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(GB)

RGK60
Generator set control unit

CUSTOMIZATION SOFTWARE MANUAL

CE

List of contents

Introduction

The customisation software allows you to handle the following types of data:

- Texts

These are stored in files with ".TXT" extension. All the texts shown on the display are stored in these files and they are stored in the board Flash memory. These texts are organised in lines of 32 characters each, which are in turn grouped into 'Sections' (General, Events, Alarms, Parameters, Help etc.). They can be stored in 5 languages at the same time.

- Graphics

Files with ".BMP" extension. These files contain the graphic screens shown on the display, namely the logo shown at switch on and the introductory pages of the events. Users can customise the logo by inserting a file they have created. This file must be in black and white, BMP format, size 192 x 64 pixels.

- Sensors

Files with ".SNS" extension. These files contain the tables for the definition of the response of the analogue fuel level, pressure and temperature sensors. The user can modify and/or create a sensor, specifying the resistance in Ohms for each point of the scale. These files are transmitted and stored in the Flash memory of the device.

- Parameters

Files with ".PAR" extension. These files contain the value of the device set-up settings. When they are transmitted, they are stored in the EEPROM memory. The parameters are organised in a *Structure* that defines the different menus in which they are grouped.

- Information page

Files with ".IPG" extension. These files contain the texts (8 lines of 32 characters each) that will be shown on the information page. On this page the installer can enter free texts (type and power rating of the unit, serial number, etc.). The page is the same for the different languages. It is stored in the FLASH memory. If the information page is left completely blank, the device shows the wording 'Information page blank'.

- Protection

Files with ".PRO" extension. These files contain the data that define the cutting in of the generator thermal protection. In the same way as mentioned previously for the sensors, the user can create a table where it will be necessary to specify the cutting in time in seconds corresponding to each current overload factor.

- Custom

Files with ".CUS" extension. These files contain the data with the custom parameter settings, namely those parameters intended for particular functions required by customers. These parameters are identified by a code and are only numeric.

- Projects

Files with ".PRM" extension. These files group together one or more files of the types described previously. They make it possible to transmit texts, graphics, sensors and parameters in a single block. Two different projects may share certain files. For example it is possible to have two different projects with the same text file but with two different sensor files.

All the files mentioned above should normally reside in the same directory as the one in which the programme has been installed.

Main window
On the left, the main window shows five overlaid folders (*Texts, Graphics, Sensors, Setup and Protection*) which allow you to choose on which type of data you want to work. Each folder displays a tree with the structure of the file in question. The 'Root' of the tree shows the name of the file loaded in that moment. If no file of that kind is loaded, the folder is disabled. In this case, to load a file, choose *File-Open*, select the type of file in the *File type* box and then choose the name of the required file. It is not possible to create a file from nothing. We advise you to start from the files supplied as default, save them with a different name (which corresponds to making a copy of them) and make the required changes on these new files.
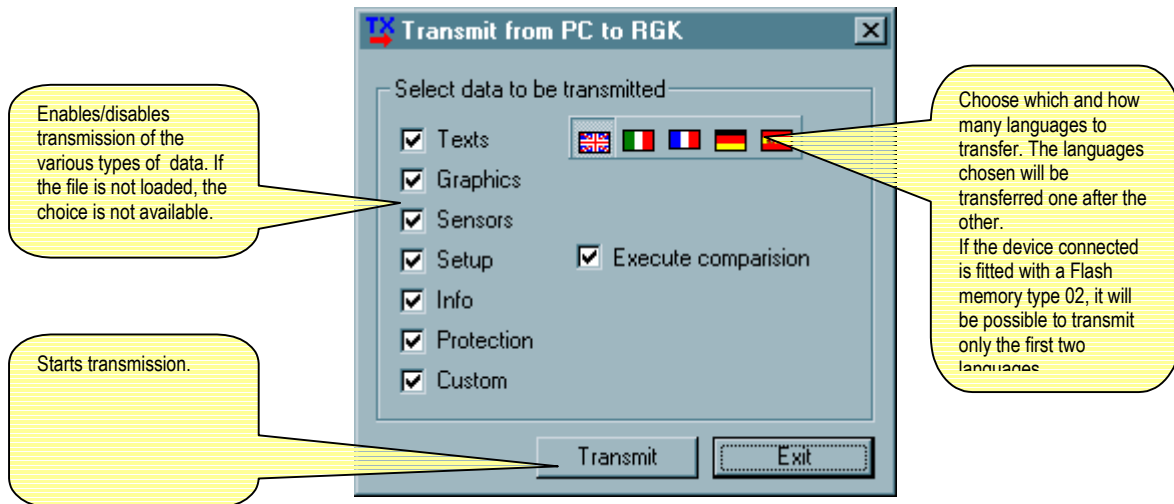

