TEMA TELECOMUNICAZIONI

"IP COMMUNICATION AND SECURITY COMPANY"

WWW.TEMATLC.IT

APPLICATION NOTES

"SipComStage"

Products for Communication, Security and PA Paging in LAN network integrated in the VoIP SIP world. Zone announcements, Night ringer, Multicast general call, Musical background broadcast, SIP standard call, Emergency call, software for centralized management, Memory with prerecorded message files, Relay for LAN drives and inputs for transmission of warning and alarm events.

UNI EN ISO 9001:2015

"Thirty years on the customer's side"

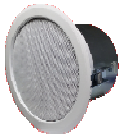
Index

Products and accessories of "SipComStage" Audio over IP line

AD630 IP-SIP PoE 30W Horn Speaker with 40W internal amplifier (2x20W) IP65 protection. Same design **AD330/30T** passive 30W-8Ohm horn with transformer.

AD635 IP-SIP PoE 12W speaker for wall mounting. Same design **AD335/06TP** passive 6W-8Ohm speaker with transformer.

AD633 IP-SIP speaker 12W PoE ceiling mount version. Same design **AD333/12TP** passive 12W-8Ohm speaker with transformer.



AD633C IP-SIP 12W PoE Speaker ceiling mount version with IP54 flameproof cover. Same design **AD333/12XTP** passive 12W-8Ohm speaker with transformer.

AD634 IP-SIP 2x20W PoE IP65 Speaker in vandal-proof aluminum. Same design **AD334/20TP** passive 20W-8Ohm speaker with transformer.

AD638 IP-SIP 2x20W PoE IP65 speaker two-way low-medium and high. Same design **AD338** passive speaker 30W-8Ohm.

AD639 IP-SIP 2x20W PoE IP56 Speaker. Same design **AD339** passive speaker 15W-8Ohm.

AD639R "RingOne" IP SIP Night Call Repeater 30W , integrated PoE power supply 802.af, IP56.

AD610 2X2W PoE IP-SIP Amplifier Module, External Amplifier Adapter with Sound Isolation Transformer. Directly pilot external power amplifiers and 8 Ohm external passive speakers.

AD611 IP-SIP PoE 10W Amplifier Module (2X5W). Directly pilot 8 Ohm external passive speakers.

AD612 IP-SIP PoE 40W (2x20W) Amplifier Module when powered with an external power supply. Directly pilot 8 Ohm external passive speakers.

AD615/S Audio Encoder Module from analog to digital on LAN Network in Multicast/Broadcast Channels.

AD696/BM External microphone base with "Talk" button and 7 selectable Chime for AD615/S RJ45 plug. Version **AD696/B** without chime.

ADAM
Audio Domain & Access Management Management software and microphone console from 3 to 256 zones

AD696/AA External Microphone Base with "Talk" button specific for PC with ADAM software

AD696/AC Handset microphone and earphone with PC-specific 4-pole jack with ADAM software

AD630/SMS Special device for security and ManDown applications, IP system in LAN network with SMS activation

AA-39DL
Plug power supply 220Vac/12Vdc-1,0A.

AA-39D1A
DIN power supply 220Vac/15Vdc-1,0A.

AA-39P4
PoE injector 230Vac/48Vdc 0,5A.

AA-39E3
DIN Power Supply 220Vac/24Vdc-1,5A

AA-39E6V
DIN Power Supply 220Vac/24Vdc-2,5A.

AA-699/xxx Flash lights with Xeon lamp or high brightness LEDs. Ideal to be controlled by the relay of the IP-SIP speakers of the AD630 series or by the IP-SIP amplifier AD610, AD611, AD612 modules, with a call in progress add a light signal to the acoustic signal.

ANALOG COMPONENTS

AD301R 30W-4 Ohm analog amplifier, 2 channels, Volume-High-Low +/-12dB controls.

AD320/30 PA 100V audio line transformer 30W, constant voltage, high efficiency toroidal type with low magnetic flux leakage.

AD32 Isolation transformer, balanced, mixer, attenuator, audio signal filter, low impedance output. Ideal for decoupling devices of audio sources to other amplifiers to eliminate noises.

AA-36 Protected Power Relay Actuator 250Vac/16A/4KVA, command in AC/DC 12V/24V, 1 contact, Led, contacts protected by electric arcs. Ideal for driving loads up to 4.000W.

AA-39D2
DIN power supply 220Vac/15Vdc-2A-30W

AD330/xx Are available Speakers of different power, Horns and Loudspeakers for flush and ceiling mount, indoor and outdoor, IP54-65.

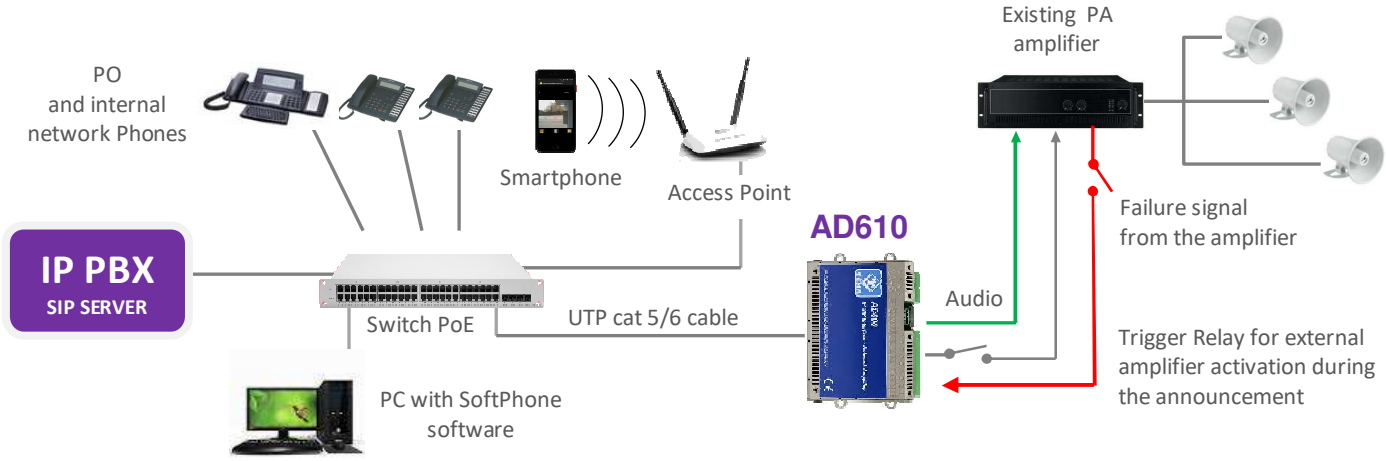
Unique features of the "SipComStage" AD600 Audio over IP line

- *SCALABILITY*
- *RELIABILITY*
- *FLEXIBILITY*
- *EASY TO USE*
- *EASY TO MANAGE*
- *REMOTE CONTROL*
- *HIGH SOUND QUALITY*
- *INTEGRATED POE POWER SUPPLY*
- *TERMINAL INTERCHANGEABILITY*
- *UNIQUE AND EXCLUSIVE PERFORMANCES*
- *EASY SOFTWARE UPGRADE*
- *CE CERTIFICATION*
- *LOW COSTS*
- *INTEGRABLE WITH ANY KIND OF IP-PBX AND SOFTCLIENT*
- *INTEGRATION WITH EVERY SAFETY SYSTEM*
- *LAUNCH OF ADS AND COMMANDS VIA GSM/UMTS*
- *ACTIVATION VIA SMS*
- *2-WAY COMMUNICATIONS - INTEGRATED MICROPHONE*
- *PROTECTION FROM IP54 TO IP67*
- *VANDALPROOF VERSIONS FOR INDUSTRIAL ENVIRONMENTS*
- *CONTINUED UPDATES AND INNOVATIONS*
- *CURRENT ADVANCED TECHNOLOGY*

Tested with the most popular PBX brands:
SIEMENS - AVAYA - ALCATEL - PANASONIC - SAMSUNG - NEC - 3CX LG - WILDIX - AASTRA - ASCOM - NITSUKO - SELTA - PHILIPS ASTERISK BASED SYSTEMS

***MADE IN ITALY**: all the products are designed and manufactured in Italy by TEMA which guarantees their support and technical assistance over time with a 24 months warranty.*

01 AD610 IP-PBX telephone network interface to a traditional P.A. paging audio system: announcements from every telephone in the telephone network



In any situation where there is already a traditional audio system with centralized amplifier and passive loudspeakers in the various areas, it is possible to integrate and enhance the performance of the system in a simple and fast way without installing special cables or upgrading the existing amplifier. With AD610 the access to the central amplifier will be extended to all the PBX users enabled to launch an announcement on the P.A paging system network from any phone that calls the SIP number assigned to the AD610. An internal relay signals to the amplifier the presence of an announcement and remains closed for the whole duration of the same, while an appropriate input detects any faulty of the amplifier and communicates them to a person making a SIP telephone call. Some application examples:

In a **supermarket** the AD610 device installed is used to request assistance at a cash desk and for announcements useful to customers from any telephone station. Furthermore, when the amplifier signals an anomaly, AD610 calls the number of the employee and signals the fault with a prerecorded message. AD610 can also be used to launch promotional announcements on command, prerecorded announcements are loaded into the device memory, can be changed, deleted and replaced remotely via an integrated Web server. Some application examples:

In a **company**, AD610 is used to search people via the existing speaker network.

