TEMA TELECOMUNICAZIONI S.r.l.
Telecommunications - Electronics

AA-11

Doorphone PBX interface
for connection with analog extension

TECHNICAL MANUAL – INSTALLATION

AA-11 System manual

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	Written	Checked/Approved
0	13/07/2006	First issue	LC	FL

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-11 INTERFACE

The AA-11 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-11 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-11 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-11 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 in sequence up to 3 programmable extensions
- 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. PARTS COMPRISING THE SYSTEM (PACKING LIST)

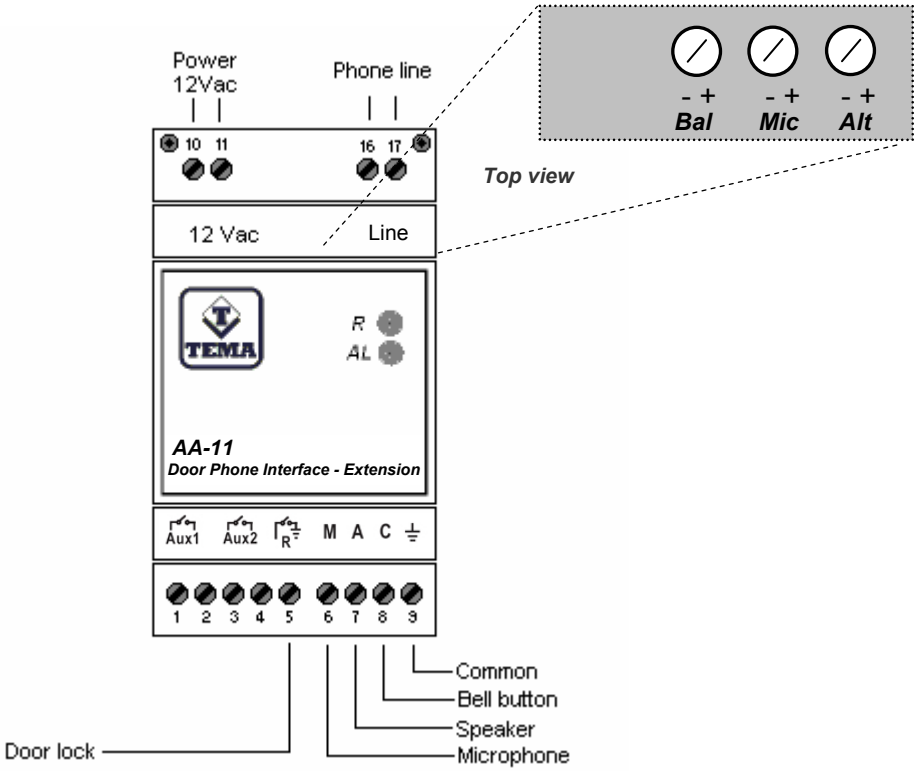
AA-11 is shipped with a DIN rail segment, two screws and this manual.

4. TECHNICAL SPECIFICATIONS

Power	$12V_{AC}$ – $18V_{DC}$
Current consumption	180 mA
Operating temperature	0˚C-45˚C
Humidity	95% non-condensing
Mount	DIN rail
Size and weight	W52 x H90 x D60 mm, 180 grams
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 ohm, 20-40 mA off hook

5. GENERAL DESCRIPTION

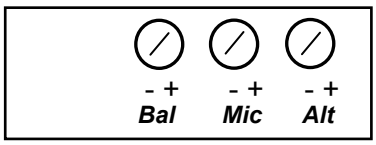
5.1. Front view AA-11



- 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-11 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-11 audio input) is for connecting the doorphone microphone.
- Screw terminal 7 (AA-11 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.

