



Doorphone PBX interface

AA-11RT

*for connection with analog extension,
with busy tone detection*



TECHNICAL MANUAL – INSTALLATION

AA-11RT System manual SW version SW 3.3

PRELIMINARY DOCUMENTATION

Made in Italy by TEMA TELECOMUNICAZIONI S.r.l.

Recommendations

1. Use only original spare parts and consumables supplied by Tema Telecomunicazioni Srl for this equipment. The company shall not be held responsible for any damage caused by the use of materials that they have not supplied.
2. The device has been carefully manufactured and tested. In any case, the product is not recommended for use in situations in which incorrect operating may result in damage to persons and/or property.
3. We recommend that you carefully read all this manual before starting to use the device.
4. Do not expose the device to sunlight and protect it from sources of heat, dust, humidity and chemical agents.
5. This manual is the property of Tema Telecomunicazioni Srl and any duplication and reproduction even partial, as well as storage on any type of media is forbidden without written permission from Tema Telecomunicazioni Srl.

Revision	Date	Revision reason	Prepared	Checked/Approved
1	22/09/2015	Update	DP	FL



DICHIARAZIONE DI CONFORMITÀ CE

DECLARATION OF CONFORMITY CE

La sottoscritta società
con sede in

TEMA TELECOMUNICAZIONI SRL
Via C. Girardengo, 1/4 - 20161 MILANO

dichiara che il prodotto

Interfaccia Citotelefonica – Door Phone Pbx Interface

Codici

AA-10, AA-11, AA-11RT, COM123, COM124, COM124RT

è stato costruito in conformità alle seguenti normative:

SICUREZZA EN 60950

EMC EN 55022
EN 55024
EN 61000-6-1
EN 61000-6-3

TERMINALE DI
TELECOMUNICAZIONE

TBR 21 (1998) – Terminal Equipment (TE); Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting the voice telephony service) in which network addressing, if provided, is by means of Dual Tone Multi Frequency (DTMF) signalling.

Inoltre il prodotto sopra menzionato soddisfa i requisiti essenziali delle seguenti direttive:

- Direttiva LVD 73/23/EEC (Low Voltage Directive)
- Direttiva EMC 89/336/EEC – 92/31/ECC
- Direttiva 99/05/EC per apparati di Radio e Telecomunicazioni

MILANO, 02 Dicembre 2013

TEMA TELECOMUNICAZIONI SRL
Felice Lamanna
Amministratore

A handwritten signature in black ink, appearing to read 'Felice Lamanna', written over the printed name of the administrator.

I. IMPORTANT INFORMATION REGARDING THE RECOVERY AND RECYCLING OF THIS ELECTRONIC DEVICE

The crossed-out wheeled bin symbol below indicates that this electronic equipment is intended to be disposed in a separate collection and not in an unsorted municipal waste, in order to provide for the treatment of WEEE (Waste Electrical and Electronic Equipment) using best available recovery and recycling techniques.

Specific treatment for WEEE is indispensable in order to avoid the dispersion of pollutants and other hazardous substances into the waste stream, while recycling leads to reduction of disposal of waste and the negative impacts on environment and human health. That is, priority is given to reuse of WEEE in its components, subassemblies and consumables.

As the final holder, the user has an important role in contributing to reuse, recycling and other forms of recovery of WEEE and is responsible to return this waste in the collection facilities set up by EC Member States and to fulfill other duties in compliance with Directive 2012/19/UE and local laws.



1. OVERVIEW OF AA-11RT INTERFACE

The AA-11RT doorphone-PBX interface is designed to manage the external doorbell of the vast majority of door systems (4 or 5 wires) through an analog extension of the PBX. When a visitor pushes the doorbell, AA-11RT makes a call to an extension (up to 3 extensions programmable). The extension that answers the call can speak with the visitor at the doorbell and then open the door with a DTMF command. AA-11RT is equipped with a relay to open the door, plus two auxiliary relays (e.g. to turn on external lights or to control other devices). Many commands can be given through DTMF, such as: start voice communication with the external doorbell in “normal” mode or “autoconnect” mode, electric door or gate opening, (de)activation of aux relay 1, (de)activation of aux relay 2 etc. The device parameters can be programmed through the phone as well.

2. MAIN CHARACTERISTICS

The main features of AA-11RT are:

- Connection to most doorbell systems (4 or 5 wires)
- DIN rail mount, fitted with 1 open-door relay plus 2 auxiliary relays
- Can call an unique extension number in “autoconnect” mode
- Can call in sequence up to 3 programmable extensions in “normal” mode
- Configurable activation time and number of pulses of the open-door relay
- Programmable using a standard DTMF phone
- Non-volatile parameter memory (keeps settings even when not powered)
- Power and status LEDs
- Busy tone detection

3. GENERAL FUNCTIONS

When the external doorphone button is pushed, the device calls the first programmed extension and waits for an answer. There are two operating modes: “normal mode” for manual opening of the conversation with the visitor or “autoconnect mode” for automatic opening of the conversation.

