# FM400 SOFTWARE MANUAL
Revision 1.4.0

# BASIC CONCEPTS OF FM400 SYSTEM

This chapter explains the fundamental concepts of the elements that make up the FM400 system: the transmitter, the receiver, the programmer and the software.

## *TRANSMITTER (TX)*

The FM 400 transmitter implements FSK technology, and one press of a button sends a train of bits containing the following information:

1. **transmitter code**
2. **associated family**
3. **button pressed**
4. **rolling code**

Each of these items should be dealt with in more detail.

**transmitter code**: a fixed number that identifies the transmitter, which can be modified using the programmer. The code is unique for all buttons, i.e. no other codes can be entered on other buttons of the same remote control.

**family**: this is a fixed number that can be entered on the transmitter using the programmer. Each programmer has a different family. This remains optional; if not entered, the transmitter keeps the default family.

**button pressed**: this is obviously a code that identifies the specific button pressed on the TX.

**rolling code**: this is a number that changes on each transmission, thus preventing cloning of the transmitter, as it enables the receiver to distinguish an authentic transmitter from a copy. For this reason, note that **the FM400 system always operates rolling code mode** and consequently **copies cannot be made of transmitters: each TX in the system must have a DIFFERENT code from all others.**

## *RECEIVER (RX)*

The FM400 receiver is equipped with outputs that can be activated on detection of a memorised code. The following is memorised on the receiver:

1. **associated family**
2. **type of output activation**
3. **password**
4. **codes of transmitters with rolling code, button pressed and output to activate**

The following section deals with each in more detail.

**associated family:** the receiver does not recognise any families other than the one stored in the memory. The family can be entered as follows: using the programmer, software or during initial manual memorisation (pressing the buttons on the receiver) of a transmitter (the family on the

transmitter is passed on to the receiver). **Once the family is entered, the receiver will not recognise transmitters other than those that transmit the same family.** Obviously this may still be the default family set on the transmitters.

**type of output activation:** each output of the receiver can operate in three ways: impulse, step, or timed. The modes are memorised on the receiver and can be modified both during manual memorisation and using the programmer and software.

**password:** this is a fixed number that if entered in the memory locks the receiver buttons, making manual operations impossible. The password number cannot be selected: the user can only select whether to enable it or not.

**Transmitter codes:** on the receiver, each memory slot contains four essential data: the code of the TX, the TX button pressed, which output to activate and the rolling code. Therefore **on each slot an "output" is memorised, corresponding to a specific button of the TX** (to ensure that a receiver responds to all buttons of a TX, all must be memorised and occupy a slot for each button)**.**
The codes can be stored in the memory of the receiver by entering them manually on the receiver or by using the software.

There are two types of EEPROM memory available:

1. 24C32: 32 Kbit model, with capacity of 500 codes
2. 24C64: 64 Kbit model, with capacity of 1012 codes

The receiver comes with the onboard memory 24C32.

## *PROGRAMMER (PRG)*

The FM400 Programmer is a device used to program the transmitters and receiver memories. It can be connected to a PC and communicate with the software SOFT FM400.
The programmer is mainly designed to:

1. **read and write codes on transmitters**
2. **enable and disable the family code on transmitters**
3. **enable and disable the family code on receivers**
4. **enable and disable the password on receivers**
5. **clone or delete an EEPROM memory**

**read and write codes on transmitters:** the PRG enables the user to detect the transmitter via radio; to do this, access the menu "Rec" and press any one of the buttons on the TX; the PRG displays the TX code and relative family setting (FAM = family entered and corresponding to programmer; NO FAM = default family corresponding to factory setting).
The code is written onto the TX via the pin connector attached to the PRG. To program a TX, remove the battery and insert the pin connector in its place. When programming code on a TX the family is also entered if the PRG is set to ”family” mode.

**enable and disable the family code on transmitters:** a family can also be enabled or disabled by means of a PRG command and using the pin connector (when deleted, the default family is set).

**enable and disable the family code on receivers:** a family can be enabled or disabled on receivers by placing the receiver memories on the SLAVE connector (if removed the default setting is applied).

**enable and disable the password on receivers:** a special command enables entry or deletion of the password, which is equivalent to locking and unlocking buttons on the receiver.

**clone or delete an EEPROM memory:** by inserting a memory on the MASTER socket and another one on the SLAVE socket, the master memory can be copied onto the slave memory. It is also possible to erase a memory that is inserted on the SLAVE socket.

## *SOFTWARE (SOFT FM400)*

In addition to the programmer, the software is an effective tool for managing a plant using the FM400 system. It enables management of a system with display of global information, including transmitters, receivers, and the relationships between them. The software is designed to handle systems of any kind from a single home to apartment blocks, for example made up of a main entrance accessed by all, and a series of garages, each accessible by only some of the users (user groups).
Some of the basic concepts of the software are illustrated below:

1. **communication with the programmer**
2. **plants**
3. **user groups**
4. **receivers**

**communication with the programmer:** the software communicates with the programmer via the serial port, which is configured via the menu “PRG Communication”->”Select serial port”.
The serial port selection interface enables automatic detection of the PRG (simply turn on the PRG, connect it to the computer with the cable and then press "Auto search"; the program then scans all serial ports available and notifies the user as soon as the programmer is detected on one of the ports).
The following applies to those without a serial port on the PC: in this case a USB port can be used, together with an adapter that converts the USB port to a serial port. After installing the adapter (normally just a cable) the serial port is then available and the ”Auto search” process can be performed. The software should then locate the PRG automatically.

**plants:** the software always manages a complete plant made up of one or more **user groups** and one or more **receivers**.
The **family setting** is valid for the entire plant, which means that all memories programmed on the basis of a plant will inherit all family settings of this plant. The same applies to all transmitters.

**user groups:** a user group is basically a series of transmitters. It obviously makes sense to divide the plant into different user groups where different groups of people need access to different receivers. For example, in an apartment block with several automated garages each belonging to a different apartment, it would be practical to create a user group for each apartment. In any case, the installer should decide whether to use one or more groups for a certain installation; however, it is important to remember that to enter the transmitters in the software at least one group of users must be created.

**receivers:** The software can manage one or more receivers for each plant, and all settings can be set on screen before writing the memory of each using the programmer.

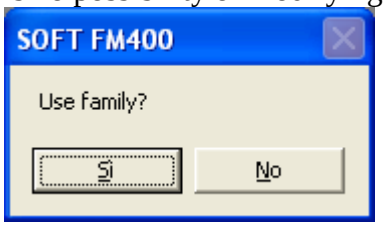
# QUICK GUIDE

To explain operation of the program, two simple examples can be provided. In the first case, there is a single home with one receiver (main gate) and a single user group; in the second there is a small apartment block made up of five apartments with a main entrance shared by all residents and five up-and-over garage doors (one per apartment).

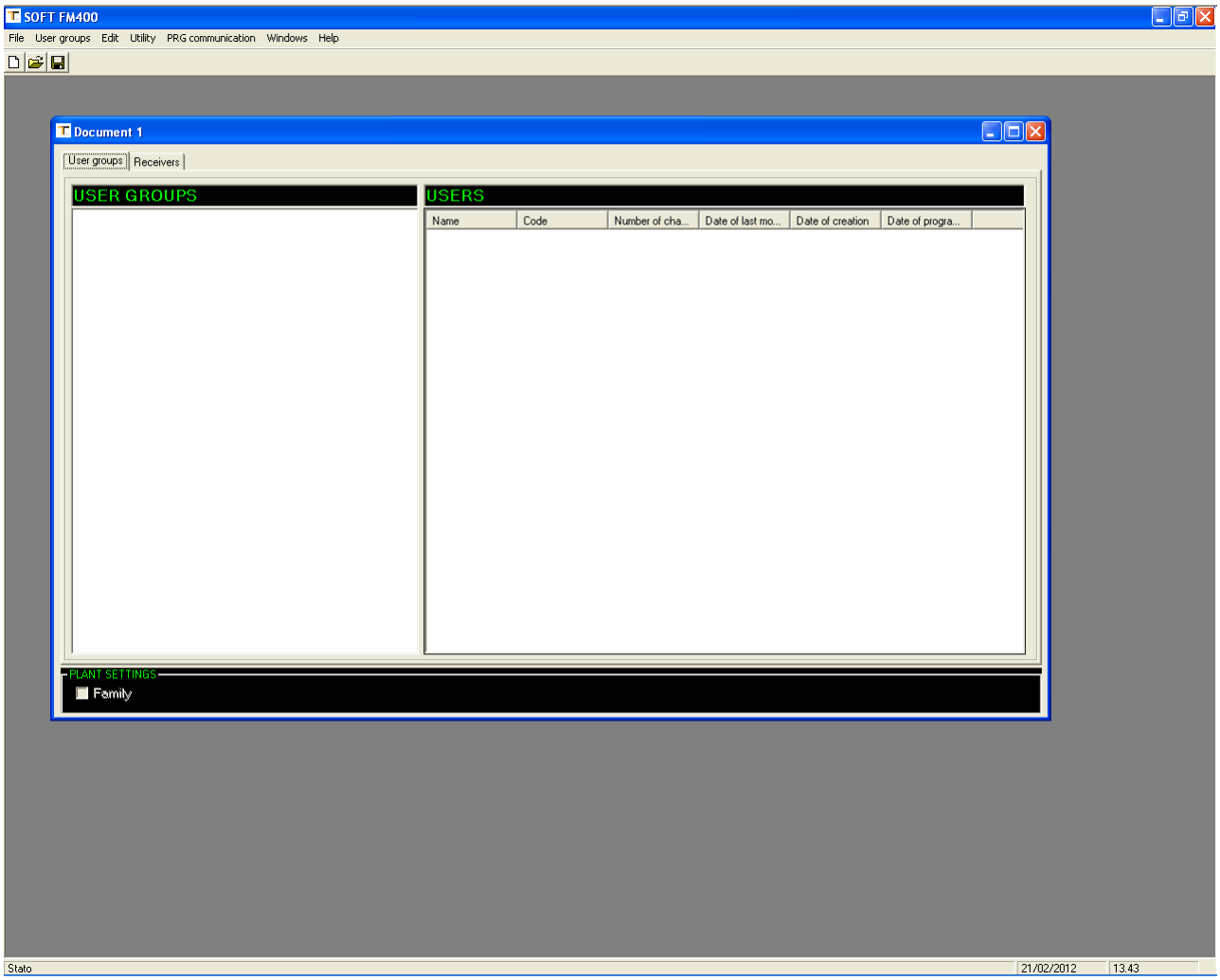
## *Example 1*

After starting up the program, a new plant is created by selecting the menu “File”-> “New”.

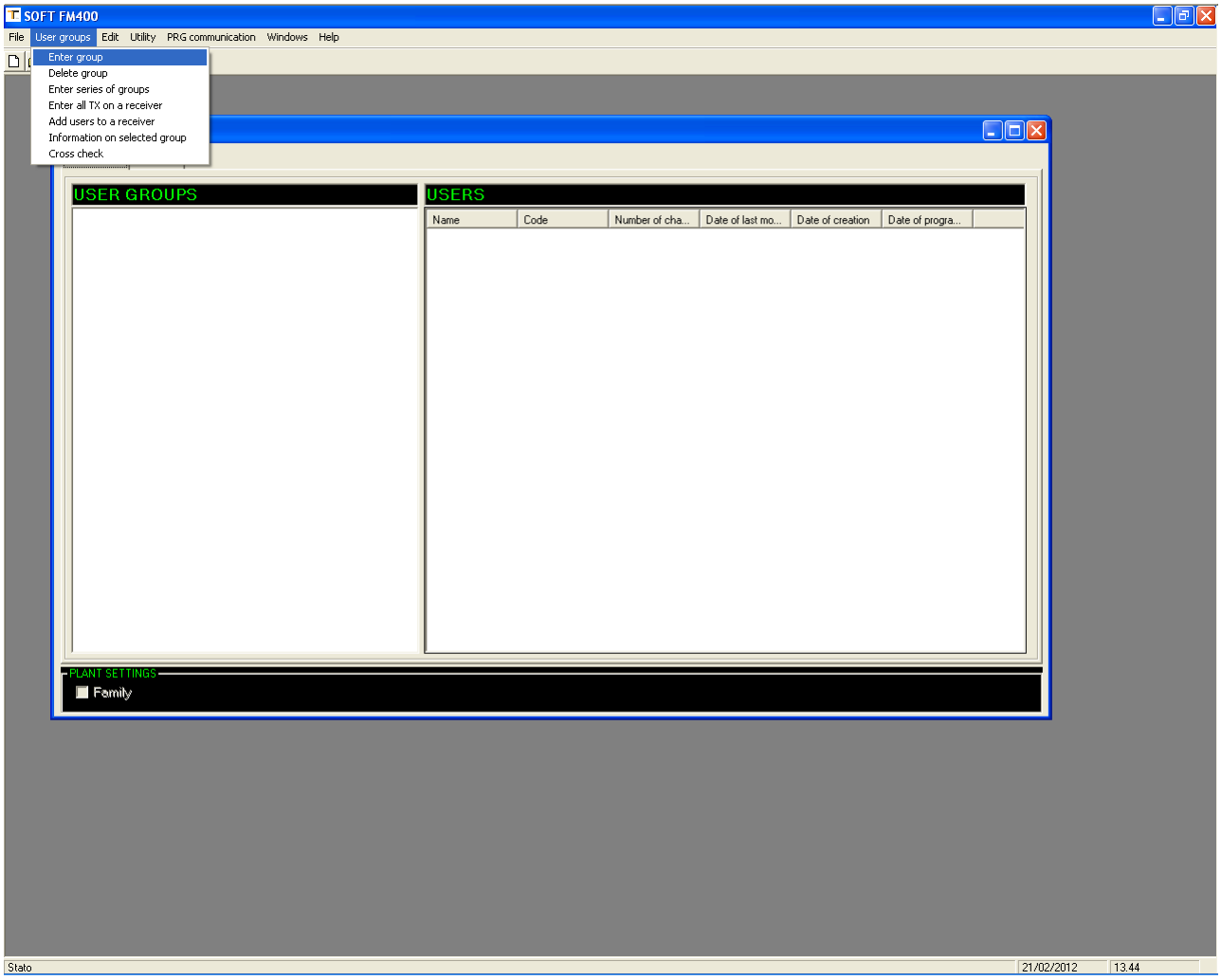
The program immediately asks whether to select the family or not: after making the selection, there is no possibility of modifying the setting.



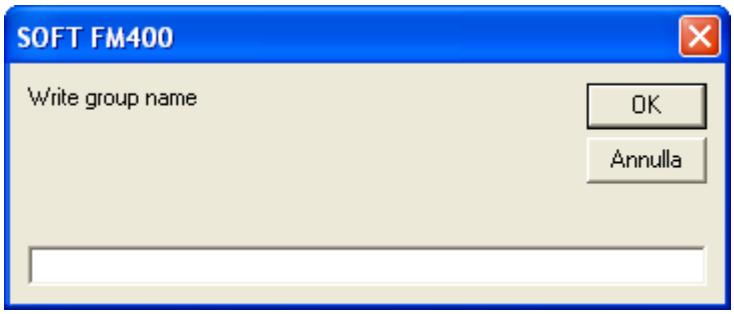

The family selection will then be applied to all objects created (TX and RX).
Use of the family or not is the user's choice: if the family is used, no other person can manage the plant; if the family is not used, the plant remains "open" to all users.
Press "Yes" or "No" to select.



