution of the recording over time
Soll-Temperatur	(set value) this value is transmitted to the attached controller just before the first sample and is then the set value for the temperature
Kommentar	(comment) text entered here will be stored together with a time stamp when the OK button is clicked or the Enter key is pressed
Informationen	
Sensor 1 .. Sensor 3	temperature value of sensor 1..3 at the time of the last sample
Test-Zeit	(test time) time elapsed since start of recording

2.5. Menu Analysis (Menu Analyse)

2.5.1. Overview

This menu allows to analyze the open loop behavior of the control loop. It is only available if the „Expert-Modus“ (see Optionen / Allgemeines) is activated.



Menü Analyse

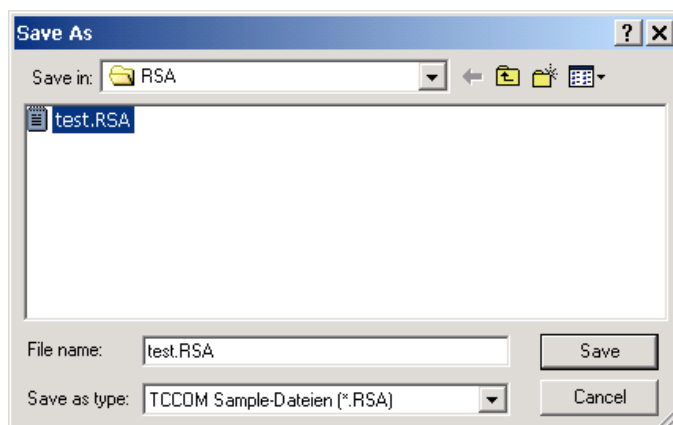
2.5.2. Control Loop (Regelstrecke)

The purpose of this function is the recording of the step response of the open control loop. It allows to analyze the behavior for different output power settings. The controller is disabled, the power value is defined in the dialog described below and held constant.

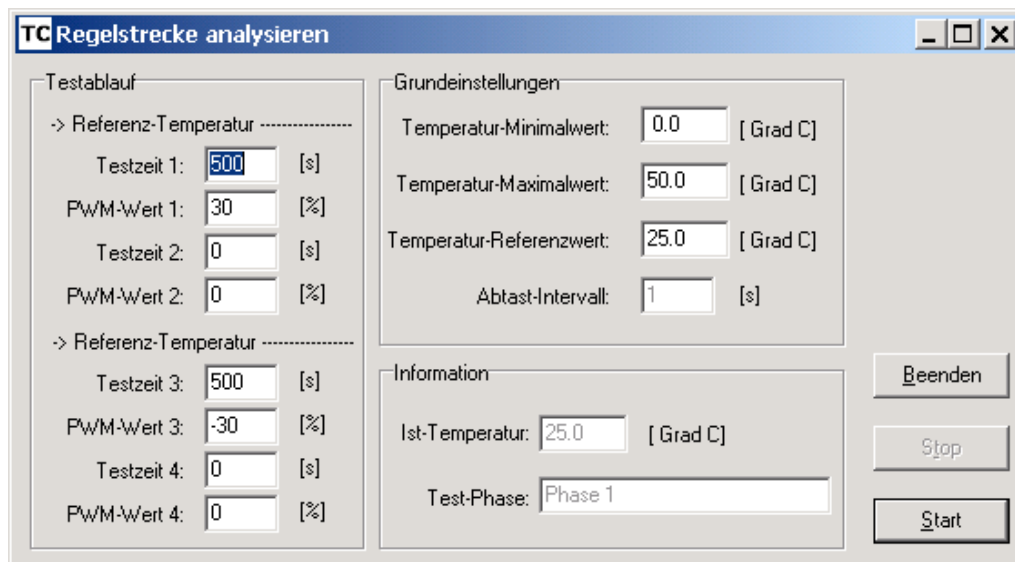
This function is only available if the „Expert-Modus“ (see Optionen / Allgemeines) is activated.

Wrong use of this function can destroy the controller unit and / or the attached peltier modul. Risk of injuries and fire hazard.

