TEMA TELECOMUNICAZIONI S.r.l.
Telecommunications - Electronics

Doorphone PBX interface

AA-10

for connection with analog trunk



TECHNICAL MANUAL – INSTALLATION

AA-10 System manual SW Version 5

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
3	30/06/2009	Update	DP,GBC	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, COM123, COM124**

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, 27 Maggio 2005

TEMA TELECOMUNICAZIONI SRL
Felice Lamanna
Amministratore



I. IMPORTANT INFORMATIONS 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 Stases and to fulfill other duties in compliance with Directive 2002/96/EC and local laws.



1. OVERVIEW OF AA-10 INTERFACE

The AA-10 doorphone-PBX interface is designed to manage the external doorbell of the vast majority of door systems (4 or 5 wires) through an analog trunk of the PBX. When a visitor pushes the doorbell, AA-10 makes a call to the trunk. This will be typically managed by the PBX operator. Then the operator can speak with the visitor at the doorbell and then open the door with a DTMF command. AA-10 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, 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-10 are:

- Connection to most doorbell systems (4 or 5 wires)
- DIN rail mount, fitted with 1 open-door relay plus 2 auxiliary relays
- 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

3. GENERAL FUNCTIONS

When the external doorphone button is pushed, the device generates automatically a call to the PBX. As soon as AA-10 detects the operator answer, it stops the ring current and waits for DTMF commands. In the meanwhile it beeps every 2 seconds. In the “normal” mode the operator must dial “1” to activate the communication with the external doorphone. Once the voice connection is established, the operator can activate the open-door relay dialing “2”.

Hanging up, AA-10 returns idle and ready for a new access request. It is also possible to connect with the external doorphone dialing the suitable digits (dependent on the PBX configuration). It will beep every 2 seconds and connect the caller to the doorphone when “1” is dialed. This feature is useful if there is the need to activate a voice connection without an explicit request from the outside. For example when the presence of a guest is detected using a camera.

AA-10 releases the call and returns idle if the operator does not answer within 45 seconds. If the operator answers to a call from AA-10 not during the working hours and does not want to open the door nor speak with the guest, he can simply hang up after hearing the AA-10 tone. An the external doorphone, it will look like if nobody were present inside.

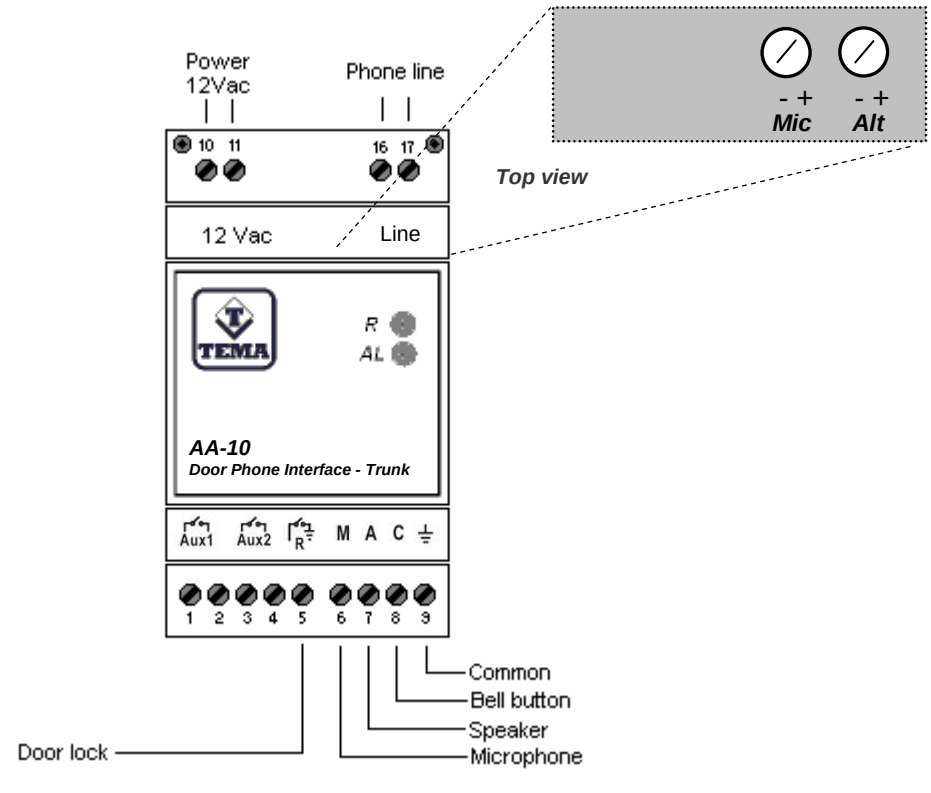
Calling AA-10 opens the possibility to use its additional features, in particular to activate the two auxiliary relays according to their programming. They can be used to open additional doors or gates, as well as to turn on a lamp when it’s dark.

