CAREL

SmartKey Programmer

User Guide

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1   Introduction

The SmartKey program is used to program the new Carel programmable SmartKey (PCOS00AKY00).

In addition to the key itself, the pCO SmartKey USB adapter (PCOS00AKC00) is also required, and must be connected to the USB port on the computer.

For the hardware characteristics of the key and the adapter, see the corresponding instruction sheets.

To be able to use the program, the VCP driver needs to be installed; this is same driver used by the USB-RS485 converter, code CVSTDUTLF0, or code CVSTDUMOR0 (the driver in question should have been installed together with EasyTools). First connect the pCO SmartKey USB adapter (PCOS00AKC00), then the key to be programmed and/or checked.

This program can also be used without the key, obviously with limited functions.

Once the pCOManager program has been started, select the button that indicates the smartkey program
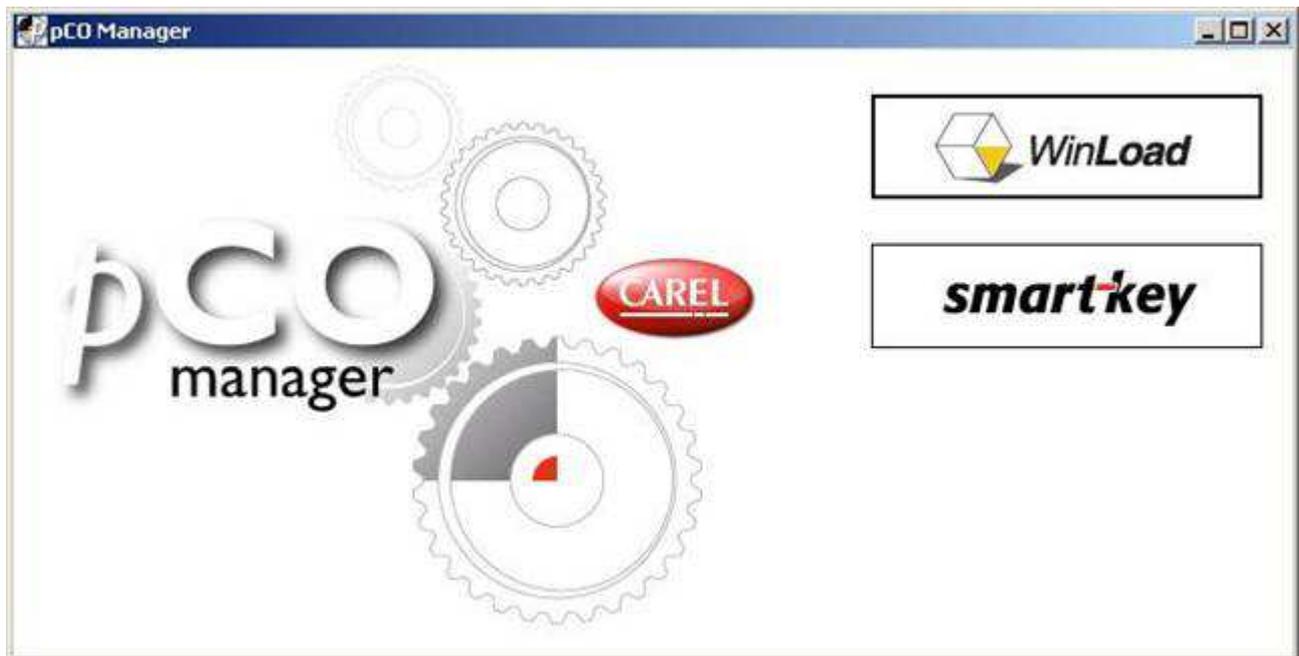
to run the SmartKey program

2   Work Area

The Work Area is made up of a series of panels indicated by tabs, which are enabled depending on the operating mode selected by the user, and the type of key set.

3   Menu Area

Menu items	Description
File / Guided UpLoad	This item is used to enable a guided system of steps for loading data to the key; when each dialogue box is displayed, the ">>" button will appear at the bottom right, to move to the next step
File / Guided DownLoad	This item is used to enable a guided system of steps for downloading data from the key; when each dialogue box is displayed, the ">>" button will appear at the bottom right, to move to the next step
Options / Config Serial Port	This item is used to set the serial port that the pCO SmartKey USB adapter is connected to, in the following dialogue box: ![SerialPortConfig dialogue box with Serial Port COM5 selected, Ok and Exit buttons] The selection field lists the VCPs (Virtual Com Ports) available on the PC.
Options / Language	This item is used to set the program interface language, in the following dialogue box: ![Language Config dialogue box with English selected and Ok button]
Options / DownLoad Kit Default Dir	This item is used to set the default directory for downloading the Kits, in the following dialogue box: ![KitDefaultDirSelected dialogue box with text field, Browse and Ok buttons] Selecting "Browse" opens the following dialogue box for selecting and/or creating the desired directory:

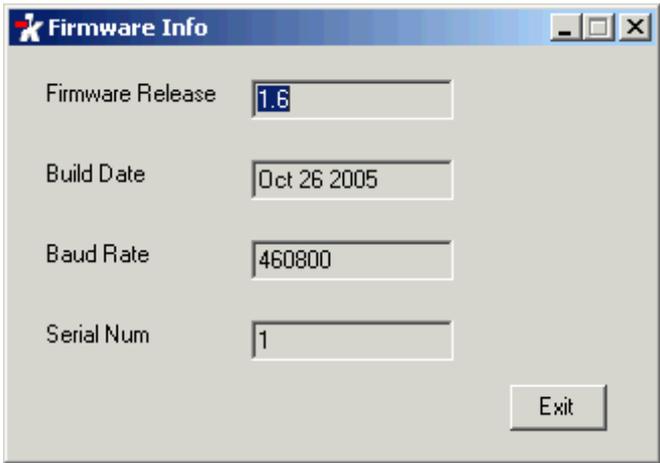|	
	Sfoglia per cartelle ? X Desktop ⊞ Documenti ⊞ Risorse del computer ⊞ Risorse di rete Cestino altro ⊞ Archivio ⊞ Bao ⊞ Easytools old commision kits Crea nuova cartella OK Annulla
Options / DownLoad Logs Default Dir	This item is used to set the default directory for downloading the Logs, in the following dialogue box: **LogDefaultDirSelected** _ □ X [ ] Browse Ok Selecting "Browse" opens the following dialogue box for selecting and/or creating the desired directory: **Sfoglia per cartelle** ? X Desktop ⊞ Documenti ⊞ Risorse del computer ⊞ Risorse di rete Cestino altro ⊞ Archivio ⊞ Bao ⊞ Easytools old commision kits Crea nuova cartella OK Annulla
Properties /	This item is used to open a dialogue box showing information on the key firmware, in

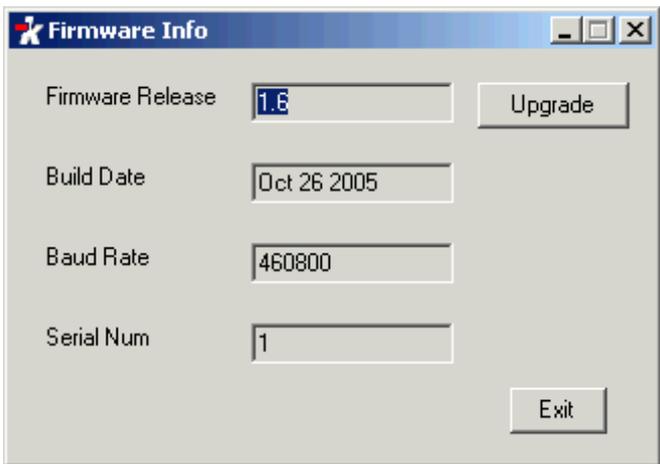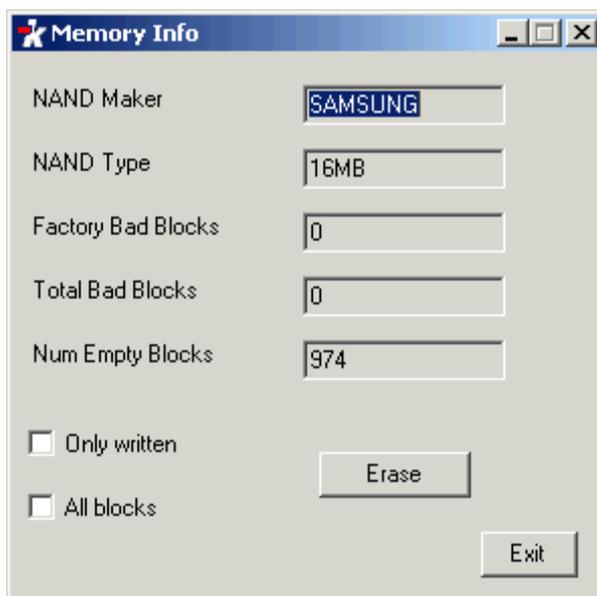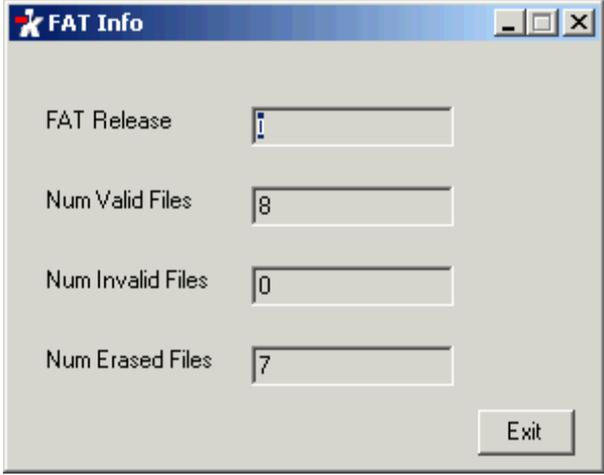|	
Firmware Info	the following dialogue box: **Firmware Info** Firmware Release 1.6 Build Date Oct 26 2005 Baud Rate 460800 Serial Num 1 Exit
Properties / Memory Info	This item is used to open a dialogue box showing information on the key memory, in the following dialogue box: **Memory Info** NAND Maker SAMSUNG NAND Type 16MB Factory Bad Blocks 0 Total Bad Blocks 0 Num Empty Blocks 974 Exit
Properties / Advanced / Upgrade Firmware	This item is used to open a dialogue box showing information on the key firmware: **Firmware Info** Firmware Release 1.6 Upgrade Build Date Oct 26 2005 Baud Rate 460800 Serial Num 1 Exit The firmware can then be updated by selecting "Upgrade", in the following dialogue bo
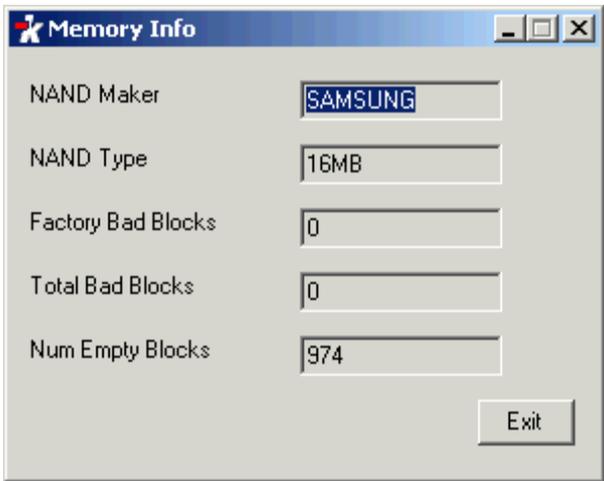
Selecting "Search" opens the following dialogue box, which already shows the file where the program expects to find the firmware update (*.hex)
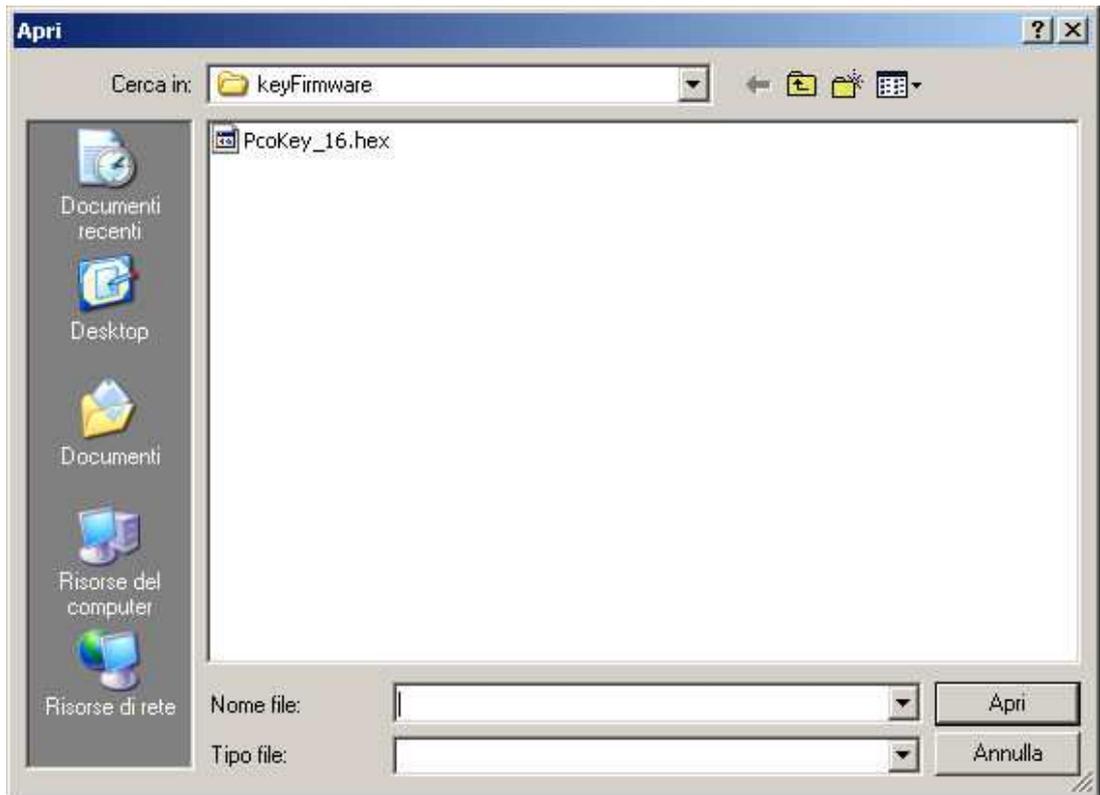
Properties / Advanced / Erase memory	This item is used open a dialogue box for deleting the key memory:

	The "Only written" and "All blocks" check boxes are used to specify whether to delete only the blocks of written memory ("Only written") or whether to completely format the key ("All blocks"); one of the two options must be selected.
Properties / Advanced / Fat Info	This item is used to open a dialogue box with all the information on the key FAT, in the following dialogue box:
? / Help	This item is used to open this Help document
? / About	This item is used to open the dialogue box that identifies the program currently being used

4   File kit

The file kit is the list of the files required for the operation of a pCO, and that are compressed and suitably converted for transfer to a SmartKey.

The kit also contains information on the type of pCO that the kit will be downloaded onto, and on the list of pLAN addresses that the application has been prepared for.

5 Tab

5.1 StartUp

This is the first panel displayed by the program, and is used to set the port for communication between the program and the SmartKey, to select the language so as to better understand the messages shown in the program, and to set the program for operation with or without the key inserted.

The "Select Language" drop-down list is used to select the language for the messages displayed by the program, so as to notify the user of the various settings or problems.

The "Select Serial Port" drop-down list is used to select the port for communication between the key and the computer. The program only lists the Virtual Com ports connected to the various Carel devices.

The "Key Set" options are used to establish whether the program communicates directly with a key, "With Key", or alternatively it operates without a key connected, "Without Key".

The first time that the program is run, the language and the serial port need to be set; after this, the values set previously will be loaded by default. These values can still be modified at any time.

The "Go" button sets the parameters shown on the panel and opens the "Config" panel.