Only functional with a controller attached to the serial communication line.



File select dialog for RSA-files to define location and name of the file used for recording the results.

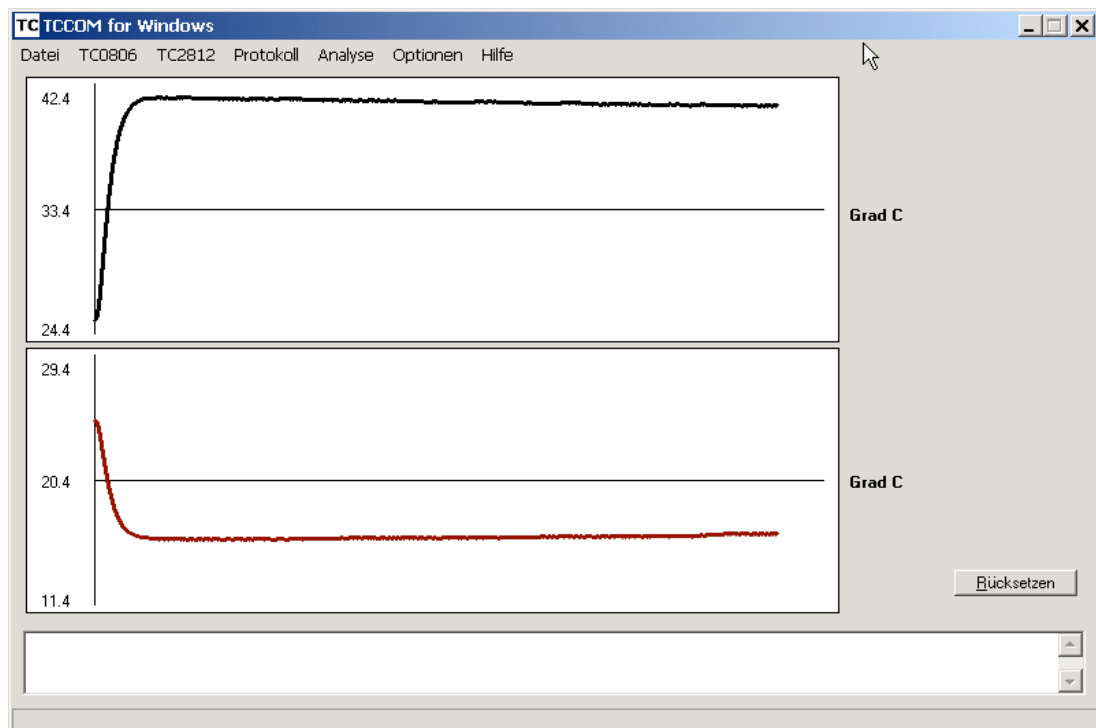


Dialog "Regelstrecke analysieren" (analysis of open control loop)

The dialog "Regelstrecke analysieren" allows to enter the test conditions and provides the button to start and stop the process.

Item	Description
Start	start the analysis with the given values
Stop	stops the process, the result are kept on the display. The closed loop controller is reactivated and tries to regulate to the reference temperature.
Beenden	stops the process and hides the window. The file is closed. The closed loop controller is reactivated and tries to regulate the reference temperature.
Testzeit / PWM-Wert 1 + 2	test time in seconds and pwm value in percent for test phase 1 and 2. If the values are zero the corresponding test-phase will be skipped
Testzeit / PWM-Wert 3 + 4	test time in seconds and pwm value in percent for test phase 3 and 4. If the values are zero the corresponding test-phase will be skipped
Temperatur-Minimalwert	Before the start of test-phase 3 the controller regulates to the reference temperature. lower limit for the temperature, the output stage will be shut off if the actual temperature of sensor 1 will fall below this limit. If the temperature increases again above the limit the output stage will be turned on again, which will result in a see saw line around the limit value. This is a precaution to safeguard peltier-element and the attached system - but because of dead time in the system critical temperatures may be reached despite this mechanism. Wrong setting of the limit value may cause damage and hazards !