5.2. 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

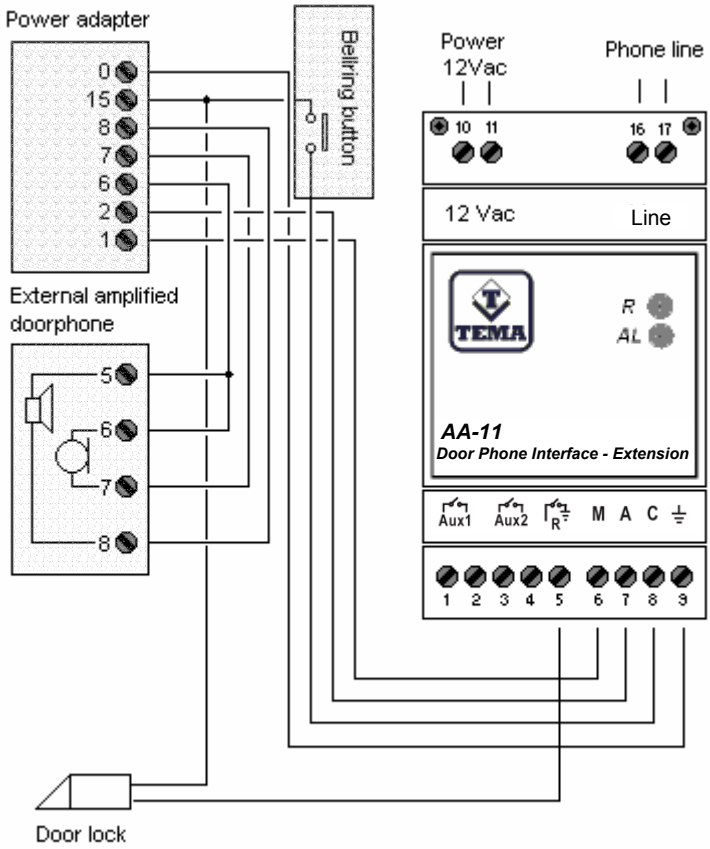
Before proceeding to the installation it is advisable to set the trimmers to half range. Then adjust the Mic trimmer to obtain a good listening volume at the operator phone, then adjust the Alt trimmer to obtain a good listening volume at the external doorphone. Should hisses be heard (Larsen effect) 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-11 on the DIN rail, depending on the position where it will be installed. If it is the case, connect AA-11 and adjust the trimmers before mounting it on the rail.