5.2 Configuration
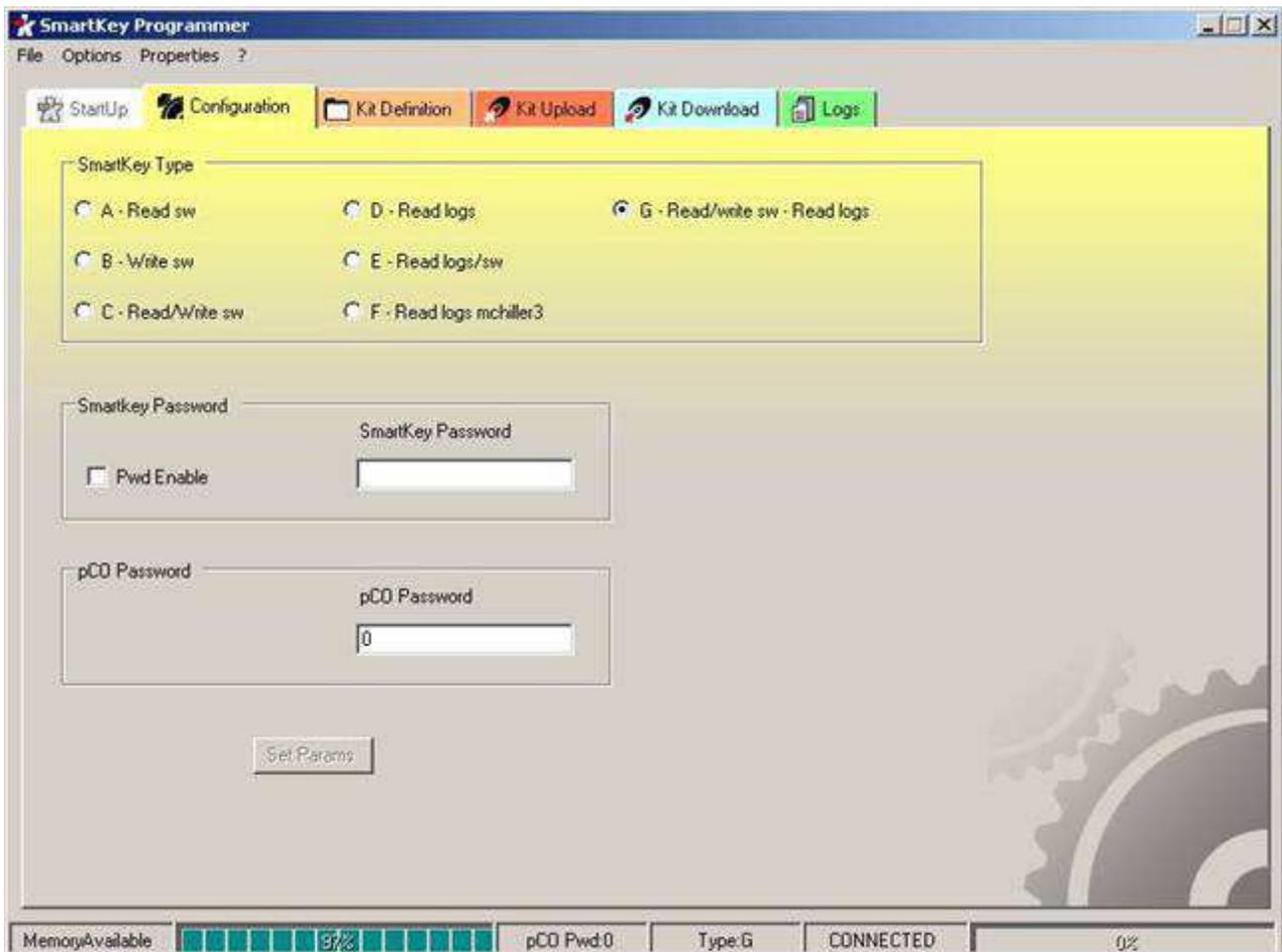
This panel is used to change the type of key, so as to completely reprogram it, enable and set the password to access the key from the PC, and set or modify the password required for the key to access the pCO.

The "Smart Key Type" options are used to modify the type of key connected.

There are 7 types of key :

1. Read Software - only reads data from the key, loading applications or Bios files

2. Write Software - only writes applications to the key

3. Read/write - Software; reads from the key and writes applications or Bios to the key

4. Read Logs - reads the log files downloaded from a pCO

5. Read Logs/Software - reads the log files downloaded from a pCO and the application files

6. Read Logs Microchiller 3 - reads the log files downloaded from a Microchiller 3

7. Read/Write SW - Read logs; reads the log files downloaded from a pCO and reads and/or writes the application files from/to the key