The plant management window contains two selectable windows: the default window contains an overview of the user groups; a click with the mouse on the text "Receivers" at the top left enables a display of the receiver management window.
The other window is the "user group" creation window: from the menu select “user groups”->”Enter group”

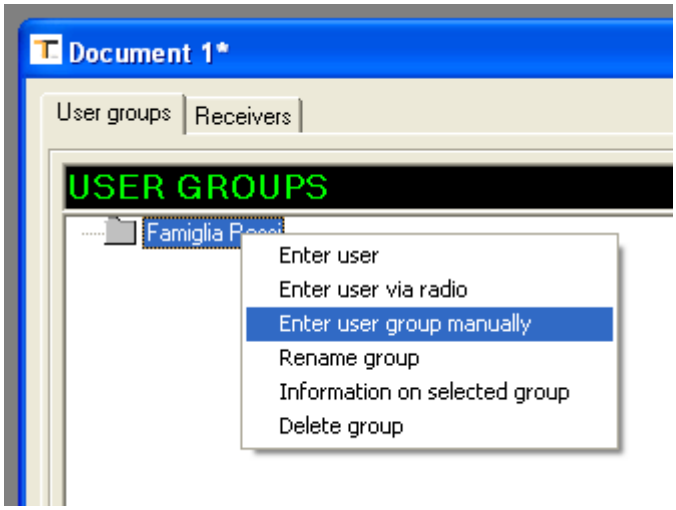


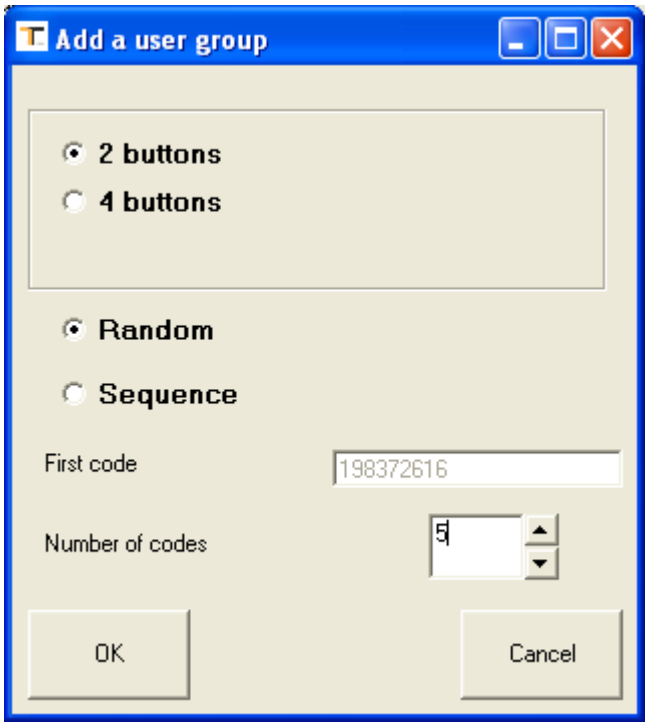

The program asks the user to assign a name to the group.



Name the group and a folder appears in the box “USER GROUPS” with the name given to the group.

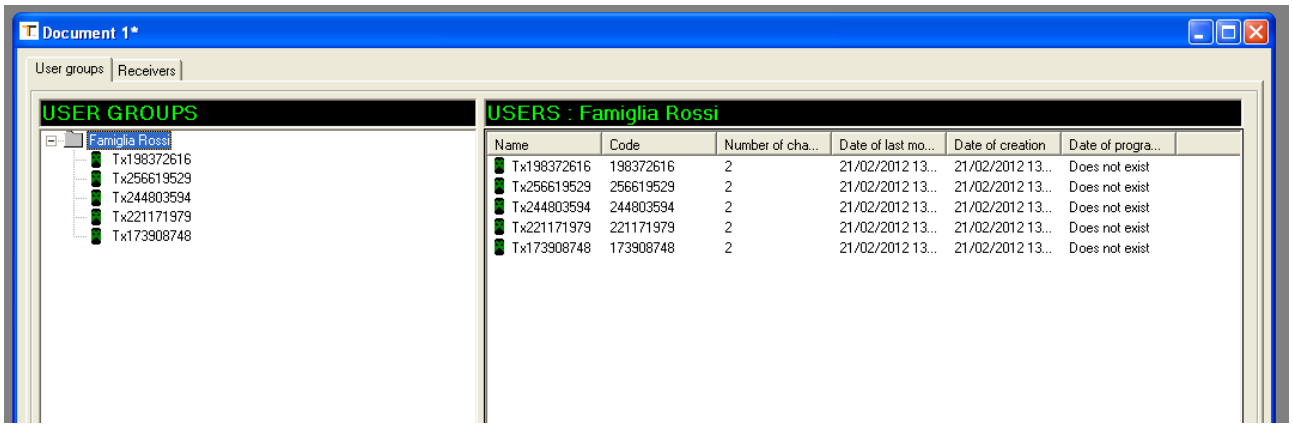

A click with the left mouse button on the folder enables entry of the transmitters into the group: select "Enter user group manually".



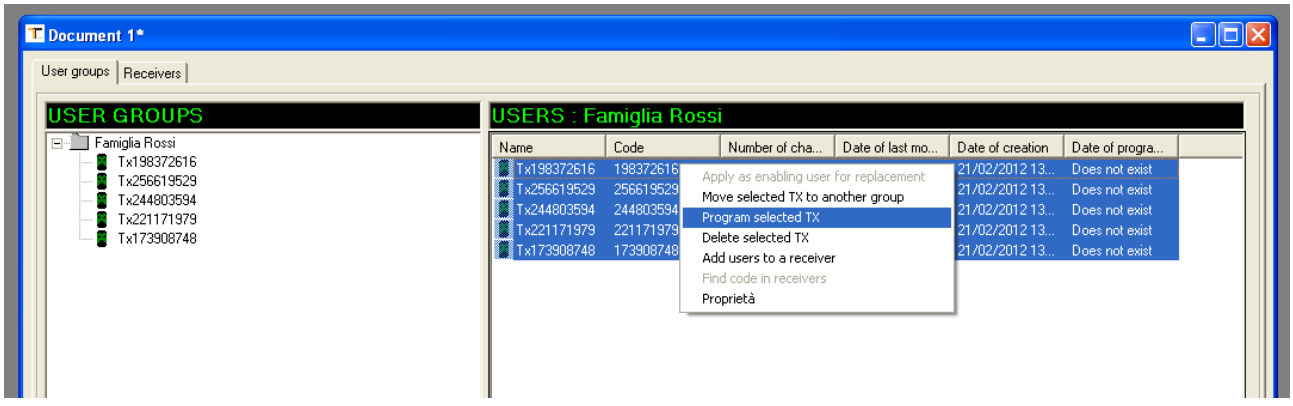
The screen displayed enables entry of the required number of transmitters; the user can choose whether these are 2-button or 4-button transmitters and whether the codes are generated in random mode or in sequence.
The default settings proposed by the program are:
- Random mode
- 2-button transmitters
- one code number
In this case the default settings are left for the buttons and code generation, while the number 5 is entered as the number of transmitters, after which press OK to confirm.

The program has therefore entered five transmitters with random codes on the plant; a click with the mouse on the group folder then displays the contents of the "USERS".



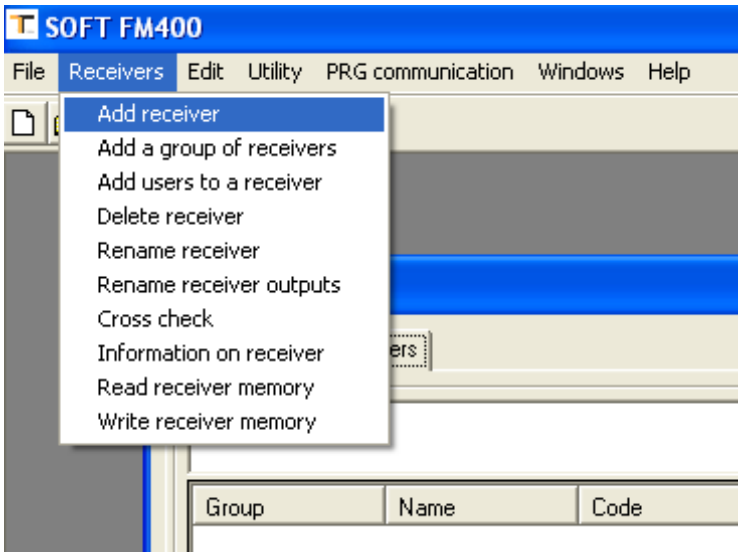

Some details of the transmitters in the selected group are then shown in the list “USERS” stating for each TX the **name, code, number of buttons, date of last modification, date of creation and date of last programming/reading.**
Note that under the item “Date of programming/reading” the message “Does not exist” is displayed, to indicate that the TX has not been entered by reading and has not been programmed: therefore the TX effectively does not exist.

The five transmitters can now be programmed. To do this, connect the programmer to the computer by means of the serial cable between the PC and PRG (if the program has not been configured for using the serial port, refer to the procedure in chapter SOFTWARE SOFT FM400).
After connecting the PRG select all TX in the list “USERS” (to select, click the left mouse button and drag over the elements in the list).
Then right click over the selected items and from the menu displayed select the option "program selected TX".

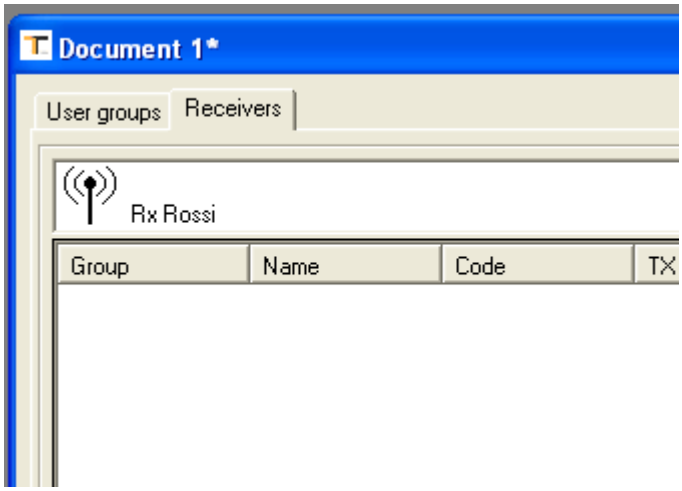


The program notifies the user which TX is to be programmed; insert the connector and press OK. The PRG then programs the TX using the information received from the software: if programming fails, the program notifies the user and prompts to retry or exit the application (if the connector is placed correctly, this type of problem should not occur; otherwise attempt to insert the connector so that it is parallel with the plastic casing of the TX).
If programming is successful, the program specifies the next TX to be programmed: proceed in the same way to program all five TX.

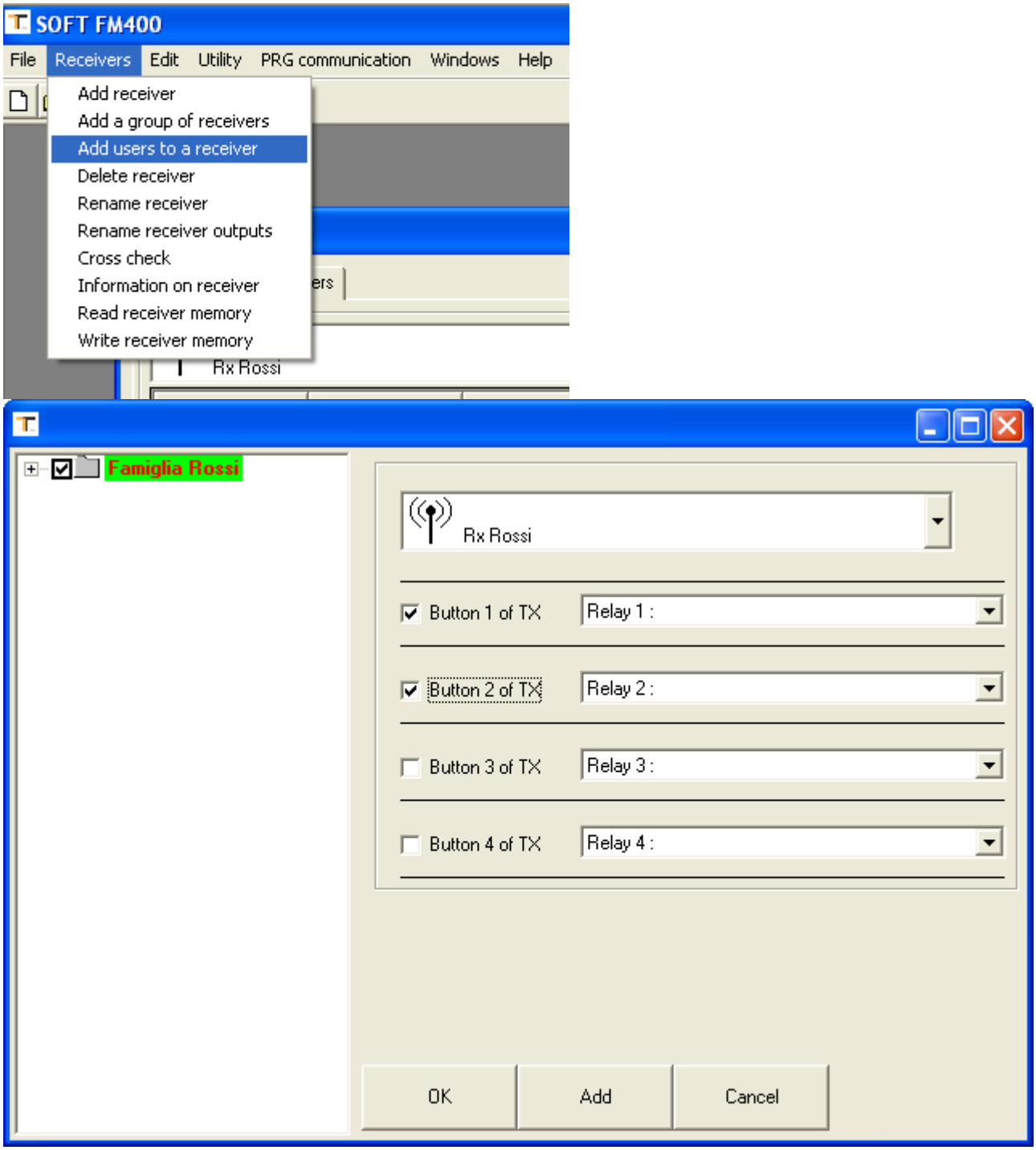
The TX group is now created and it's possible to proceed with the creation of the receivers.
Move to the receiver management window by clicking on "Receivers" at the top right then select the menu "Receivers"->"add receiver".




Enter the name to display the symbol of an antenna in the drop-down box, with the name of the receiver alongside.

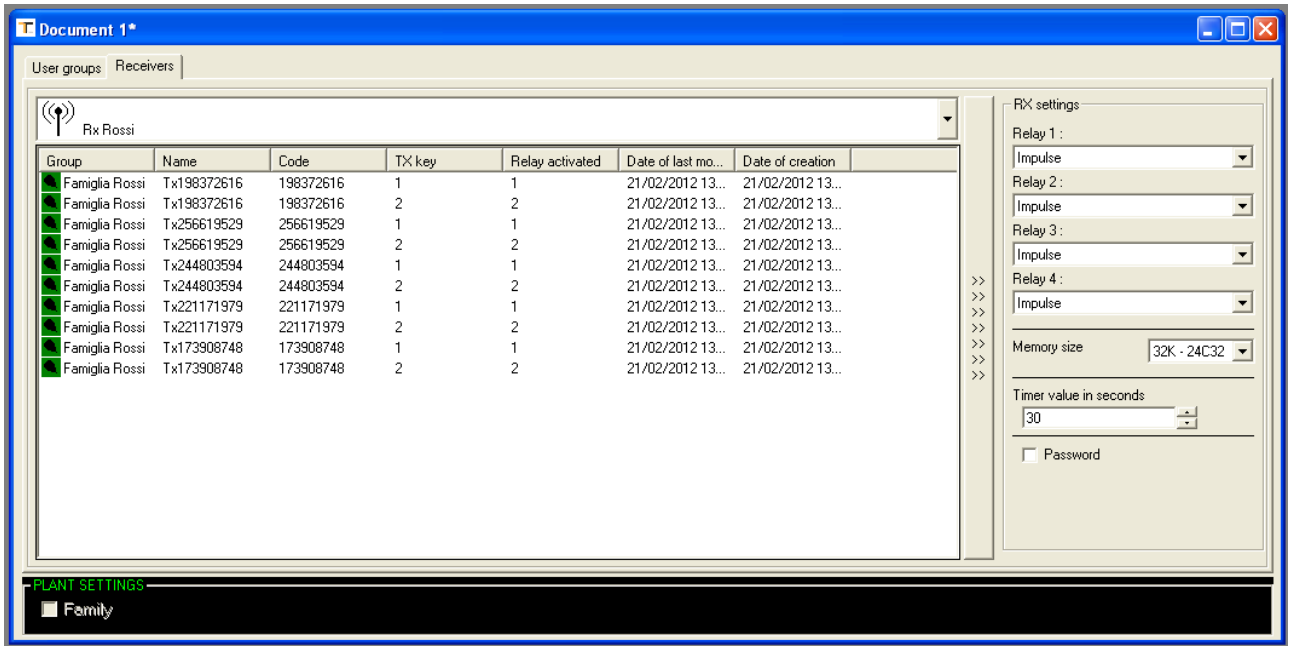



To enter the created TX in the receiver, select the menu "Receivers"->"add users to a receiver", to display a window in which to select which transmitters to memorise on a receiver: select the entire group and select which buttons to enable (for example one and two both active on relay 1) then press OK.