“Normal” Mode means that when the operator of the called extension hears a short alert tone, every two seconds, he must press the “1” digit to enable communication with the external visitor. This mode allows AA-11RT to call up to three extension numbers in sequence.

“Autoconnect” Mode The operator that answered to the call of the called extension is already in communication with the visitor without pressing any digit. This mode allows AA-11RT to call only a single extension number.

Once the voice connection is established, the operator can activate the open-door relay dialing “2”. He or she can then dial “9” in order for the device to return idle and be ready for a new operation, or simply hang up and AA-11RT will return idle after a programmed time.

Only for the “normal” mode, if the user does not reply, or reply but does not send the activation command of the communication with the visitor, after a configurable time AA-11RT will call the second number programmed and then the third. If the third party does not answer or do not press the activation command, AA-11RT go back waiting for a new call.

The “normal” mode prevents unwanted replies by other automatic devices (such as voice mail systems or automatic attendants).

It is also possible to connect with the external doorphone by calling the extension on which AA-11RT is connected, and it will answer:

in the “normal” mode with a short alert tone every 2 seconds and will wait for the digit "1" to enable communication with the external visitor at the doorphone

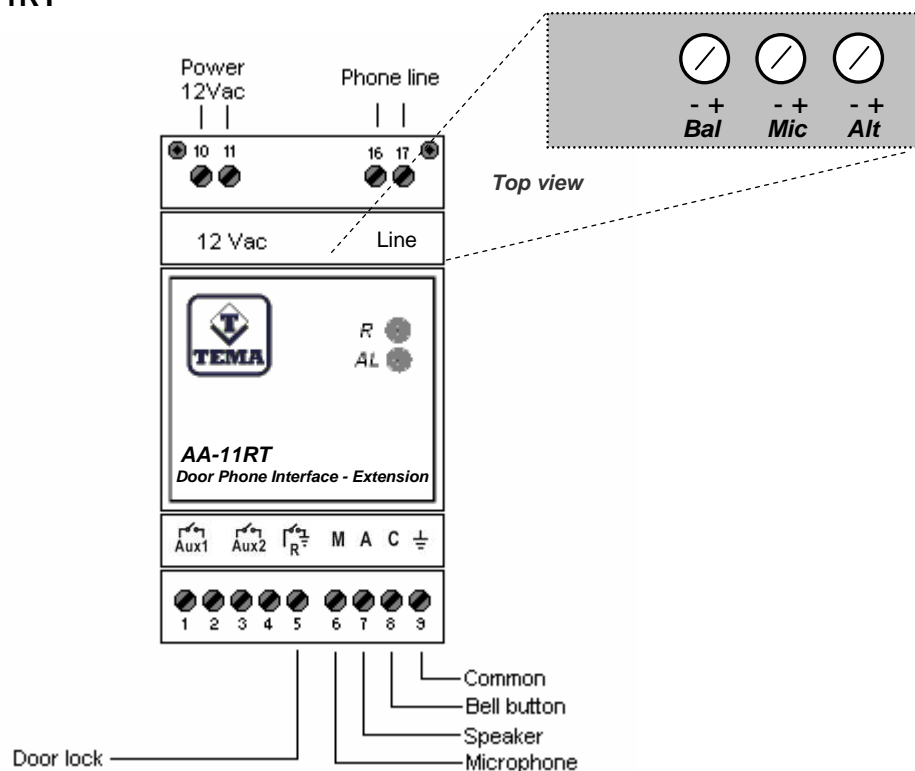
in the “Autoconnect” mode automatically connecting the caller's voice with the visitor to the external doorphone.

Call to AA-11RT is useful if you want to connect with people who are near the external doorphone without they have pressed the bell, or because they have been detected by other ways (cameras on the entrances, offices open to the public, etc.). Calling AA-11RT opens the possibility to use its additional features, in particular to activate the two auxiliary relays according to their programming.

Relays can be used to open additional doors or gates, as well as to turn on a lamp when it's dark. By combining the AA-11RT relays with other appliances, it is possible for example to activate the heating/cooling system.