5.3   Kit Definition
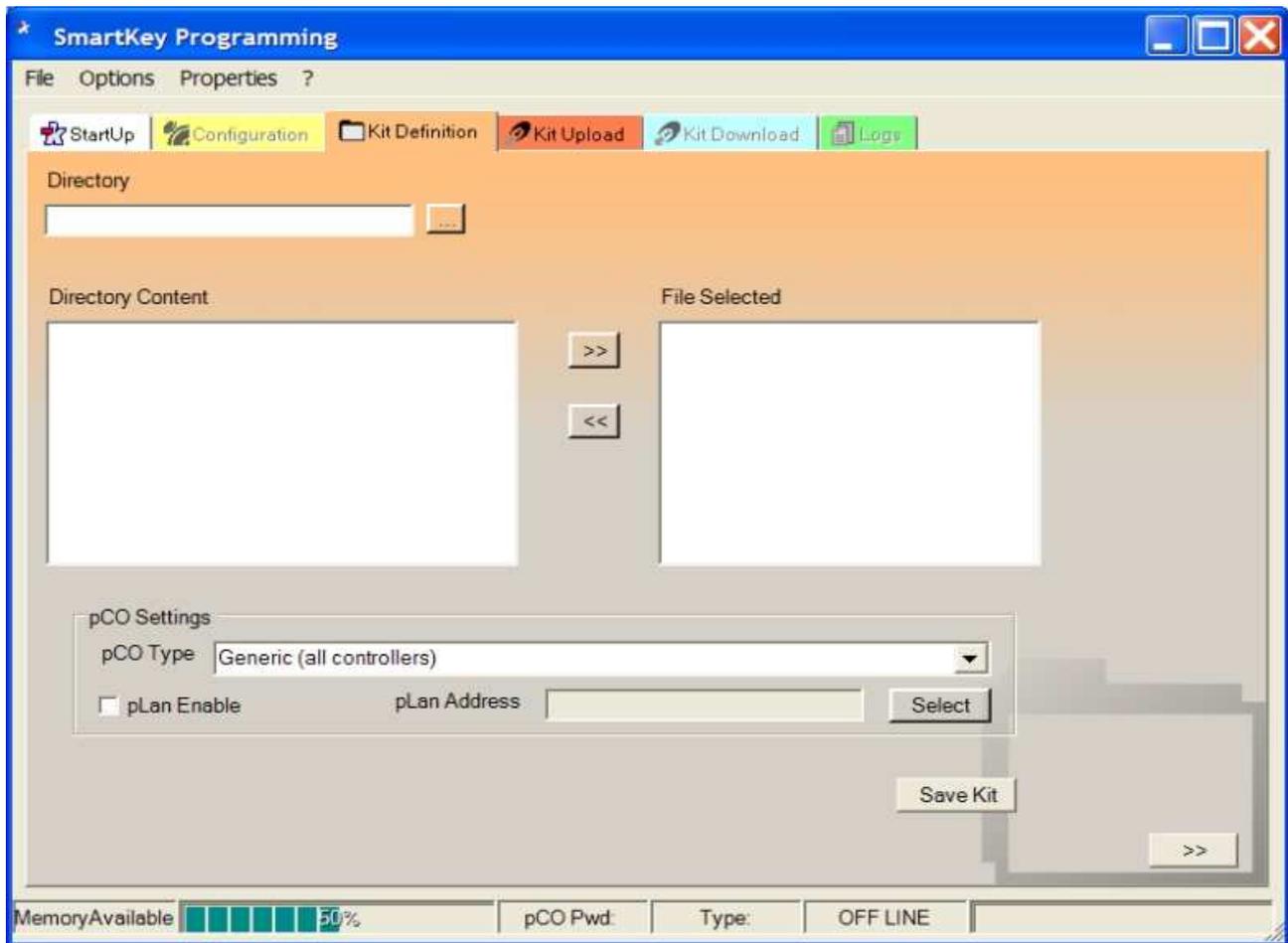
This panel is used to create the file kit that will be loaded onto the key.

In the "pCO Settings" section, the "pCO Type" drop-down list is used to select the type of pCO terminal that the file kit is to be loaded onto.

In the "pCO Settings" section, checking the "pLan Enable" box activates the "Select" button, which is used to set the addresses of the terminal that the file kit is to be loaded onto, using the following dialogue box:
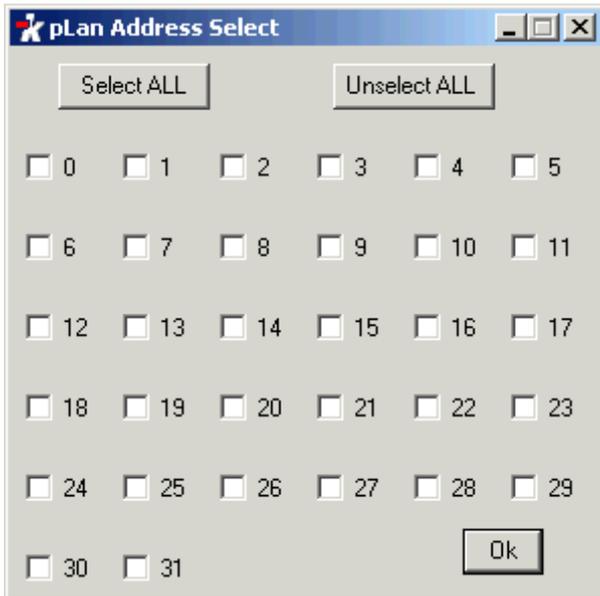
Select the numbers of the terminal that the file kit is to be loaded onto, and then select "Ok"

The addresses set are displayed separated by commas (e.g.: 1,2,3,4).

If the "pLan Enable" check box is not selected, the kit is not to be used on a pCO in the network.

The "Directory" field is used to enter the name of the directory for selecting the files to be included in the Kit; the directory can also be selected using the "..." button, which opens the following dialogue box:

The "Directory content" list shows the files located in the previously selected directory and that can be included in the Kit.
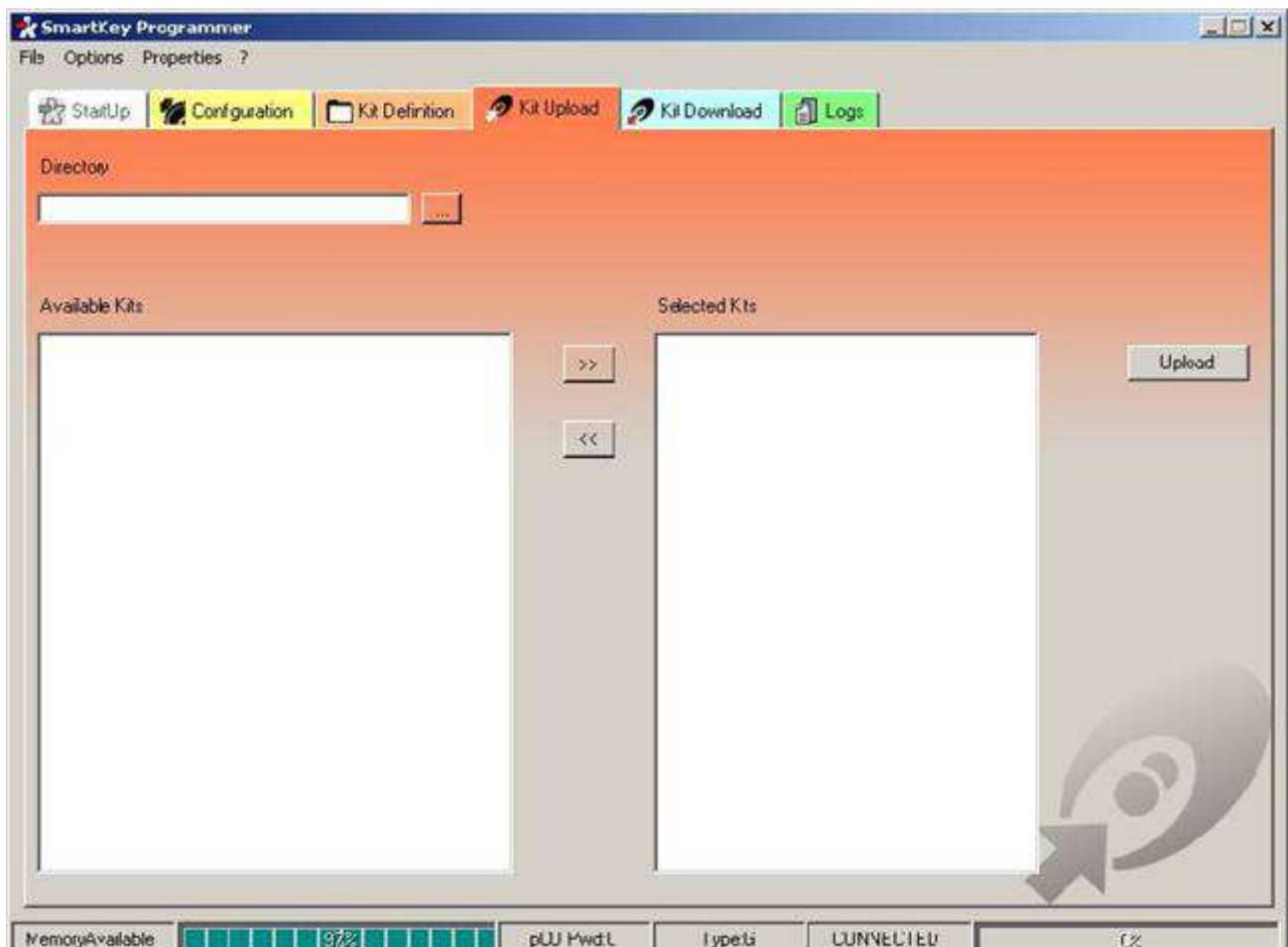
The "<<" and ">>" buttons can be used to add or delete the files to/from the Kit.

The "File Selected" list shows the files that have been added to the Kit.

Selecting the "Save Kit" button saves the kit with the corresponding settings.

5.4 Kit Upload

This panel is used to load one or more kits onto the key.