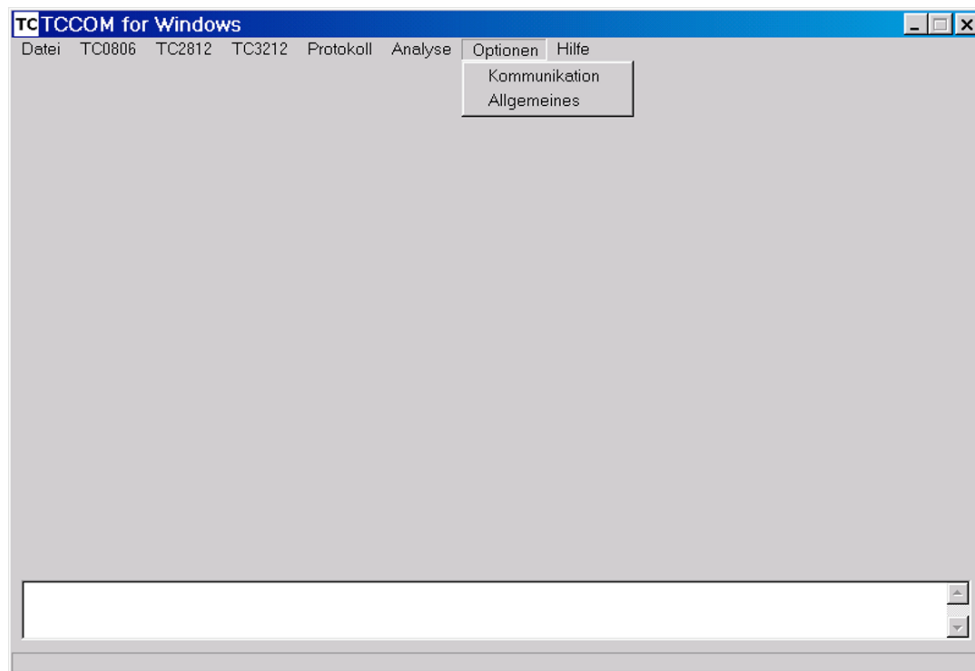
Item	Description
Temperatur-Maximalwert	upper limit for the temperature, the output stage will be shut off if the actual temperature of sensor 1 will rise beyond this limit. If the temperature decreases again below the limit the output stage will be turned on again, which will result in a see saw line around the limit value. This is a precaution to safeguard peltier-element and the attached system - but because of dead time in the system, critical temperatures may be reached despite this mechanism. Wrong setting of the limit value may cause damage and hazards !
Temperatur-Referenzwert	temperature reference value is the set value which must be reached before test phase 1 and 3 can start
Abtast-Intervall	sample interval, time in seconds between two samples of the temperature value
Test-Phase	display the current test-phase and the remaining time
Rücksetzen	erases the recorded data, the process continues (button in the graphic window)



Graphic window "Regelstrecke analysieren"

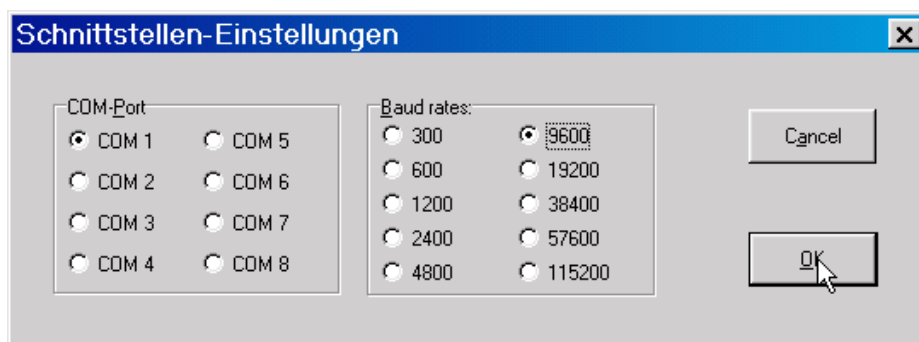
2.6. Menu Options (Menu Optionen)

2.6.1. Overview



in the menu „Optionen“ the settings for the program can be changed

2.6.2. Communication (Kommunikation)



Dialog communication settings (Schnittstellen-Einstellungen)

Select the communication port (COM1..4) and the baud rate. The standard baud rate is 9600 baud, other values are currently not supported.