Name of section. Double click to open (see the data and if necessary modify them).
Be careful to click on the name and not on the white box which serves to enable/disable transmission.

Goes to online mode, i.e. it activates communication with the device

Goes to offline mode to work locally without the device. The data are saved on disk.

To enter the password.

These labels allow you to choose the type of data on which you want to work.

Print parameters

Name of currently loaded file

Compare PC – device. Only possible for set-up parameters

Grey arrow = section blocked by password. Blue arrow = access allowed

Transmission from PC to device.

Transmission enable. If the box is not ticked, the section is not transmitted. Serves to save time when wanting to transmit only certain sections.

Reception from device to PC. Possible only for set-up parameters.

How to transmit data to the device
To transfer the currently loaded data to the device, choose the *Communication-Transmit* menu.
The window illustrated will be shown, in which it is possible to specify the data you want to transfer.
It is possible to transfer only a part of the data. For texts it is possible to transfer one or more languages, by enabling or disabling the key with the corresponding flag.

Connection between the PC and the device is made through serial cable code 51C2. The PC serial port and transfer speed can be chosen through the *Tools-Options* menu.

Enables/disables transmission of the various types of data. If the file is not loaded, the choice is not available.

Choose which and how many languages to transfer. The languages chosen will be transferred one after the other.
If the device connected is fitted with a Flash memory type 02, it will be possible to transmit only the first two languages.

Starts transmission.

Transmit from PC to RGK

Select data to be transmitted

☑ Texts
☑ Graphics
☑ Sensors
☑ Setup   ☑ Execute comparision
☑ Info
☑ Protection
☑ Custom