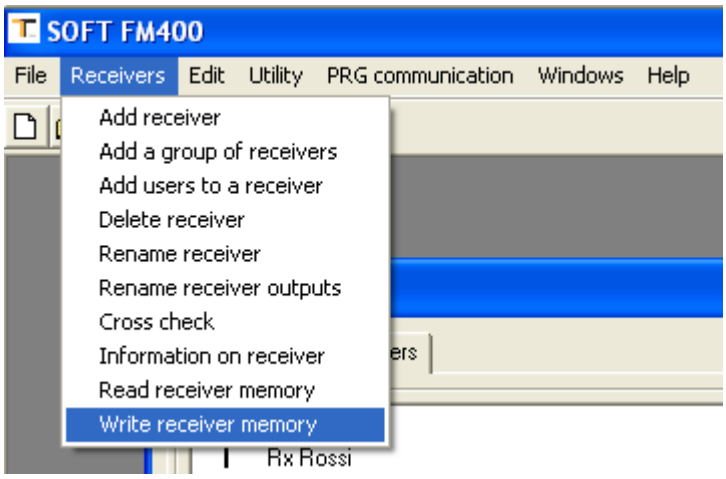



If “Add” is pressed, the program enters the data and displays the new entries in a window

A series of items is now displayed below the name of the receiver, each representing a slot in the memory, specifying the following: transmitter name, code, transmitter button that performs activation, relay activated, date of last modification, and date of creation.




At this point the receiver memory can be written; fit the EEPROM memory on the slave socket of the programmer and select the menu “Receivers”->”write receiver memory”.

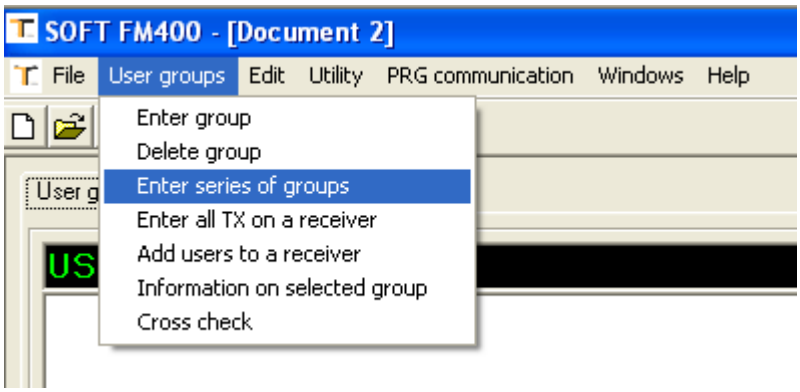



The program requests confirmation for this operation: after confirming, wait for completion of the memory writing operation.
The plant is now created: the programmed transmitters operate with the assigned receiver (take into account that on initial activation of a TX button, the receiver flashes and the relay is only energised when pressed a second time; this is not a malfunction but simply part of the procedure).
To save the configured plant onto the hard disk, use the menu “File->Save as”. Plants cannot be saved in locations outside the folder “AllPlants” (see SAVING CONFIGURED PLANTS) .

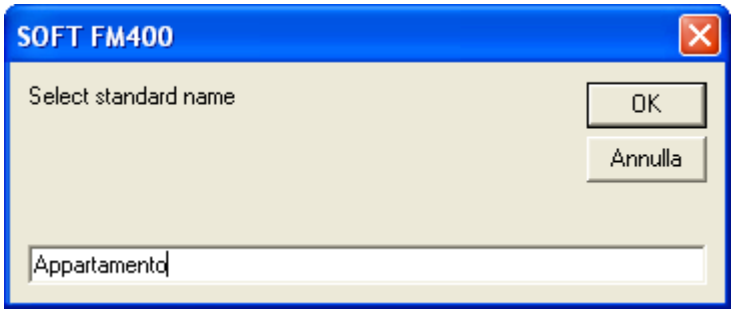
## *Example 2*

In this second example, as mentioned, there is a plant for a small apartment block of five apartments, a receiver for the main gate and five receivers, one for each garage door for each apartment.
After creating the new plant (“File” -> “New”) the user groups can be created:

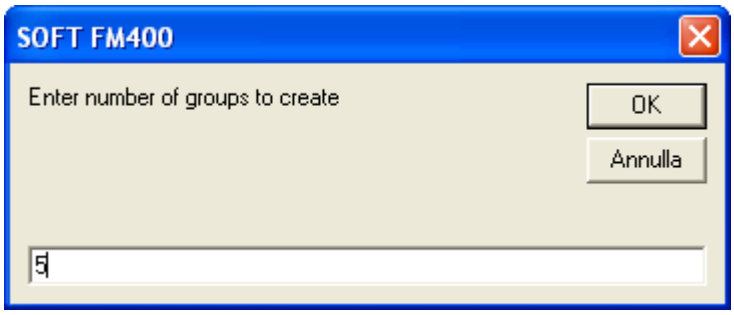
-in the user group management window, select the menu “User Groups”-> “Enter series of groups”



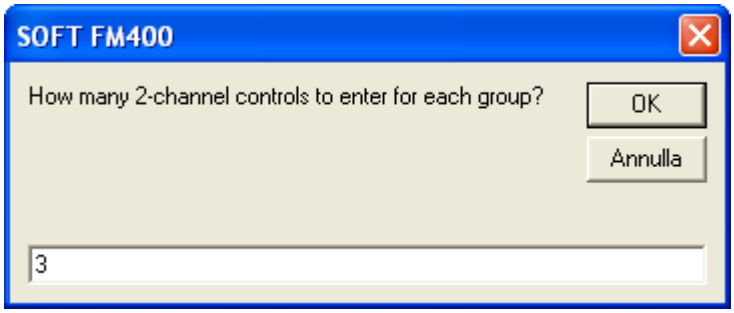

-the standard name is requested: enter “apartment” and press OK




-on request for the number of groups to be created, enter 5 (one group per apartment)

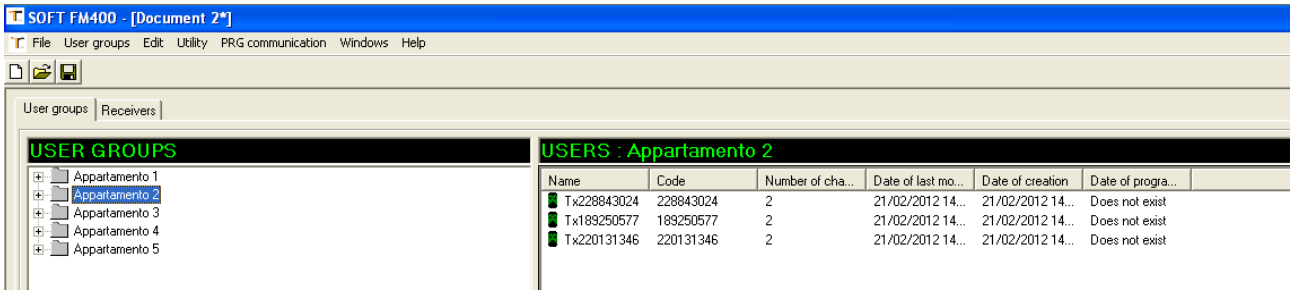



-the program then asks how many 2-channel TX are to be entered for each group, and supposing that there are approx. three people per apartment, enter 3, while on the request “how many 4-channel TX to enter?” leave the value 0.

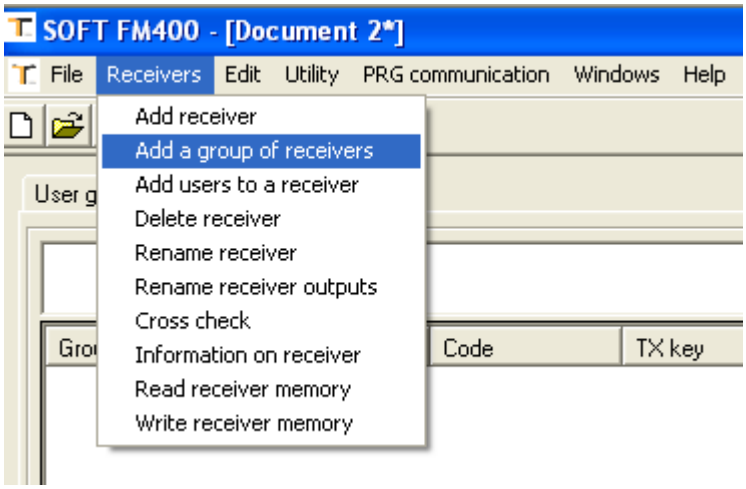



The program thus creates five groups with the names “apartment 1”, “apartment 2” etc.

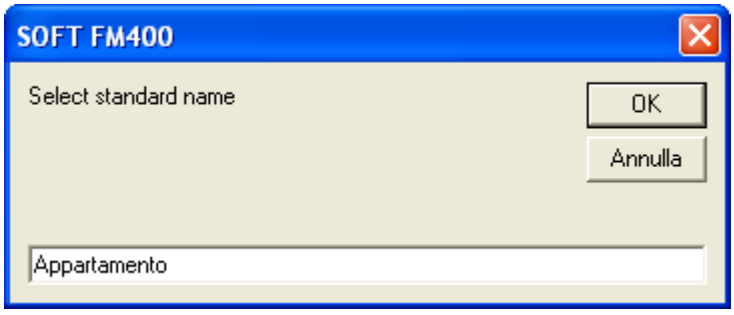
Within each group there are three 2-channel TX (all with random codes) one for each user.

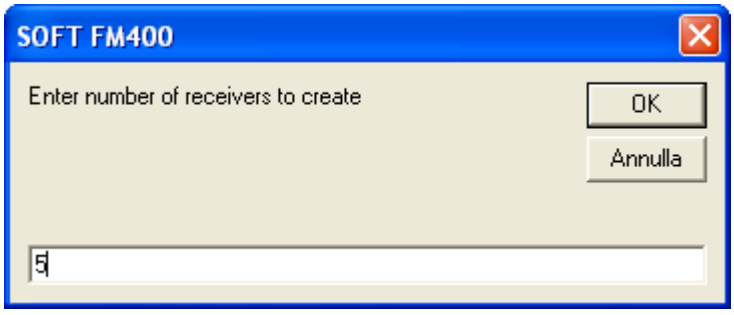



Now six receivers must be created to make up the system.
On the receiver control screen:
-select the menu “Receivers”->”add group of receivers”

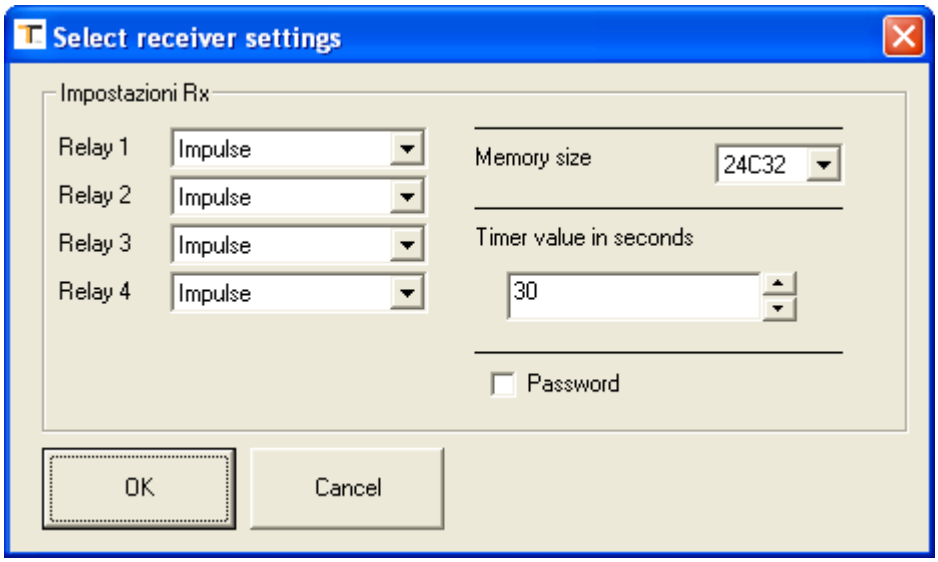



-the program requests the standard name and how many receivers are required
-enter “apartment” as the standard name and 5 for the number of receivers

