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CT1/6U-CT2/8U  
TELEPHONE  
SWITCHBOARDS



PROGRAMMING  
AND INSTALLATION  
MANUAL

**bpt**

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CT1/6U-CT2/8U

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MANUAL

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**BPT S.p.A.**,

based in Italy in Via Roma, 41  
30020 Cinto Caomaggiore VE,

**hereby declares on its own responsibility**  
that the switchboards conform to the stan-  
dards given below.

**Electromagnetic compatibility**

(EMC directive 89/336/EEC)

- emission EN 55022, EN 61000-3-2, EN 61000-3-3;
- immunity EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11.

**Electrical safety**

(LVD 73/23/CEE)

- EN 60950.

**Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.**

- TBR 21, EG 201 121, ES 201 187, ETS 300 778-1.

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# WARNINGS

Read the warnings contained herein carefully as they provide important instructions for safe operation, installation and maintenance.

Having removed the packaging, make sure the unit is intact.

The packaging materials (plastic bags, foam polystyrene, etc.) must be kept out of the reach of children as they represent potential sources of danger.

The material must be disposed of according to the laws in force.

The installation of the system must comply with the safety rules in force.

**Do not run telephone cables in the same raceways as electrical cables.**

Install the unit in a fairly dust-free room, away from units liable to generate high-frequency electrical noise such as welding machines, electric motors, microwave ovens, air conditioners, etc.

It is advisable to install a suitable cutout and safety device upstream of the power supplier.

Before connecting up the unit, make sure the data on the rating plate correspond to the mains power supply.

This unit must be used only for the use for which it was explicitly designed; any other use shall be considered improper and hazardous.

The manufacturer cannot be held responsible for any damage as a result of improper, incorrect and unreasonable use.

Before cleaning or doing any maintenance work on the unit, disconnect it from the mains power supply by opening the system's switch.

In the event the unit is faulty and/or operates poorly, disconnect it from the power supply and do not tamper with it.

When in need of repair work, contact only technical servicing centres authorized by the manufacturer.

Failure to comply with the above provisions may compromise the safety of the unit.

The installer must make sure that the user information, where applicable, is to be found on the unit.

All the equipment making up the system must be used only for the user for which they were designed.

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# FEATURES

- Enabling of receivers to use voicemail box (optional CT/ST card).
- Access to telephone company's additional services.
- Assignment of receivers enabled to receive and/or seize calls on local lines in day, night mode.
- Assignment of receivers enabled to seize individual local lines for outgoing calls.
- Association of receivers with predetermined rerouting to other receiver.
- Assignment of receivers to receive a call from entry panel made with call button 1 and 2 (optional CTI/...card).
- Assignment of receivers to table of ten permissible 4 digit area codes.
- Assignment of outward dialling restrictions for receivers:
  - to external number dialling;
  - to international direct dialling;
  - to 2 tables of ten 4 digit area codes.
- Assignment of local lines for operation in day, night mode.
- Self-connection to entry panel.
- Interlocutor switching between 2 external calls or between 1 receiver and 1 external call.
- Extension paging call with 8 call codes.
- Workgroup broadcast (4 groups).
- Call to single extension.
- General address call.
- Outgoing call on first free local line or specific line.
- Distinctive ringing (external call, call from receiver, from entry panel, paging call with codes).
- Restore default settings command.
- Automatic fax switching on chosen receiver featuring data protection.
- 3-way conferencing (2 internal and 1 external).
- Consultation hold.
- Call rerouting from entry panel to stored external number (optional CTI/... card).
- External/external call rerouting with automatic forwarding to stored external number.
- Rerouting of all calls:
  - to predetermined receiver;
  - to receivers specified for follow-me feature;
  - to own voicemail box (optional CT/ST card).
- Settable flash time for each individual receiver.
- Automatic emergency, should a power failure occur, local line 1 on receiver 50 and local line 2 on receiver 51.
- Incoming/outgoing telephone traffic reports (log stores 500 entries) on RJ11 plug connected to printer or PC for subsequent processing.
- Telephone traffic reports with telephone numbers dialled in full or with last 4 digits masked.
- Alarm management with automatic forwarding to a stored external number (optional CTI/... card).
- Hotline, 10 s after receiver lifted, automatic forwarding of call to stored external number.
- Barge-in on a conversation in progress.
- LCR for automatic routing of outgoing calls to a number of fixed and GSM telephone traffic carriers (optional dual-band GSM card).
- External call hold with decadic signal or music/message (optional CTM/... card).
- External call hold.
- Do no disturb (Privacy):
  - ringing disable only for external calls and calls from entry panel;
  - ringing disable for all calls;
  - ringing disabled only for calls from receivers.
- 4 digit password for various services via DISA.
- Option of two door lock release commands (optional CTI/... card) and additional 3 auxiliary commands.
- Automatic outside line queuing or busy receiver callback.
- Switchboard programming via internal