Transmit   Exit

How to create a new project

As already mentioned previously, a *Project* is a file that contains the names of other files (for texts, logo, sensors, etc.). In other words, loading a project means loading in sequence a determinate file of texts, a determinate logo, etc. Different projects can share the same file: for example projects PROG1.PRM and PROG2.PRM can both 'point' to the same sensor file SENS.SNS, because both types of application use the same sensors.
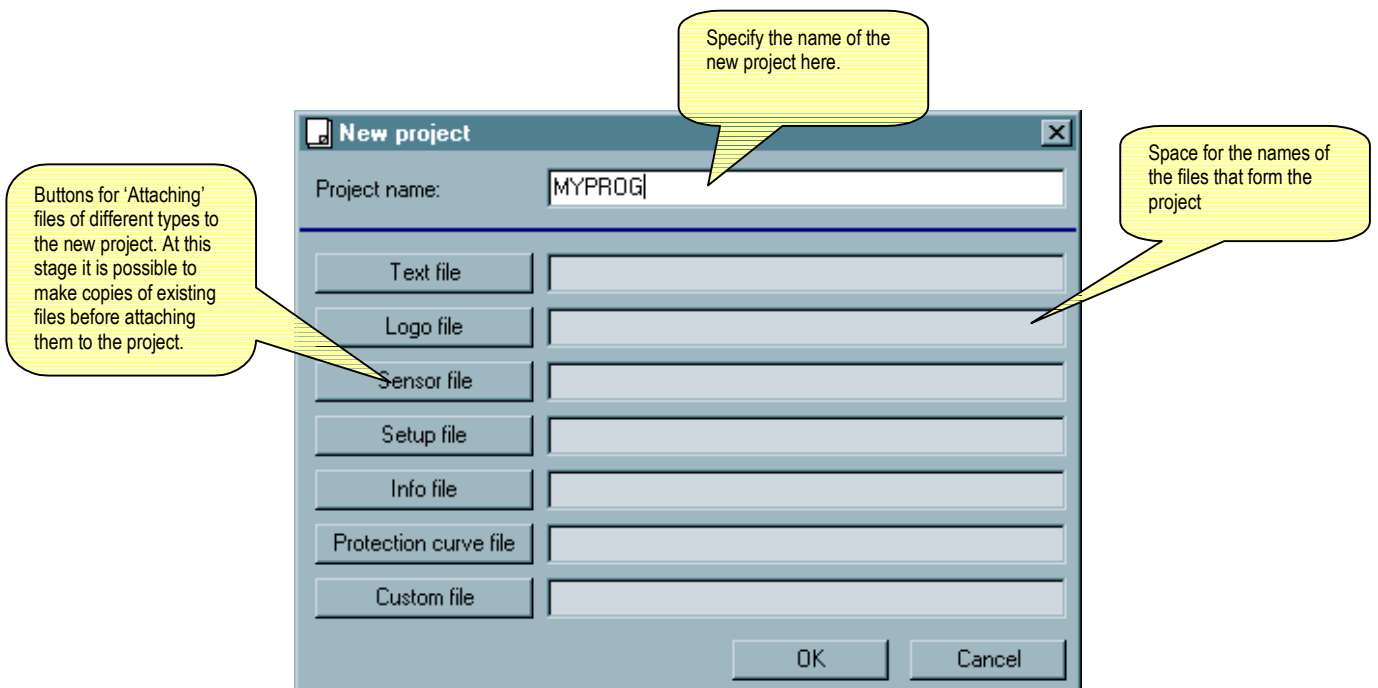
Therefore, to create a new project means choosing the ones to be combined together to be transmitted together to a device among the files present on the disk.

An important aspect is that the files of texts, sensors, etc. *cannot be created from nothing*, because the work would be too long and complex for the operator to set out the structure and contents of the single files. Therefore, normally default files are taken and saved with a new name before proceeding with customisation. The programme has a special window for this purpose.

The procedure for creating a new project consists in the following steps:

- Choose *New project* from the *File* menu. The window illustrated will be opened. If a project was already opened, you will be asked if you want to save any changes.
- Specify the name of the new project. For example MYPROG.
- Click on one of the buttons of the window to 'attach' one of the files on the disk to the new project.
- At this point, the programme asks if you want to copy the file chosen with a new name. If you have no intention of modifying the file, the original name can be kept. Conversely, if you are thinking of having to make some changes, at this point you can specify the name of the copy. For example you could choose the default text file DEFAULT.TXT and save it as MYTEXT.TXT. The programme will then create a copy with the specified name and insert the name in the list of files belonging to the project. The user can modify MYTEXT.TXT starting from the default base but keeping a copy of the original settings.
- Repeat the procedure for the various types of files. A project may contain even only certain types of files (for example sensors and logo).

Specify the name of the new project here.

Buttons for 'Attaching' files of different types to the new project. At this stage it is possible to make copies of existing files before attaching them to the project.

Space for the names of the files that form the project

New project

Project name: MYPROG

Text file	
Logo file	
Sensor file	
Setup file	
Info file	
Protection curve file	
Custom file	

OK   Cancel

How to modify texts

Choose the *Texts* label. From the list of the sections, double click the section required. The texts contained are shown in a special window, organised in lines of 32 characters.

It is possible to modify only the sections with a blue arrow at the side. The sections with a grey arrow can only be viewed. Enter the password to gain access to all the sections.

Choice of the language to be viewed/changed. It can be used to quickly compare the translation of the texts in the different languages.
Clearly it is possible to see/modify a language while the device is using a different one.

It is not possible to enter text above the 'grey' areas because this space is reserved for viewing the variables.