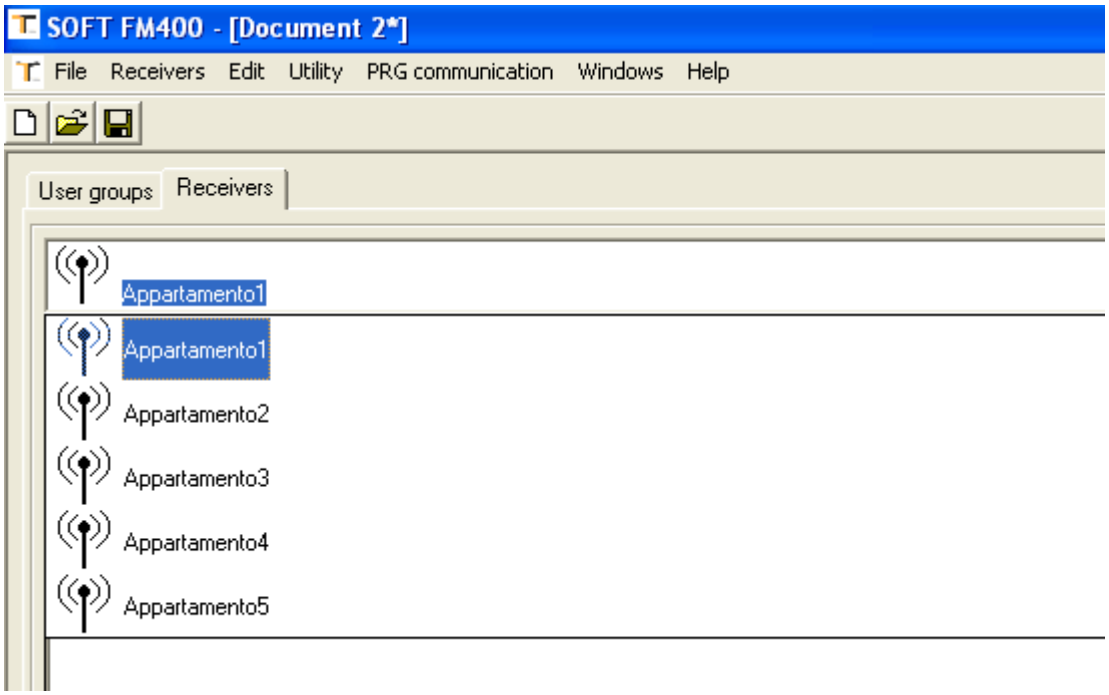


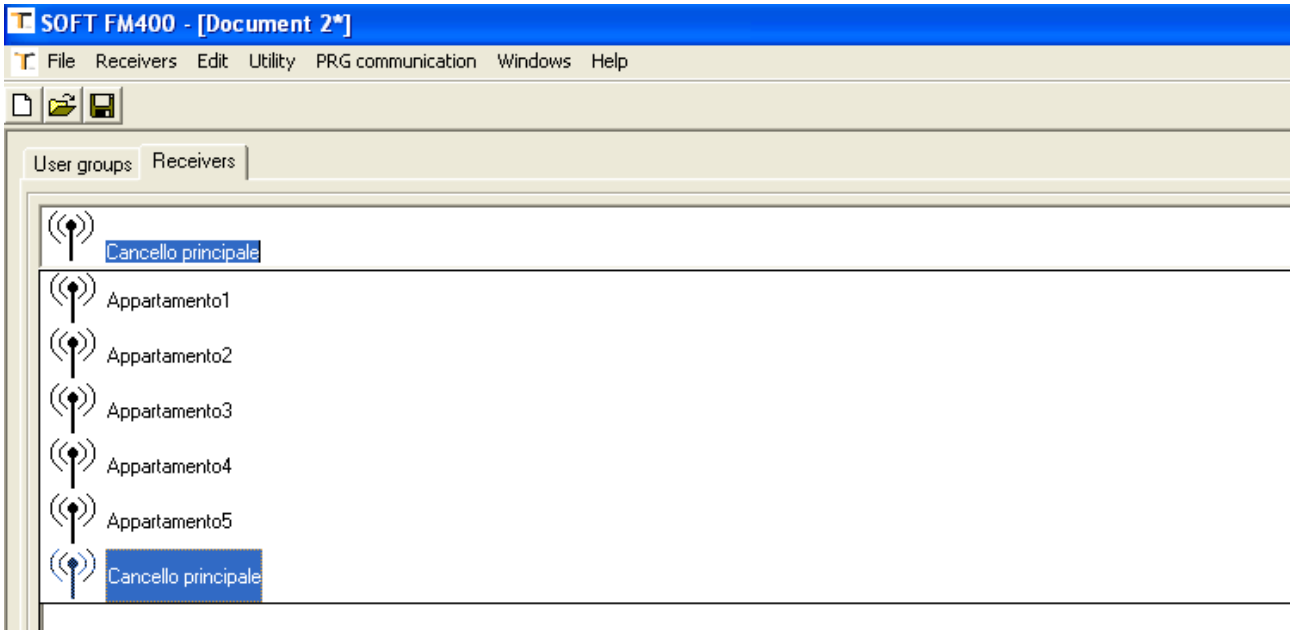
-confirm the data in the receiver parameter selection window: the default values are sufficient in this case.



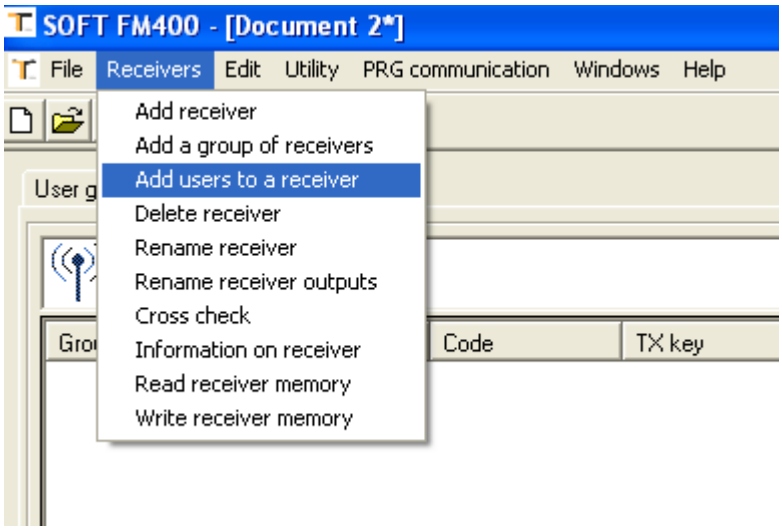

The program has thus entered five receivers in the plant as can be seen by clicking on the drop-down box with the names of these receivers.



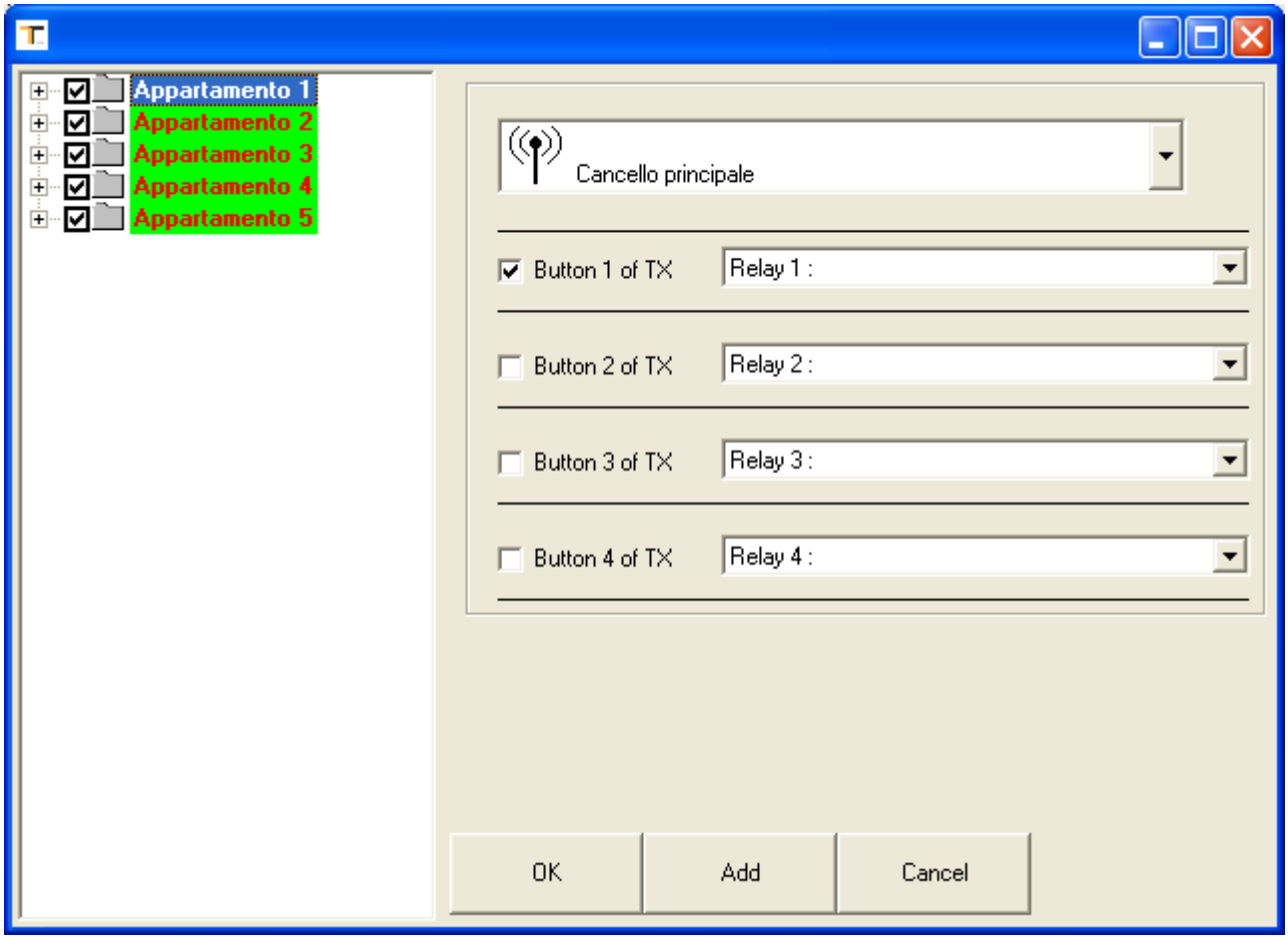

In the same menu “Receivers”->”add receiver” a receiver must be added with the name “main gate”.




The TX can then be entered on the various receivers as follows:
-access the menu “receivers”->”add users to a receiver” to display the window for TX entry on the receivers




-select all transmitters by checking the boxes of all groups, and enabling button 1 on relay 1 (checking the box next to the text Button 1) and select the main gate as the receiver (using the drop-down box with the arrow)

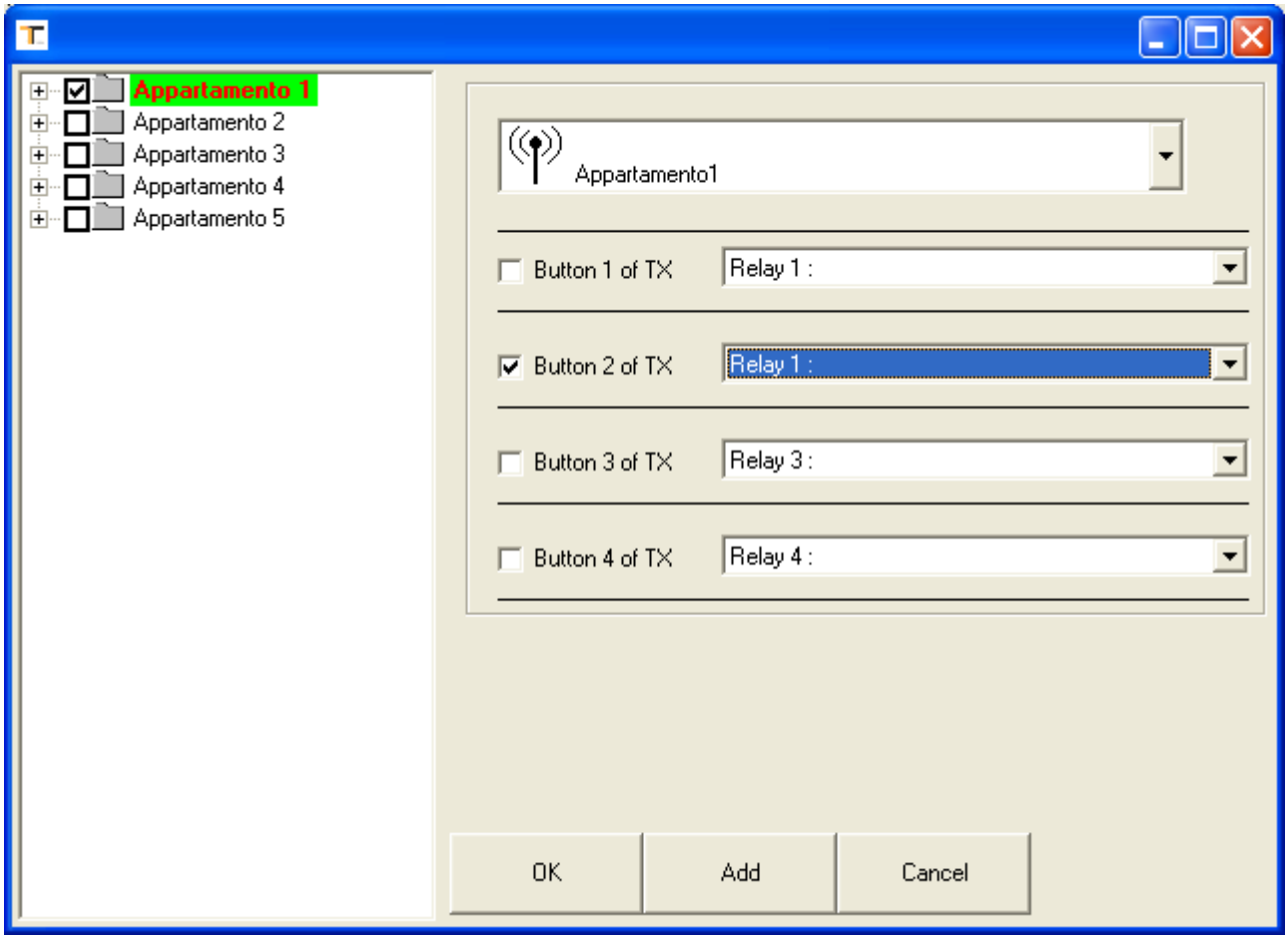



-press Add to enter all buttons 1 of all TX in the plant on the main gate.

In this way all users are then enabled for the main gate.
The program then displays the entry window again: now set the "private" receivers for each group, one by one (see figure on next page).

- this time only select the group “apartment 1” (check the group to select all TX in this group)
- select the receiver “apartment 1” in the drop-down box
- enable button 2 on relay 1 by checking button 2 and selecting relay 1 in the box alongside button 2 (relay 2 can also be used to open the garage, but this provides an example of how to combine various activation outputs)
- after pressing Add the users of apartment 1 are entered on the receiver of their garage.

The sequence should be repeated in the same way for each of the 5 groups, always enabling button 2 on relay 1.



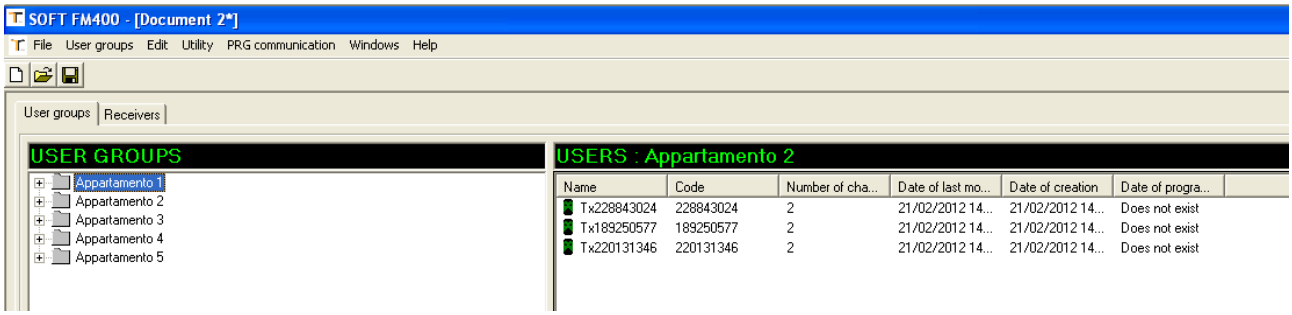

On completion of all entries, press OK.

This obtains 5 groups of 2-channel TX, on which button 1 opens the gate and button 2 opens the garage door.

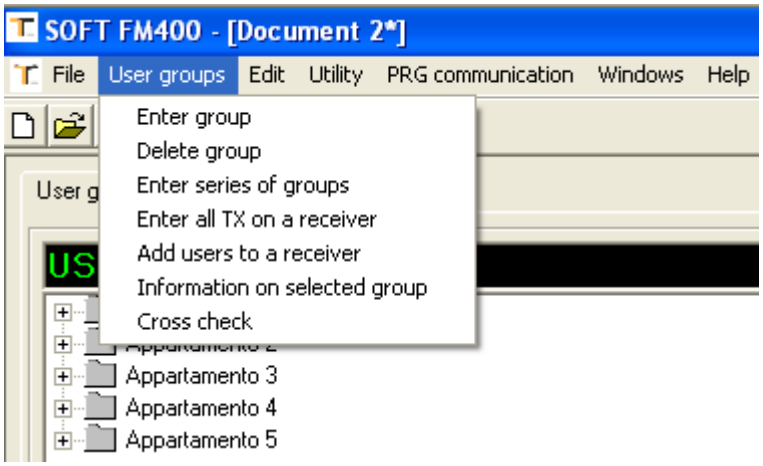
At this point the user can program the transmitters and receiver memories, with the commands envisaged in example 1.
To select which receiver to program, proceed as follows: in the receiver window use the drop-down box with the antenna symbol, which displays all users for each receiver in the list below.

# USER SECTION COMMANDS

This chapter provides an overview of all operations available to manage user groups.