6. INSTALLATION

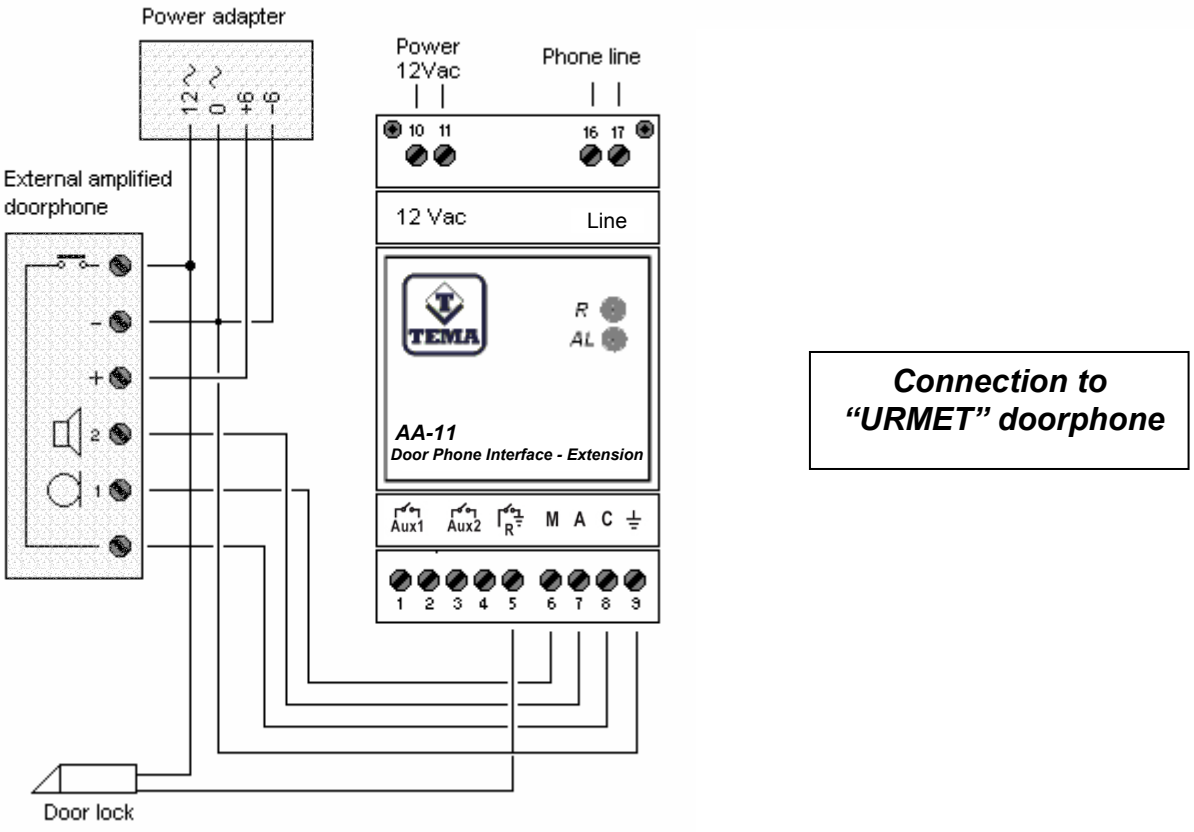
6.1. Connection examples

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

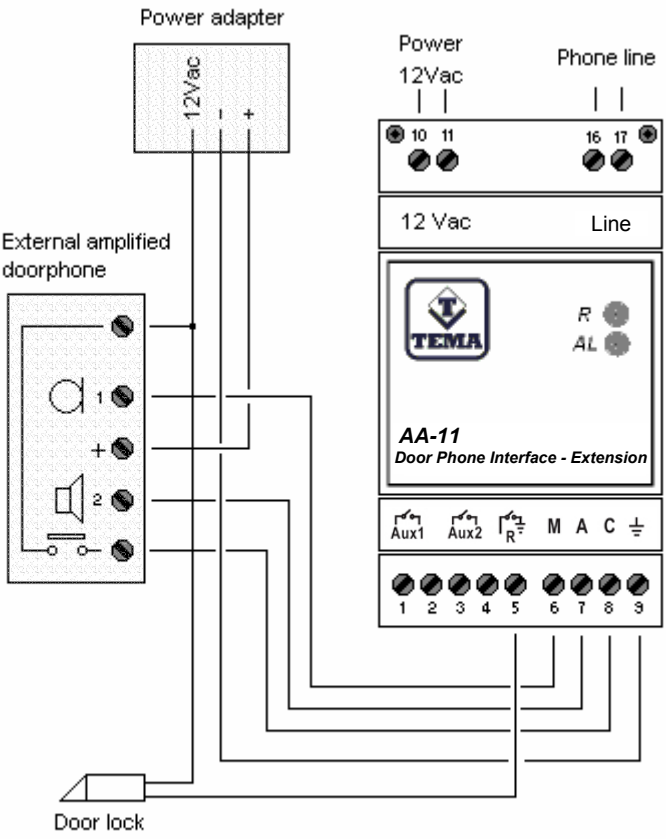
Connection to "ELVOX" doorphone



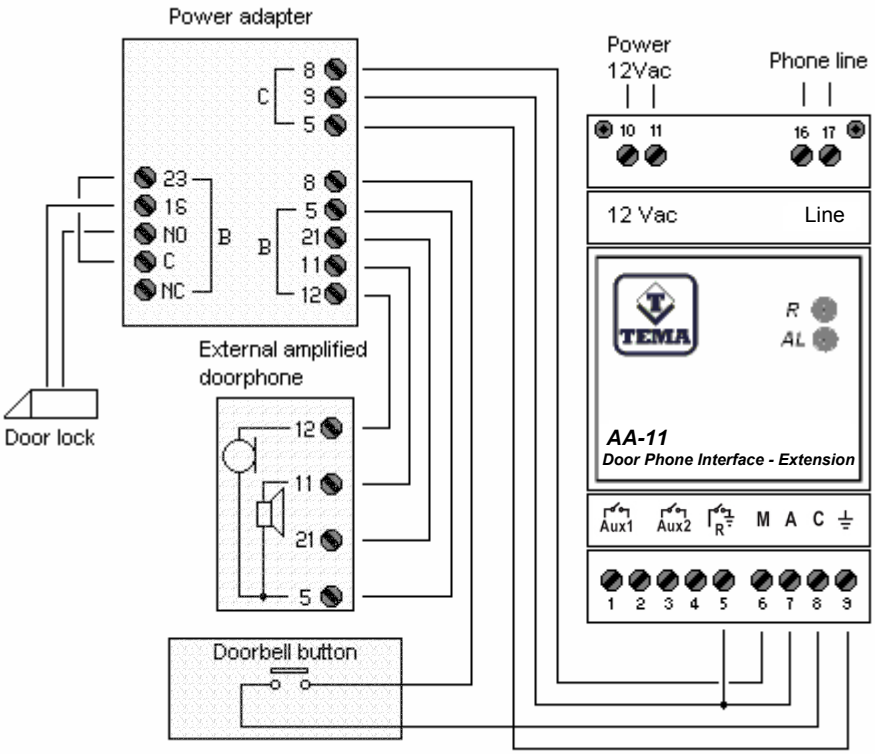
Connection to "URMET" doorphone



Connection to "TERRANEO" doorphone



Connection to "BPT" doorphone



7. GENERAL FUNCTIONS

When the external doorphone button is pushed, the device calls the first programmed extension and waits for an answer. After answering, the called extension hears a beep every two seconds and can 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”. 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-11 will return idle after a programmed time.
If the first called extension does not answer, or after answering does not dial “1” (activation of the voice communication), after a timeout the second extension will be called, and then the third. If not even the third extension answers dialing “1”, AA-11 returns idle ready for a new access request. This 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-11 is connected. 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 is the presence of a guest is detected using a camera.
Calling AA-11 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-11 relays with other appliances, it is possible for example to activate the heating/cooling system.

7.1. 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-11.
The commands are available **only after the call is answered**.

To enter command mode: **- call the extension on which AA-11 is installed**
- dial “1”

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.

7.2. Front panel LEDs

Green LED “AL” Lit when the device is powered

Red LED “R” Reports the device status

Off	AA-11 idle
Blinking	AA-11 active, waiting for DTMF command
Steady on	AA-11 active, ongoing conversation with doorphone or programming

7.3. Table of Programming Parameters

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