4. GENERAL DESCRIPTION

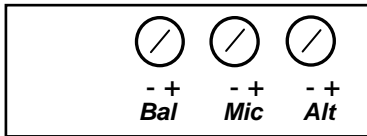
4.1. Front view AA-11RT



- Screw terminals 1 and 2 are for connecting Aux 1 relay (without common contacts)
- Screw terminals 3 and 4 are for connecting Aux 2 relay (without common contacts)
- Screw terminal 5 is for connecting one wire of the electric door lock (AA-11RT will connect this point to screw terminal 9 in order to open the door); the other wire has to be connected to the doorphone power.
- Screw terminal 6 (AA-11RT audio input) is for connecting the doorphone microphone.
- Screw terminal 7 (AA-11RT audio output) is for connecting the doorphone speaker.
- Screw terminal 8 is for connecting the doorphone button.
- Screw terminal 9 is for connecting the doorphone microphone and speaker common signal.
- Screw terminals 16-17 are for connecting the PBX extension line.

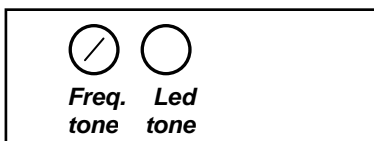
4.2. Volume adjustment

The three trimmers on the top side (see picture below) adjust the microphone and speaker volume.



Mic = external doorphone microphone sensitivity
Alt = external doorphone speaker sensitivity
Bal = echo cancellation level

Before proceeding to the installation it is advisable to set the trimmers to half range. Then adjust the Mic trimmer to obtain a good listening volume at the operator phone, then adjust the Alt trimmer to obtain a good listening volume at the external doorphone. Should hisses be heard (Larsen effect) try adjust the Bal trimmer or to reduce the Mic/Alt trimmer values. Larsen effect depends on the external doorphone acoustic condition. It might be necessary to adjust the trimmers before installing AA-11RT on the DIN rail, depending on the position where it will be installed. If it is the case, connect AA-11RT and adjust the trimmers before mounting it on the rail.



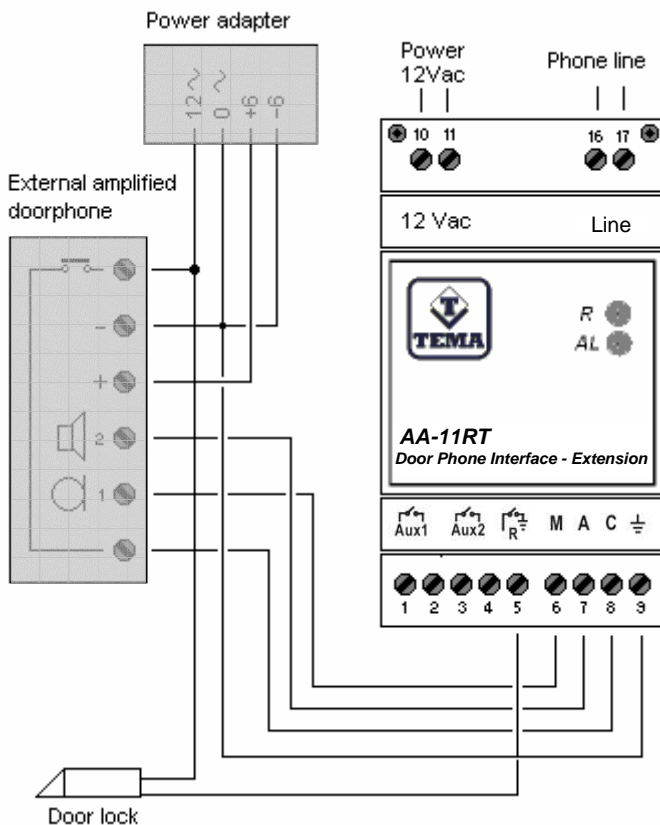
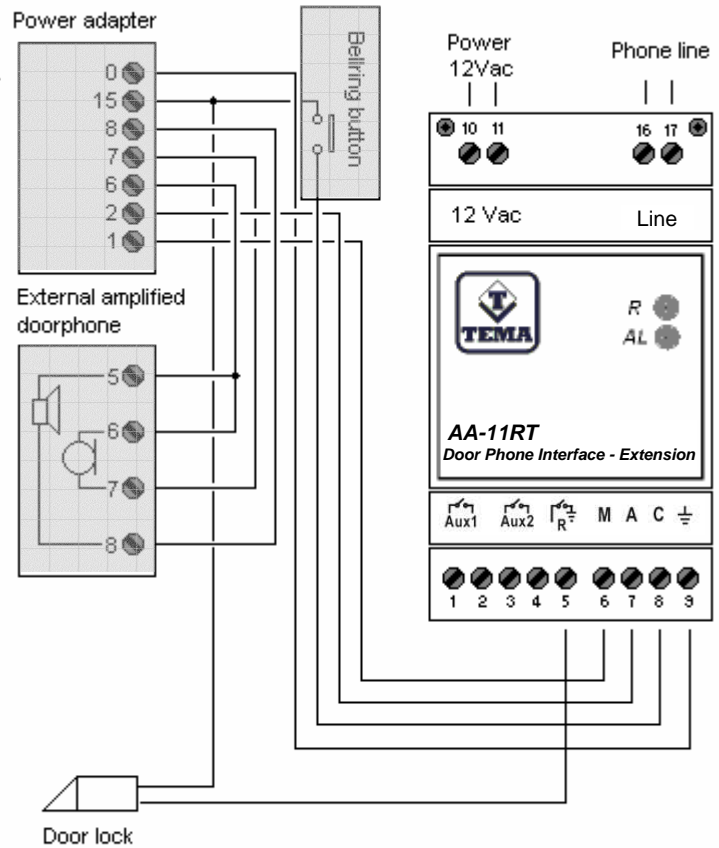
Other two small windows are placed on the lower side of the system. One is for the trimmer "Freq. Tone" for the reorder tone frequency setting (factory set) while the other allows to see a led "Led tone" that signals, when turned on, the tone presence.