## *"USER GROUPS" MENU COMMANDS*




### Enter group

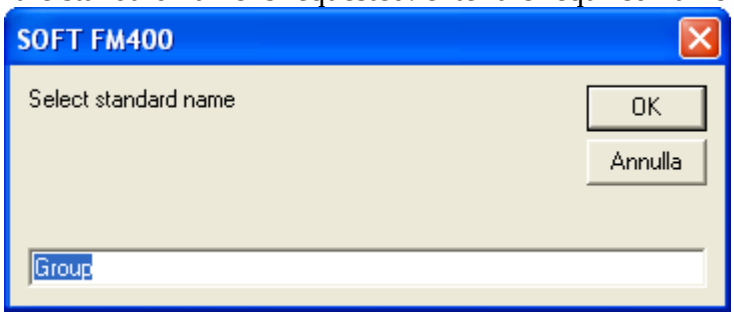
This command enters a new group in the plant. Never give the same name to two groups, and use exclusively numbers as the group name (e.g. the name of group "12" is not entered and the program displays the message "name not valid").

### Delete group

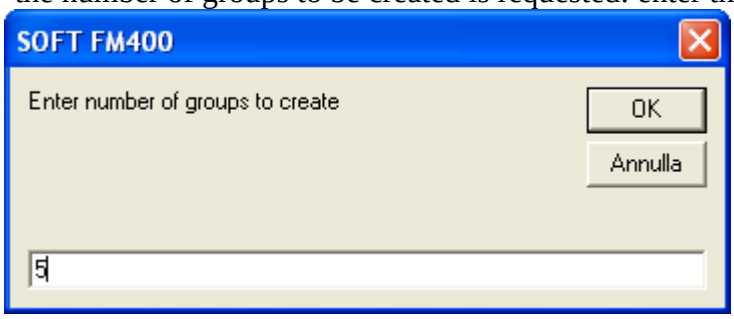
This command deletes the group currently highlighted in the box "USER GROUPS".

### Enter series of groups

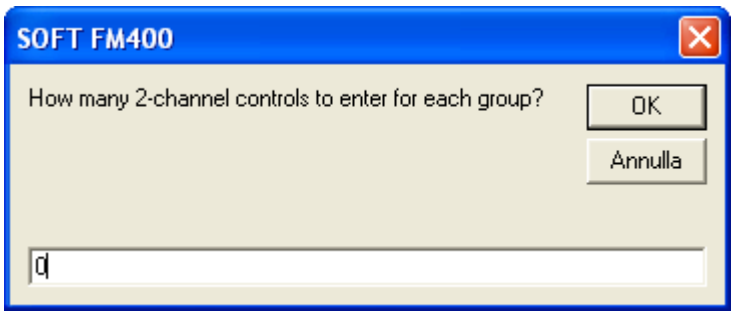
This command enables the user to create a set number of groups.
Sequence:
-the standard name is requested: enter the required name



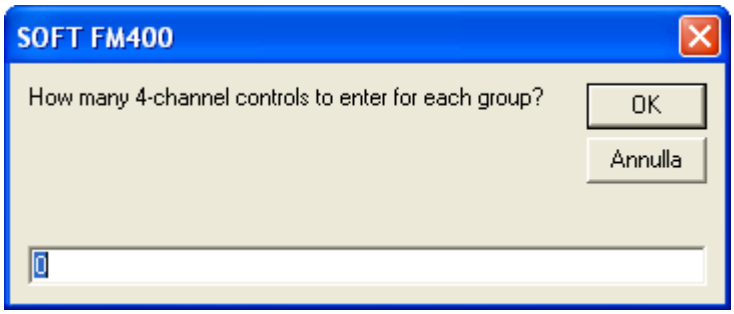
-the number of groups to be created is requested: enter the number




-the number of 2-channel TX to be entered is requested: if left at 0 the group will not contain any 2-channel transmitters




-the number of 4-channel TX to be entered is requested: if left at 0 the group will not contain any 4-channel transmitters



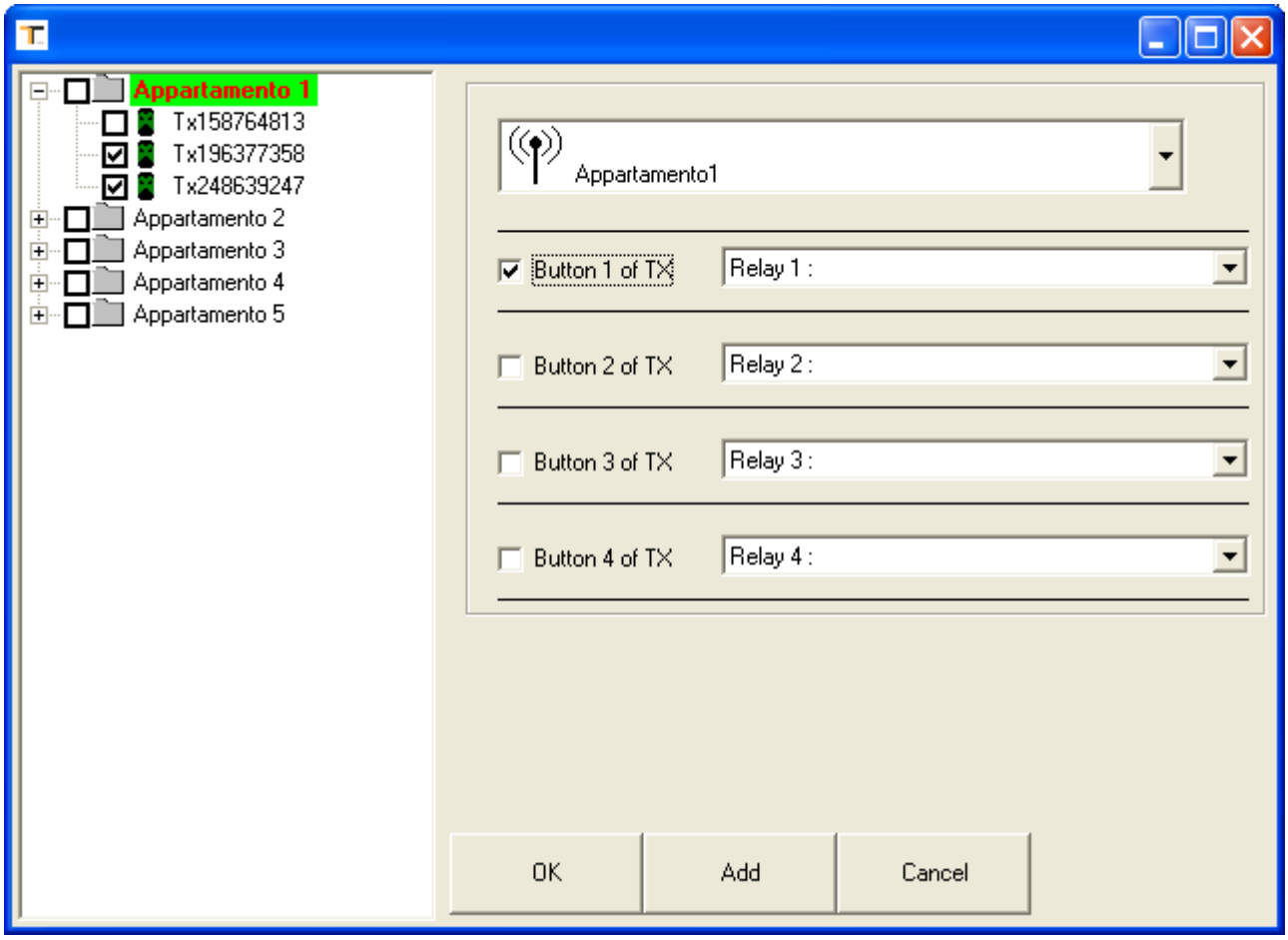

The codes of the entered TX are always generated in random mode

## Enter all TX on a receiver

This command opens the window for TX entry on a receiver, pre-selecting all TX in the plant.

## Add users to a receiver

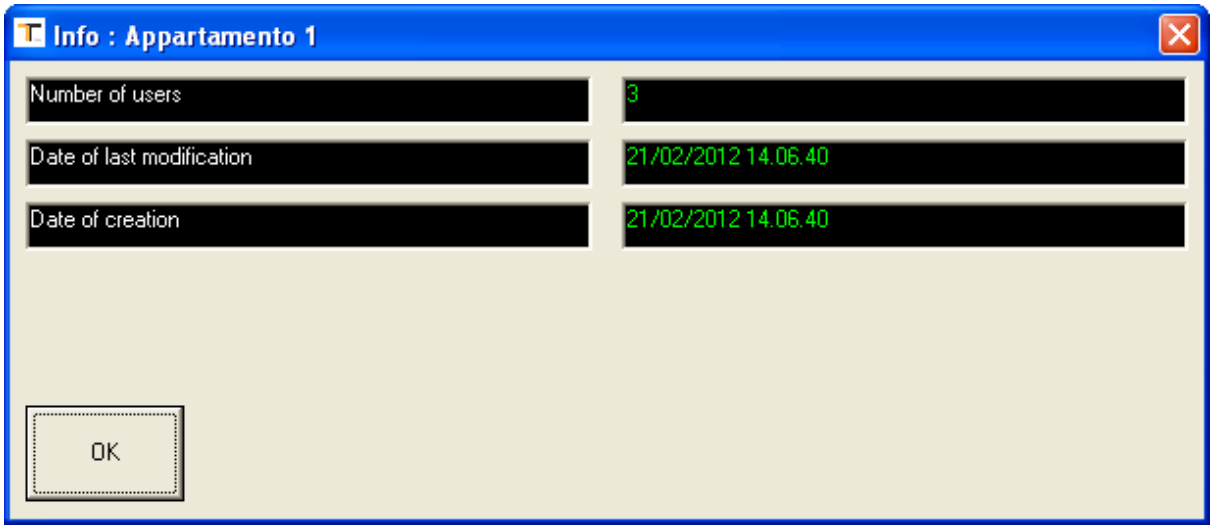
This opens the window for entering TX on a receiver.
Sequence:
-select the transmitters to be entered on a receiver
-select a receiver on which to make the entries, via the drop-down box
-select the buttons to be enabled by checking the relative boxes
-select which relays to be activated in association with each enabled button
-press OK (or Add) to enter the TX on the selected receiver




After pressing "Add" the program enters the TX and then returns to the entry window to enable further operations.

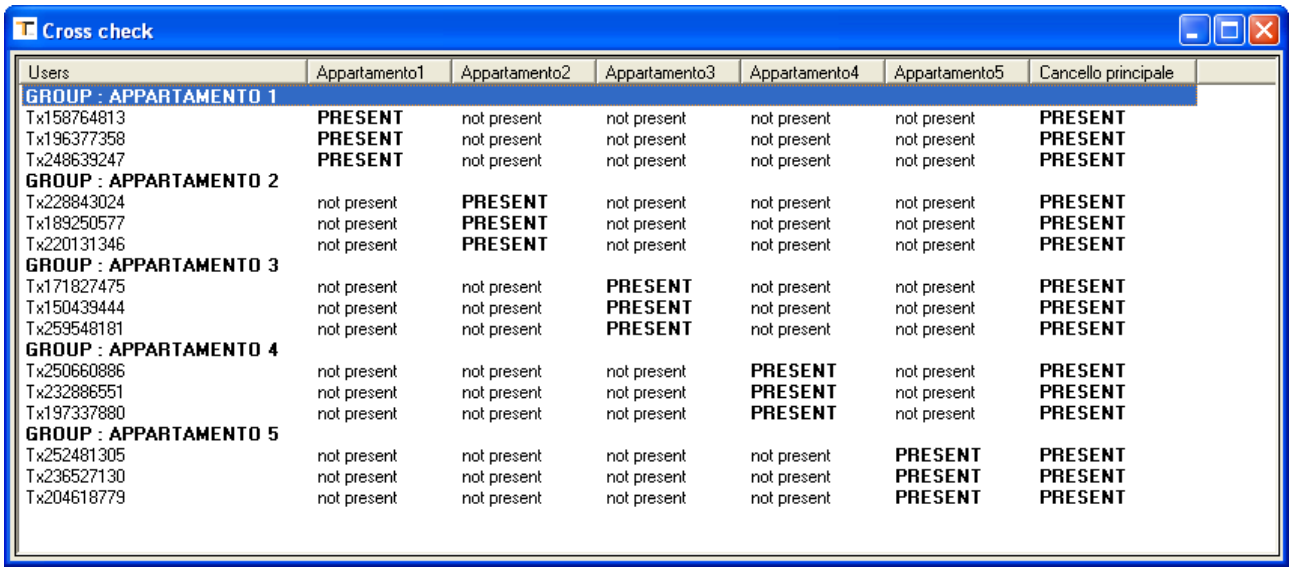
## Information on selected group

This displays an information window on the group selected in the box "USER GROUPS"
The information window contains:
-number of users in group
-date of last modification to group
-date of group creation



## Crosscheck

This opens a window displaying the correspondence of the various receivers and TX in the user groups, enabling the user to see which users are present on the various receivers.



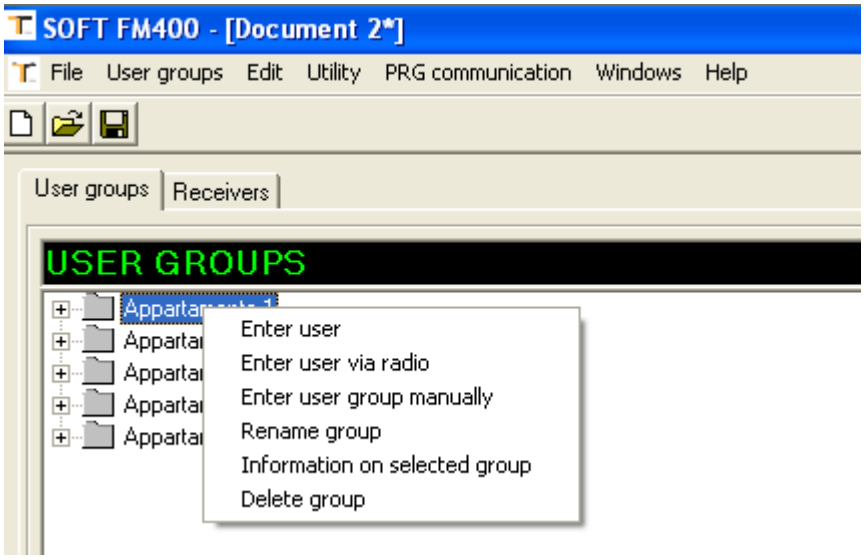

| Users | Appartamento1 | Appartamento2 | Appartamento3 | Appartamento4 | Appartamento5 | Cancello principale |
|---|---|---|---|---|---|---|
| **GROUP : APPARTAMENTO 1** | | | | | | |
| Tx158764813 | **PRESENT** | not present | not present | not present | not present | **PRESENT** |
| Tx196377358 | **PRESENT** | not present | not present | not present | not present | **PRESENT** |
| Tx248639247 | **PRESENT** | not present | not present | not present | not present | **PRESENT** |
| **GROUP : APPARTAMENTO 2** | | | | | | |
| Tx228843024 | not present | **PRESENT** | not present | not present | not present | **PRESENT** |
| Tx189250577 | not present | **PRESENT** | not present | not present | not present | **PRESENT** |
| Tx220131346 | not present | **PRESENT** | not present | not present | not present | **PRESENT** |
| **GROUP : APPARTAMENTO 3** | | | | | | |
| Tx171827475 | not present | not present | **PRESENT** | not present | not present | **PRESENT** |
| Tx150439444 | not present | not present | **PRESENT** | not present | not present | **PRESENT** |
| Tx259548181 | not present | not present | **PRESENT** | not present | not present | **PRESENT** |
| **GROUP : APPARTAMENTO 4** | | | | | | |
| Tx250660886 | not present | not present | not present | **PRESENT** | not present | **PRESENT** |
| Tx232886551 | not present | not present | not present | **PRESENT** | not present | **PRESENT** |
| Tx197337880 | not present | not present | not present | **PRESENT** | not present | **PRESENT** |
| **GROUP : APPARTAMENTO 5** | | | | | | |
| Tx252481305 | not present | not present | not present | not present | **PRESENT** | **PRESENT** |
| Tx236527130 | not present | not present | not present | not present | **PRESENT** | **PRESENT** |
| Tx204618779 | not present | not present | not present | not present | **PRESENT** | **PRESENT** |

## *RIGHT BUTTON COMMANDS*

A click with the right button on the various graphic elements in the user window displays a menu containing useful commands.