2.6.3. Program Settings (Programm-Einstellungen)

This dialog contains the settings for the log window and the log file.

The log window mode (Log-Fenster Modus) defines how detailed the information is, which is shown in the window.

The log file mode (Log-Datei Modus) defines how detailed the information is, which is stored on disk.

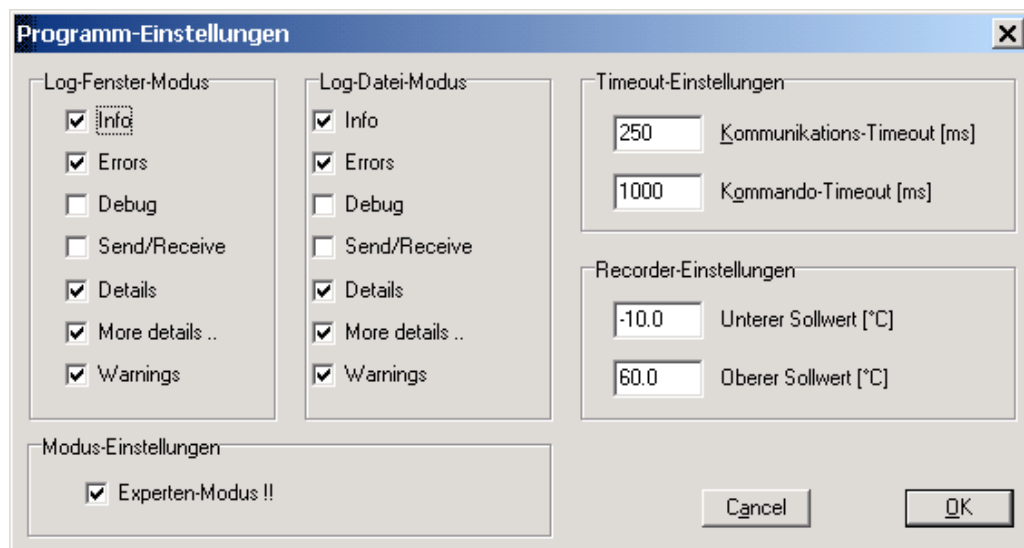
Log files are stored in the directory „LOG“. They have names of the form runlog00.log ... runlog99.log. In case all possible 100 files are present, the oldest file is deleted.

The timeout values can be set. Change the values only in case communication problems occur.

Selecting the expert mode "Experten-Modus" enables a number of additional function which require in depth knowledge of the controller and its functions.

Activate the expert mode (Experten-Modus) only if you are aware of the possible consequences !

Observe Warnings given in chapter 1.2 !



Dialog program settings (Programm-Einstellungen)