5. INSTALLATION

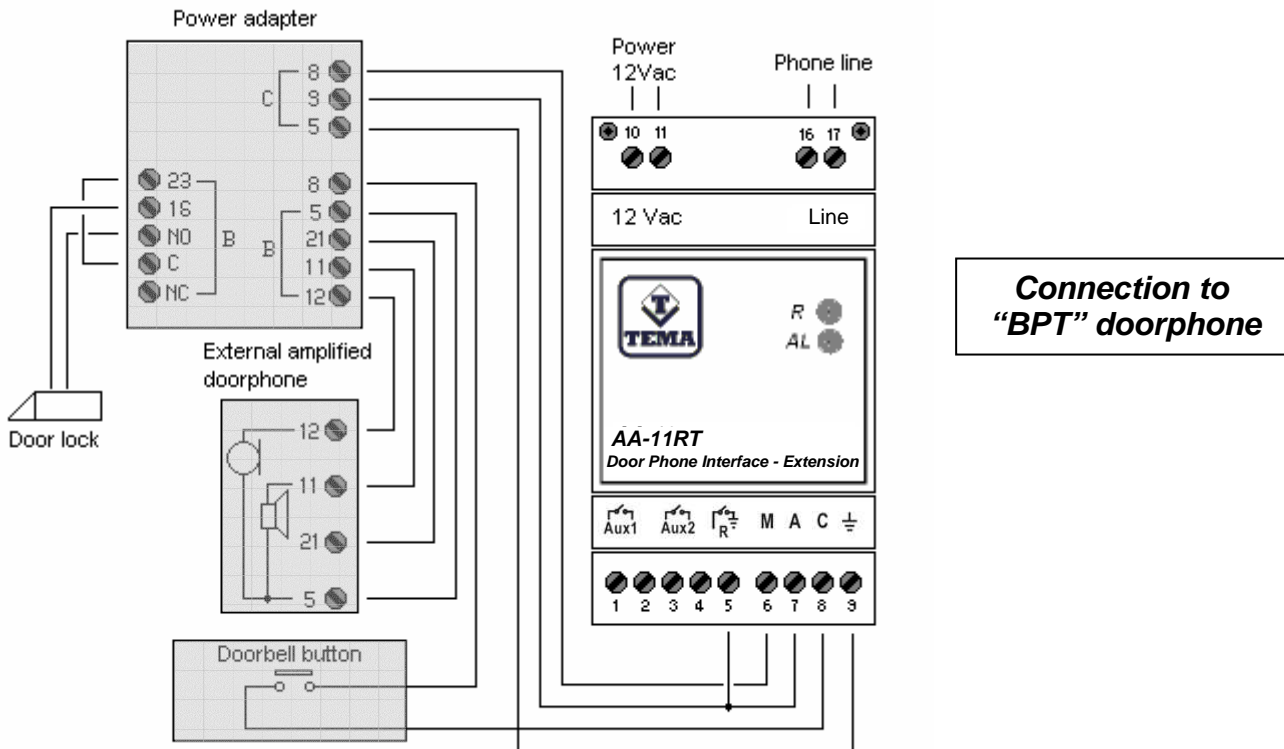
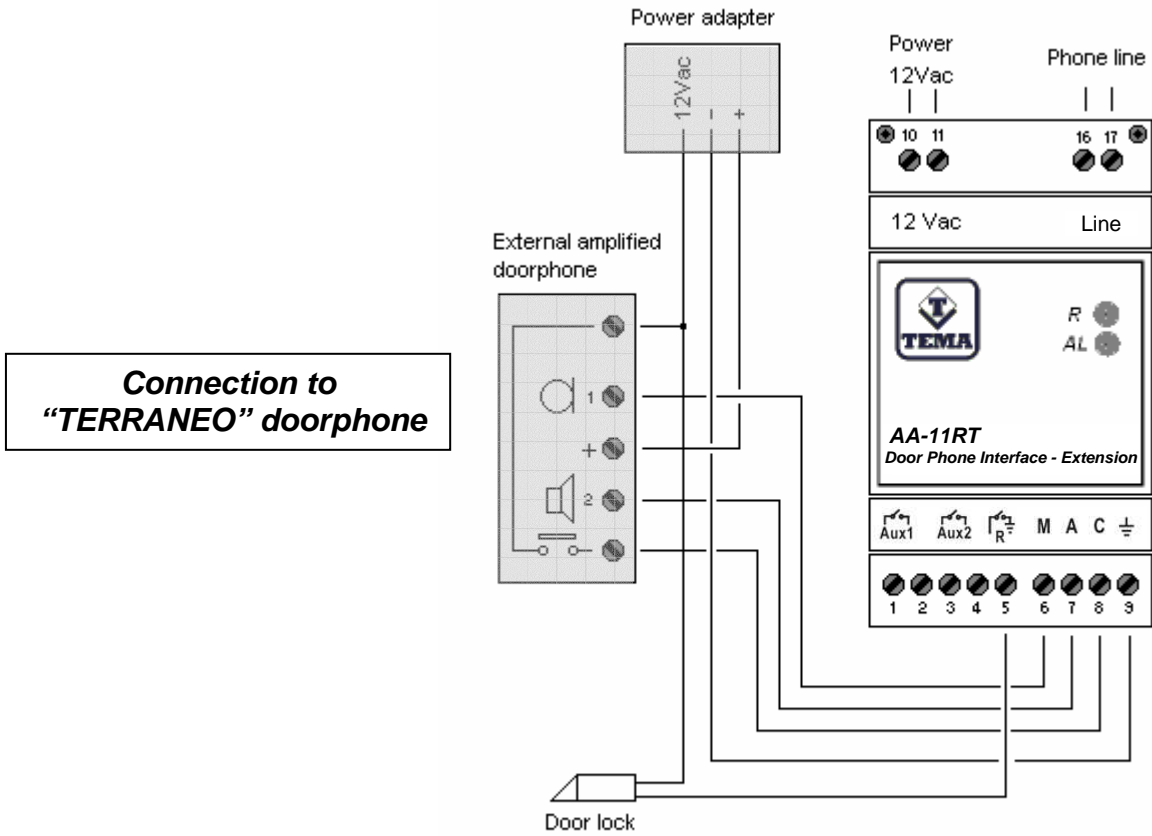
5.1. Connection examples