By combining the AA-10 relays with other appliances, it is possible for example to activate the heating/cooling system.

It is possible to set AA-10 to work in “autoconnect” mode. In this mode, AA-10 will work in the same way as described above. The difference is that when the operator answer to the AA-10 call, the system immediately connect the visitor with him (no “1” digit required, as the “normal” mode).

4. GENERAL DESCRIPTION

4.1. Front view



- 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-10 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-10 audio input) is for connecting the doorphone microphone
- Screw terminal 7 (AA-10 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 trunk line

4.2. Volume adjustment

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



Mic = external doorphone microphone sensitivity
Alt = external doorphone speaker sensitivity

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.

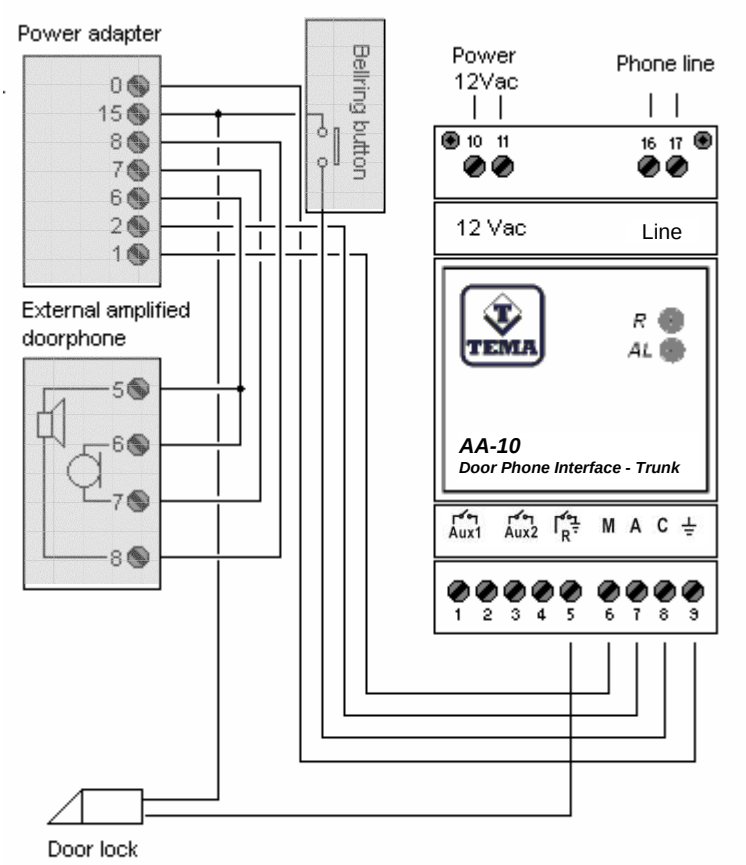
In the case that hisses are present (Larsen effect) try to reduce the Mic/Alt audio level by trimmers. Larsen effect depends on the external doorphone acoustic condition. It might be necessary to adjust the trimmers before installing AA-10 on the DIN rail, depending on the position where it will be installed. If it is the case, connect AA-10 and adjust the trimmers before mounting it on the rail.

