DESCRIPTION OF
"DIGIBUS CONTROLLER"
SWITCHBOARD PROGRAM
(Art.94CD)

GENERAL DESCRIPTION:

"*DIGIBUS CONTROLLER*" software allows a PC (equipped with a suitable interface) to be used as a switchboard for ELVOX "Digibus System" installations.

With this system connected in a "Digibus" installation all the main operations available with a normal switchboard are possible, plus a series of functions optimised thanks to the processing capabilities of the PC.

The main functions available using the switchboard program are:

1) Direct and conference call to any number from the keypad in the centre of the screen.

2) Facility to create a database of users (telephone directory) with number, name, surname, building and other personal data. Facility to call any user direct from database.

3) Facility for database sorting and searching (by surname, number, building).

4) When a number is dialed on the keypad, the display simultaneously shows the name of the corresponding person. When a call is received it is simultaneously linked to the corresponding name from the database.

5) Facility to record each operation (call, activation, etc.) executed from and towards the switchboard. The data are displayed in a dedicated window and simultaneously saved to files (daily or monthly) that can be stored and analysed at any time.

6) Storage of calls and service requests in a dedicated buffer memory. Audible/optical alerts active until all calls have been processed.

7) Possibility of activating locks and auxiliary functions (F1, F2) on the entire installation.

8) Facility to test each connected interphone (without disturbing the user) and check that it is functioning correctly.

9) Facility to save an interactive map of the installation. Facility to access and call users in all buildings directly from the map in graphic mode using exclusively the mouse. Used also to retrieve descriptive text concerning each building on the map.

10) System completely configurable, including ringing tones, record modes, and items to be recorded. Facility to program operating modes of pending calls memory (i.e. calls to be served by calling back the user or cancelling individual calls).

STARTING SCREEN:

ON LINE HELP:

The "Digibus Controller" program features 2 simple help modes, which can be used at any time:

1) <u>Screen tips for each button:</u> mousing over (~1 sec) each button (or active object) on the screen causes a short descriptive text of the functions associated with the object to be displayed.

2) All the main pages have a <u>HELP button</u> : When pressed, a box appears on the screen with a brief description of the purpose of the page and all the main objects on it (N.B.: for long descriptions move the cursor to the right to view the part that is not visible). To hide the descriptive text box press the HELP button again.

EXIT BUTTON: To close the program always use this button (in this way all the files and the serial channel are closed correctly).

"BACK" BUTTON: The back button appears when a submenu is accessed. Pressing the back button restores the previous page.

PRELIMINARY OPERATIONS (AND CONFIGURATIONS):

The following steps must be carried out before operating the switchboard:

- 1) SOFTWARE INSTALLATION: see appendix A

- 2) SPECIAL INTERFACE CONNECTION: see appendix B. NB: if the interface is not connected the software operates normally but calls have no effect on the system.

- 3) CREATION OF THE USERS DATABASE: For the system to reach its full potential, data of users to be called from the switchboard must be entered in the database. This can be done later (and also gradually); however, until the relevant user information has been entered the corresponding users cannot be called directly from the telephone directory and the corresponding names cannot be recognised by the software when a call is received. The main data to insert are the interphone number (i.e. the Digibus number assigned to the interphone), surname, name and building number (to allow selections of users located in a specific building). The additional data, although not strictly necessary, are used for special information and future implementations. For data entry methods see the "TELEPHONIC LIST" section.

- 4) CREATION OF THE SYSTEM MAP: (optional). From the switchboard it is possible to view the system map, identify the position of the buildings, retrieve the relative descriptive text and select (and call) the users in the building selected using the mouse. To create the map the appropriate procedure must be carried out (see "SYSTEM MAP" section) whereby all the graphic objects on the screen are defined together with the building mnemonic data.