Normally the cursor overwrites the previous text. To enter characters moving those already present to the right, press the INS key on the PC Keyboard. The cursor becomes blue to indicate the 'insert' mode.

Confirms and closes the window.

Prints the texts of the current section

Moves one page forwards or backwards.

GENE (271 lines)

```
001 Model.............:TE-804
002 SW Revision......:00
003 HW Revision......:00
004 Text Revision....:00
005 Checksum.........:###0
006     EMPTY INFORMATION PAGE
007 _____It is necessary to set
008 _____the Retenitive property
009 _____if both 'Engine stop'
010 _____and 'Only with engine on'
011 _____are enabled.
012
013
014
015
016
017
018
019
020
```

| < | > | Print | OK | Cancel |

Once the texts have been modified, save the file using the *File-Save As* menu. You are advised not to overwrite the files with the original texts but to save your changes in a different file.

For the Help texts, both the Help message and the alarm or parameter to which the help refers are displayed.

For these messages the memory is controlled dynamically, i.e. the possibility exists to write several help lines for an alarm sacrificing those of another one. The Flash memory is planned for an average of 7 lines for each alarm/parameter. Each help may have a length of between 0 and a maximum of 16 lines, but it will not be possible to have *all* the helps with the maximum length at the same time. Therefore an indicator is available which gives an idea of the memory still available.

Indication of available memory.

Alarm to which the Help refers. It cannot be modified in this environment.

To move from one help to the next

HELP > ALARM HELP (736 lines)

Available memory: 57%

A01-Engine temperature
warning
(analog sensor)

001 Control the engine temperature
and cooling system.
See the engine operating and
maintenance manual.

| < | > | Print | OK | Cancel |

How to modify the logo

The software allows you to download to the device a graphics file in BMP format, in black and white, with a size of 192 x 64 pixels. Use any graphic editing programme to create and modify the image, such as Paint supplied with the Windows operating system. To load a different logo, use the *File-Open* menu, choose Logo in the *File Type* box, and choose the name of the graphic file required.

When the file has been loaded, the *Graphics* label will show the name of the current file.

With a double click it will be possible to view the image.

Clicking on the special button it will be possible to automatically open Paint and modify the image. When closing Paint it will be possible to load the modified logo.

It should be noted that the image that will be viewed on the display will look as though it is 'stretched' upwards compared with the one of the original bitmap file. This is due to the shape of the pixels (i.e. graphic dots) of the LCD display, which are slightly rectangular with the vertical side longest. To give an idea of how the final image will be viewed, the graphics window of the Logo window simulates the same effect, vertically stretching the bitmap file loaded.

Opens Paint and allows you to modify the currently loaded logo.

During transmission, besides the logo chosen, a second fixed graphic page is also transmitted which represents the initial screen of the events list.

How to modify the sensors

The device controls three types of analogue resistive sensors:

- Oil pressure   Range: 0..12bar, table of 30 values with 0.4 bar steps
- Coolant fluid temperature   Range 20..140°C, table of 30 values with 4°C steps
- Fuel level   Range 0..100%, table of 20 values with 5% steps

The internal memory can hold four sensor models for each type, amounting to a total of 12 tables.

Highlighting the *Sensors* label and double clicking on each of the types loaded, the four tables for that type of sensor are viewed, as illustrated. If the password has been entered, it is possible to modify both the name of the sensor (brand) and the values of the table. The values entered are always expressed in Ohms, and must correspond with the value of the external signal viewed on the first line of the table. To enter or modify a value of the table, double click the box required.
If the value entered is not within the limits allowed by the circuit, the abnormal condition will be indicated.
For the pressure and temperature sensors it is possible to choose the unit of measure of the reference value.
For the pressure it is possible to choose bar or psi while the temperature can be in °C or °F. The default ratings are viewed in bar and °C.
To save any changes on disk, choose the *File-Save As* menu.