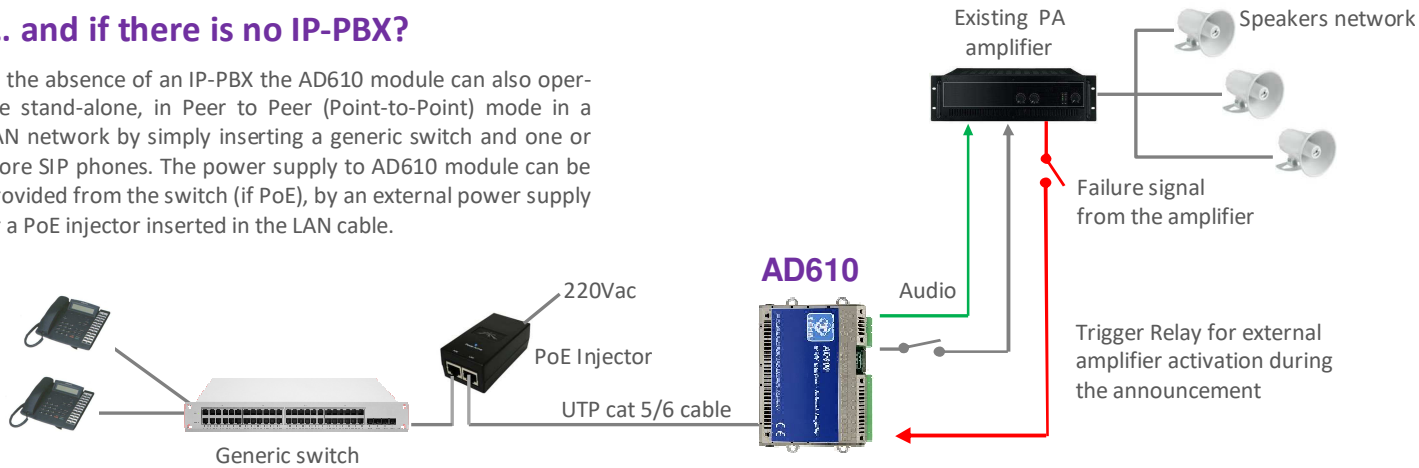
In a **noisy mechanical workshop**, in addition to the transmission of warnings, the AD610 is used to repeat the PBX ringer for an incoming telephone call difficult to hear from the installed phones.

In a **warehouse** in the shipping area AD610 is used to inform the staff of the imminent arrival of a courier to be managed.

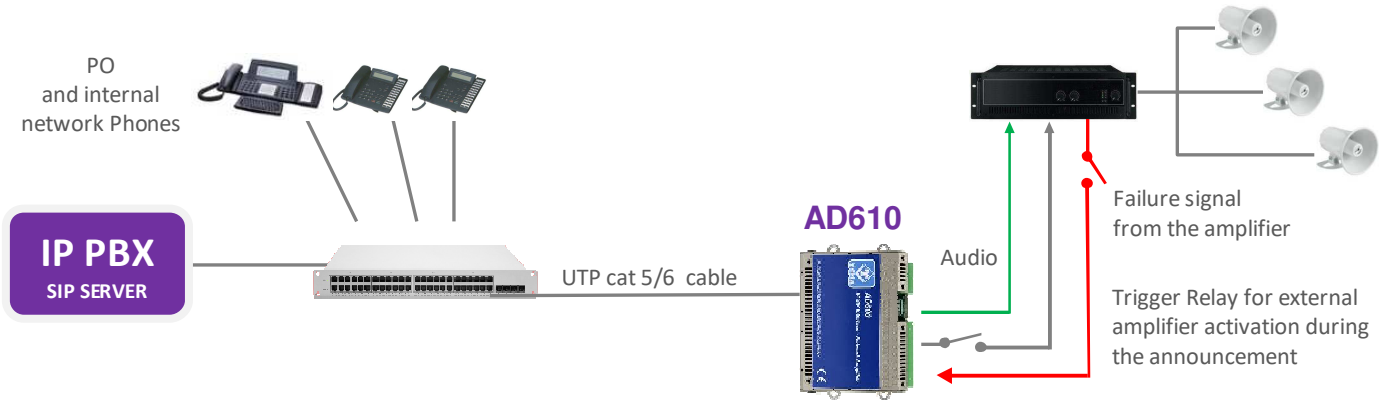
In a **store/emporium** AD610 is used to stream background music on all speakers through the existing audio amplifier. The background music stops automatically when there are announcements and alerts.

… and if there is no IP-PBX?

In the absence of an IP-PBX the AD610 module can also operate stand-alone, in Peer to Peer (Point-to-Point) mode in a LAN network by simply inserting a generic switch and one or more SIP phones. The power supply to AD610 module can be provided from the switch (if PoE), by an external power supply or a PoE injector inserted in the LAN cable.

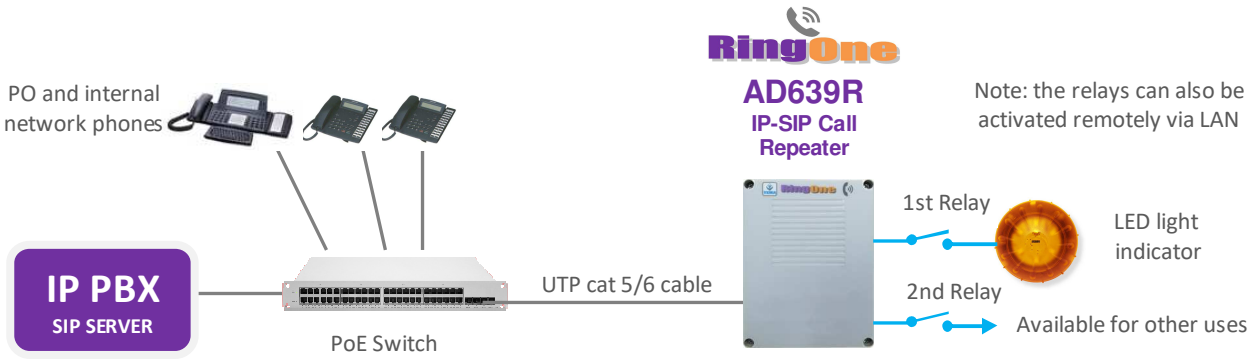


02 AD610 SIP repeater of the telephone ringer on the loudspeaker network

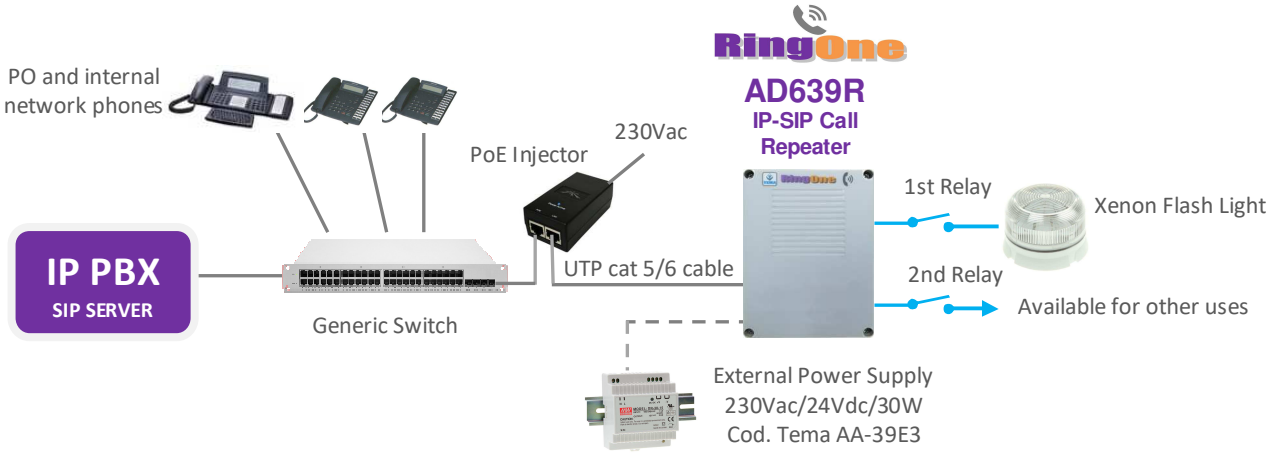


AD610 is equipped with 2 SIP accounts with 2 different operating modes. The first is used as a number to call for announcements from the telephone, the second is used to be inserted into a PBX group and to repeat a telephone call, for example during night service, generating an audio to be sent to the amplifier and consequently on the existing speaker network. The AD610 comes with several prerecorded sound files but the user can insert his own audio file at will to be reproduced following the event.