- 5) **SETUP MENU**: several basic parameters for the operation of the program must be configured in the setup menu. To do this press the "SETUP" button at the bottom right of the screen to display the following screen (CONFIGURATION PANEL):
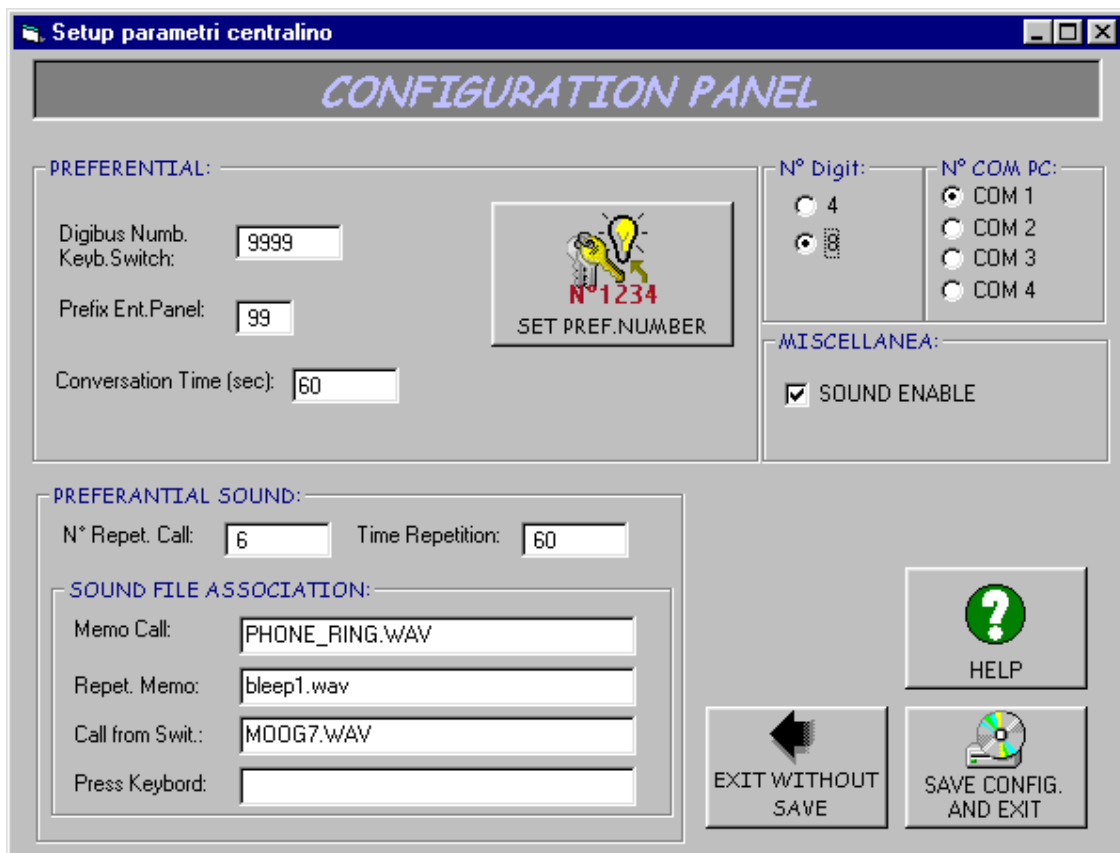
The following parameters must be configured from this screen:

- SYSTEM DIGIT N° (top left): Select 4 or 8 digits depending on the type of system. Use on 8 digit systems is recommended since with 4 digits (older systems) several functions will not be available.
- N° COM PC: this is the serial port to which the serial interface is connected (take care to avoid conflict on the PC with other peripheral devices).
- CONVERSATION TIME: maximum duration of conversation from system (in seconds). After this interval the communication is interrupted, freeing communications on the engaged entrance panels.

- N° OF CALL REPEATS (N° Call Repeat): Number of repeats of an alert sound signal after receipt of a call. The sound will be repeated at regular intervals according to the setting in the "Time Repetition" box.
- SOUND FILE ASSOCIATION: To select sound files (.wav extension) to associate with specific events. These are:
  MEMO CALL: sound played when each call is received (or other command that you wish to record in the pending calls memory).
  REPEAT MEMO: sound that will be repeated after a call for the set number of times and at the set interval. This is the sound that reminds the operator that the call is pending
  CALL FROM SWITCH: sound played each time a call is made from the switchboard
  PRESS KEYBOARD: optional keypad tone associated with each key press (must be very brief to avoid slowing keyboard acquisition rate)

- DIGIBUS NUMBER KEYBOARD SWITCH: Digibus number associated with the switchboard (to identify switchboard unequivocally).

- PREFIX NUMBER FOR ENTRANCE PANELS: prefix number (first 2 digits) set on the entrance panels. This number is used only to discriminate between calls from an entrance panel or from an interphone.

If you press "Set Preferential Number" button to display the following screen:

In this screen is possible select seven numbers of 7 preferential entrance panels on which you wish to activate the lock in rapid mode (or additional functions F1 and F2).
Another seven numbers of 7 auxiliary digital device permit activation (with F3, F6, F7 function) of load not localized near entrance panels (with ART. 170/D).

To activate all these functions simply press the buttons at the left of the main switchboard screen. For the methods of use see section "ACTIVATION OF LOCKS OR FUNCTION KEYS FROM THE SWITCHBOARD".

- 6) **SETTING RECORDING MODES:** When the "SET REG" button on the bottom right is pressed, the following menu (REG MODE) appears, wherein you can define everything you wish to record, both in a permanent file (on the hard disk) and in the switchboard's "Pending Calls Memory".

This menu allows you to decide what to record to file (for storage and subsequent review at a later date) and what to record in the "Pending Calls Memory". It is useful to remember the difference between these two memories:

PENDING CALLS MEMORY: several specific commands (Call from User to Switchboard, F1, F2, Key) can, if so desired, trigger an audible/optical signal when received; the signal persists until the switchboard operator calls back the internal number that made the call. In this case, these commands are displayed in a specific memory that can be displayed on the "PENDING CALLS MEMORY" page, from which they can be transferred to the call display with a single mouse click so that they can be called back (simultaneously clearing them from the buffer, since they have been attended to). N.B.: the items can be removed from the buffer without calling them back by selecting them with the mouse and pressing the delete button (bottom right, beneath the table).