5. INSTALLATION

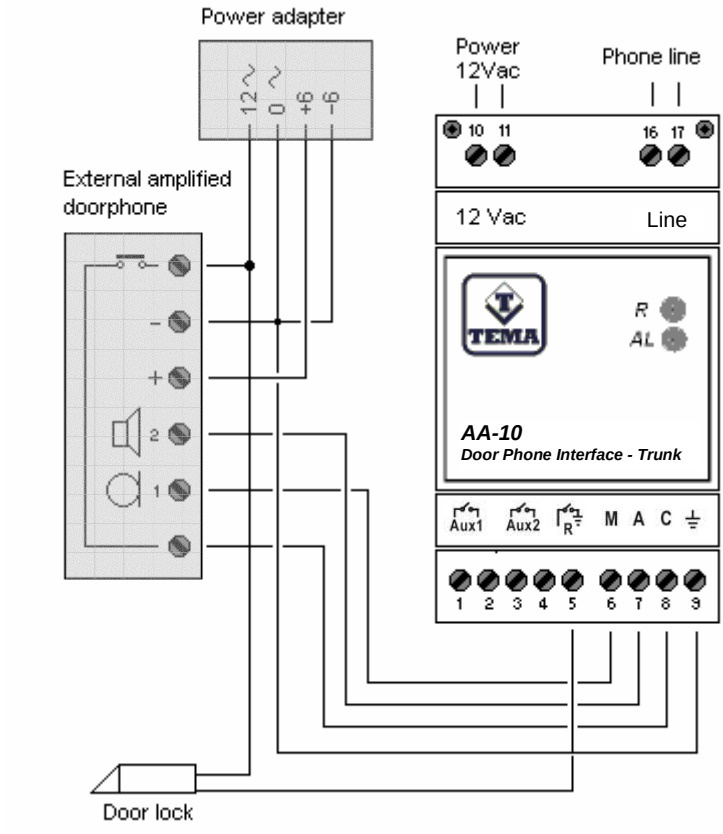
5.1. Connection examples

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

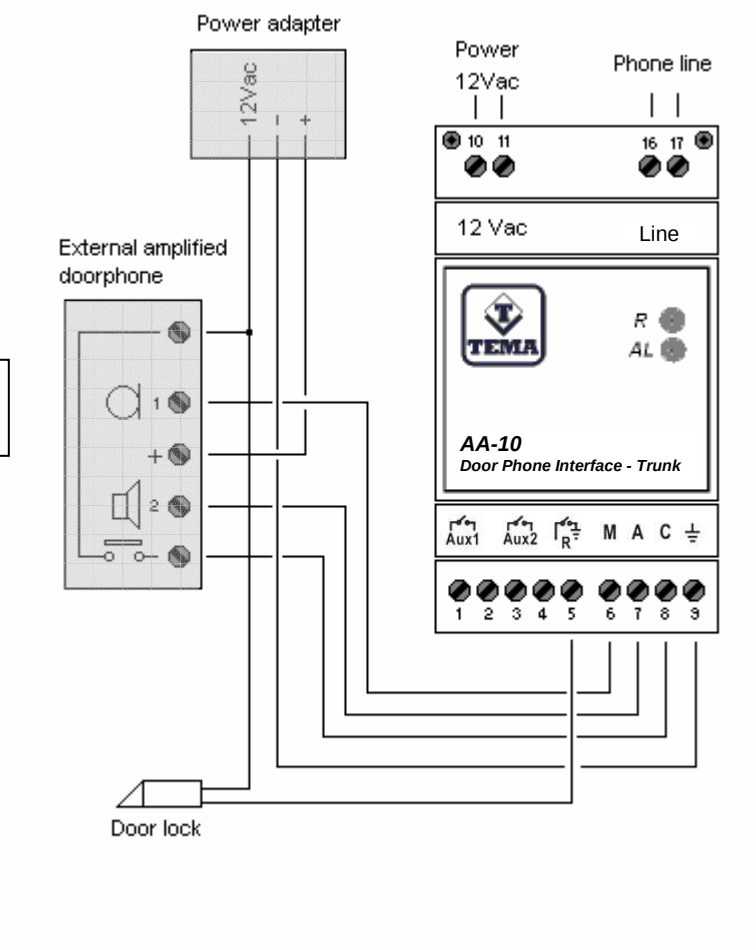
Connection to "ELVOX" doorphone

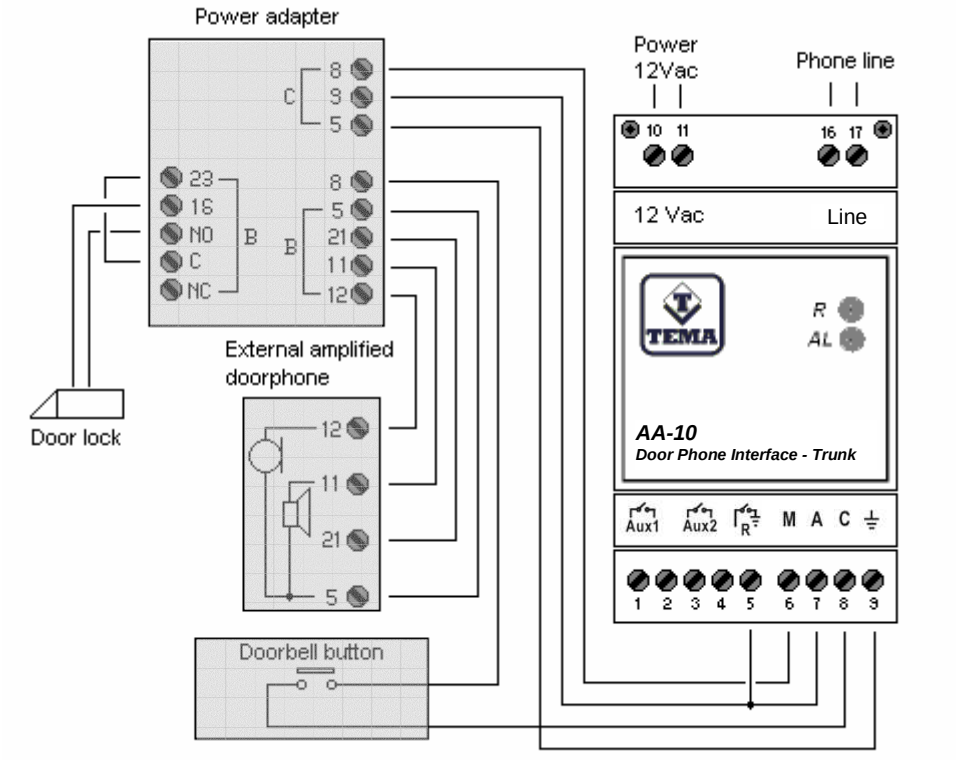


Connection to "URMET" doorphone



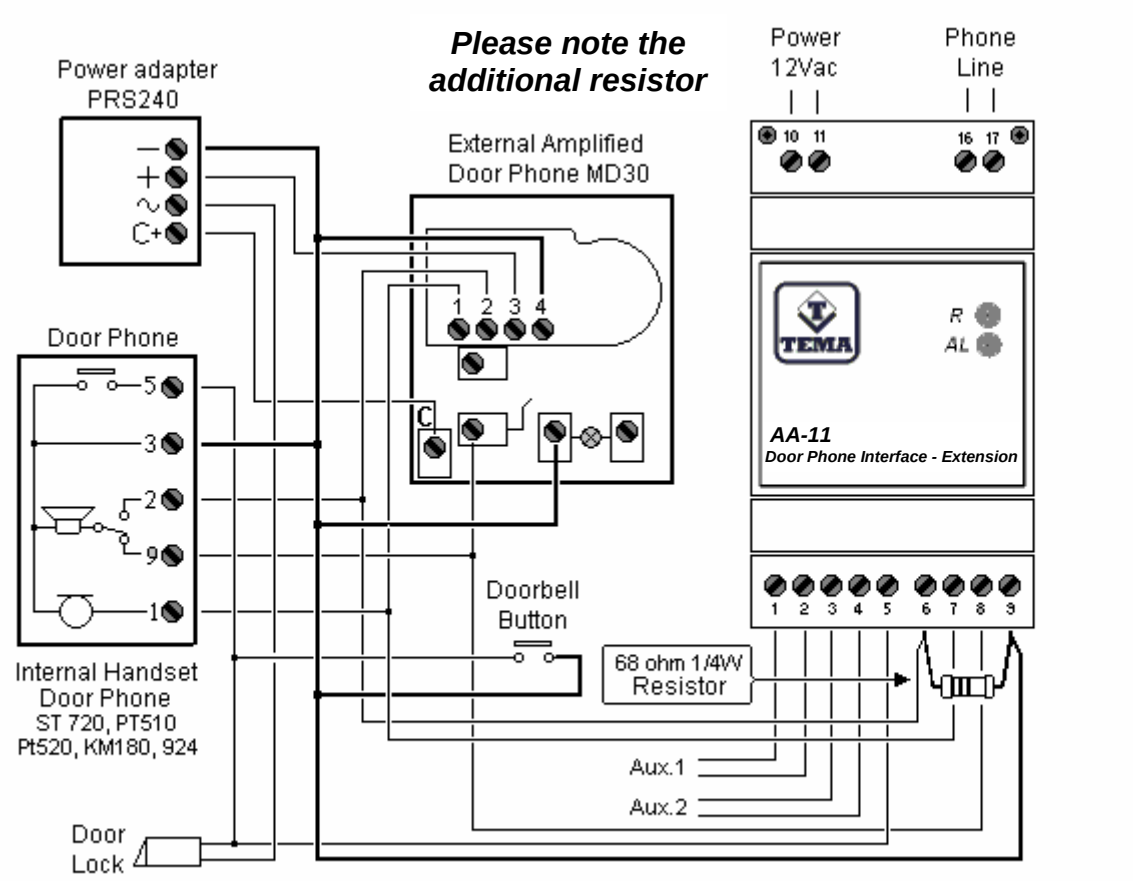
Connection to "TERRANEO" doorphone



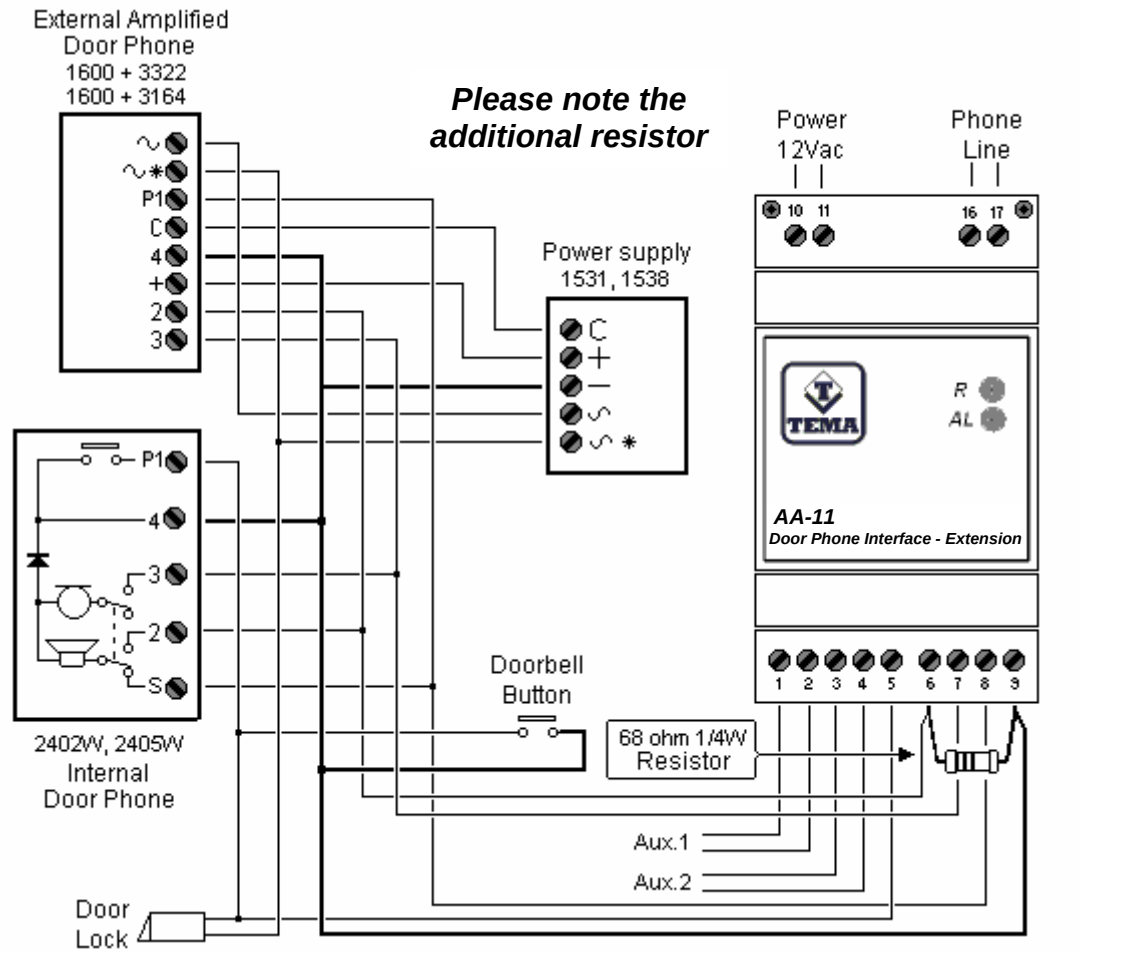


Connection to "BPT" doorphone

Connection to "FARFISA" doorphone



Connection to "COMELIT" doorphone



6. PARTS COMPRISING THE SYSTEM (PACKING LIST)

AA-10 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 powerline loads
Phone line connection	Twisted wire for connection to PBX trunk
Line impedance, voltage and current	600 Ω, 48 V_{DC} when idle, 25mA max. off-hook