---

# FEATURES

telephone 50 or via RJ11 plug using Windows running on local PC with programme on CD-ROM supplied with CTC/232 cable.

- Last outside number redial.
- Answering of incoming calls during a conversation.
- Call pickup for absent call:
  - on local line or from entry panel on any receiver;
  - on internal call on a fixed receiver.
- General speed dialling (50 numbers).
- Personal speed dialling (16 numbers for each receiver).
- Decadic and/or multifrequency dialling on internal telephones and on local lines.
- DISA features: inward dialling in multifrequency after system's automatic answer, announced with dial tone or messages (optional CTM/GV or CT/ST card):
  - dialling an individual receiver;
  - password-protected unrestricted dialling on other outside line via remote external telephone;
  - password-protected control of 2 supplementary relays, (optional CTI/... card).
- Alarm/reminder for your own receiver.
- Programmable warning tone.
- Screened or blind call transfer to free receiver.
- Call transfer to busy receiver.

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# GLOSSARY

## DECADIC

System transmitting data with pulses.

## DISA (Direct Inward System Access)

Automatic dialling system for incoming calls.

## DTMF (Dual Tone Multi-Frequency)

System transmitting data in multifrequency (Tones).

## ISDN (Integrated Service Digital Network)

Digital telephone line.

## LCR (Least Cost Routing)

System automatically selecting the telephone company with the lowest tariff

## MULTIFREQUENCY

See DTMF.

## POS (Point Of Sale)

Equipment for payment with cash card.

## PSTN (Public Switched Telephone Network)

Analogue telephone line.

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# QUICK-REFERENCE OPERATING GUIDE

Below is a list of operations for quick installation and use of the switchboard

- 1 - Install equipment and accessories . . . . .10-11
- 2 - Perform wiring (see diagrams attached), referring to the functions of each single terminal . . . . .12÷14
- 3 - Power up the unit.
- 4 - Make sure the telephones connected are set to multifrequency mode (Tone/DTMF).  
*NOTE. Telephones designed for use in decadic (Pulse) mode cannot be used to programme the switchboard.*
- 5 - Programme CTI/... interface cards:
  - Card CTI/200 (see system type settings) . . . . .44
  - Card CTI/300 (see call code from entry panel settings) . . . .46
- 6 - Set the local telephone line type . . .31
- 7 - Make sure the whole installation is working properly.
- 8 - Check volume at entry panel, if interface CTI/...is installed, adjusting the potentiometers on said card as necessary . . . . .22
- 9 - When using switchboard CT2/8U, without the second local line available, the telephones must be disabled so that they cannot make calls on the same line . . . . .40

*WARNING. If the commands of BPT receivers (XT/200 - IMT/200 - IMTC/200 - IM/T - IM/TC) associated with audio or video entry functions (e.g. door lock release, self-connection to entry panel etc.) are not working properly, get in touch with BPT's Technical Support.*

# INSTALLATION AND CONNECTIONS

## Adding optional cards

Remove terminal cover (fig. 1) and housing (fig. 2) to get at the terminal blocks.