FILE STORAGE MEMORY: allows traffic to be recorded permanently on file. You can record practically every command in transit on the switchboard (practically everything transmitted on line 1 (digital) to which the switchboard is connected). Recorded traffic can comprise inbound calls to the switchboard (the most typical case), outbound calls, or also traffic in both directions (useful for recording also operations performed by the switchboard operator). For the convenience of the switchboard operator, the commands recorded to file are simultaneously displayed in the "RECENT TRAFFIC" page. It must be remembered however, that this page only holds a buffer of the most recent communications and also that it can be deleted at any time with the delete button at the bottom of the screen.
The commands that can be recorded in this archive are as follows (check the box in the relative column):

1) Entrance panel call (to the switchboard)
2) Call to switchboard (typically from an interphone)
3) Key open
4) Function F1
5) Function F2
6) Switchboard On / Off events (to check interruptions in switchboard availability)
7) Line Test (of the interphones)
8) Key Code
9) Outbound traffic from switchboard (i.e. operations performed by the switchboard operator)

REGISTRATION MODE

REG MODE

TIME FILE:
- ⦿ Daily
- ○ Monthly

REG DIRECTION:
- ○ None
- ○ Out
- ○ In
- ⦿ Both

SAVE CONFIG. AND EXIT

CANCEL

REG COMMAND:
- ○ ALL
- ⦿ SELECTED ONLY

TO REGISTER:
- ☑ Entrance-panel call
- ☑ To Switch-board call
- ☑ Key open
- ☑ F1
- ☑ F2
- ☑ Switch-board Break time
- ☐ Line Test (Test_File)
- ☑ Key Code (Key_File)
- ☑ Call from Switch-board

IN MEMORY FILE:

This commands, if recived, are inserted in the call-memory list and activated sound/optical signalation (stopped by operator)

- ☑ To Switch-board call
- ☐ Key open
- ☑ F1
- ☐ F2

SELECT WORK DIR.

SAVE TO CURRENT DIRECTORY:

C:\programmi\Microsoft Visual Studio\vb98\alex\CENTRALINO\file_reg\GENNAIO

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USERS DATABASE (TELEPHONIC LIST):

The switchboard administrates user services (incoming calls, outgoing calls, etc.) by means of a users database. To access this list press the "TELEPHONIC LIST" button at any time [icon2 = FOLDER WITH PEOPLE] at top right. A directory (headed "TELEPHONIC LIST") will now be displayed showing all users in the memory, with their interphone number, surname, name, building number and other secondary data.
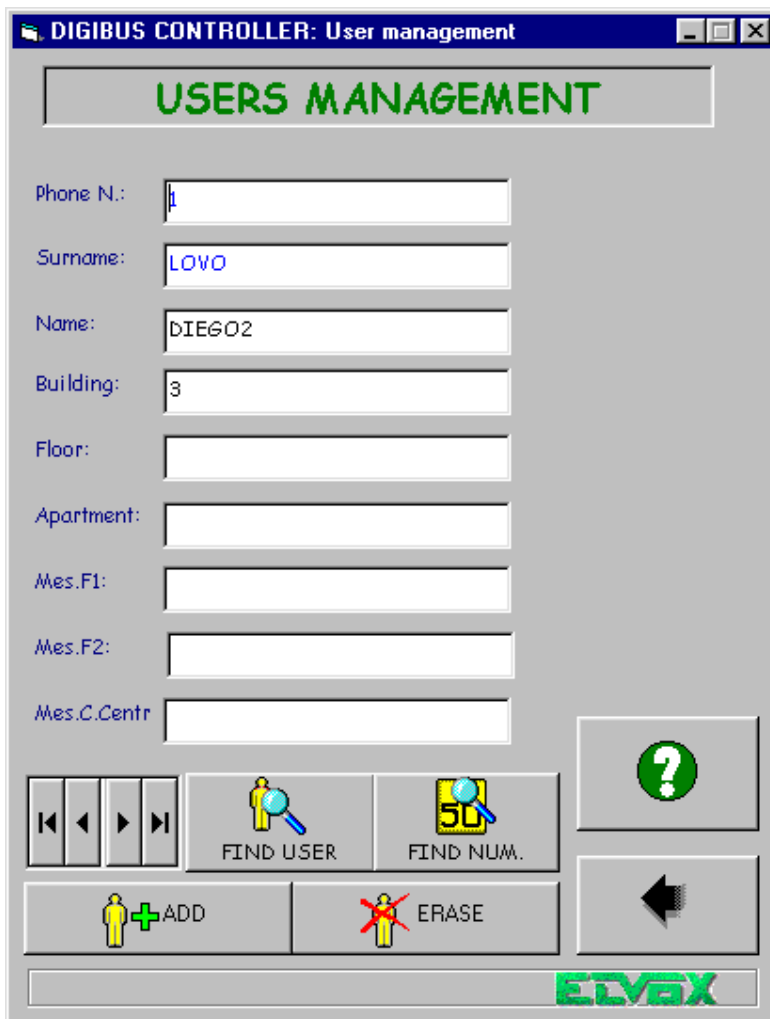
Left clicking the mouse on a name automatically copies it together with the number onto the "call display" allowing the user to be called back just by pressing the call button (conference or test if necessary).