Scale in Ohms

Graphic representation of curves

Curve legend

Sensors - Oil pressure

Ohm

Oil pressure (BAR)

VDO
DATCON
VEGLIA
CUSTOM

Double click to change the name

	0,0	0,4	0,8	1,2	1,6	2,0	2,4	2,8	3,2	3,6	4,0	4,4	4,8	5,2	5,6	6,0	6,4	6,8	7,2	7,6	8,0	8,4	8,8	9
VDO	10	18	27	35	43	51	58	66	73	80	87	94	101	108	115	122	129	135	141	147	153	159	164	17
DATCON	240	227	213	199	186	174	163	152	141	131	123	115	107	100	94		82	77	72	67	62	57	52	
VEGLIA	305	285	264	243	224	204	185	166	148	130	114	100	87	75	63	53	44	35	28	20	12	12	12	
CUSTOM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Transmit   Print   ⊙ bar   ○ psi   OK

Transmits the 4 tables to the device

To print the graph and values

Choice of units of measure of reference values

Double click to enter a new value

Quantity reference values. (in this case the resistance column at 5.6 bar)

How to modify the parameters

The parameters are organised in a series of menus, clearly corresponding with the ones viewed on the device display. Double clicking on one of these menus, a window is shown with the parameters of the menu chosen.

The parameters can be set and viewed OFFLINE, i.e. without being connected to the device. Once the parameters have been saved on a file, they can be transmitted later together with other types of data or on their own.

Parameter code

Description of the menu chosen

If the wording OFFLINE appears, this means that we are working disconnected from the device. Conversely, if we are in the ONLINE Mode, a message alerts when the values shown in the window differ from those in the device's storage.

M06 - MAINS CONTROL (OFFLINE)

Description of the parameter

Double click to enter a new value using the numerical keyboard

Drag with the mouse to set the value

P0601	MIN VOLTAGE LIMIT (%)	85
P0602	MIN VOLTAGE DELAY (S)	5
P0603	MAX VOLTAGE LIMIT (%)	115
P0604	MAX VOLTAGE DELAY (S)	5
P0605	MAINS OK DELAY (S)	20
P0606	MIN/MAX HYSTER. LIM.(%)	3.0
P0607	MAX ASYMMETRY LIMIT (%)	15
P0608	MAX ASYMMETRY DELAY (S)	5
P0609	MAX FREQUENCY LIMIT (%)	110
P0610	MIN FREQUENCY LIMIT (%)	90
P0611	MIN/MAX FREQ. DELAY (S)	5
P0612	MAINS CONTROL	001 INTERNAL
P0613	MAINS CTRL RESET	000 OFF

Transmit   Default   Exit

Transmits only this menu to the device

Resets the factory settings

Drag with the mouse to scroll the page and view the following parameters

It is also possible to save the parameters present in a device on a file (where they have been set directly through the front keyboard). To do this, choose Communication-Receive, specify the file name and wait for the completion of reception.

To obtain a printout of the parameter settings, click the printer icon on the toolbar or choose *Print* from the *File* menu.