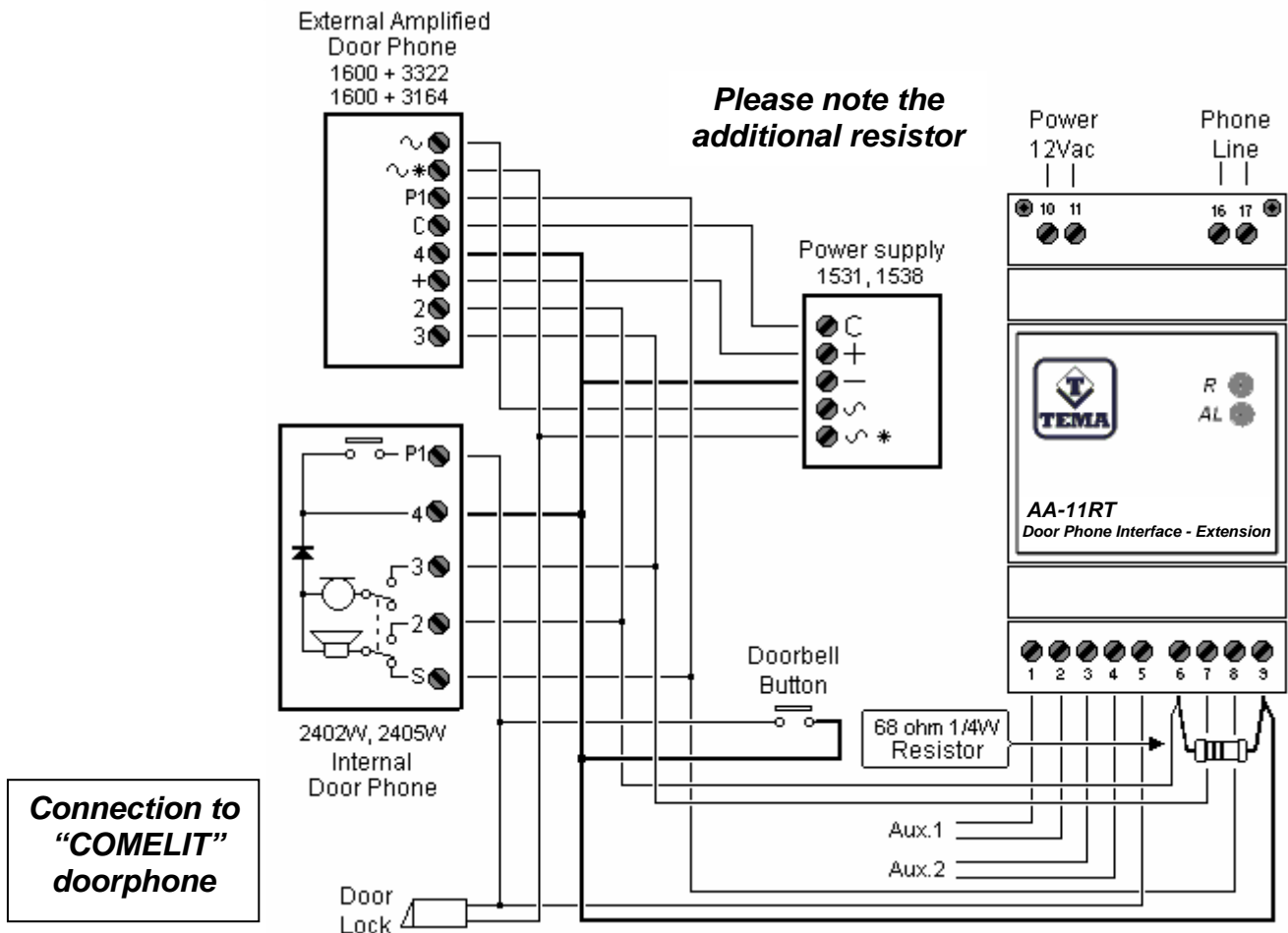
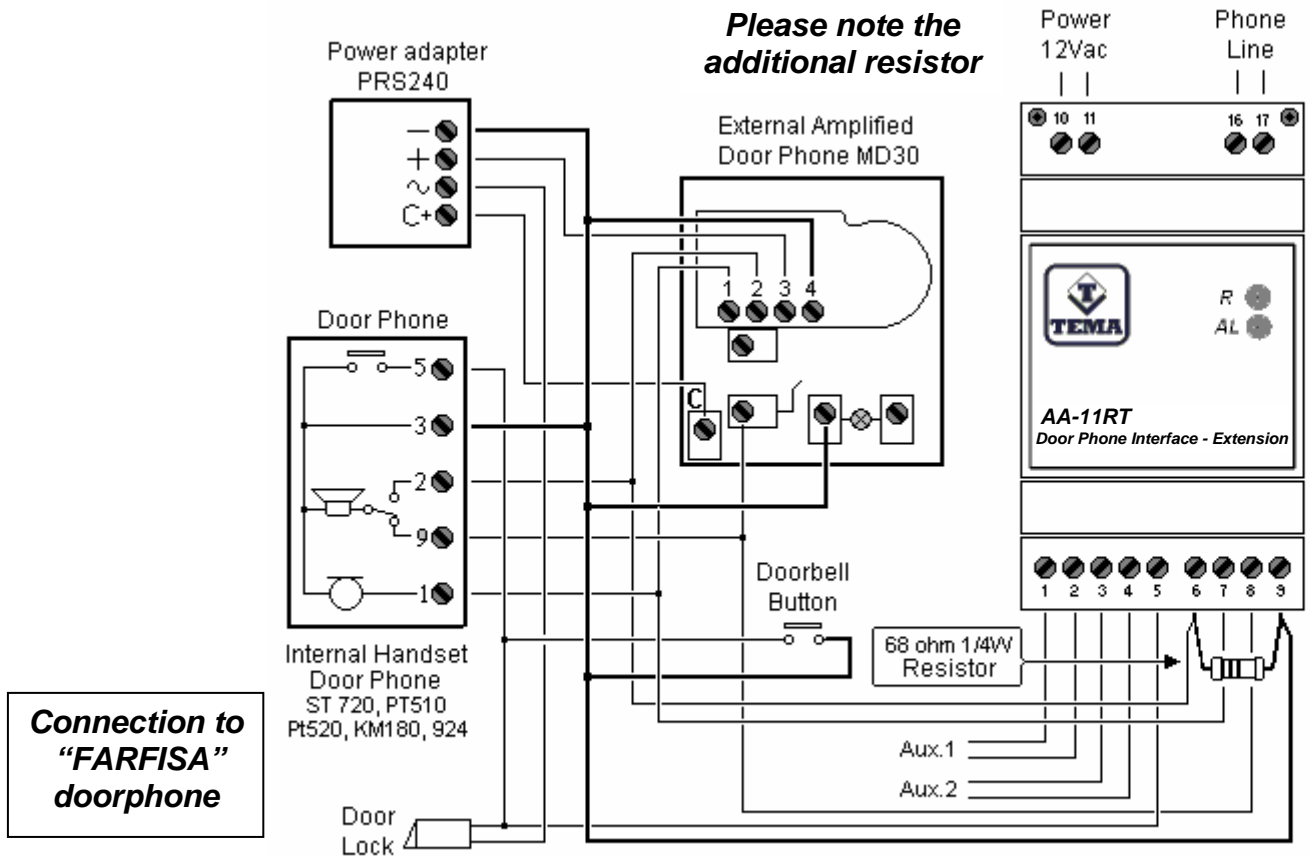
In the following, examples of connection with some brands of doorphones are presented. Find your model and connect it as indicated.