Pressing the "ANALYSIS" button beneath the table opens the "USERS ADVANCED MANAGEMENT" window. In practice, this action calls a series of buttons that serve to search by name (also partial) or number, or sort data by name, number, or building number.

The same window contains a button to open the dialogue box for entering user data (see figure below). Note that users' data CANNOT be edited directly in the display table.

This dialogue box serves to edit user data (selecting the user with the cursors and then changing the data in the entry fields), add new users (ADD button) or delete existing ones (ERASE button). To navigate through the database use the 4 navigation buttons (first, previous, next, last) or use the name or number search buttons (for rapid navigation).

PENDING CALLS MEMORY DISPLAY:

This is the typical display mode. This page displays only calls (from interphones) that have been received and not answered and are therefore pending service (i.e. call-back).

For a better understanding of the operation of this page the following section contains an analysis of the procedure initiated on reception of a call:

PROCEDURE ON RECEPTION OF A CALL (or other command for which the memory is set):

- When a command is received, the software checks whether or not it is to be stored in the memory. Usually the only commands that are stored in the memory and that activate this procedure are calls from an INTERPHONE. The procedure can, however, be activated also following reception of the F1, F2 or Key commands (see the "Recording Mode" dialogue box).

- If the command is to be stored in the memory, it is saved in the "Pending Calls Memory" and an audible signal is activated simultaneously (the sound played is the one selected with the "Memo Call" parameter in the Setup dialogue box) as well as an optical signal (the red "CALL" panel flashes at the bottom left of the screen).

- If the switchboard operator fails to call back the calling interphone immediately, a second sound is played at specific intervals and for the number of times desired, to remind the operator that the user must be called back (see "N.Repetition Call", "Time Repetition" and the "Repeat Memo" sound file, again in the "Recording Mode" dialogue box).

- To SUSPEND THE SIGNALS the switchboard operator can use the mouse to select the user to be called back from the "pending calls memory", (the name and the number are then copied onto the call display) and perform the following 2 operations to cancel the request from the memory:

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    1) Call the user by pressing the call button. This operation serves to delete the call from the calls queue.

    2) Press the deletion button to cancel the call from the calling queue without calling the user back (at the operator's responsibility and discretion).

In both cases, if there is more than one pending calls, the procedure must be repeated to delete each pending internal number.
The list of calls is rearranged starting from the last call received.
Note that if there is more than one call from the same user, only the most recent one is stored in the memory.

▣ RECENT TRAFFIC DISPLAY:

To display recent traffic (i.e. traffic as it arrives) simply press the "RECENT TRAFFIC" button [icon1 = SHEET with PAPER CLIP] at the top right of the screen. A list (headed "RECENT TRAFFIC") will now appear showing all users in the memory complete with phone number, surname, name, type of command transmitted and time of recording. Left clicking on a name automatically copies it together with the number onto the "call display" allowing the user to be called back just by pressing the call button (conference or test if necessary). Pressing the deletion button serves to delete the displayed traffic from the page (N.B.: this operation has no effect on traffic recorded in the permanent file). The traffic displayed in this dialog box depends on how the recording modes have been set (see "REG MODE" dialogue box).

The "**HIDE"** button on the right beneath the table (visible in all contexts) reveals the underlying screen in which all Digibus commands that have transited through the switchboard are recorded (without any filter). This display has no practical use for the switchboard operator, but it makes it possible to analyse commands in transit for technical checking of the system (e.g. to check whether a command transmitted by an interphone effectively reaches its destination). Pressing the "HIDE" button again restores normal display mode.

STORED TRAFFIC DISPLAY:

Traffic previously recorded and stored in specific files on the hard disk (in the specified working directory) can be displayed and analysed at any time.

To display stored traffic simply press the "STORED TRAFFIC" button [icon4 = FILE CONTAINER] at the top right of the screen. A dialogue box will appear (see below) that allows you to browse the PC hard disk (always starting from the working directory) to select the file you intend to display. Note that there are two possible file types (extension .dat) depending on how the recording mode has been set:

- **Daily**: new file created every day. The filename is a mnemonic of the recording date (2002-12-18 = year 2002, month 12, date 18).
- **Monthly**: file created every month. The name is similar to the previous one, but in this case the day of the month is not specified.