03 AD639R Standalone SIP repeater of the telephone ringer with direct PoE power supply



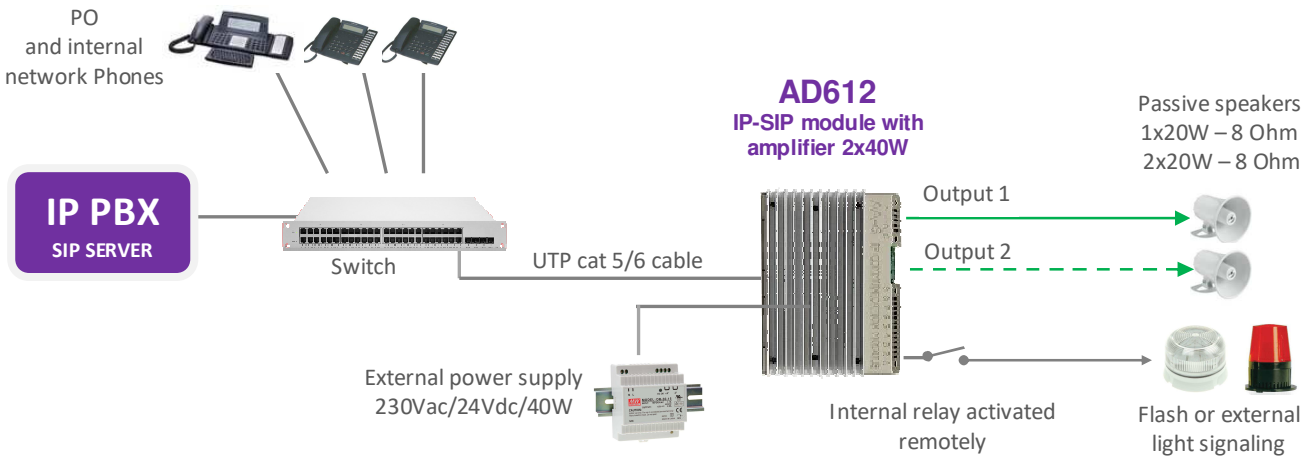
03A AD639R Standalone SIP repeater of the telephone ringer with PoE injector or external 230Vca power supply



Once connected AD639R in the LAN and registered in the IP-PBX in a group of numbers for the repetition of incoming or night calls, the device will make a loud sound (a message or any compatible audio file) contained in its memory and at the same time, activate a LED or a FLASH warning light, if provided.

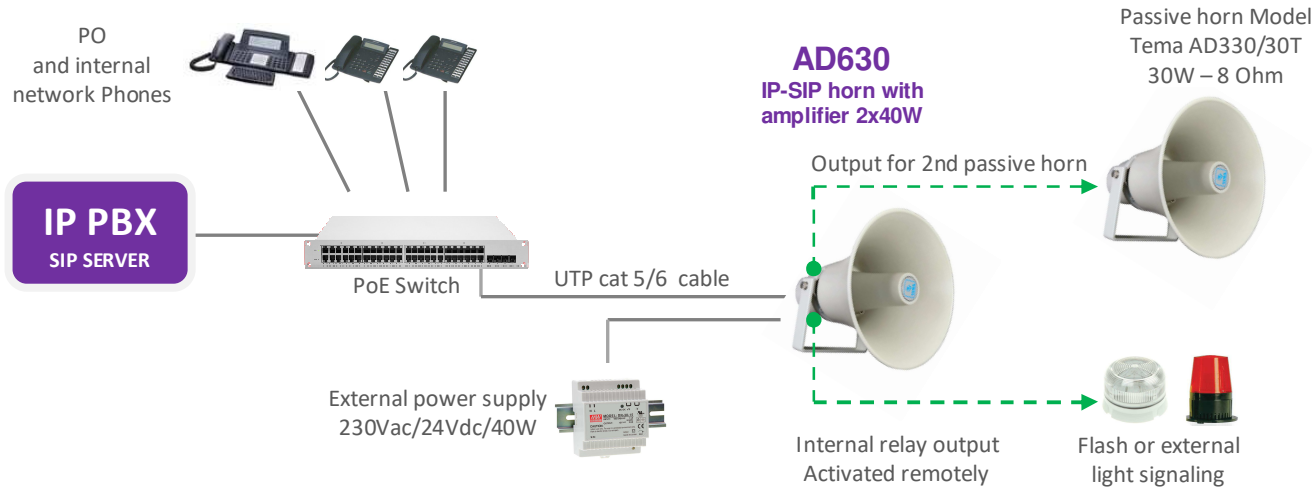
A second relay, which can also be activated by the presence of a SIP call, can be used for other external drives, for example, activating another sound reproducer in different rooms or areas. The cycle will stop when the call is terminated or an operator responds, except to resume for a new incoming call

04 AD612-AD630 Standalone SIP repeater of the telephone ringer with greater sound power



In the absence of an existing amplification system and with the need for a high sound power, it is possible to use the IP-SIP AD612 module able to repeat the ringtone on its own internal power amplifier with a total power of 40W and transmit it to one or more local loudspeakers of any type, just respecting the characteristics indicated, or use the model Tema AD300/30T.

The relay can be used to control an external light to provide visual information as well as acoustic information in the presence of a repeated telephone call. It is possible to use a "Flash" indicator model AD699/X10B or other similar available.



This solution uses the IP-SIP horn which internally integrates a 2x20W double audio amplifier, one of which drives the unit itself and the other can be used to further increase the power by connecting an external passive horn. A relay is always available to control other external devices.

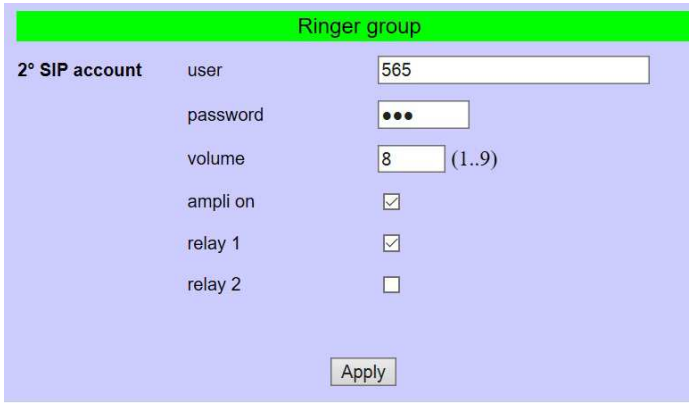
05

How to install a SIP night ringer call repeater, in just 4 steps

1. Connect a SipComStage AD600 series product to a PoE switch with a standard cat. 5/6 cable, or to a generic switch by powering the AD600 with the external power supply

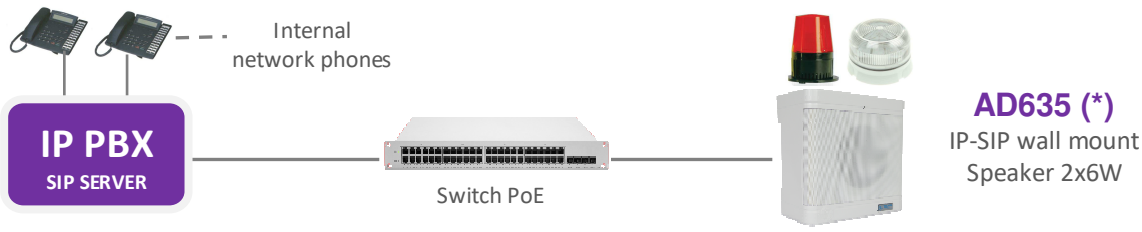
2. Assign an IP address and the credentials of the LAN to AD600