Lastly, through the *Communication-Compare* menu, it is possible to compare the values resident in the device memory storage with those of the currently loaded files.
After selecting the function and starting comparison with the special control button, a window like the one below is shown:
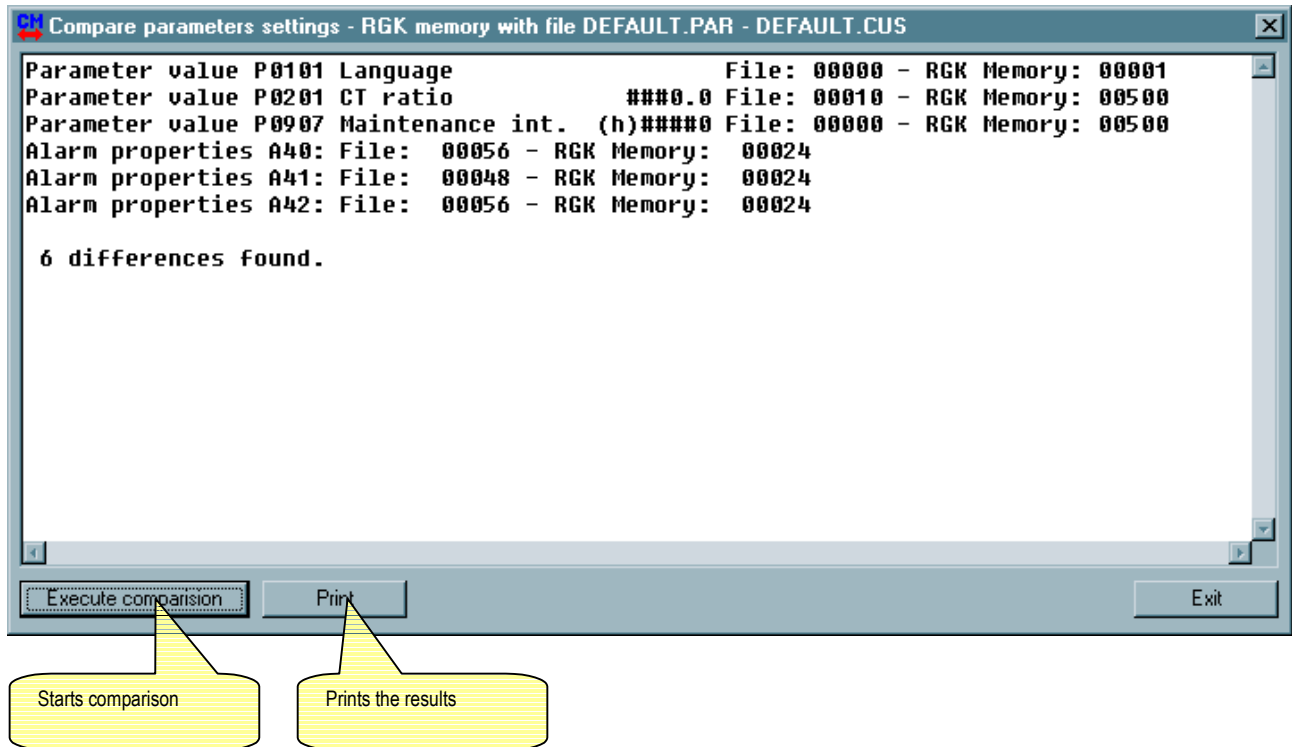
Parameter Structure
To be able to allow access to the parameters also in the OFFLINE mode, their structure must be available in a file on disk.

Structure means the list of all the possible parameters grouped in the different menus, each with its minimum, maximum, default value, etc.

If the user modifies the parameter texts or while making changes to the device software (addition of parameters, changing the range, arrangement of menus, etc.) it will be necessary to use the *Tools-Generate parameter structure file* command.

It is important to note that if a file has been created with a certain structure of the parameters, it will not be able to be used to be transmitted to a device with a different parameter structure (for example with a software revision that includes a higher number of parameters). This incompatibility will be indicated automatically by the programme when attempting to transfer the file.

Note:
The *Generate parameter structure file* command should be used only in the case of actual need. In any case the ParDefxx.dat file generated is available in its original form on the installation CD under the Files directory.

How to modify the Information Page

Highlight the *Info* label. Double click on the name of the file to open the window shown below, which by default is completely empty. At this point the installer is free to enter the texts to be viewed on the device information page (see example).