The first type of file is recommended in the case of heavy traffic throughout the day (to avoid the creation of excessively large files). It is also good practice to limit data stored in a single directory by exploiting the facility to change the recording directory, e.g. dividing recordings according to the year and the month in the relative subdirectory.
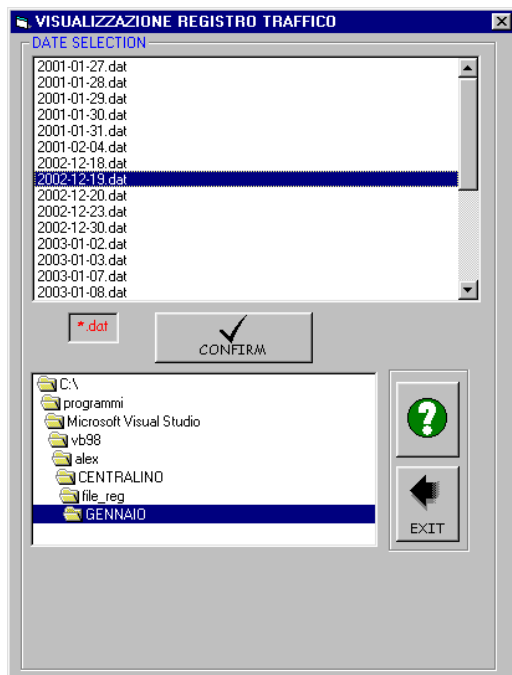
Once the file to be displayed is selected, press the "CONFIRM" button and the display will return to the start screen which will now show a list of recorded traffic (headed by the file date) complete with the direction of the command (TX=Transmitted, RX=Received, LC=Local Commands), operator number (interphone), type of command and time of recording. Select a name with the mouse to copy the number onto the call display together with the associated user name. Note that the files are compressed when recorded on the disk (i.e. without name, surname and command description). The description is associated at the moment of loading (and therefore requires some time) while the name is displayed only after selecting the relative line with the mouse. The traffic displayed in this dialog box always depends on how the recording modes have been set (see "SET MODE" dialogue box).

SYSTEM MAP:

An interactive system map can be linked to the switchboard to aid the retrieval of information about the installation or the buildings, and to provide the facility to analyse or call back all users located in a specific building in the installation. The map can be called up pressing the "MAP" button at the bottom left of the opening menu.

Before it can function, the map must be configured. This calls for several simple preliminary operations, namely assigning the map image (a graphic file showing the installation map) and creating links between "sensitive" points of the map (i.e. points that respond to a mouse click) and the relative data in the database.

To define (or edit) the settings of the graphic map on this page there is a "MAP MODIFY" button at the bottom right of the screen, which can be pressed to enable map editing mode by displaying a drop-down "EDIT MENU" at the top left of the screen.

The following map figure shows some objects that are only displayed during configuration of the map (the drop-down menu described above, the active sensitive zones [squares], etc.).
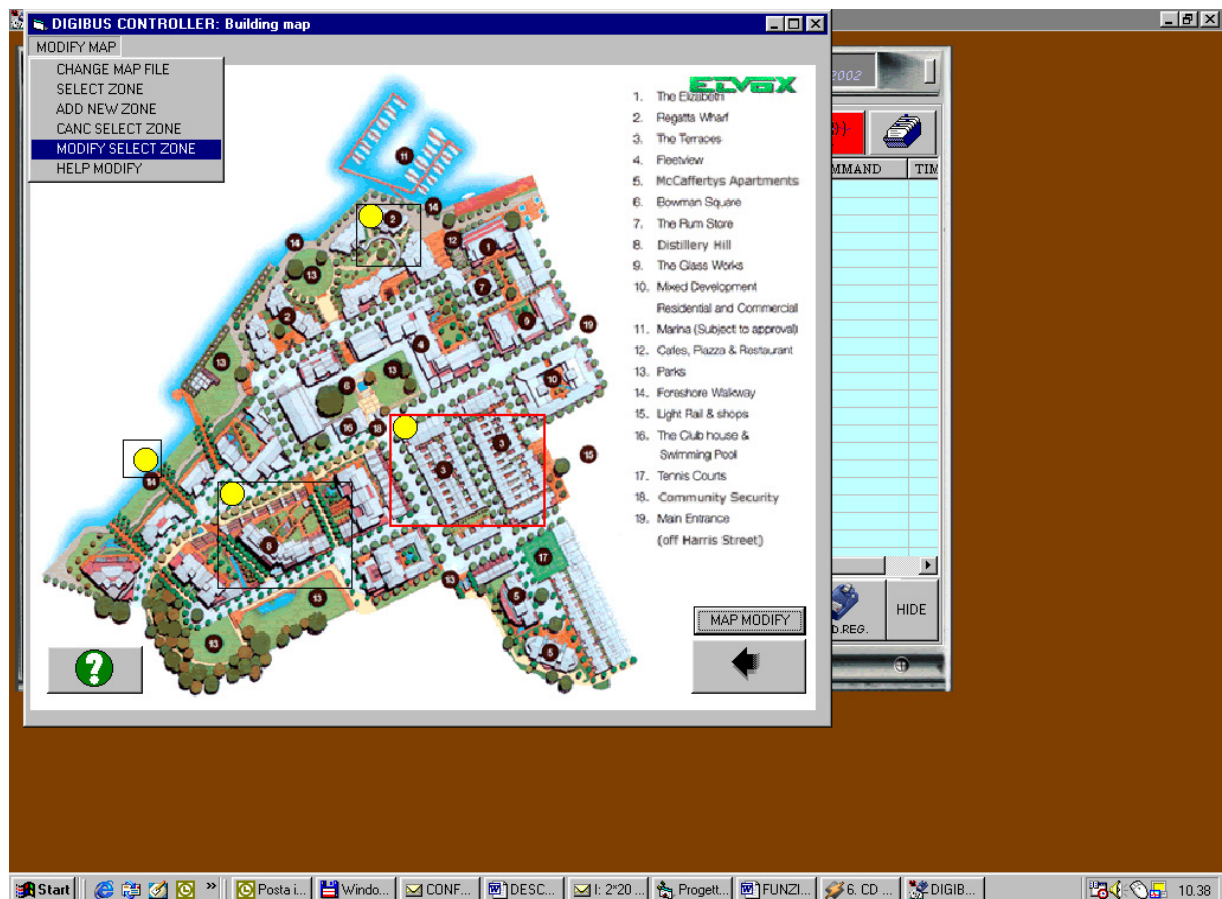
If you wish to use the map, after having activated the "modify map menu" perform the following steps:

1) Upload the background graphic file (with CHANGE MAP FILE). When this option is selected from the above menu you are prompted to specify the name of the graphic file to be used. This file must have been <u>previously</u> copied into the directory where the program is installed. The file must have a standard graphic file extension (.bmp, .jpg, .gif or .wmf) and, irrespective of the original image size, it will be zoomed to fill the entire screen area (N.B.: very large size images are not recommended or the building dimensions will be reduced excessively).

2) Create the sensitive zones on the screen. When you select the "ADD NEW ZONE" option you will be prompted to enter the following data:

- BUILDING NUMBER: this is the number associated with the analogous building-number in the user database. The users present in the zone will be selected on the basis of this number.

- BRIEF DESCRIPTION: this is the description that appears when you mouse over the active zone (typically the name of the building or entrance panel and the Digibus prefix number)

- ADDITIONAL INFORMATION: additional information that you wish to associate with the zone (contact names for information, repairs etc.). These data can be displayed by clicking on the zone with the mouse.

- You are now prompted to specify the starting position of the active zone (top left corner). Click with the mouse on the desired position.

- Now drag the mouse to extend the selection rectangle until it includes the required area. Click again to confirm the zone.

- The building location point is now displayed (yellow dot). Position it on the building in the required place and click again to confirm.

- Repeat the operation for all active zones (note that it is not possible to tile or otherwise superimpose active zones).

The map is now functional and the associations are activated in accordance with the settings in the user database.

MAIN KEYPAD DESCRIPTION
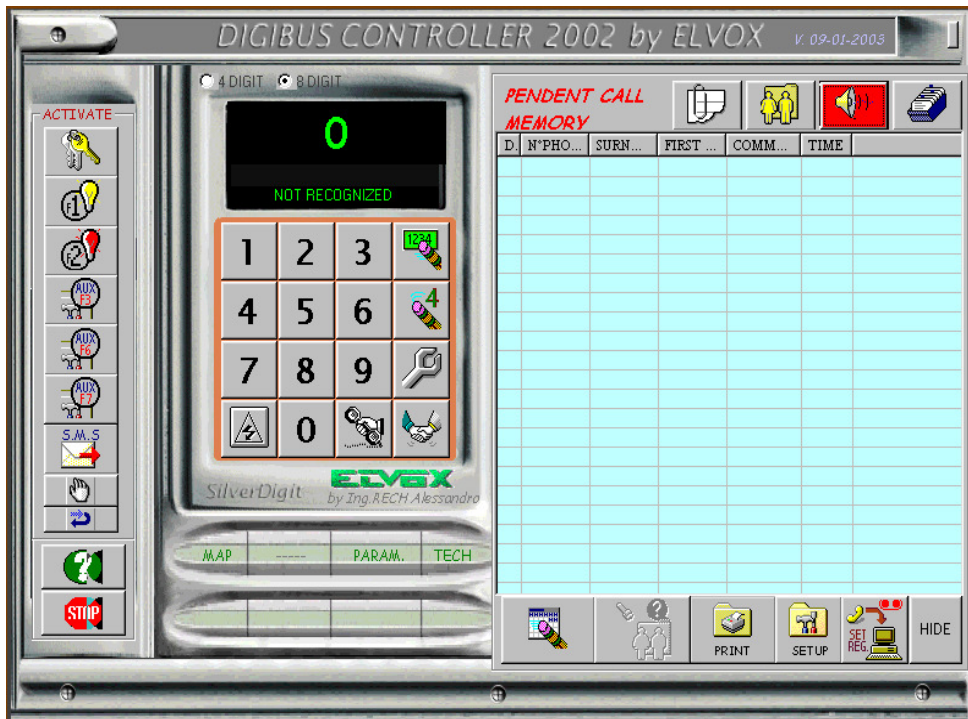
The keypad is displayed in the central area of the screen. The keypad serves to make calls and originate other functions towards any number (the keypad is always operational, even without the database).

- When a call is made, the call button (HAND HOLDING TELEPHONE) changes colour (purple) until the end of the conversation. Also the CONFERENCE or INTERPHONE TEST buttons change to purple while these functions are in progress.

- When the RESET button is pressed all communications are interrupted (N.B.: the conversation is terminated in any case after the "conversation time" set at the initial stage in the switchboard "SETUP" menu has elapsed).