3. Register into IP-PBX the number assigned to AD600 in the text box reserved for the 2nd SIP account



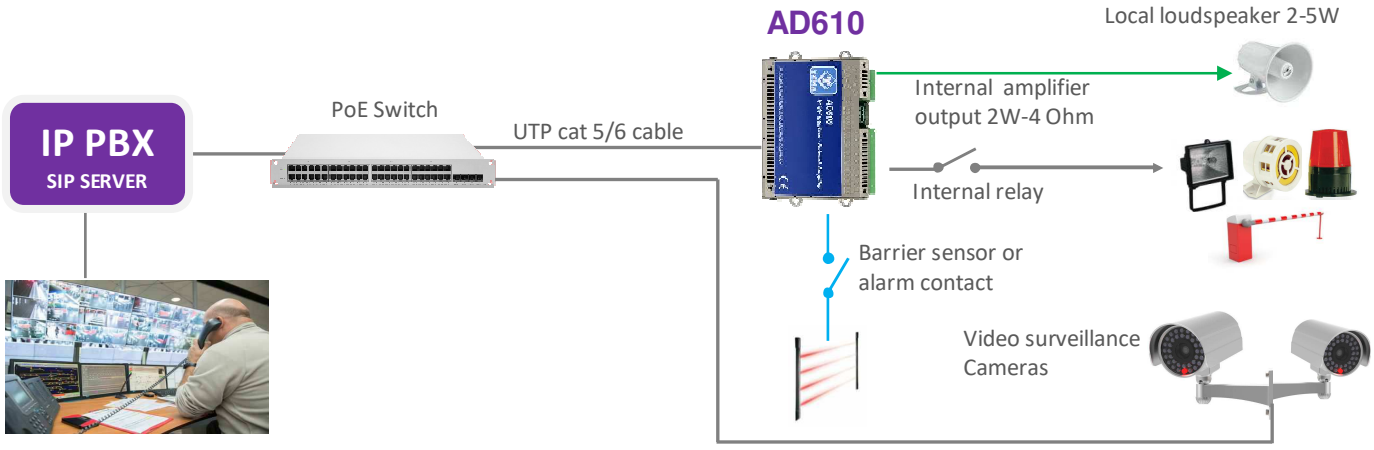
4. Enter the number assigned to the AD600 product in the night group of the IP-PBX, or divert incoming calls (in the absence of the IP-PBX operator) to the number assigned to AD600.

Upon arrival of a telephone call to the IP-PBX, the same will be repeated at high volume by AD635 with sounds chosen by the customer freely programmable in the device. A light indicator or a "Flash" available in the catalog can be connected to the system to add a light signal in addition to the acoustic one.



(*) Can be used all SipComStage AD600 series terminals for this purpose because this function is standard.

06 AD610 Audio deterrence in video surveillance systems: emission of sounds and warning/information messages

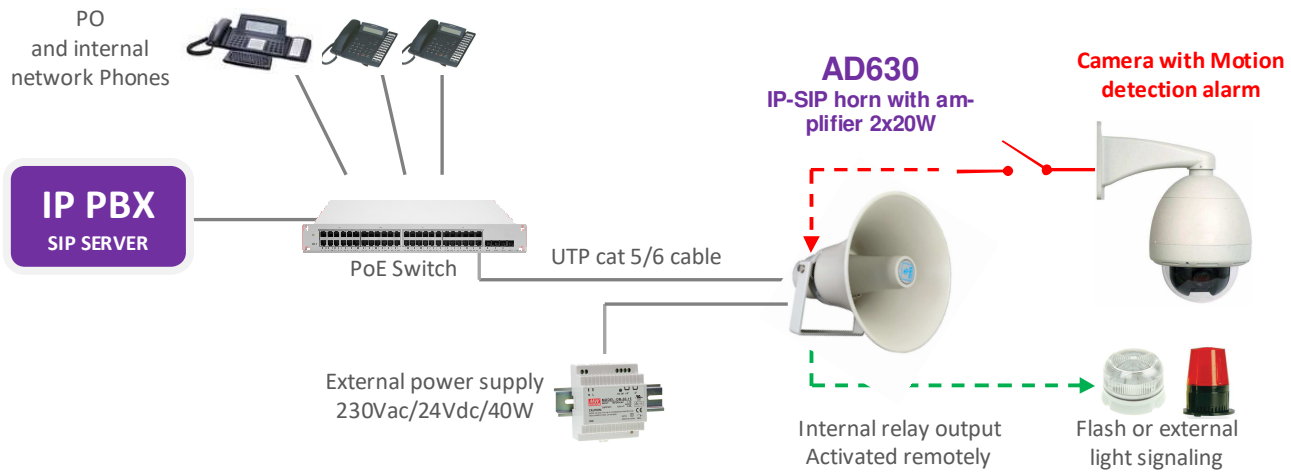


When the operator in the control center detects a suspected malicious activity through the cameras he connects to the AD610 module with a simple SIP phone call and can act in 3 ways:

- Communicate by voice an alert through the loudspeaker connected to the AD610 module
- Activate a prerecorded message and programmed in the module (up to 5 different memories)
- Activate a relay inside the device to control external devices (sirens, lights, ...)

The AD610 also has an input to which an external sensor can be connected, such as a safety barrier contact or a normal alarm contact. When an alarm event occurs, AD610 can send a pre-recorded sound or message to the local speaker and call a programmed telephone number to alert the event with another specific warning message. The operator can connect to the AD610 module and still operate as described above.

06A AD630 Audio deterrence in video surveillance systems: Emission of Sounds and messages with local camera activation with Motion Detection