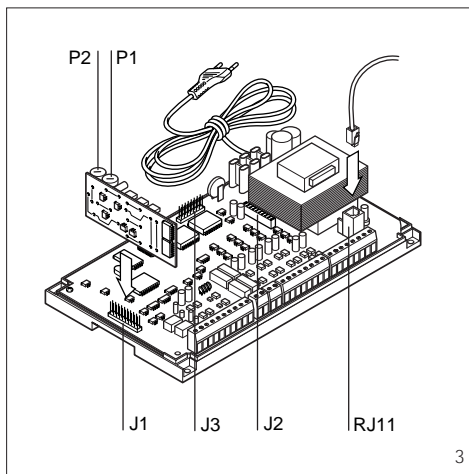
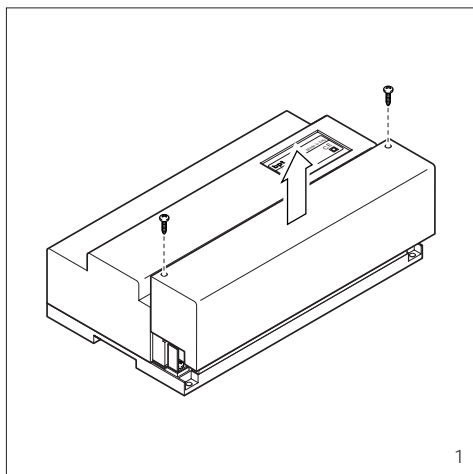
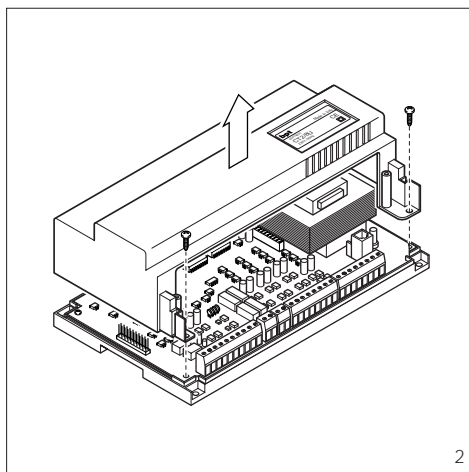
Insert the optional cards in their respective connectors (fig. 3):

**J1**-Connector for connecting interface CTI/200 or CTI/300.

**J2**-Connector for connecting card CTI/GSM.

**J3**-Connector for connecting cards CTM/..., CTM/GV or CT/ST.

**RJ11**-Socket for connection to computer or printer.



# INSTALLATION AND CONNECTIONS

## Installing the switchboard

The switchboard can be installed in boxes featuring DIN rails (EN 50022), with no less than a 150 mm gap between rails (fig. 4).

Alternatively, it can be wall mounted using the DIN rail supplied (fig. 5).

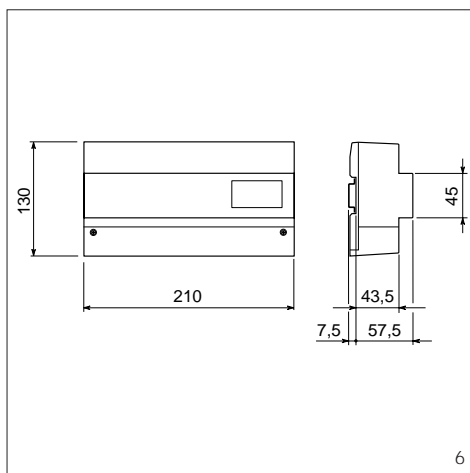
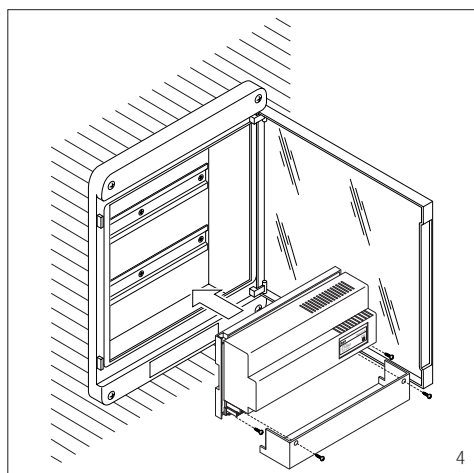
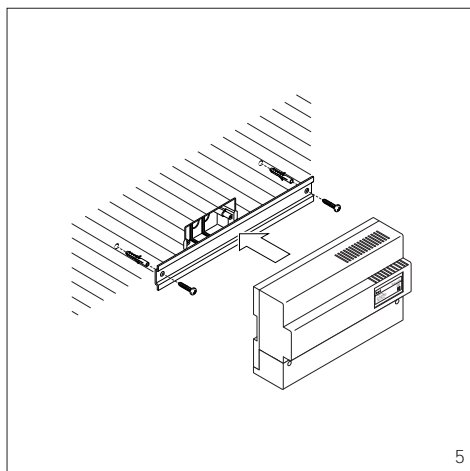
See fig. 6 for overall dimensions.