- To test an interphone (without disturbing the user), dial the number on the display and then press the INTERPHONE TEST (SPANNER) button and wait for the reply message (which will confirm the interphone status (free or engaged) if it replies correctly or signal failure to reply if the test is unsuccessful). N.B.: the test is unable to check operation of the voice circuit.

ACTIVATION OF LOCKS OR FUNCTION KEYS FROM THE SWITCHBOARD:

From the start screen you can activate any lock connected to a Digibus object (Entrance panel, distributor, etc.) in the system. You can also activate any auxiliary function of the system (F1, F2) or extension auxiliary function F3, F6, F7 .

To execute this procedure there is a panel of specific buttons on at the left of the screen (see figure alongside) that serve to activate locks or auxiliary functions rapidly.
When one of the first 6 buttons is pressed, is activate an add set of buttons providing easy access to the required function.

For example, when the "KEY LOCKS" button is pressed, is activate (at the left) the following sub-set of buttons:

In practice, pressing one of the first 7 buttons causes immediate activation of one of the 7 (preferential) locks previously programmed in the setup menu (see "Setup dialogue box").
At the left of these buttons there are display the mnemonic name of the device (e.g. the name of the street in which it is located).
Button 7 ("N°DIGIBUS") allows any other lock of the system to be activated. In this case however you will be prompted to enter the Digibus code of the object to be activated.
When is pressing one of this button, after selected activation, is automatically closed the activation subset buttons.

F1, F2, F3, F6, F7 work in exactly the same way.
In this case a different sub-set of buttons will appear with the same type of operation as in the case of the lock buttons, but with reference to the selected function (F1 .. F7).
NB: F3, F6, F7 send command activation to another 7 Digibus number. In this mode is possible activate auxiliary relays Digibus controlled (170/D) for permit activation not localized on entrance-panel device.
Example of F2 and F7 shown in the next 2 figure (see the different set of activator).

In the ACTIVATE set buttons with the LOCAL button is possible activation and deactivation of the local relay (in the out 2 of ART.94CI). When relay is ON the colour button is purple.

In the ACTIVATE set buttons with the SMS button is possible send a sort message to a Digibus device (for example if you send a message to e numerical entrance panel, it show the message in the display). This possibility is, principally, for future use. The option required digit of the message to send and the destination Digibus number (see figure).

APPENDICES

A) SOFTWARE INSTALLATION:

"Digibus Controller" uses the classic installation procedure for software under "Windows".
To install the program run "SETUP.EXE" and follow the instructions on the screen.
Once the program has been installed, it can be run by launching "CENTRALINO.EXE".
However, before launching this file for the first time you should run the file "mdac_typ.exe", located in the program installation directory, and, when so prompted, confirm complete installation.
Now restart the PC and launch "Centralino.exe".

B) SPECIAL INTERFACE CONNECTION:

The DIGIBUS PC interface (ART. 94CI) serves to interconnect the Digibus system and the PC.
The interface performs two basic functions:
1) It decouples the PC from the Digibus network by means of an optical interface (to avoid the risk of damage to the PC)
2) It adapts the levels of the PC's serial port (RS232) to the Digibus system (and interfaces the PC's TX and RX lines with the single RX-TX line of the Digibus system)

The interface is connected (using a classic serial extension lead) to the selected serial port of the PC (you can choose between COM1 and COM2 in the SETUP menu) and, by means of the two dedicated leads, to lines 4-(GND) and 1-(DIGITAL) of the DIGIBUS bus.
If connected correctly, the green LED on the interface lights up (signalling the presence of the digital signal on the Digibus system). The red transmission LED flashes briefly during transmission if the system is functioning correctly.
N.B.: DIGIBUS leads 1 and 4 can be connected to the interface even when the system is operating.

N.B. (2): Switchboard voice circuit line 3 must be connected to a local interphone. The software can automatically activate and deactivate the interphone if this latter is connected to the interface on the special optional connector.

### DIGITAL INTERFACE TO PC CONNECTION DIAGRAM

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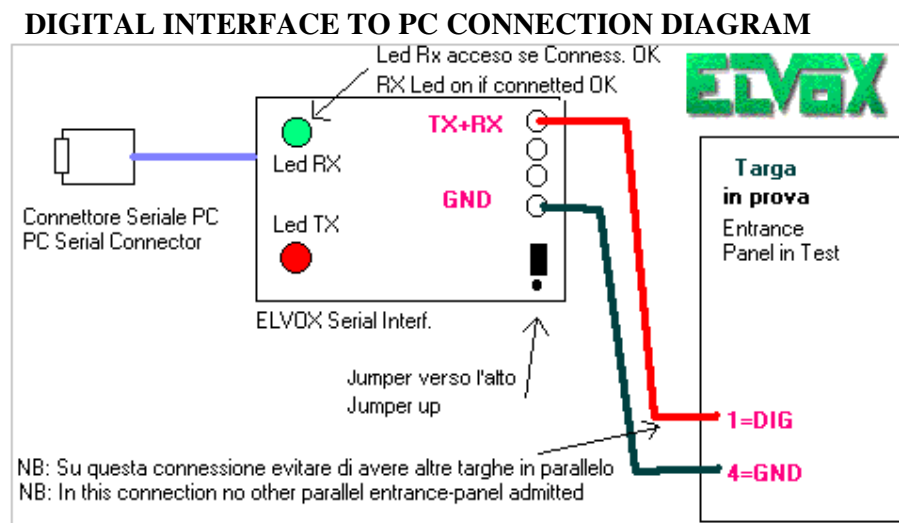
CONNECTING THE INTERFACE WITH VOICE CIRCUIT CONTROL:

With 94CI interface the PC can control operation of the voice circuit and the enabled of local monitor. Control of the voice circuit serves to avoid the line remaining engaged when the interphone handset is repositioned incorrectly (no call release) and to avoid the switchboard from intruding on communications in progress from parallel entrance panels.
The connection from Digibus system is showed below.