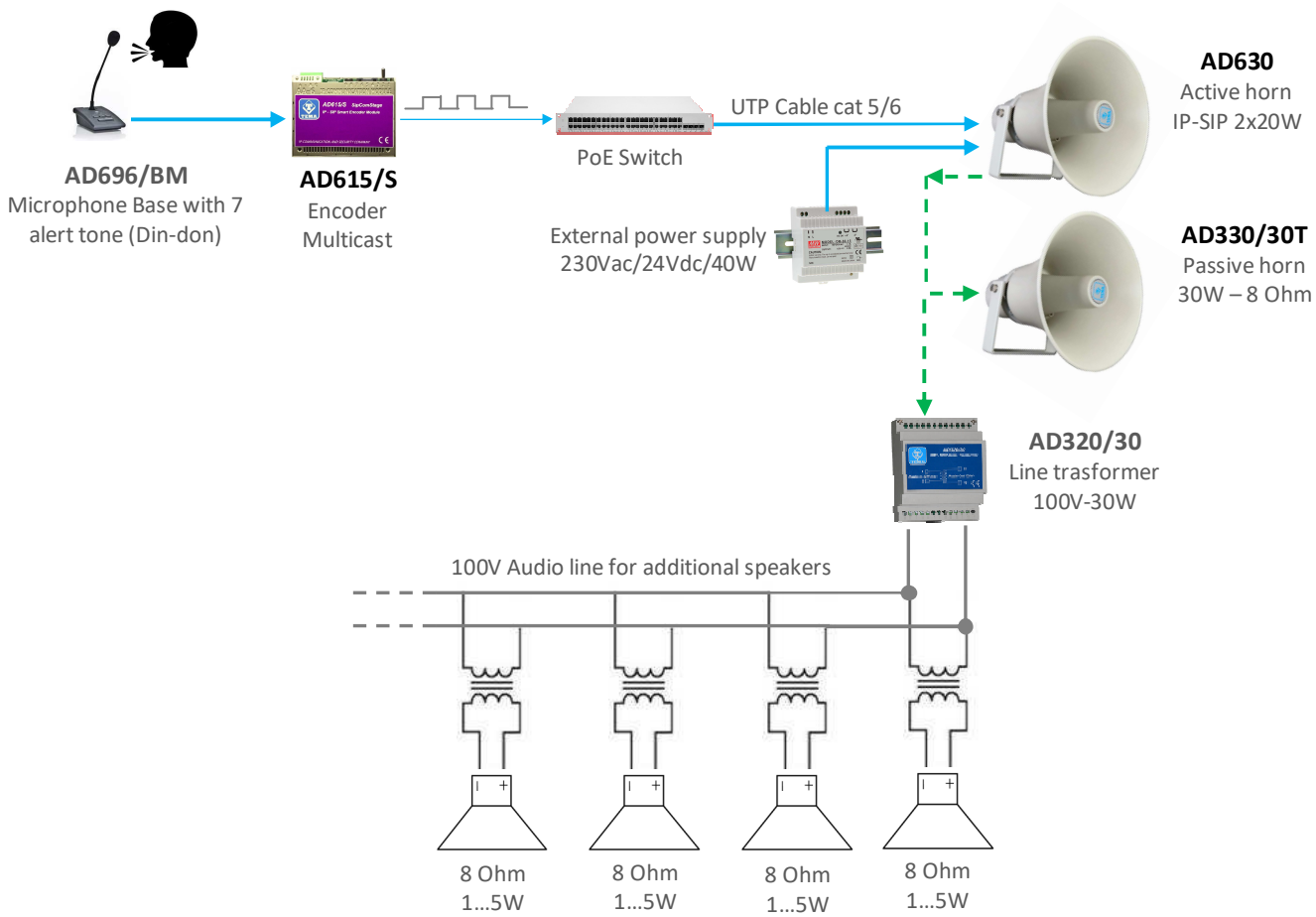


With the use of an IP-SIP horn it is possible to activate in the local area the emission of sounds or warning messages by means of an alarm contact coming from the camera following the intervention of the Motion Detection: when the contact is activated an automatic sound or a prerecorded message is emitted from the horn, at the end of which the horn can make a telephone call to the pre-set number and inform the surveillance personnel who can always call the horn and launch an additional announcement or interact activating the internal horn relay.

07

Announcements to passengers of a railway/subway station

In a railway station there is a need to transmit announcements to passengers for arriving/departing trains and warning notices to people too close to the tracks, the figure shows a typical system realized: an active horn mod. AD630 to which can be connected a passive horn to double the sound power or direct the sound in different areas. In case of need to get the warnings even inside the station locals the passive horn can be replaced with a constant voltage audio line to which connect a number of passive speakers with volume adjustment transformer up to the total usable power of 20W. The microphone base allows to send an alert tone, among seven selectable types, before starting the announcement.



08

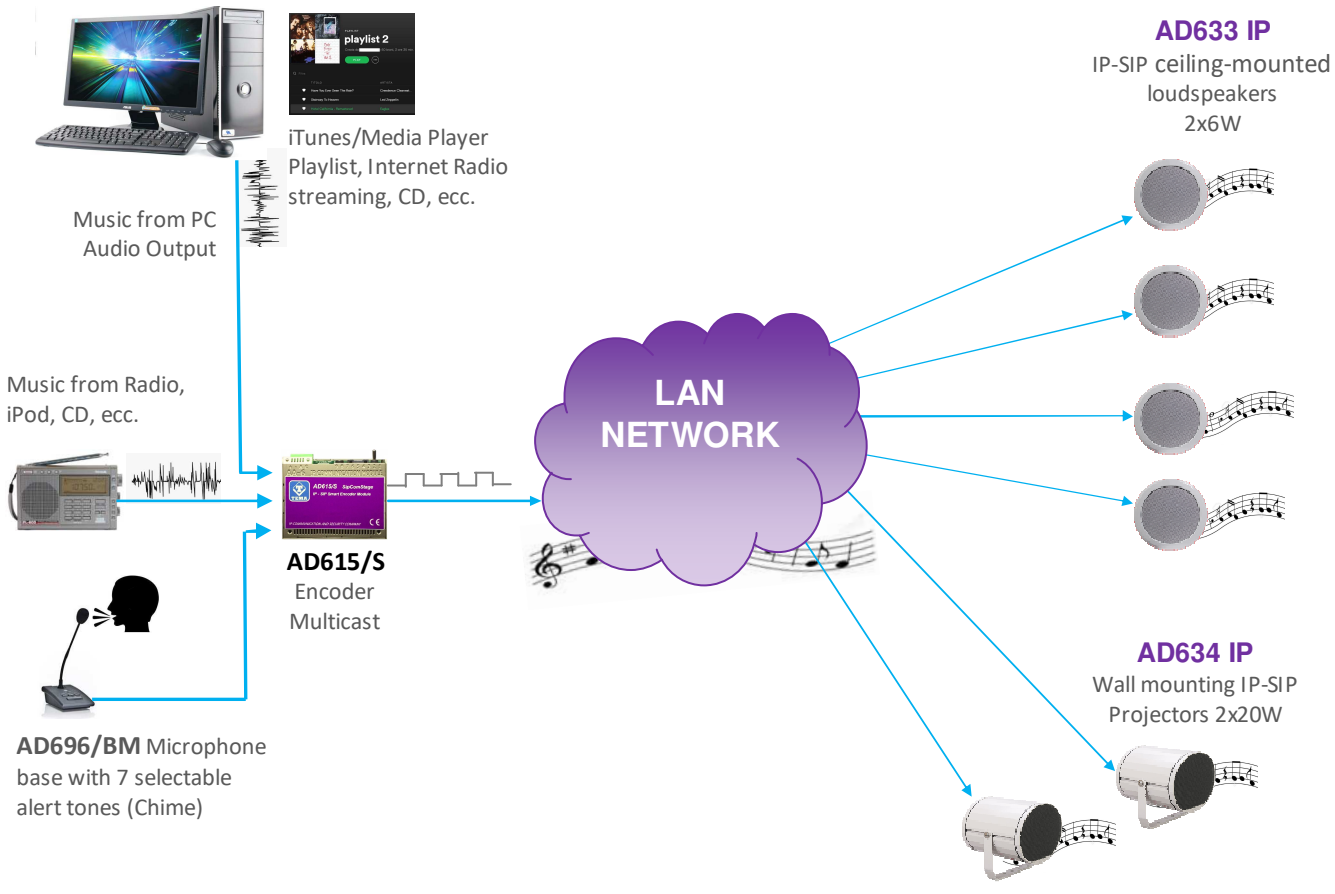
AD615/S + AD633 Background music and announcements in a commercial Store Including the function of automatic promotional and warning announcements at set times

In a small business there was the need to stream low volume background music in all departments with the goods on display, there was also the need to give information announcements to customers in an immediate way but also automatically at pre-set times. It was requested not a traditional analog system but something more technological and modern open to future implementations of services and that could operate on the existing LAN network, without the need of other audio cables. For the need were provided:

4	AD633	IP-SIP ceiling-mounted loudspeakers
2	AD634	IP-SIP speakers for rooms without false ceilings
1	AD615/S	IP Encoder for music and announcements
1	AD696/BM	Microphone base with Chime
7	AA-39P4	PoE power supply for all the supplied systems

In order to generate background music, the client has provided a PC, which is also used for other accounting tasks, from which it plays some preferred Playlist or FM radio in internet streaming, alternatively it also uses an iPod as a music source. The audio output of the PC or iPod is connected to the Encoder AD615/S which converts audio to digital and sends it to all installed AD630 Series IP loudspeakers. The AD696/BM microphone allows to stop the music and send a service announcement to the speakers.

Subsequently was born the need to send promotional messages for some goods at pre-set times freely programmable, so the "Automatic announcements" function already present in the AD615/S Encoder was used, without additional costs, which allows the sending of prerecorded messages automatically at scheduled times. Prerecorded messages can be easily uploaded via LAN to the AD615/S memory. The function is also used to automatically inform the customers about the near closing time of the store.