## Wiring

To wire telephones, we suggest you use 6/10 mm telephone cable.

Max. length for each extension: 1.000 m.

**NOTE.** *Protect the line if wiring is outdoors.*



## Internal settings

Before refitting the housing and terminal cover, adjust volume heard through receiver (potentiometer **P1** in fig. 3) and at the entry panel (potentiometer **P2** in fig. 3) as necessary.

*If performing this operation, do so after adjusting the installation's volume from the entry panel.*

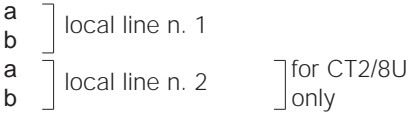
# TERMINAL BLOCKS AND INTERNAL SETTINGS

## Function of each terminal

(switchboard CT1/6U fig. 7 - CT2/8U fig. 8)

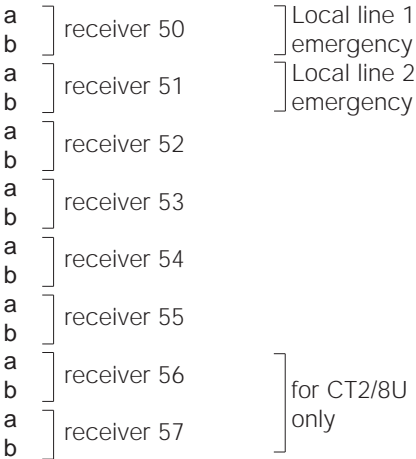
### Terminal block M1

(local line)



### Terminal block M2

(extensions)



### Terminal block M4 with CT1/200

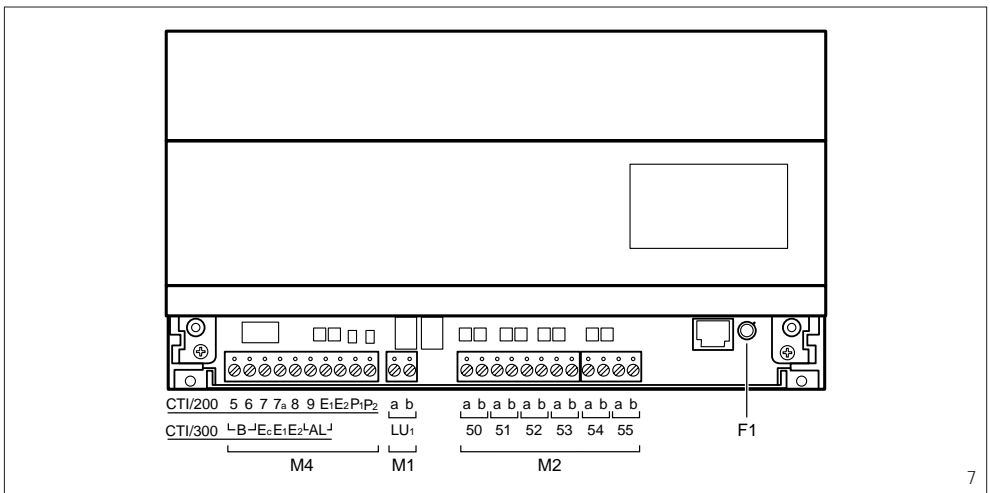
(system-200 audio or video entry control)

- 5 ground
- 6 positive
- 7 call n. 1
- 7a call n. 2
- 8 audio to receiver
- 9 audio from receiver
- E1 enabling 1
- E2 enabling 2
- P1 auxiliary control
- P2 auxiliary control

### Terminal block M4 with CT1/300

(system-300 audio or video entry control)