Connection to "ELVOX" doorphone



Connection to "URMET" doorphone





6. PARTS COMPRISING THE SYSTEM (PACKING LIST)

AA-11RT is shipped with a DIN rail segment, two screws and this manual.

7. TECHNICAL SPECIFICATIONS

Power	12V _{AC} or 18V _{DC}
Current consumption	180 mA
Operating temperature	0°C-45°C
Humidity	95% non-condensing
Mount	DIN rail
Size and weight	H90 x W52 x D60 mm, 180 gr
Doorlock relay max load	24V _{DC} / 5A – (250V _{AC} / 6A relay specification) WARNING: this relay has a pole in common with screw terminal 5, it cannot drive loads connected to powerline
Auxiliary relay max load	24V _{DC} / 1A – (120V _{AC} / 1A relay specification) WARNING: they cannot drive loads connected to powerline
Phone line connection	Twisted wire for connection to PBX extension
Line impedance, voltage and current	600 Ω, 20-40 mA off-hook

8. OPERATING COMMANDS

These are the commands available when called from the device. It is always possible to call the device (from a PBX extension) to issue the commands or configure AA-11RT.

The commands are available **only after the call is answered**.

To enter command mode: - **call the extension on which AA-11RT is installed**
 - **dial “1” (only for “normal” mode)**

Digit	Command	Description
2	Activate door lock relay	Opens the electric lock of any door or gate that requires to close a contact for a short time
3	Activate AUX1 relay	Used for example to turn on lights
4	Activate AUX2 relay	Used for example to turn on lights
5	De-activate AUX1 relay	Only in steady mode
6	De-activate AUX2 relay	Only in steady mode
7	De-activate AUX1 and AUX2 relay	Only in steady mode
9	Close connection	Closing the connection at the end of each call avoids waiting for the timeout before the next call
##	Enter programming mode	Described in the following

If a digit is dialed other than those listed, three high-pitch tones are emitted.

8.1. Front panel LEDs

Green LED “AL”	Lit when the device is powered
Red LED “R”	Reports the device status
Off	AA-11RT idle
Blinking	AA-11RT active, waiting for DTMF commands
Steady on	AA-11RT active, conversation with doorphone or programming

8.2. Table of programming parameters

The table below lists all the programming parameters of AA-11RT.

The parameters are stored in a non-volatile memory and are not lost even in case of loss of power.

To enter the programming mode:

“Normal” Mode

- call the extension on which AA-11RT is installed
- dial “1 # #”

“Autoconnect” Mode

- call the extension on which AA-11RT is installed
- dial “# #”