The "Directory" field is used to enter the name of the directory for selecting the kit to be saved to the key; the directory can also be selected using the "Browse" button, which opens the following dialogue box
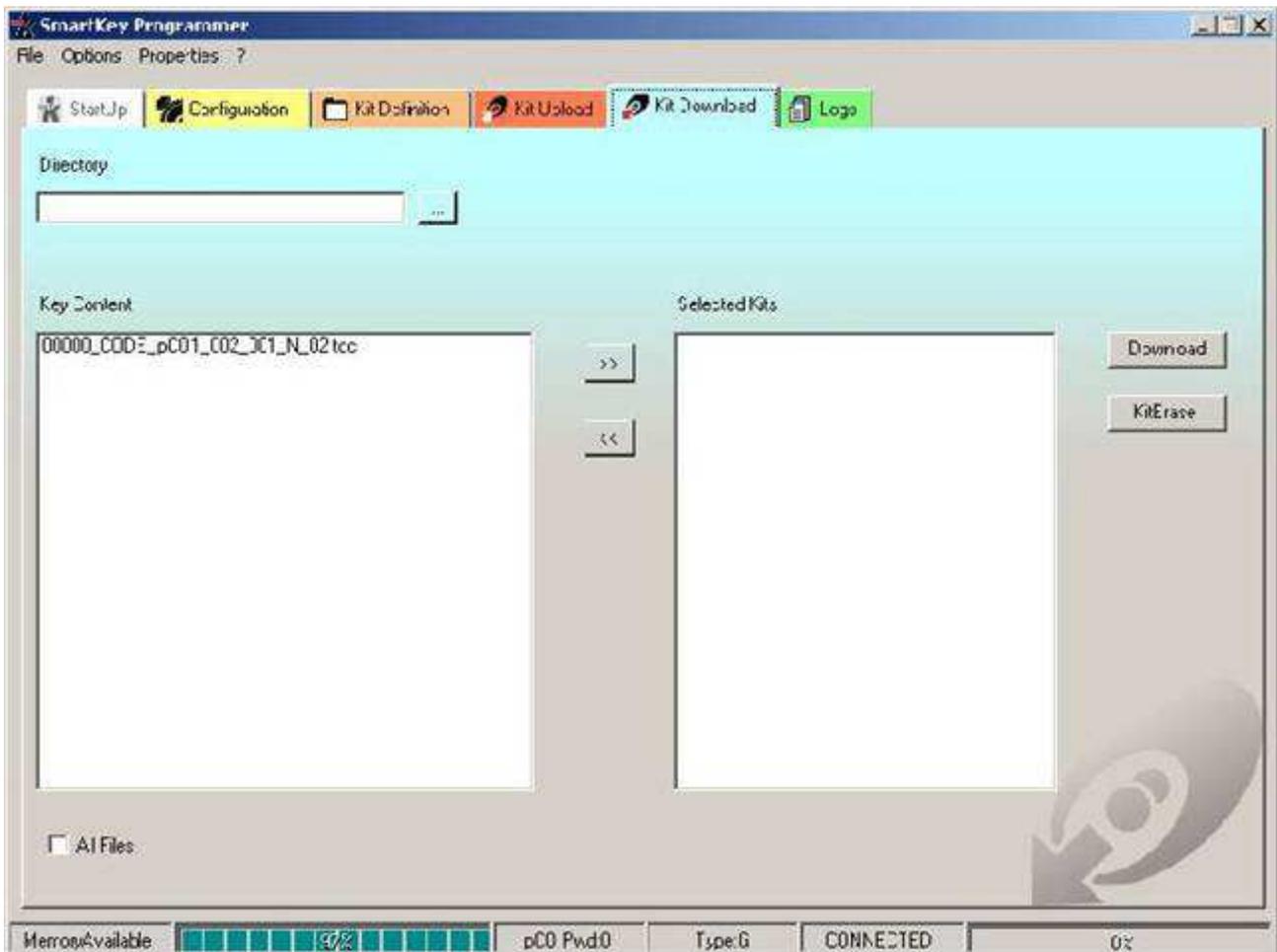

The "Available kits" list shows the kits available in the previously selected directory.

The "<<" and ">>" buttons are used to add the files selected from the list of kits in the directory to the list of kits to be loaded to the key.

The "Selected kits" list is used to show the kits selected for the key.

The "UpLoad" button physically uploads the kits to the key.

5.5 Kit Download

This panel is used to download the contents of the key to the hard disk.

In the "Directory" field, enter the name of the directory where the kits downloaded from the key are saved; the directory can also be selected using the "..." button, which opens the following dialogue box

The "Key content" list displays the kits contained on the key.

The "<<" and ">>" buttons can be used to select the kits to be downloaded to the hard disk on the PC.

The "Selected kits" list shows the kits selected on the key to be copied to the previously set directory.

The "Download" button then downloads the selected kits to the hard disk on the PC.

The "Kit erase" button is used to delete the Kits in the "Selected Kits" list from the key.

The "All files" check box selects all the files in the "Key content" list and adds them to the "Selected Kits" list.

5.6   Logs
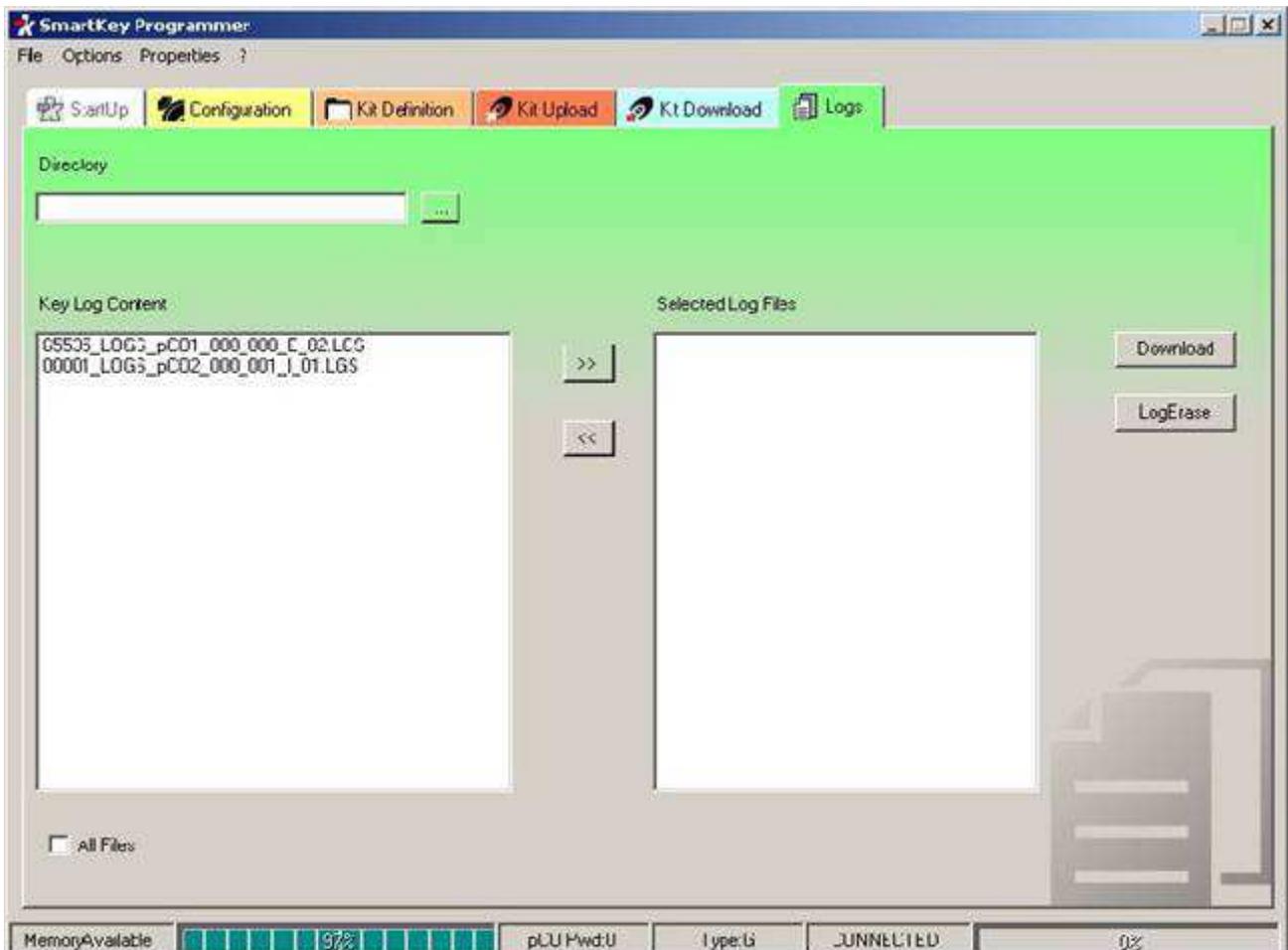
This panel is used to download the log files from the key to the hard disk.