- B line input
  - E<sub>c</sub> enabling outputs common
  - E1 enabling output 1
  - E2 enabling output 2
  - AL alarm input
- } for  
CT1/304



# TERMINAL BLOCKS AND INTERNAL SETTINGS

## Function of terminals

on card CTI/200 (fig. 9)

Terminal block M1

A alarm input

13 door lock release command 2

## Function of potentiometers

on cards CTI/200 and CTI/300 (fig. 3)

P1 Adjusts volume heard through receiver

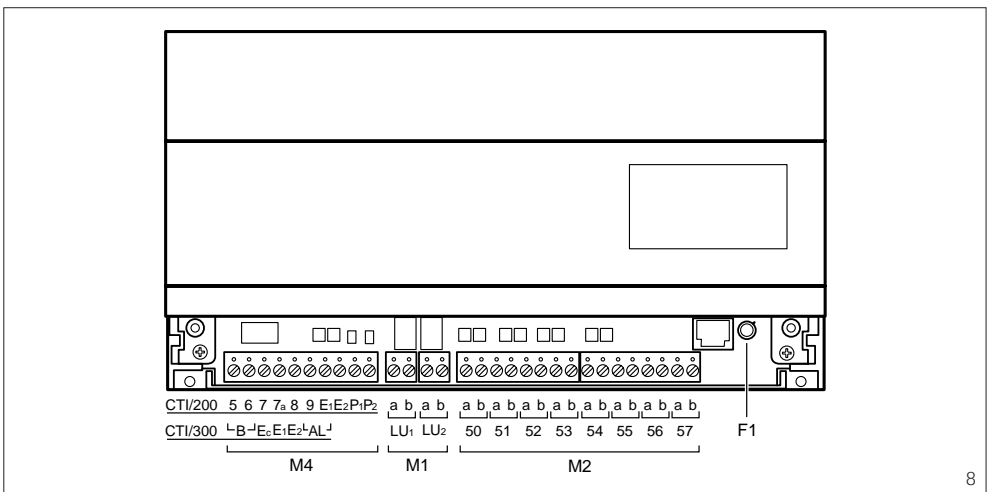
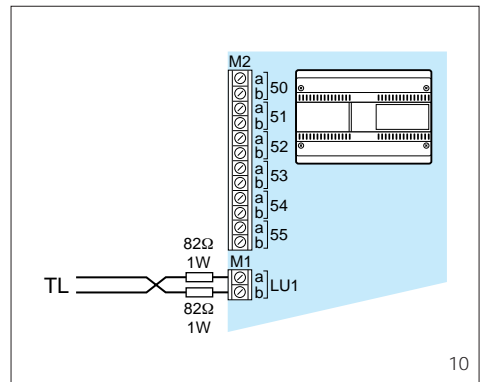
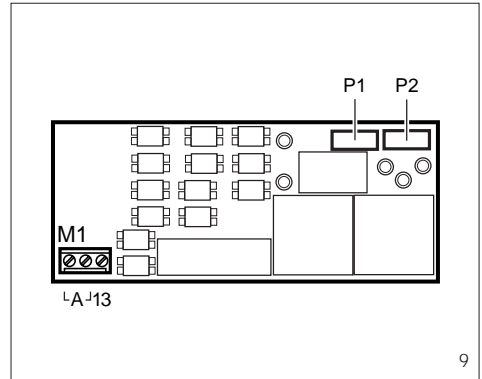
P2 Adjusts volume heard at entry panel

### WARNING!

The unit should be connected to analogue telephone lines only, and not to digital ISDN lines.

When using an ISDN socket, one or two analogue lines must be branched off it.

When using NT1 PLUS analogue sockets, the switchboard must be protected by connecting an 82 Ω 1 W resistive load to each of the telephone line's wires (fig. 10).



---

# SPECIFICATIONS

- Power supply: 230 V AC  $\pm 10\%$  50 Hz, protected by the slow fuse F1 (fig. 7-8), T 500 mA (F=fast, T=slow).
- Current demand: max. 17 VA.
- Output voltage for each receiver: 24 V.
- Frequency deviation: to CCITT standards.
- Relative humidity: max. 90%.
- Working temperature range: from 0 °C to +45 °C.
- Dimensions: 210x130x65 mm.