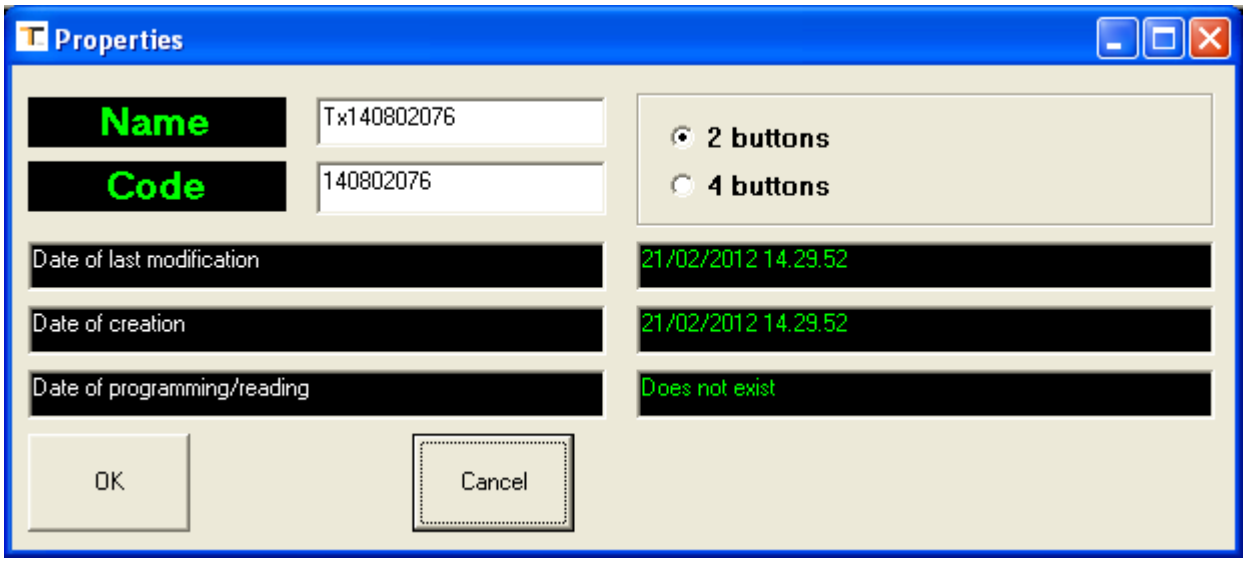
### RIGHT BUTTON MENU ON A GROUP FOLDER

A click with the right button on a group folder displays the following commands.




### Enter user

Opens a window for manual creation of a transmitter.

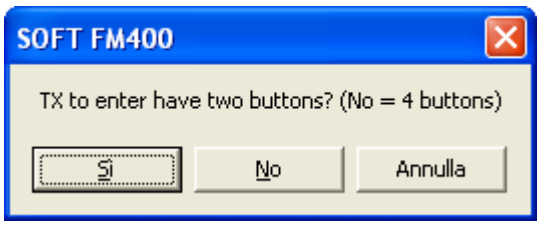



The window enables election of the name, code and number of buttons on the TX. When OK is pressed after entering all data of a TX, it is added to the group selected with the right button.

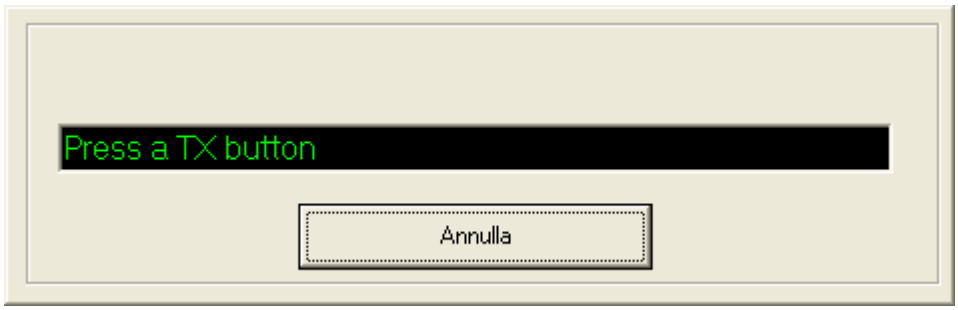
## Enter users via radio

To use this command, the programmer must be switched on and connected to the computer (for connection, see section SOFTWARE SOFT FM400).
Sequence:

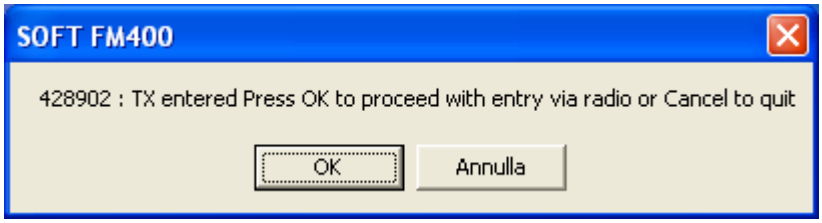
-run the command “enter users via radio”
-the software asks how many buttons there are on the TX to be entered




-when the message “press a TX button” is displayed, press any button on the transmitter

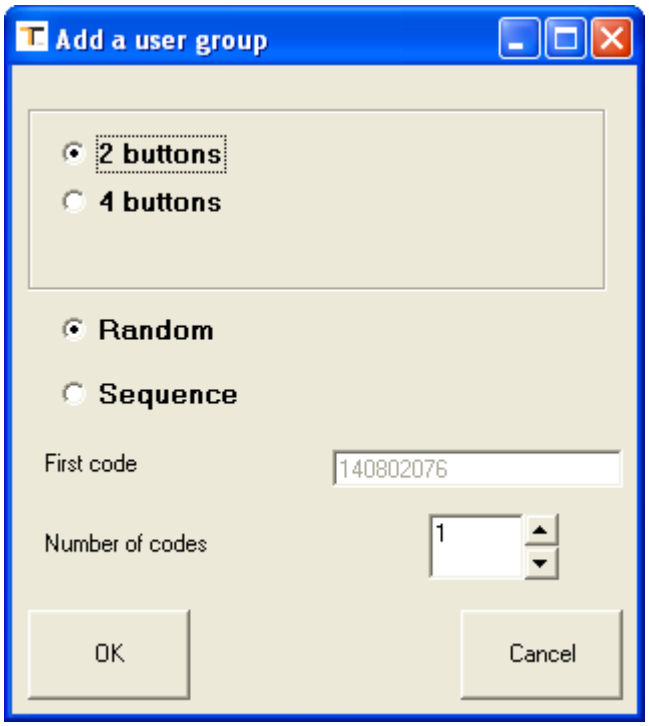



-the program then asks the user whether to enter other TX after entering the current TX



## Enter user group manually

This opens a window for manual entry of the TX in the selected group.




The user can decide how many TX to enter, if the codes are generated at random or in sequence from a set number selected by the user, and lastly how many TX buttons are to be enabled.

## Rename group

This command changes the name of the selected group.

## Information on selected group

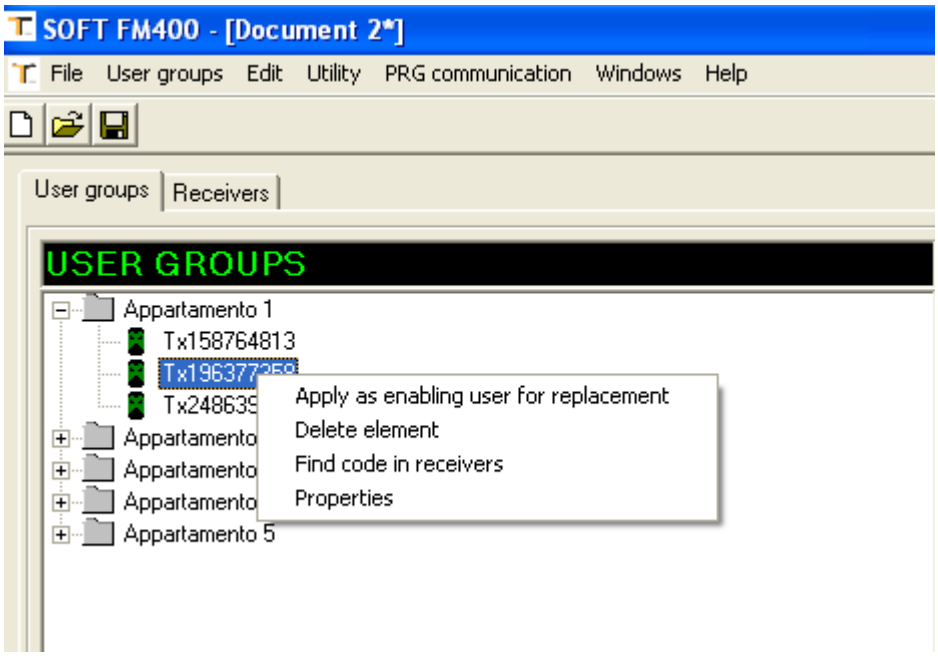
This displays an information window on the group selected in the box “USER GROUPS”
The information window contains:
-number of users in group
-date of last modification to group
-date of group creation
This is the same command as in Information on selected group in the menu “user groups”.

## Delete group

This command deletes the group.

## RIGHT BUTTON MENU ON A TX IN THE USER GROUP FOLDER

A click with the right button over a user in an open folder displays the following commands.



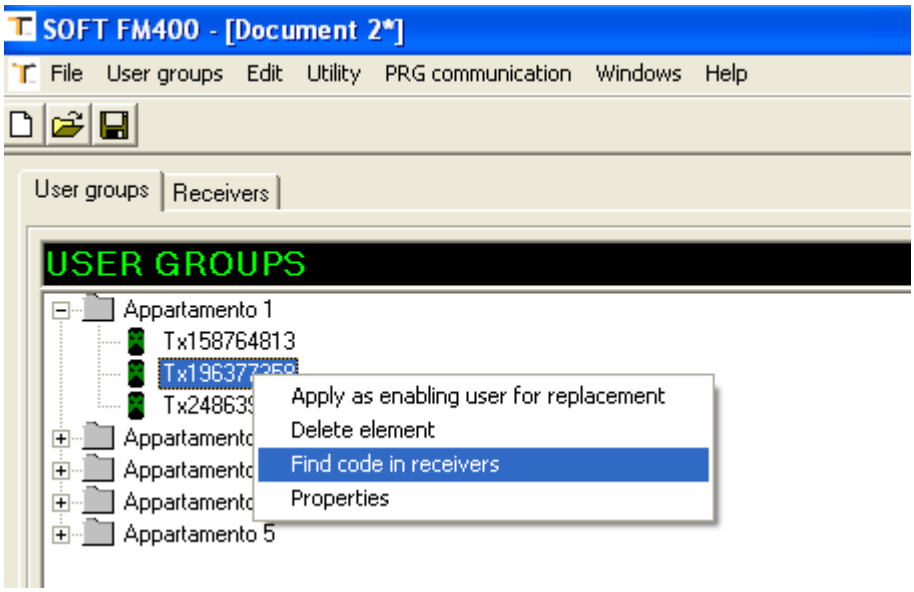

### Apply as enabling user for replacement

This command serves to enable a new TX **not present** in the plant, to replace a TX selected as the enabling user (i.e. the TX selected with the right button click).
After programming the TX the final user can perform replacement on site via radio, by pressing the relative secrecy button and the buttons to be replaced on the new TX (see chapter ENTRY AND REPLACEMENTS VIA RADIO).
On selection of this command the software requests insertion of the connector on the new TX to program it for replacement; after pressing OK the software performs programming and notifies the user in the event of an error.
If programming is successful, the software automatically replaces all activated functions of the deleted TX on the various receivers, and displays a message with the names of the receivers that have been updated.
The family setting of the new TX is adapted to that of the plant.

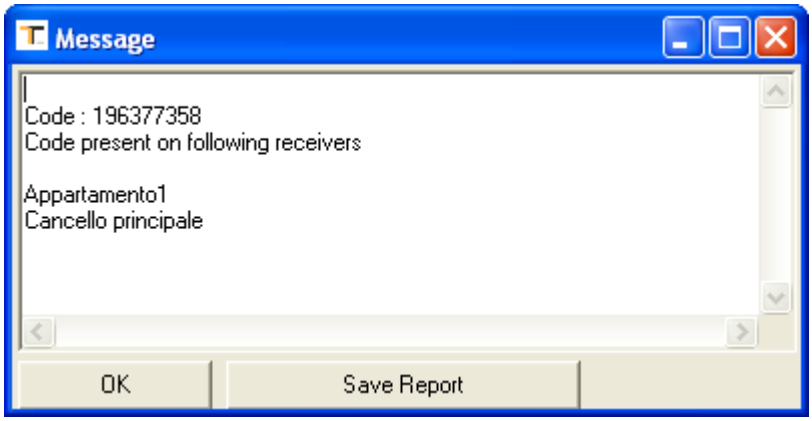
### Delete element

Deletes a user from the group

## Find code in receivers



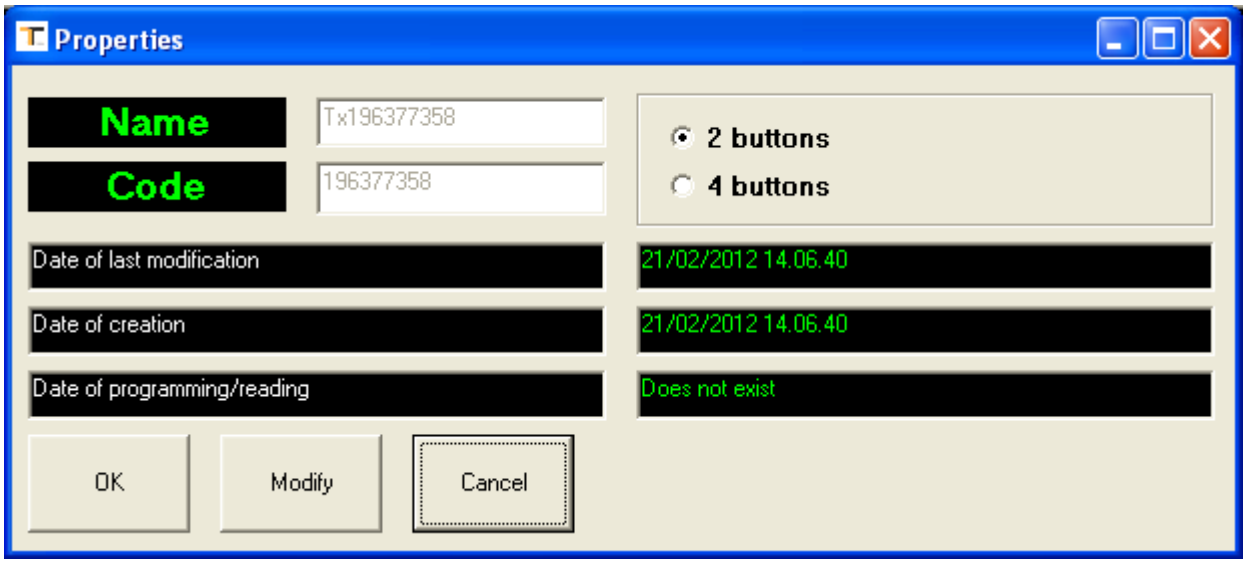

This command displays a window indicating in which receivers the selected user has been entered




The button “Save Report” enables the user the save the message in text format.