With this interface is also possible activation and deactivation of relay 2 (in fig) by botton in the "Digibus Controlled" main panel. With this relay is possible a quickly control of the load connected (es: a local light or lock).
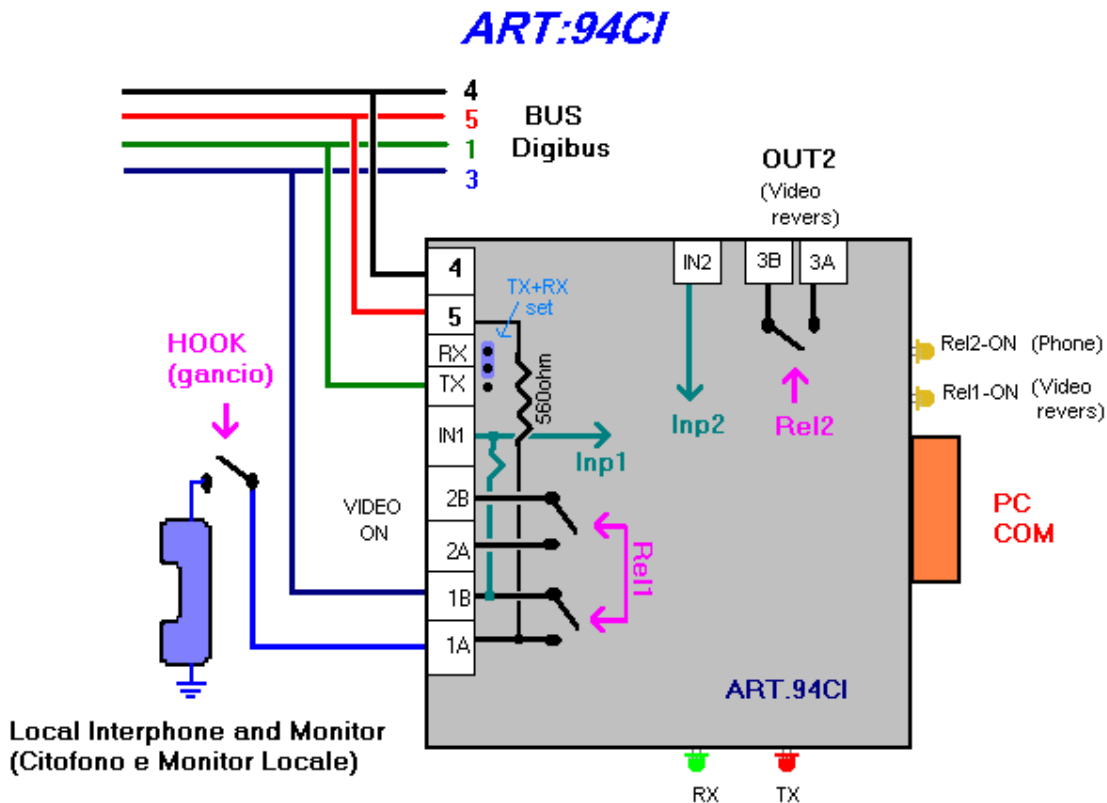
C) SPECIAL BUTTONS (NOT NORMALLY NECESSARY):

There are several special buttons on the opening menu of the "DIGIBUS CONTROLLER" program that are not associated with any practical function during normal operation. These are:

Left side of screen (from the top):

"CAL-TAR"/"CAL.CIT": normally set to "Cal-Tar". If switched to "Cal-Tar" (by checking this option) the switchboard emulates the operation of an interphone. At this point sending a call corresponds to a call from an interphone (without activating the relative interphone). This function serves exclusively to test the effect of an interphone call (to test the system).

"A.TEST" (Auto Test): When pressed the relative yellow indicator starts flashing. Auto Test serves to transmit a cyclic series of commands in order to test the system repeatedly. This function must never be activated during normal operation. Press the button again to suspend any test in progress

"DEBUG": Exclusively for technical use. If active (Red indicator illuminated) the hidden display ("HIDE") displays the Digibus frame in "clear mode".

"COMMAND": Exclusively for technical use. This button serves to transmit special commands (for use by technical personnel with a knowledge of the Digibus protocol) to any device in the system. This function is protected by a password (improper use can damage the system)

At bottom right of screen:

"HIDE": See "RECENT TRAFFIC DISPLAY" section.

CONTENTS