*The switchboard comes with a buffer battery so that data are not lost should a power failure occur.*

***WARNING. Danger of explosion if the battery is not replaced properly.***

***Only replace with a battery of the same or equivalent type recommended by the manufacturer.***

***Dispose of used batteries following the manufacturer's instructions.***

# COMMAND SUMMARY TABLE

Table summarising auxiliary commands available using the telephone and relevant outputs for activating functions

Command	System 200	System 300 and X2
Auxiliary 1/entry panel switching	terminal 22 terminal block B VA/200	-
Auxiliary 1	-	(1) (2)
Porter call (auxiliary P1)	terminal P1 terminal block M4 CT1/6-2/8U	-
Auxiliary 2	-	(1) (2)
Door lock release 2	terminal 13 terminal block M1 CTI/200	-
Auxiliary 3	-	(1) (3)
Porter call 2 (auxiliary P2)	terminal P2 terminal block M4 CT1/6-2/8U	-
Auxiliary 4	-	(1) (3)

(1) In system-300 installations, auxiliary commands Aux 1 - Aux 2 - Aux 3 - Aux 4 are available using auxiliary relays.

(2) In X2-system installations, auxiliary commands Aux 1 (•) and Aux 2 (••) are available in the entry panel.

(3) In X2-system installations, auxiliary commands Aux 3 and Aux 4 are available using auxiliary relays.

---

# ACCESSORIES

The following optional cards can be employed to implement the switchboard's additional features:

**CTI/200** - interface card for series-200 audio and video entry control installations for managing two calls, two door lock release commands and up to three auxiliary commands;

**CTI/300** - interface card for series-300 audio and video entry control installations for managing two calls, one door lock release command and up to four auxiliary commands;

**CTI/304** - video interface card for series-300 video control systems;

**CTI/GSM** - GSM card with antenna for use in managing a local telephone line (GSM);

**CTM/...** - music card (various melodies);

**CTM/GV** - music card with voice guide with 4 voice prompts and announcements;

**CT/ST** - answering machine card with 17 min of recording time, which can be split into announcement messages that can be recorded via telephone and voicemail boxes for leaving messages for extensions;

**CTC/232** - cable for connection to serial port for PCs or printers.

## **LINE PROTECTOR LP/MT**

The unit can be used to protect the 230 V AC supply line and a local telephone line. For use with very long telephone lines or when located in areas particularly prone to lightning.

It can also be used to protect internal lines when they are installed outside the building.

---

# CONNECTING DEVICES

## Fax

### Fax connection with switchboard CT1/6U

To connect, proceed as follows:

- 1 - Programme local line 1 for SWITCH-FAX automatic answer . . . .34
- 2 - Select the extension chosen for automatic fax switching . . . . .26

### Fax connection with switchboard CT2/8U

Fax setup can be performed in either of the following ways.

#### Method 1 (recommended)

By dedicating one for the local lines to incoming fax calls only.

- 1.1-Enable the machine to receive calls coming in on the local line . . . .39
- 1.2-Enable the machine to make calls on the local line . . . . .40
- 1.3-Set data protection on the output it is connected to . . . . .26

#### Method 2

By connecting the fax to telephone set and setting automatic answer.

- 2.1-Programme local line 1 or 2 for FAX-SWITCH automatic answer . . . .34
- 2.2-Select the extension chosen for automatic fax switching . . . . .26

## Modem and Modem-Fax

The MODEM AND MODEM-FAX device must be connected instead of a telephone set. Proceed as follows:

- 1 - Programme the line to which the modem is connected so that it can receive and make calls on the local line only, making sure it is not enabled to receive calls from the entry panel (page 41) . . . . .39-40
- 2 - Set data protection on the output it is connected to . . . . .42
- 3 - If the Fax-Switch automatic answer has been set, make sure the number of rings for the device's automatic answer is greater than the number set for the switchboard's automatic answer (default setting 2).