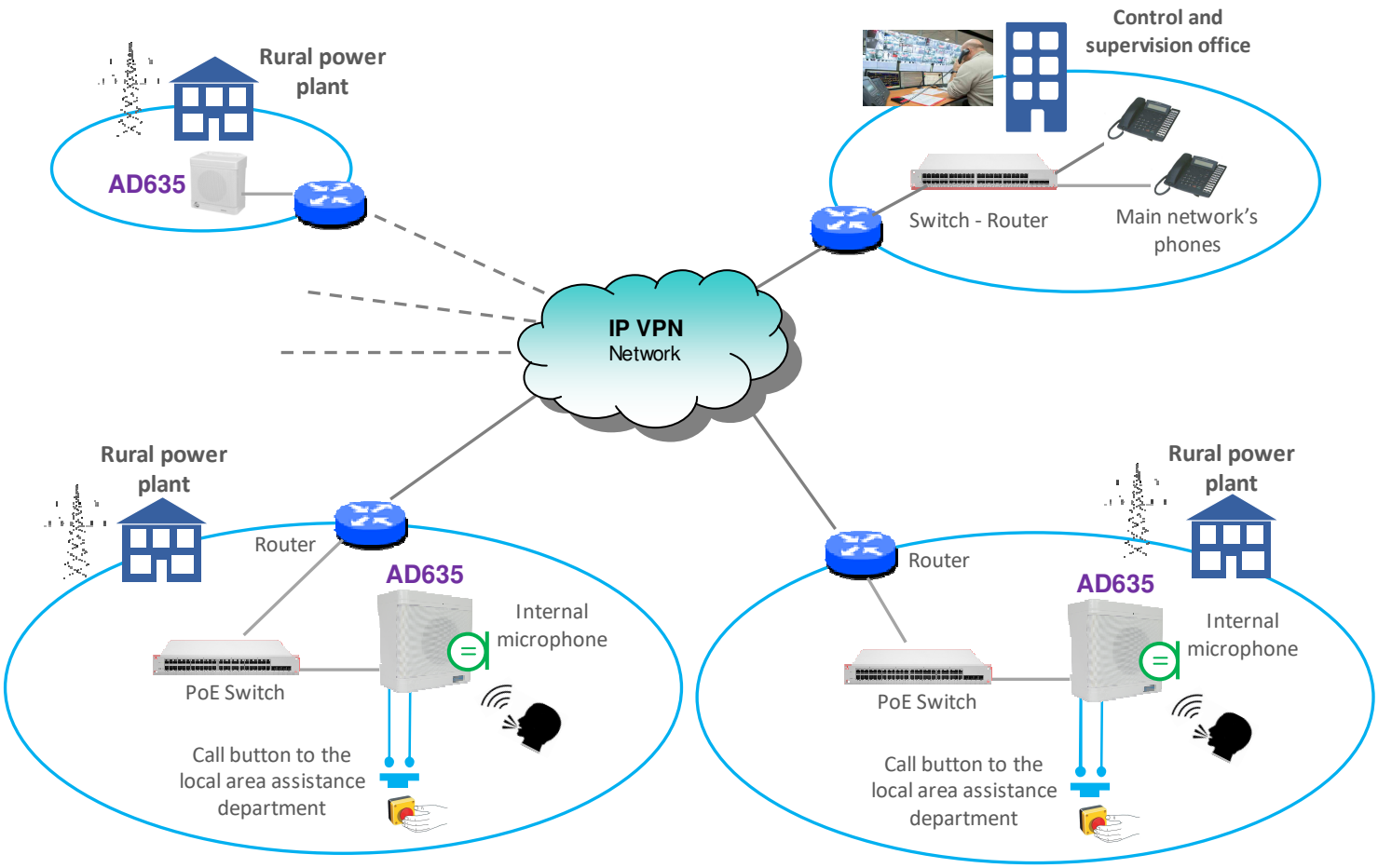
AD635 Hands-free communication in power plants on the territory (Case Story)

A municipal electricity distribution company based in Northern Italy installed over 40 IP-SIP bidirectional AD635 loudspeakers in as many distribution booths located throughout the territory with the aim of communicating with maintenance personnel during technical interventions. Many of these cabins are located in rural areas where the signal of the GSM network is often reduced or totally absent, whereas each plant is reached by the data network with a virtual private network (VPN) that is also used as a geographical extension of the IP-PBX of the headquarter. Each plant refers, according to the area, to different service personnel, with different telephone numbers, the AD635 systems were registered with a SIP number to the central IP-PBX through the VPN.

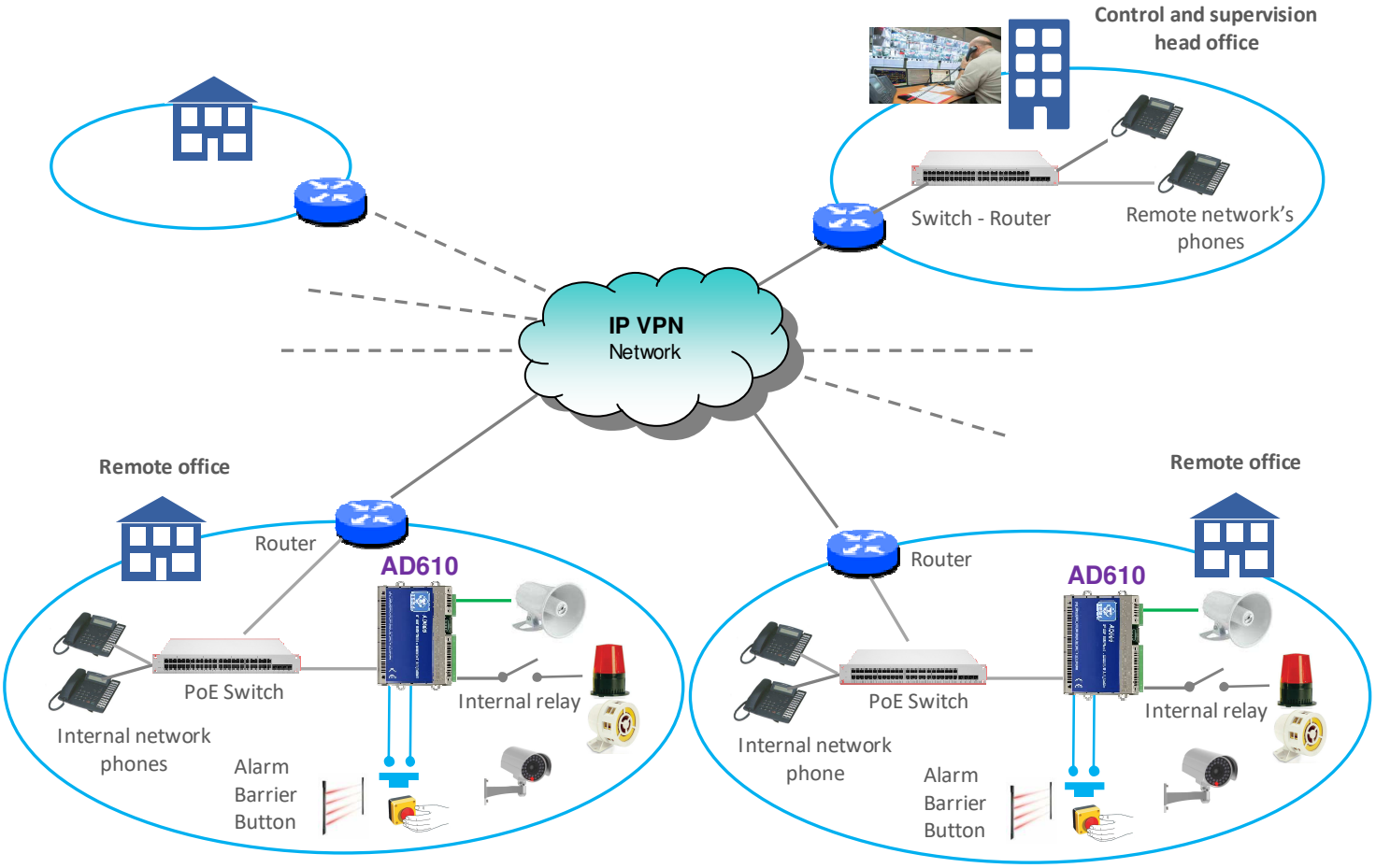
Upon arrival of the technician in the booth for the repair of a fault, if it needs support from the headquarters press a button connected to AD635 which establishes a hands free call with the phone number programmed into the system, at the reply, technician and support can communicate hands-free allowing the technician to move freely inside the cabin.

The telephone numbers of the support often change according to times and days per week, AD635 handles these situations since it is possible to program different numbers according to times and days per week.

The rural power plants are not equipped with conditioned air therefore the AD635 systems work at an ambient temperature ranging from -20° C to over 45° C.



10 AD610 security application: Centralized control and supervision



The control and supervision of AD610 devices, and of each product of the SipComStage series, can be implemented in a central control location through appropriate LAN/WAN/VPN settings, in this way it is possible to gather information and interact with all the devices located in each geographical position.