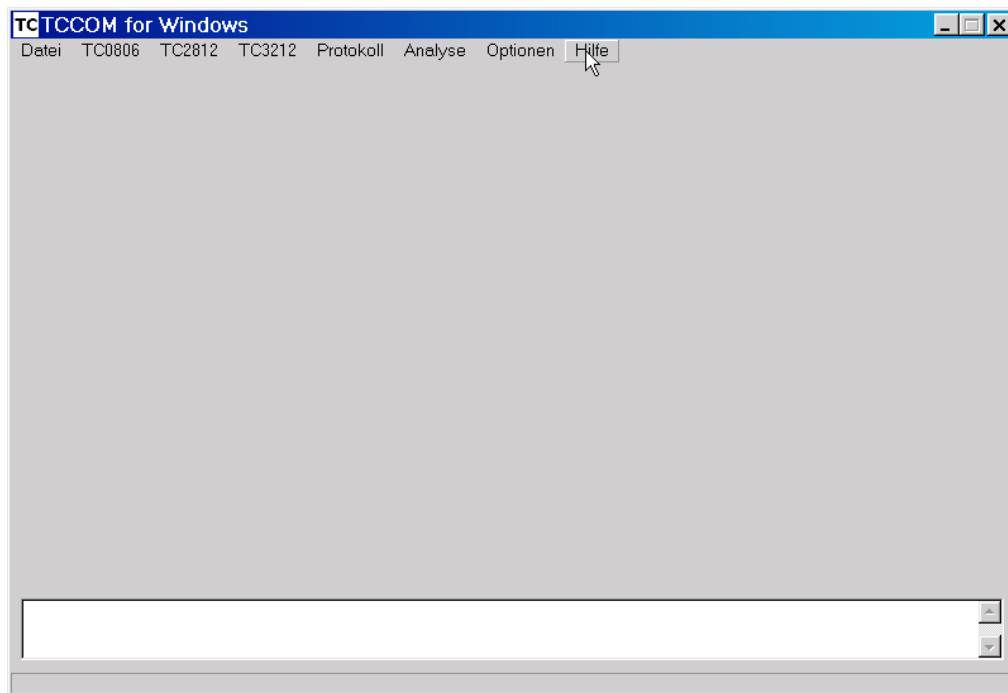
Option	Description
<u>Log window mode / Log file mode (Log-Fenster-Modus / Log-Datei-Modus)</u>	
Info	general information, should be set
Errors	error messages, must be set
Debug	very detailed, only useful for debugging the program Note: always off !
Send/Receive	shows he communication on a character by character basis, similar to a RS232 interface monitor program, needs excessive disk space ! Note: usually off, may help in case of assumed communication problems
Details	detailed information, may be set
More details	even more detailed information, under normal circumstances not needed
Warnings	Warnings, must be set
<u>Mode settings (Modus-Einstellungen)</u>	
Experten-Modus	expert mode, enables crititcal function which may cause damages and hazards if misused - for EXPERTS only !

Option	Description
<u>Timeout-Einstellungen</u>	
Kommunikations-Timeout	time limit for an answer of the controller
Kommando-Timeout	time limit for the controller having finished the command and having answered with the required response
<u>Recorder settings (Recorder-Einstellungen)</u>	
Unterer / Oberer Sollwert	upper / lower set value, sets the value for the two buttons in the recorder. Value is sent as a new set value to the controller