**WARNING.** *The MODEM and MODEM-FAX device, connected instead of a receiver, affords a maximum data transfer rate of 33.6 Kbps.*

*If a higher speed unit is used, it must be connected directly to the main telephone line.*

---

# CONNECTING DEVICES

## Answering machine

The unit can be connected instead of a telephone, or in parallel with it.

The switchboard does not require any kind of programming.

**WARNING.** *Make sure the number of rings for the answering machine's automatic answer is greater than the number set for the DISA feature, where activated.*

*We recommend you set the number of rings to 5.*

## Telephone-Fax-Answering machine

The unit must be connected instead of a telephone.

The switchboard does not require any kind of programming.

**WARNING.** *Make sure the number of rings for the device's automatic answer is greater than the number set for the DISA feature, where activated.*

*We recommend you set the number of rings to 5.*

## POS

The POS device must be connected instead of a telephone.

Proceed as follows:

- 1 - Programme the line to which it is connected, disabling the extension so that it cannot receive any calls and making sure it is not enabled to receive calls from the entry panel (pag. 41) . . . . .39
- 2 - Set data protection on the output it is connected to . . . . .26

---

## CONNECTING ISDN SOCKETS

The switchboard can be connected to the socket's analogue outputs (a-b).

For the switchboard to work properly, programme the socket as follows.

1 - Disable the call waiting indicator advising the caller that the switchboard is busy.

2 - Make sure calls are addressed to just one of the two outputs.

This is to avoid false calls.

***WARNING. Any malfunctions (such as low audio, incoming calls not announced, no call forwarding) might be the result of incorrect socket settings.***

---

# ENTERING AND EXITING PROGRAMMING

## Entering and exiting programming procedures

**Receivers 50** is the only one enabled for programming procedures.

If you are planning to perform programming via PC, see page 47.

To enter programming mode, proceed as follows:



Lift the handset and wait for the programming tone.



Dial \*999.



Wait for the 3 acknowledgement tones and replace the handset.

*You can now commence the programming procedure on **receiver 50**; when you lift the handset, you will hear the programming tone prompting you to dial.*

*Receiver 50 **is not enabled** to make telephone calls when in programming mode.*

To exit programming mode, proceed as follows:



Lift the handset and wait for the programming tone.



Dial 99.



Wait for the 3 acknowledgement tones and replace the handset.

*When you lift the handset of **receiver 50**, you will now hear the usual dial tone meaning telephone calls can be made.*

---

# RESTORING DEFAULT SETTINGS

## Restoring default settings

To delete programmed data and restore initial default values, except for **speed dial numbers**, **telephone traffic data**, **the local area code** and **LCR tables**, proceed as follows:



Lift the handset and wait for the programming tone.



Dial **0 2** to restore default settings, except for those mentioned above.



Wait for the 3 acknowledgement tones and replace the handset.

To delete stored **speed dial numbers** and **telephone traffic data** as well, proceed as follows:



Lift the handset and wait for the programming tone.



Dial **0 1** to delete speed dial numbers and telephone traffic data.



Wait for the 3 acknowledgement tones and replace the handset.

# GENERAL PROGRAMMING

## Option determining dialling mode for each local line

To select the dialling mode – multifrequency or decadic – for each individual local line (default setting is multifrequency), proceed as follows:



Lift the handset and wait for the programming tone.



Dial 4 0.



Dial 1 or 2 depending on the number of the chosen local line.



Dial 0 for decadic dialling mode.

or



Dial 1 for multifrequency dialling mode.



Wait for the 3 acknowledgement tones and replace the handset.

Repeat the procedure for any local lines you want a different dialling mode for.

## Updating system calendar

To initialize or update the system calendar, proceed as follows:



Lift the handset and wait for the programming tone.



Dial 8 0.



Enter data for the **time** (hours, minutes, seconds) and **date** (day, month, year, day of the week) in sequence using 2 digits for each.



Wait for the 3 acknowledgement tones and replace the handset.

For instance, to enter the following data for the system calendar:

11 hr, 25 min, 30 s,  
28 February 2002, Thursday,  
you must enter

1 1 2 5 3 0  
2 8 0 2 0 2 0 4.

### NOTE

- The switchboard comes with a buffer battery so that data are not lost should a power failure occur.
- The system calendar must be adjusted for daylight saving.























































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