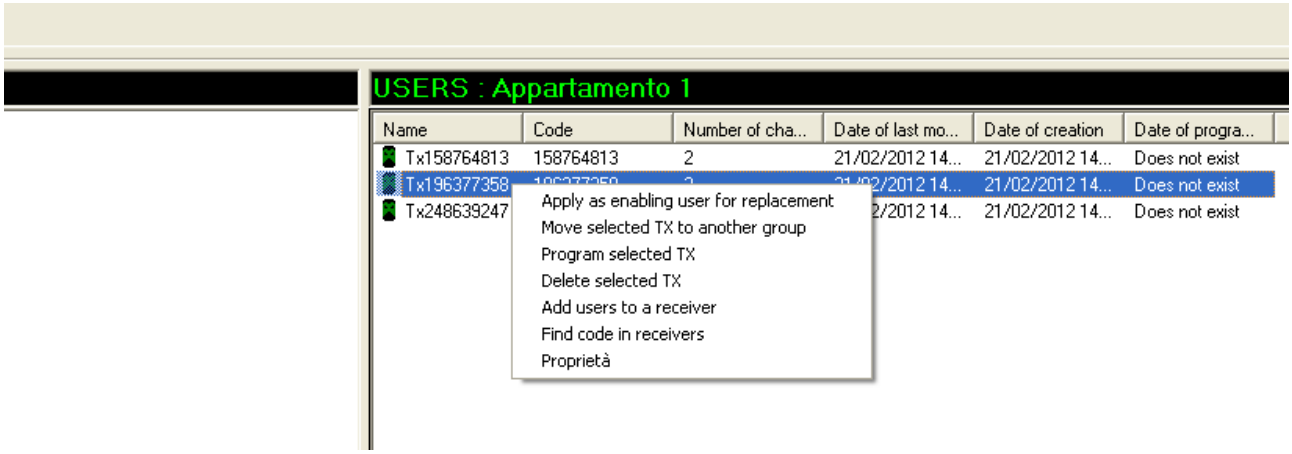
## Properties

This displays a window summarising the properties of the transmitter. Modifications are also possible by pressing the button "Modify" to change parameters as required.
If the TX has already been programmed or entered via radio, any modification to the "code" parameters or number of buttons will return the TX to the status "does not exist", deleting the date of last programming/reading.



## RIGHT BUTTON MENU ON ELEMENTS SELECTED IN THE "USERS" LIST

A right click with the button in the “USERS” list over selected elements enables the user to perform operations on all selected TX.

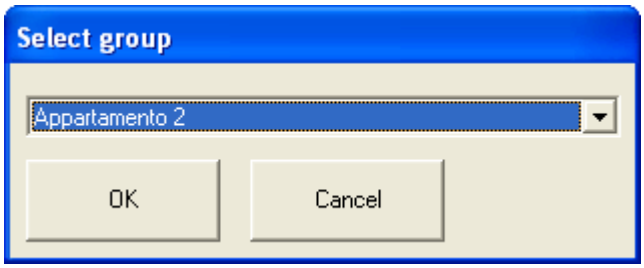



### Apply as enabling user for replacement

This command is the same as that in chapter Apply as enabling user for replacement explained above.
It acts on one TX at a time.

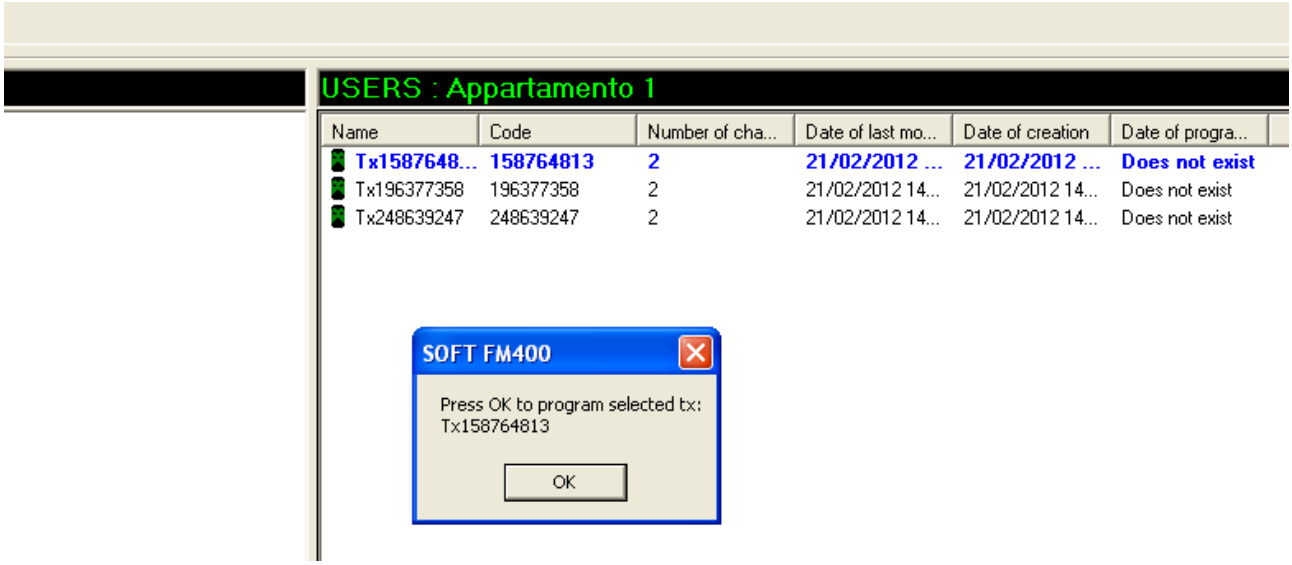
### Move selected TX to another group

All selected TX are moved to another user group; the destination group is selected from a drop-down box displayed after selecting this command.




### Program selected TX

This command programs all selected TX: on each programming session, the software requests the user to press OK to enable the user to insert the pin connector in the TX. If programming is successful, the software goes to the next TX to be programmed; otherwise a message is displayed prompting the user to retry or exit the procedure.
At the end of the programming session, if all tasks are successful, the programming complete message is displayed.




## Delete selected TX

This command enables the user to delete all TX selected from the group.
After selecting this command, the software asks the user whether to also delete the TX from all receivers.

## Find code in receivers

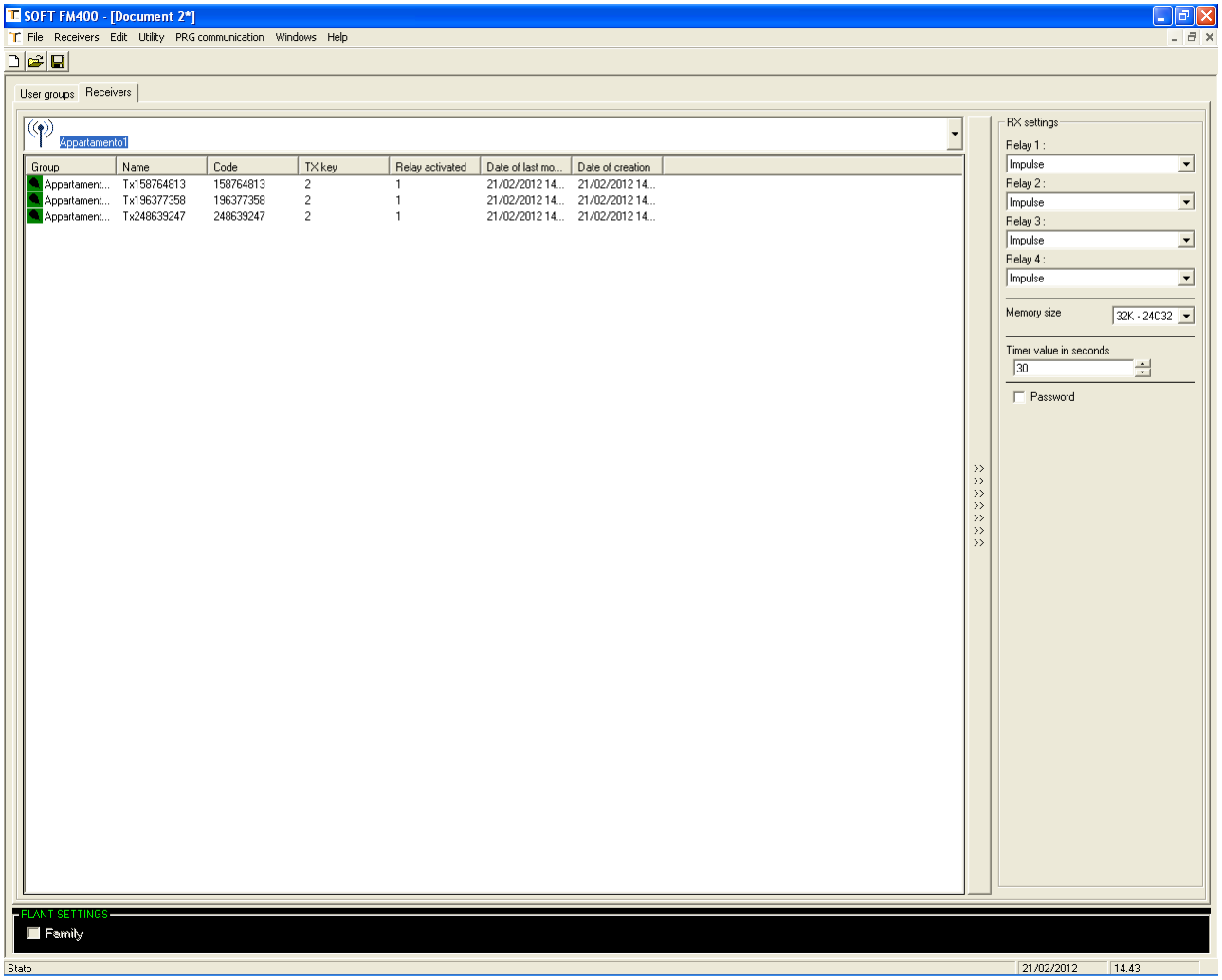
See above section Find code in receivers in the menu displayed after right clicking “USER GROUPS”.

## Add users to a receiver

This command displays a window to add a receiver, pre-selecting the TX selected in the list. The procedure continues in the same way as standard entries on a receiver (see also Add users to a receiver ).

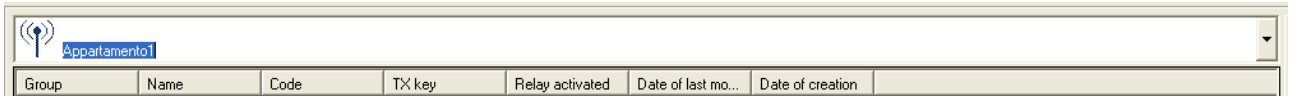
# DISPLAY LAYOUT IN RECEIVERS SECTION

The following elements are found in the receivers section:
-a drop-down box to select which receiver properties and codes (i.e. activation outputs) to display
-a view of the receiver settings (type of activation outputs, memory size, timer value and password setting)
-a list of activation outputs currently on the receiver



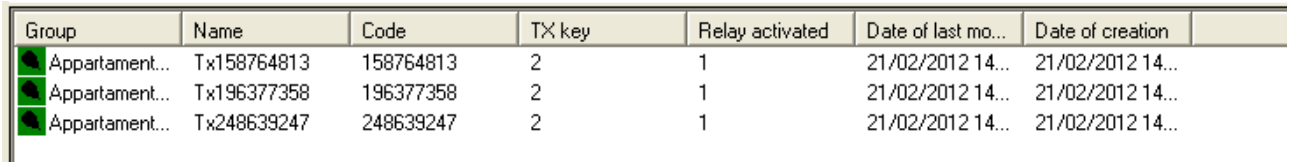

The various elements are dealt with in detail below.

## *Drop-down box*




Each receiver entered in the plant is displayed in the drop-down box. If the selected item is changed, then the list of activation functions and settings view are synchronized with the selected element.

## *List of activation outputs*

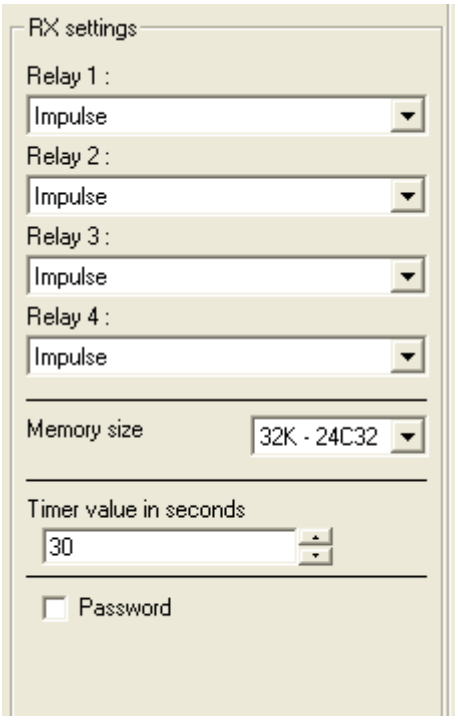


| Group | Name | Code | TX key | Relay activated | Date of last mo... | Date of creation |
|---|---|---|---|---|---|---|
| Appartament... | Tx158764813 | 158764813 | 2 | 1 | 21/02/2012 14... | 21/02/2012 14... |
| Appartament... | Tx196377358 | 196377358 | 2 | 1 | 21/02/2012 14... | 21/02/2012 14... |
| Appartament... | Tx248639247 | 248639247 | 2 | 1 | 21/02/2012 14... | 21/02/2012 14... |

This displays all activation outputs on the selected receiver. For each activation output, the associated user group, TX name, TX code, TX activation button and activated relay are displayed, plus the date of last modification and creation (these refer to the creation and modification of the actual activation output and not the creation and modification of the activating transmitter).

## *RX settings*

This displays the properties of the receiver.




### Type of output

Each relay can be activated in impulse, step or timed mode.
-In impulse mode the relay remains energised until it receives a valid radio signal, after which it turns off.
-In step mode, the relay changes status on each reception.
-In timed mode, the relay is energised on reception and remains in this status for the set time (the factory setting is 30 seconds, which can be modified by changing the “timer value” in the settings described in this section). During the relay energisation interval, if the receiver detects another valid signal, the timer count restarts from zero.
A name can be given to the various receiver outputs.

### Memory size

The user can select a memory type of 24C32 or 24C64. The first can store up to 500 activation outputs, the second up to 1012 activation outputs.

### Timer Value

This parameter controls the relay energisation time interval when operation is set to timed mode. It can only be changed via the software (the PRG does not have a command to manage the timer value).

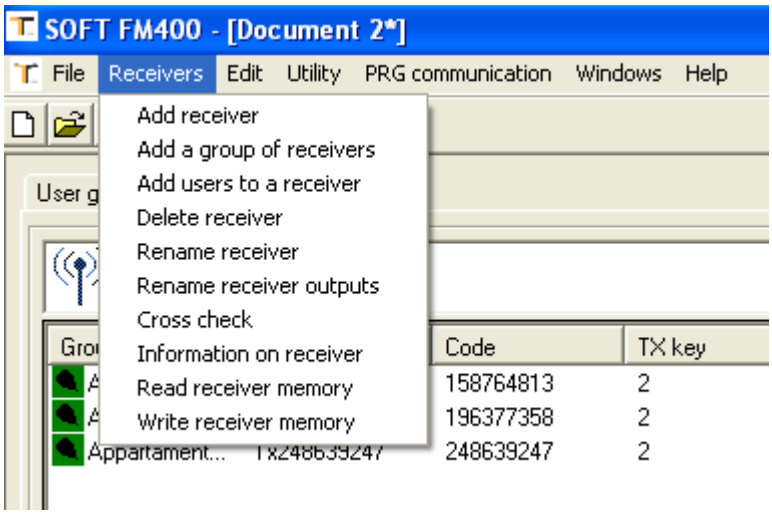
### Password

When the box is checked, the password is entered in the memory. A receiver locked with a password does not respond to on-board button commands.

# RECEIVER SECTION COMMANDS

In the receivers section, a series of commands are available to enable management of memories.

## *RECEIVER MENU COMMANDS*




### Add a receiver

The program requests the name of the new receiver and then creates it and enters it in the drop-down box.

### Add a group of receivers

As in the case of adding a series of user groups, the program requests the standard name and then the number of receivers to be created. After entering the data, a window is displayed to enable selection of the settings of all receivers to be entered on the plant.