Digit	Parameter name	Description <i>Range = allowed values</i>	Default	Your setting
1 nnn #	nnn = first extension to call	The extension to be called by the device when an external visitor pushes the button at the doorphone. NOTE: dialling “*” digit the system will pause for 1 sec. before next digit. <i>Range: max 20 digits</i>	9 (operator)	
2 nnn #	nnn = second extension to call	Second extension to be called if the first called number does not answer. Put # without other digits for no call. NOTE: dialling “*” digit the system will pause for 1 sec. before next digit. <i>Range: max 20 digits</i>	# (disabled)	
3 nnn #	nnn = third extension to call	Third extension to be called if the second called number does not answer. Put # without other digits for no call. NOTE: dialling “*” digit the system will pause for 1 sec. before next digit. <i>Range: max 20 digits</i>	# (disabled)	
4 n	Door lock mode n = 1, pulse once n = 2, pulses twice n = 3, pulses 3 times	The door lock relay is activated with one or with more consecutive pulses. Set “n” for your needs. <i>Range: max 1 digit</i>	2 (2 pulses)	
5 n	AUX1 relay mode n = 1, pulse once n = 2, steady	Relay AUX1 is activated with a pulse or steadily closed (until it is commanded to de-activate). Set “n” for your needs. <i>Range: max 1 digit</i>	1 (1 pulse)	
6 n	AUX2 relay mode n = 1, pulse once n = 2, steady	Relay AUX2 is activated with a pulse or steadily closed (until it is commanded to de-activate). Set “n” for your needs. <i>Range: max 1 digit</i>	1 (1 pulse)	
7 n	Relay pulse duration n = 1, for 0.25 sec. n = 2, for 0.50 sec. n = 3, for 1.00 sec.	Duration of the pulse (for all relays). Note: the door-lock relay is always subjected to this setting, the AUX relays only if programmed in pulse mode <i>Range: max 1 digit</i>	1 (0.25 sec)	
0 n	Call/Convers. Time n = 1, 16 / 16 sec n = 2, 32 / 16 sec n = 3, 64 / 16 sec n = 4, 16 / 32 sec n = 5, 32 / 32 sec n = 6, 64 / 32 sec n = 7, 16 / 64 sec n = 8, 32 / 64 sec n = 9, 64 / 64 sec n = 0, 64 / 192 sec	In “normal” mode XX/YY : XX= extension calling time YY= time for the conversation with the external visitor In “autoconnect” mode XX/YY : XX=no effect YY= time at disposal of both the call attempt and the real conversation with the external doorphone. <i>Choose among the built-in combinations.</i> <i>Range: max 1 digit</i>	6 (64/32 sec)	
* n	End selection digit n=0, none n=1, # digit n=2, * digit	Inserts digit “*” or “#” at the end of the selection. <i>Range: max 1 digit</i>	0 (none)	

Digit	Parameter name	Description <i>Range = allowed values</i>	Default	Your setting
# 1n	Operating Mode n = 1, "Normal" n = 2, "Autoconnect"	Defines the operating mode of AA-11RT, especially if the audio with the external doorphone must be activated on command or not. In practice defines whether the operator must dial the digit "1" to enable communication or if the communication shall be activated immediately after the reply, so that the operator is already in communication with the visitor and can send directly the commands for opening gate or other. <i>Range: max 1 digit</i>	1 (normal)	
# 2n	Busy tone count	Number of busy tone instances (tone cadence) to be revealed by AA-11RT before the call is terminated. If: n=0 AA-11RT will not close for busy detection n=1 AA-11RT will close after 02 busy tone instances n=2 AA-11RT will close after 04 busy tone instances n=3 AA-11RT will close after 06 busy tone instances n=4 AA-11RT will close after 08 busy tone instances n=5 AA-11RT will close after 10 busy tone instances n=6 AA-11RT will close after 12 busy tone instances n=7 AA-11RT will close after 14 busy tone instances n=8 AA-11RT will close after 16 busy tone instances n=9 AA-11RT will close after 18 busy tone instances	3	
# 3n	Busy tone min	Duration of minimum time of the tone / pause to be detected (in 100ms units) n=0 AA-11RT will not close for busy detection n=1 AA-11RT detection window of 100 ms n=2 AA-11RT detection window of 200 ms n=3 AA-11RT detection window of 300 ms n=4 AA-11RT detection window of 400 ms n=5 AA-11RT detection window of 500 ms n=6 AA-11RT detection window of 600 ms n=7 AA-11RT detection window of 700 ms n=8 AA-11RT detection window of 800 ms n=9 AA-11RT detection window of 900 ms	1	
# 4n	Busy tone max	Duration of maximum time of the tone / pause to be detected (in 100ms units) n=0 AA-11RT will not close for busy detection n=1 to 9 ... (same as above)	6	
8	Reset all values to the factory default	WARNING: issue this command only if you want to reset all values to the factory default, losing your settings. This command acts without asking any confirmation: use it with care!	-	-
9	End programming	Disconnects the call and saves any changes to the parameters. The settings are saved even without the "9" command, but the device would hang up and be available for new calls only after a timeout.	-	-

For example, if you want that the door-lock is activated twice: call the extension on which AA-11RT is installed, dial 1## to enter programming mode, dial 42 to set the door lock mode parameter, then dial 9 to end the call and finally hang up. After that, whenever the command 2 is dialed the door-lock relay will be closed twice in succession.

REMARKS