How to modify the protection curve
The board offers the possibility to modify the cutting-in curve of the generator thermal protection, in a way wholly similar to the one already described for the sensors. A total of four independent curves are available. In this case the axis of the abscissas of the graph represents the percentage of generator overload with reference to its rated current. The cutting-in time expressed in seconds is represented on the vertical axis (ordinates). Both scales of the graph are logarithmic.
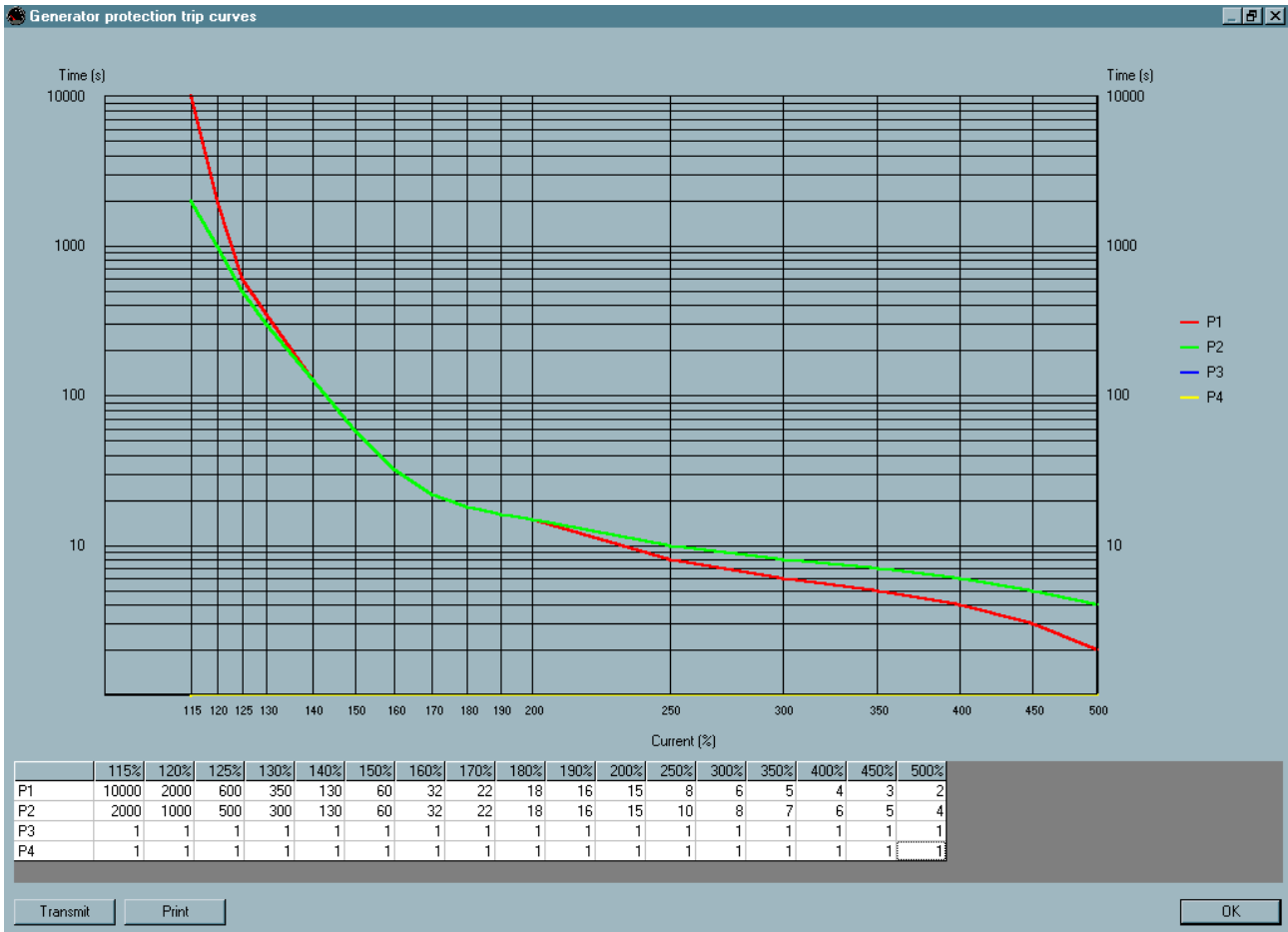
To enter new data or modify existing ones, the user should double click on a square of the grid, where the line represents one of the four possible curves (except the first, which is fixed) and the overload intensity column. At this point a window will be viewed where it will be possible to set the protection cutting-in time referring to that particular overload.
For example, the following window asks the user to set the cutting-in time of curve P2 (second line) referring to an overload of 190%.

In the same way as the sensors, the protection curves can be saved on disk (files with .PRO extension) and then transmitted to the device memory storage.