11

AD630 Application of IP-SIP horns in a noisy mechanical industry

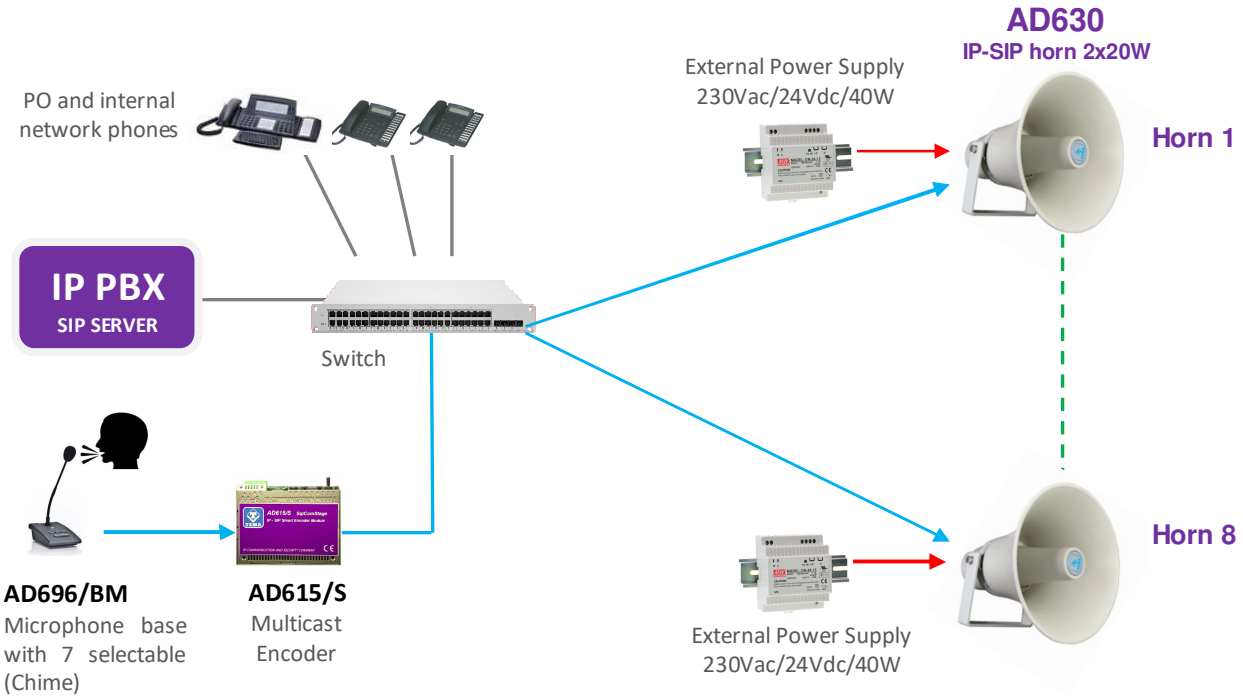
In a mechanical industry in a very noisy department there was the need to communicate with the staff of 8 machine assembly areas without them having to interrupt the work, take off the gloves and go to a telephone station, also needed a warning call with a tone high enough to overcome the considerable noise of the environment. The service was not obtained with the installation of standard telephones. There was the need of a hands-free two-way system of communication and a sound volume that would allow the sound of the telephone call to be heard and which automatically answered the calls establishing a two-way hands-free communication. The company was already equipped with a VoIP telephone system with an IP-PBX. For the need were provided:

8 AD630 IP-SIP horns bidirectional with microphone
8 AA-39E3 Power supply 230Vac for the horns

In this way the office staff could communicate in person with the workshop staff simply by dialing the SIP telephone number of the person in the specific area.
Subsequently the need arose to be able to give general warning announcements on all the installed horns and to be able to generate a warning signal of start and end of the shift schedule. At the plant were added:

1 AD696/BM Microphone base with 7 selectable chime
1 AD615/S IP Multicast Encoder

With the microphone base connected to the IP encoder it was possible to make general announcements that reached all the horns, moreover in the Encloder AD615/S were added warning tones that are played on all the horns with a daily/weekly time schedule.



12

School: some applications for increasing productivity and safety

The installation of an IP-SIP speaker mod. AD635 in a classroom allows a series of innovative and low-cost services that increase productivity, communication and security. Here are some non-exhaustive examples of how this new technology can be used.

1) **Remote-lessons, "Push to Talk" function:** by establishing a telephone communication with a teacher or a remote interlocutor, the amplified communication audio is broadcasted in the classroom. In order to cover the noise of the students of the class (and any uncontrolled comments) the communication is commanded by a special button connected to AD635 to allow communication from the class to the remote interlocutor exclusively when the button is pressed.

2) **Communications:** The school director can send an announcement or make an audible speech in all the class-rooms, in a single classroom or specific groups of classrooms, the secretariat can launch service messages.

3) **Announcements:** at scheduled times a sound/message of beginning and end of lesson can be transmitted, beginning and end of interval, notices of return to class, meetings in assembly.

4) **Streaming of multimedia contents:** from a centralized location with the Tema "ADAM" software, it is possible to transmit pre-recorded lessons, podcasts, and other multimedia contents in the classrooms.

5) **Safety:** from all the classrooms when an alarm button is pressed, an emergency/warning call can be made to the security personnel in charge and a signal or an alarm message can be streamed in the local area.

6) **IP-PBX:** if a VoIP telephone system is installed in the school building, it is possible to communicate with every single classroom from any telephone in the internal network of any technology.

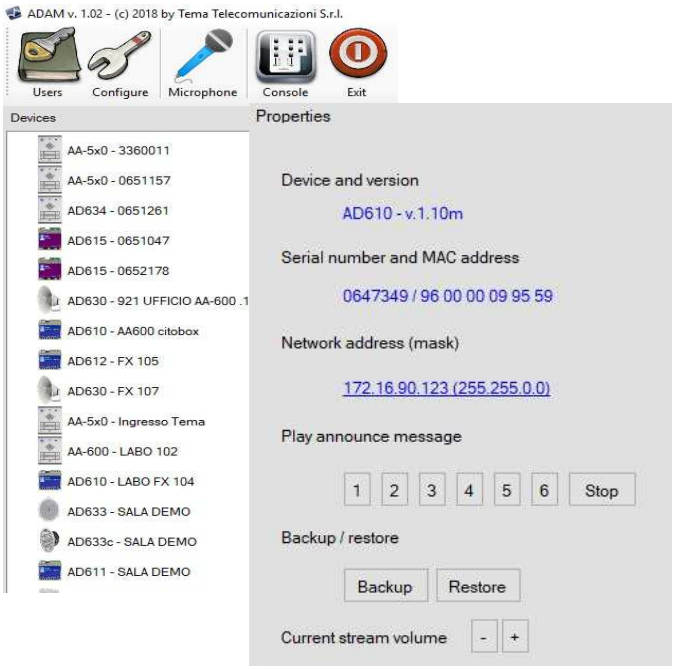
Remote lesson application with local control of communication direction

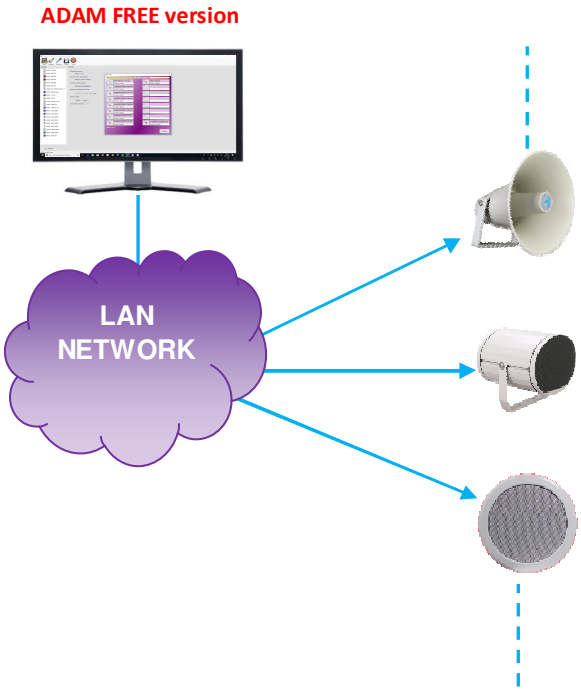
The push button can be programmed also for an EMERGENCY ALARM

13

ADAM Audio Domain & Access Management Software: FREE version

Administrator monitoring and management of all devices in the network





In the FREE version of this powerful software, the Network Administrator has complete control of all installed Tema SipComStage devices and is extremely easy to manage. These are the basic functions:

Search and display of TEMA devices on the network

This function starts the search for all TEMA IP Audio devices in the local network. The devices are listed with the own serial number or a description programmed by the user in the device, for example the planimetric position can be indicated (Warehouse 1, Warehouse 2, Meeting room, etc.).

Main device parameters display

A simple click on the chosen device will show all the main information: model, firmware version, serial number, MAC address, IP address.