### Add users to a receiver

Command identical to that in the "user groups" menu. See Add users to a receiver.

### Delete receiver

Deletes the receiver currently displayed in the drop-down box from the plant.

### Rename receiver

Enables the user to change the name of the receiver currently displayed in the drop-down box.

### Rename receiver outputs

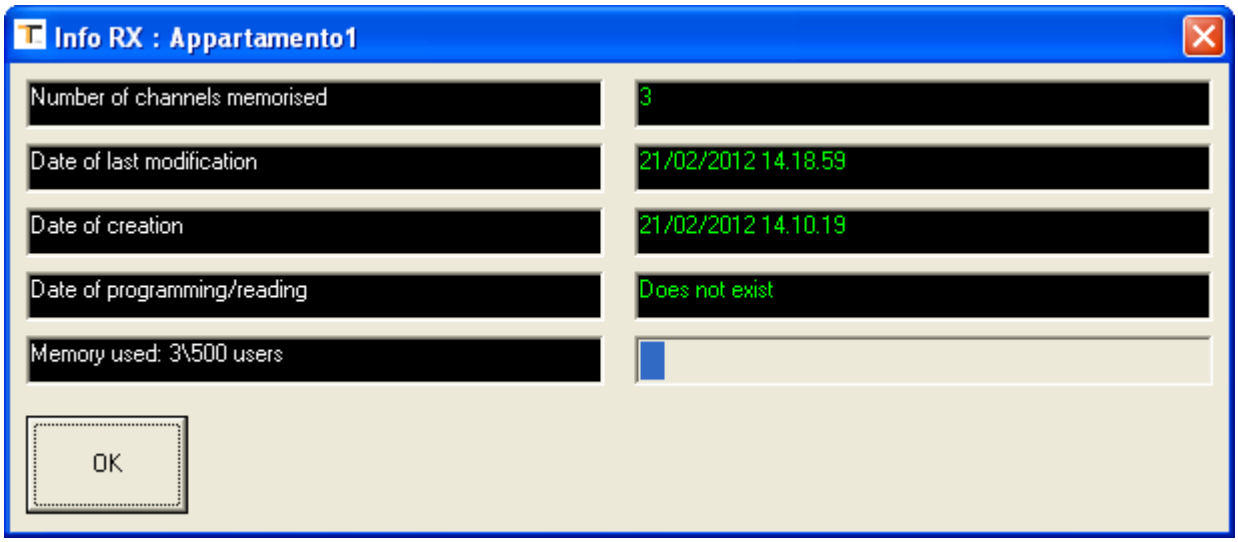
Assigns a name to the receiver outputs

### Cross check

Command identical to that in the "user groups" menu. See Cross check in the “user groups” menu.

### Information on receiver

Displays a window of information on the receiver currently displayed in the drop-down box: number of activation outputs present, date of last RX modification, date of RX creation, and date of last programming/reading (when the memory was last written or the last time it was read).



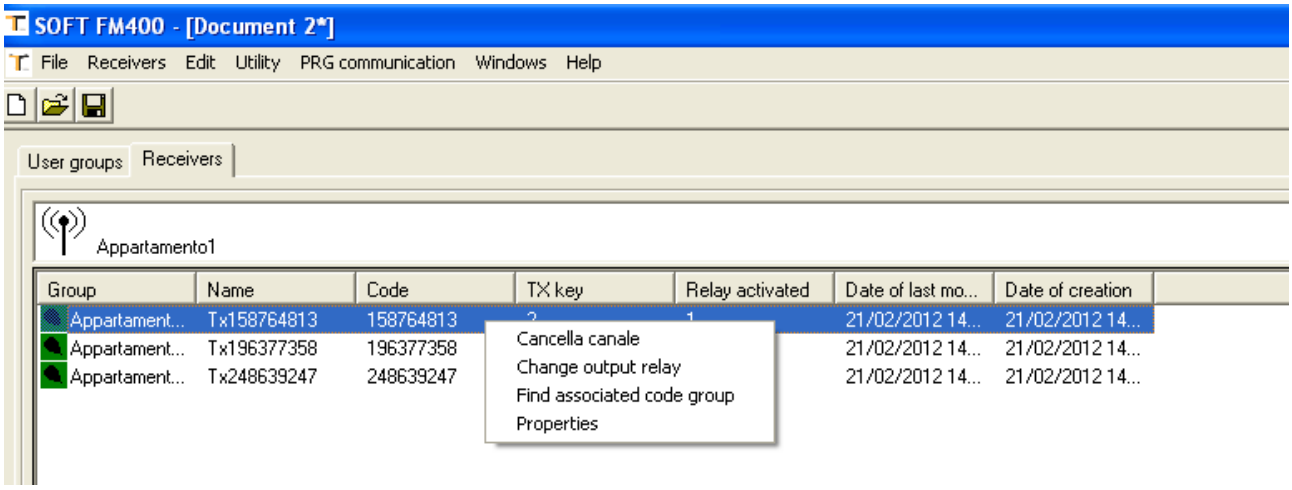

### Read receiver memory

For this command, the PRG must be switched on and connected to the computer.
This command enables the user to read the memory inserted in the programmer socket.
The program asks the user whether to overwrite the receiver currently displayed in the drop-down box, or to create a new receiver to add to the plant.

### Write receiver memory

For this command, the PRG must be switched on and connected to the computer.
This command enables the receiver contents to be written onto the memory.
The memory must be positioned on the slave socket of the PRG.

## *RIGHT BUTTON COMMANDS IN THE ACTIVATION OUTPUTS LIST*



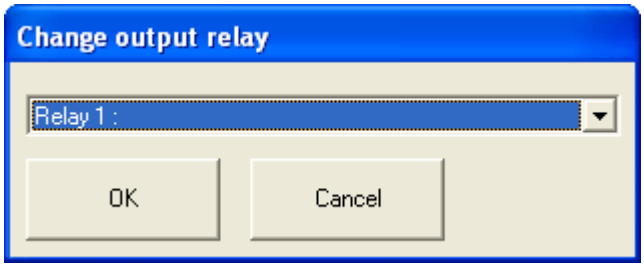

A click with the right mouse button on the items selected in the activation outputs list enables use of the following commands.

### Delete channel

This command deletes all selected activation outputs (the activation outputs are also called **channels** by the software).

### Change output relay

This channel enables modifications to the output relay of all selected elements.




### Find associated code group

This command specifies which group is associated with the code and also enables automatic tracking in the user overview.


When "Yes" is pressed, all users with the highlighted TX are displayed.

## Properties

This command displays the properties of an activation output: name of transmitter, code, enabled TX button and activated relay. It is possible to modify the latter manually by pressing the Modify button.

# ENTRY AND REPLACEMENTS VIA RADIO

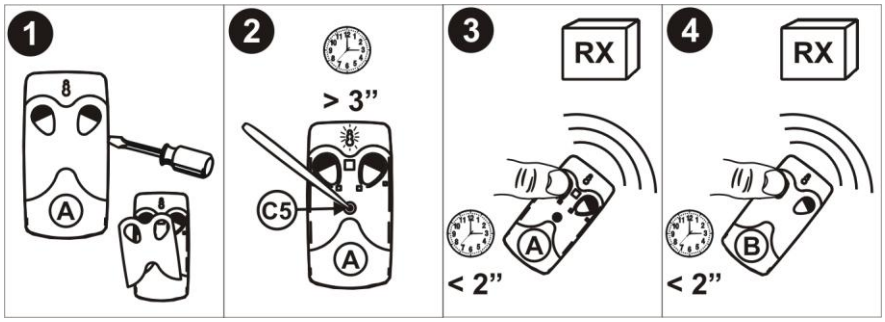
The FM400 system supports entry and replacement of codes on the receiver via radio.
Each FM400 TX is factory set to act as an enabling user in the procedure for entry via radio.
On the other hand, to replace a transmitter, programming is required via the software and PRG.

## *PROCEDURE FOR ENTRY VIA RADIO*

Assuming a FM400 system has been set up with a receiver and series of transmitters, the user now wishes to add a new transmitter to the plant.

The new transmitter to be entered must have the same family setting as the plant (this can be the factory setting or that of the programmer, depending on the selection by the user when setting up the plant).

To enter the new transmitter, one of the TX already active on the plant must be used.
The enabling transmitter already present will be called TX A, and the new transmitter will be called TX B.
Entry procedure:
-press the secrecy button (fifth button) for at least three seconds on TX A: the receiver enters the mode for operation via radio
-within a few seconds, press the **button enabled for relay activation** on TX A
-within a few seconds, press the same button on TX B
The receiver has now entered the new transmitter: **if more than one activation output is present on the receiver, the procedure for entering all TX buttons concerned must be repeated for each one.**




This procedure does not require any programming of the TX concerned (unless the family needs to be entered on the TX B to adapt it to the receiver settings when the plant has been created with the programmer family).

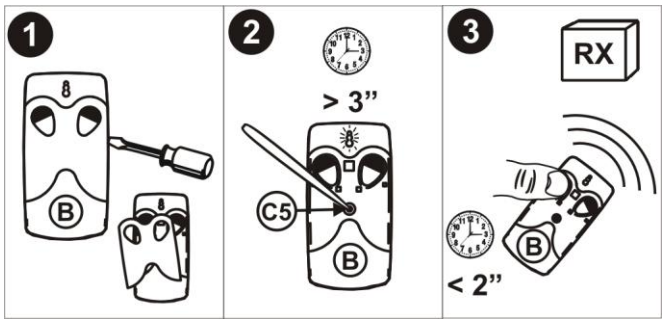
## *PROCEDURE FOR REPLACEMENT VIA RADIO*

This example deals with the case of replacing a TX on a system when it has been lost.
This can only be done if the plant has been created with the software, as programming for replacement can only be performed via the software, using the enabling code of one of the memorised TX in a user group.
The transmitter in the plant will be called TX A and the replacement version will be TX B.

The procedure is as follows:

-the programmer is connected to the computer
-in the user group window click with the right mouse button on the user TX A
-select the menu Apply as enabling user for replacement
-the program requests confirmation to proceed, requesting insertion of the connector in TX B
-after confirmation, TX B is programmed for replacement

The procedure to be followed by the user in the vicinity of the plant, in order to effectively replace TX A in the actual receiver is as follows:
-press the fifth button of TX B for at least three seconds
-within two seconds, press the button of TXB which on TX A activated the relay
-if there are several transmitter A buttons entered (also on various receivers) repeat the procedure for each button of transmitter B




After completing the procedure TX B will have replaced TX A in the receiver memory, with deletion of the latter.

**Caution: after a TX has been programmed to perform “replacement via radio” it cannot be used as “TX A” to complete the procedure “entry via radio” described in the above paragraph.**

# DOUBLE CODE CHECK

The software first checks that there are no transmitters with the same code in the plant, as mentioned (see section TRANSMITTER (TX)) **the FM400 system always operates in rolling code mode and the use of two transmitters with the same code is never possible.**

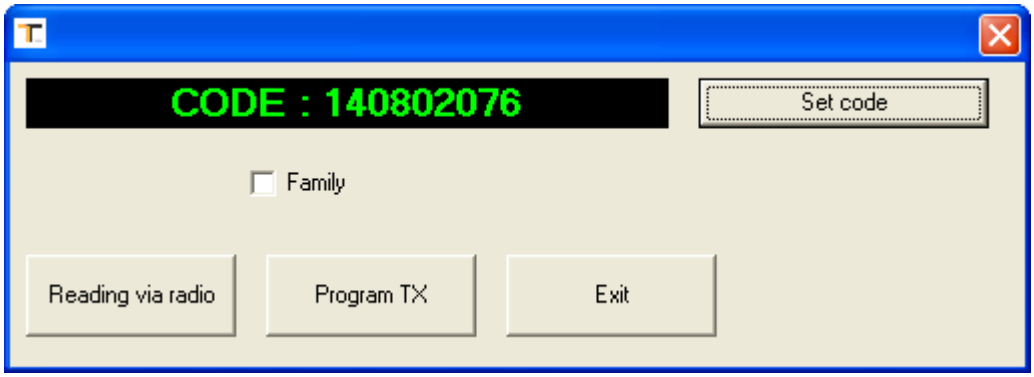
If the user attempts to enter a user with a code already present in the plant, the software refuses entry and notifies the user that the code already exists.

By selecting the menu “Utility”->”Double check settings” the user can select two code check options: the first (single plant check) is the default option and does not enable entry of the same code twice on a single plant; the second (check all plants) **checks the code on all plants (on selection of this option, a previously entered code cannot be used)**.

The code check on all plants slightly slows down the operations of screen opening and closing in a plant.

# READING AND PROGRAMMING UNIT

On selection of the menu “Utility”->”Reading and programming unit” a transmitter reading and programming window is displayed.




With the programmer connected to the PC, press the reading button to read a transmitter via radio. The “Family” box confirms reading if the TX has the default family settings (the check box left blank) or if the transmitter has the programmer family setting (check box ticked) while the code of the detected TX will be displayed in the text alongside the button “Set code”.

To program the transmitter, the button “Program TX” can be used: the code displayed is entered on the TX while the programmer family is entered or not depending on the user settings in the check box.

# SAVING PLANT DATA

To save the plant configuration, use the menus “File”->“Save” and “File”->“Save as”.
This is used in the same way as all saving menus in standard Windows applications **but it is not possible to save any plant outside the directory “AllPlants”.**
If required, the plant can be saved in a sub-folder of “AllPlants”, but it must always remain within this directory.

**There are two good reasons for compulsory saving within one folder:**

- **to make a backup copy of your plant file (*.pln) the directory “AllPlants” can be copied as a whole to ensure all data are duplicated**
- the **program can perform code checks on all created plants (see section DOUBLE CODE CHECK)**

## *MAKING A BACKUP COPY OF PLANTS AND RESTORING COPIES*

The above-mentioned directory “AllPlants” is stored in the folder containing the executive file of the program, i.e. the file “SOFT FM400.exe”.
By copying “AllPlants” to a CD, this means that a copy of all plants is made.

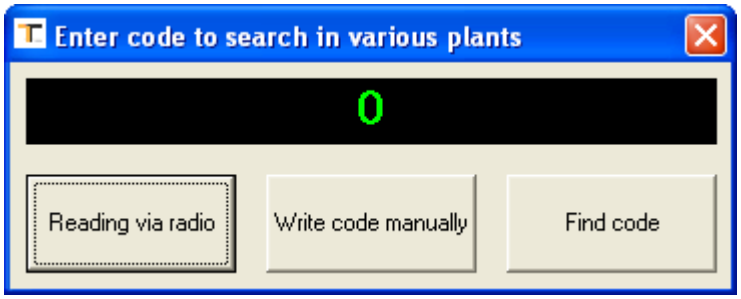
To restore the backup copy, take the saved “AllPlants” folder and copy it into the directory containing the file “SOFT FM400.exe”.
It is also worth noting that the file “RndCode.cdd” in the directory containing the executive file also takes into account the random codes already generated by the program: it is good practice to save this file after working with the program.

# RESTORE TRANSMITTER COMMAND

It may occur during programming of a TX with the pin connector that programming errors occur due to false contact of the TX, leading to failure by the PRG and software to recognise the transmitter.
**This is a very rare occurrence**: if the connector is handled correctly, there should be no problems of this kind. During programming, if the software asks to insert the connector correctly, simply ensure that the pins are aligned correctly with the transmitter.
However, if a programming error occurs, the same command can be used in **"Utility"->"Restore Transmitter"**.
This command prompts the user to position the pins in the damaged transmitter; do this and confirm, then wait a few seconds for the TX to be restored.
The restore procedure always sets the transmitter with the following parameters; code 1 and family off.

# FIND CODES

To search for a code in all plants, use the menu **"Utility"->"Find code".**
When the window is displayed, press the button "reading via radio" (in this case the PRG must be connected) or press "write code manually" as required.




After entering the code, it appears in the box above the buttons: press the button "find code" to start the search for the code in all plants.

The plants containing the code will be opened (if not already) and the code will be highlighted on display.

After the search process a message is displayed listing all plants where the code has been found.