How to modify custom parameters
The Custom parameters can be modified and transmitted in the same way as set-up parameters, with the only difference that in this case, each parameter is identified only by a code (CU01, CU02 etc.) and that the setting is numerical only.
The custom parameters reside in files (with .CUS extension) separated from the parameter files and they can, therefore, be treated as independent entities.
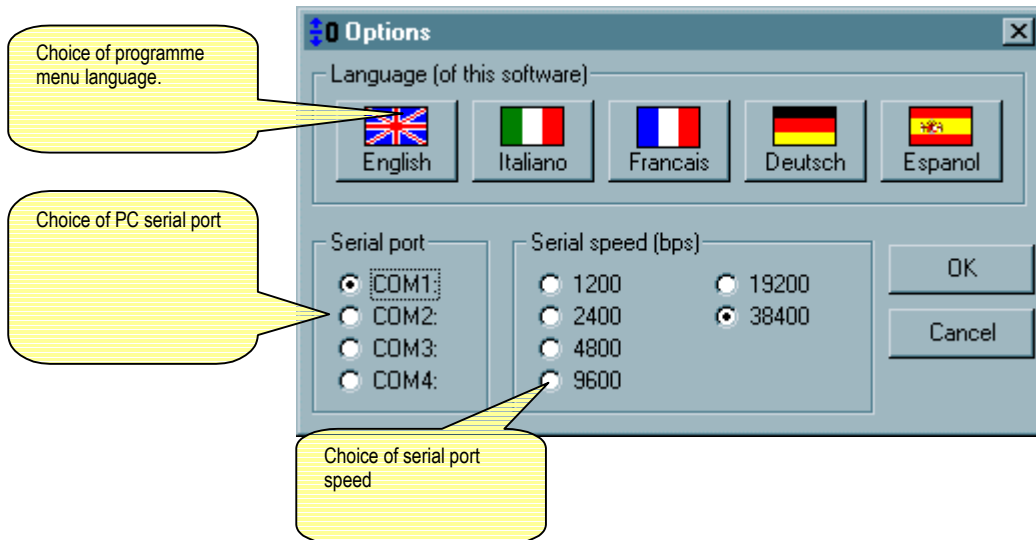The only thing that set-up parameters and Custom parameters have in common is that if comparison between the contents of the memory and the set-up parameters on the disk is enabled, if a Custom file is loaded, comparison also of the custom parameters will be carried out.

Options
It is possible to configure some programme options through the *Tools-Options* menu.

Choice of programme menu language.

Choice of PC serial port

Choice of serial port speed

How to convert files of previous revision texts
When a new version of the board is released that utilises a new revision text file, the problem may arise of re-using the modifications made to the text file with the previous revision, without having to enter them manually in the new file (which should be supplied along with the board).
This operation can be carried out using the *Convert text file* command, available under the *File* menu when the *Texts* folder is highlighted.
Once this command has been chosen, the programme will ask the user for 3 file names:

1. The name of the .TXT file with the previous revision, containing the customisations carried out by the customer.
2. The name of the .TXT file new version, as supplied as default.
3. The name, chosen by the user, to be given to the file generated by the merging of the previous two.

At this point, the programme proceeds with conversion. A file will be generated with the structure of the new file and the customised contents of the old one. Since usually new revisions have a higher number of texts, in the newly created file there will be a number of new lines to be customised by the user if necessary.
For this purpose, at the end of conversion a report is generated (that can be printed) highlighting the added lines of text.

Example:

File Rev. XX (Customised)	File Rev. XX+1 (default)	File Rev. XX+1 generated by the conversion	
Customised Text 1	Default text 1	Customised Text 1	
Customised Text 2	Default text 2	Customised Text 2	
Customised Text 3	Default text 3	Customised Text 3	
Customised Text 4	Default text 4	Customised Text 4	
Customised Text 5	Default text 5	Customised Text 5	
	Default text 6	Default text 6	
	Default text 7	Default text 7	*Texts to be*
	Default text 8	Default text 8	*customised*