Max line loop resistance	800 Ω
Ring generator	65 V_{RMS}, 25Hz on open circuit, 40 V_{RMS}, 25Hz on 3 REN (400 Ω)

8. OPERATING COMMANDS

These are the commands available when the device calls the operator. It is always possible to reach the device (from a PBX extension) to issue the commands or configure AA-10.
The commands are available **only after the call is answered**.

To enter command mode: **- reach AA-10 from the PBX**
- dial "1" (only for "normal" mode, not for "autoconnect")

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
##	**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-10 idle
- **Blinking** AA-10 active, waiting for DTMF commands
- **Steady on** AA-10 active, conversation with doorphone or programming

8.2. Table of programming parameters

The table below lists all the programming parameters for AA-10.
The parameters are stored in a non-volatile memory and are not lost even in case of loss of power.

To enter programming mode:

"Normal" mode
- reach AA-10 from the PBX
- dial "1 # #"

"Autoconnect" mode
- reach AA-10 from the PBX
- dial "# #"

Digit	Parameter name	Description ***Range = allowed values***	Default	Your setting
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 more consecutive pulses. Set "n" for your needings. *Range: max 1 digit*	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 needings. *Range: max 1 digit*	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 needings. *Range: max 1 digit*	1 (1 pulse)	
7 n	Relay pulse duration n = 1, 0.25 sec n = 2, 0.50 sec n = 3, 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. *Range: max 1 digit*	1 (0.25 sec)	
9 n	Operational mode n = 1, "Normal" n = 2, "Autoconnect"	Operational mode settings. In the "normal" mode the operator must dial "1" to activate the communication with the external doorphone. Otherwise in "autoconnect" mode AA-10 will immediately connect the visitor with the operator (no "1" digit required). *Range: max 1 digit*	1 (normal)	
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!**	-	-

For example, if you want that the door-lock is activated twice: reach AA-10 from the PBX, dial 1## to enter programming mode, dial 42 to set the door lock mode parameter, then hang up. After that, whenever the command 2 is dialed the door-lock relay will be closed twice in succession.

REMARKS

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