The "Directory" field is used to enter the name of the directory where the Logs downloaded from the key are saved; the directory can also be selected using the "..." button, which opens the following dialogue box

The "Key Log Content" list shows all the Logs loaded on the key.

The ">>" and "<<" buttons select or deselect the files to be downloaded to the hard disk.

The "Selected Log Files" list shows all the Logs selected to be downloaded.

The "All Files" check box is used to select all the Logs on the key.

The "Download" button is used to physically download the selected Logs to the hard disk.

The "Log Erase" button is used to physically delete the selected Logs from the key.

6   LEDs and Buttons

6.1 Programming the SmartKey by Personal Computer

The different operating modes described in the table below can be configured using the program running on the PC. This program can also be used to load the software to the key, or alternatively transfer the logs from the pCO or chiller3 to hard disk.

Type	Function	Mode button
B	Update software from key to pCO (bios, application, parameters,…)	Disabled
C*	Copy software from pCO to pCO (bios, application, parameters,…)	Switches the key from write mode to read mode
D	Read log	Disabled
E	Read log and software from pCO (bios, application, parameters,…)	Disabled
F	Read log from Chiller3	Disabled
G	Copy from pCO to pCO and read log	Switches the key to write, read and read logs modes

*: Default mode

The key is factory-set in read/write mode (type C), allowing it to be used immediately to transfer the software from one controller to another.

When the key is connected to the personal computer, the symbols have the following meanings:

⬆⬇	Flashing	Awaiting connection to the PC
	Alternating	During connection to the PC, indicate data transfer in progress

The programming key is compatible starting from Bios version 3.43 and Boot version 3.01.

For more detailed information on programming the key, see the pCO Manager program manual.

6.2 Meaning of the Buttons/Symbols

⬆⬇	Flashing: the key is connecting to the pCO or Chiller3; during this phase, which may last a few seconds, the start button is disabled.
start	flashing: the key has detected the pCO and is checking the access permission
start + ⬆	On steady: pressing the start button starts writing the software to the pCO
start + ⬇	On steady: pressing the start button starts reading the software from the pCO
start + 🗎	On steady: pressing the start button starts reading the logs from the pCO or Chiller3
mode	On steady: for key type C or G, when pressed for 1 second switches from read to write mode

For key type C or G, pressing the "mode" button for 1 second switches between read, read logs (G only) and write modes; the symbols (write to pCO), (read from pCO), (read logs) identify the selected status. If the key is not type "C" or "G", the "mode" button is disabled and off.

The "start" button starts the read or write operation, indicated by the flashing of the corresponding symbol (or), at an interval proportional to the progress of the operation.

When the operation is finished, the buzzer sounds intermittently for 2 seconds. Pressing the "start" button again activates the buzzer, without repeating the function; to repeat the operation, the key needs to be disconnected.

In the event of errors, the ⚠ symbol comes on, together with the other LEDs. The table below lists the causes of the problems:

⚠ + ⬆ + ⬇	flashing	Communication error: no response from the pCO or alternatively Firmware version of the key incompatible
⚠ +mode	continuous	Password error or alternatively incompatible key type
⚠ + mode	flashing	Incompatible key type
⚠ + start + ⬆ + buzzer	flashing and buzzer intermittent	Failed write command
⚠ + start + 📄 + buzzer	flashing and buzzer intermittent	Failed read command
⚠ + start + ⬇ + buzzer	flashing and buzzer intermittent	Failed read logs command
⚠ + ⬆	continuous	The key is missing one or more required files
⚠ + ⬆ + start	continuous + start flashing	Incompatibility between the software on the key and the pCO HW
⚠ + ⬆ + mode	continuous + mode flashing	Incompatibility between the application and the pCO HW (application size)
⚠ + ⬆ 📄	continuous + 📄 flashing	Incompatibility between log configuration and pCO HW (no dedicated flash memory)
⚠ + 📄	continuous	Insufficient space to read the log
⚠ + ⬇ + 📄	continuous	Log not present on the pCO or C3
⚠	continuous	Type of key not set
⚠	flashing	Generic error