2.7. Menu Help (Menu Hilfe)

2.7.1. Overview

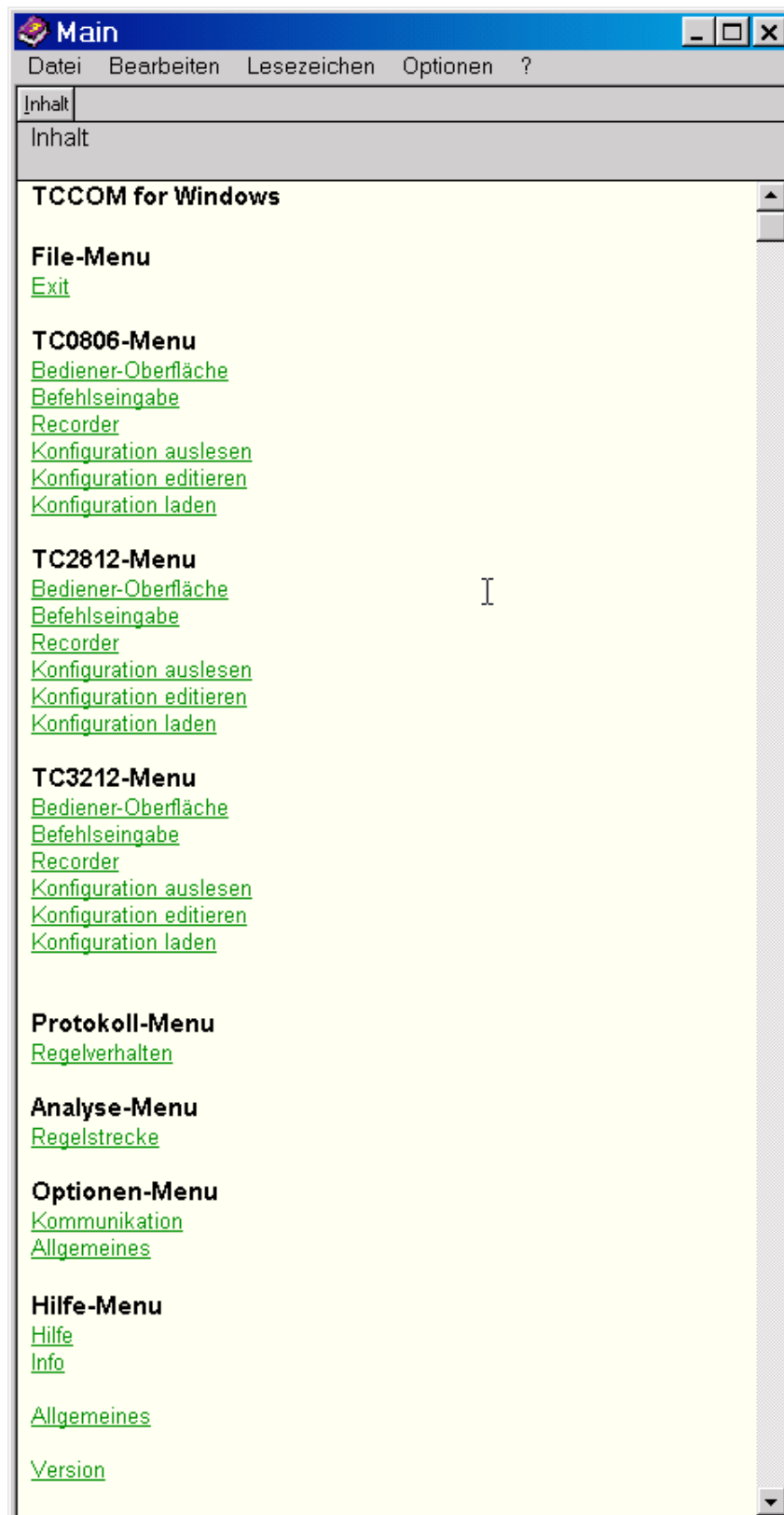
The menu „Hilfe“ has two commands.



Menu Hilfe (help)

2.7.2. Help (Hilfe)

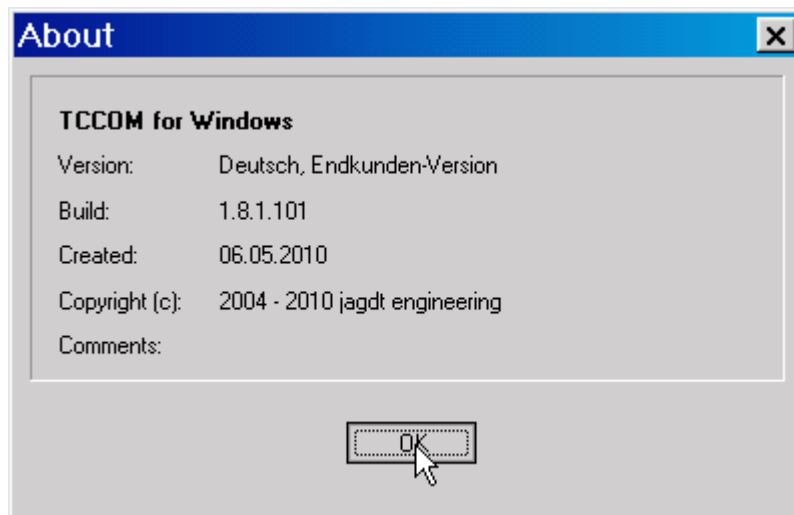
Starts the Windows™ help viewer with the file TCCOM.HLP. At first the table of contents will be displayed.



Help Window

2.7.3. Info

Opens a dialog with informations on the program, version and so on ..



Info-Dialog

Please note - the Build-information may differ with the exact version you have