To enter programming mode: **- call the extension on which AA-11 is installed**
- dial "1 # #"

Digit	Parameter name	Description *Range = allowed values*	Default	Your setting
1 nnn #	First extension	The extension to be called by the device when an external visitor pushes the button at the doorphone. nnn = first extension *Range: max 20 digits*	9 (operator)	

2 nnn #	Second extension	Second extension to be called if the first does not answer. # without other digits disables the second call.
		nnn = second extension
		Range: max 20 digits
			#
			(disabled)	

3 nnn #	Third extension	Second extension to be called if the previous do not answer. # without other digits disables the third call.
		nnn = third extension
		Range: max 20 digits
			#
			(disabled)	

4 n	Door lock mode	The door lock relay is activated with one or more consecutive pulses. n = 1, pulse once n = 2, pulses twice n = 3, pulses 3 times *Range: max 1 digit*	2 (2 pulses)	
5 n	AUX1 relay mode	Relay AUX1 is activated with a pulse or steadily closed (until it is commanded to de-activate). n = 1, pulse once n = 2, steady *Range: max 1 digit*	1 (1 pulse)	
6 n	AUX2 relay mode	Relay AUX2 is activated with a pulse or steadily closed (until it is commanded to de-activate). n = 1, pulse once n = 2, steady *Range: max 1 digit*	1 (1 pulse)	
7 n	Relay pulse duration	Duration of the pulse (for all relays). n = 1, pulse once n = 2, steady Note: the door-lock relay is always subject to this setting, the AUX relays only if programmed in pulse mode *Range: max 1 digit*	1 (0.25 sec)	
0 n	Call/Convers. time	Combination of the maximum time allowed before the answer of the programmed extensions and the maximum time of conversation with the external doorphone. 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 *Choose among the built-in combinations.* *Range: max 1 digit*	6 (64/32 sec)	
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-11 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.