Configuration Backup and Restore

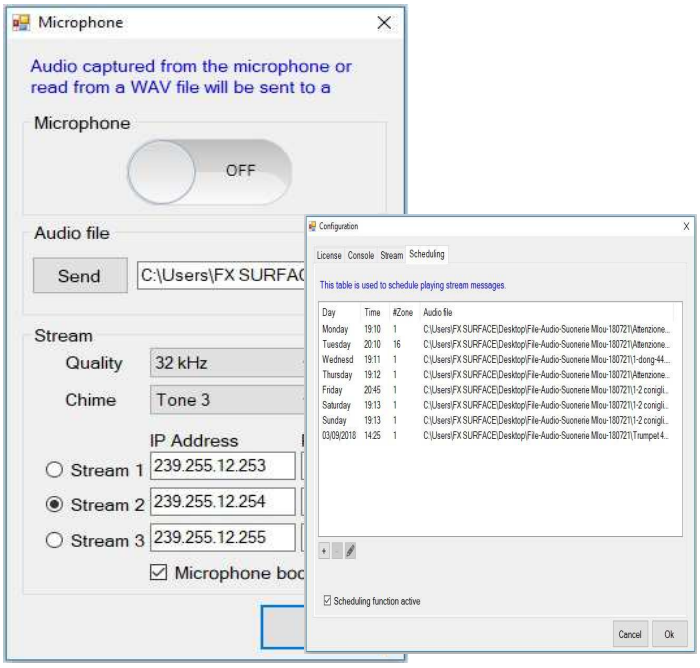
They allow to save and restore the configuration of the device for security reasons.

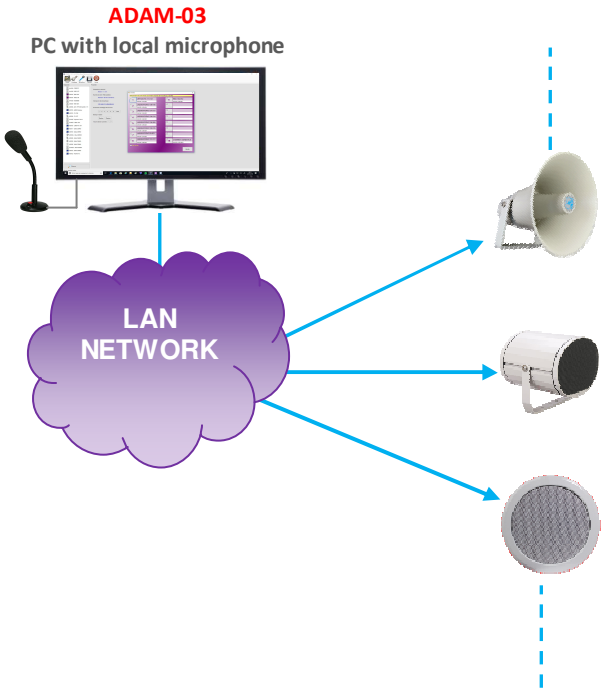
Audio volume adjusting

It is possible to increase or decrease the output audio volume on the selected device. Moreover, the Administrator can install the ADAM software Free version on every PC where an AD600 series IP loudspeaker is installed nearby so that the local staff can independently adjust the desired volume in the room. To that user, the Network Administrator can assign access privileges and limitations.

14 ADAM Audio Domain & Access Management Software: ADAM-03 version

Sending microphone announcements to 3 zones, scheduling, sending audio files, without IP-PBX.





In many environments where there is a traditional analogue PBX, either completely absent, or simply do not want to extend the existing VoIP PBX with additional SIP licenses, it is possible to realize a uniquely unidirectional audio announcements system in a "stand alone" way simply using the ADAM-03 software installed on a PC where the Tema microphone base mod. AD696/AA is connected. The realization is simple, immediate and cheap, without the need of new cables because the existing LAN is used.

Announcements from local microphone

With this function it is possible with a simple click to send an announcement from the local microphone connected to the PC to a specific Multicast channel for the zone or in general call. It is also possible to send a **warning tone (Chime)** before starting the announcement. The type of warning tone can be selected in the configuration mask among several available.

Sending of pre-recorded audio files

It may be useful to have pre-recorded audio files to be sent to the IP speakers of the zones at the desired times. Simply select and load the desired audio file from a PC folder into ADAM and activate the sending with just one click.

Sending of pre-recorded audio files at scheduled times or days

With this function it is possible to program the sending of pre-recorded audio files to the desired times and possibly repeat them on the preset days. It is also possible to schedule the announcement of announcements at pre-established intervals, for example, as a promotion program produced in supermarkets, the notice of term lectures in a school, a signal for the end of working hours, etc.

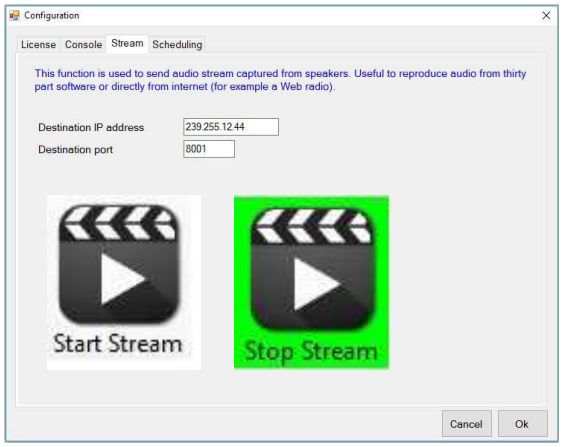
There are no limits in the number of programmable audio files available online in the programming mask of the ADAM software.

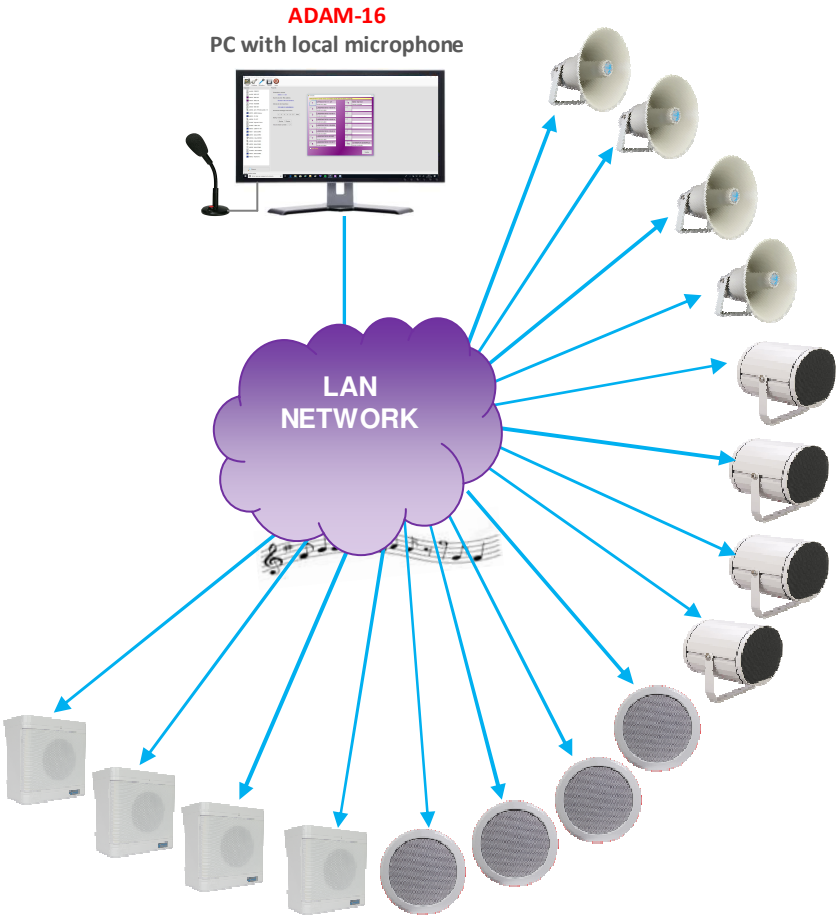
NOTE: it is not necessary to upgrade to higher ADAM versions in case of installation of many IP-SIP loudspeakers as long as the 3 zones are not exceeded since more terminals can be configured on each single zone.

15

ADAM Audio Domain & Access Management Software: ADAM-16 version

Sending announcements from a local microphone on 16 zones, Multicast Streaming Generator





The ADAM-16 version, in addition to having all the performance of other versions, allows to extend the zones up to 16 and is equipped with a practical Console window that significantly speeds up the sending of announcements and prerecorded audio files, ideal for applications where it is needed to have an easy view of the areas and operate with ease and speed.

Generation of 2nd Multicast Stream Audio (Useful for background Music)

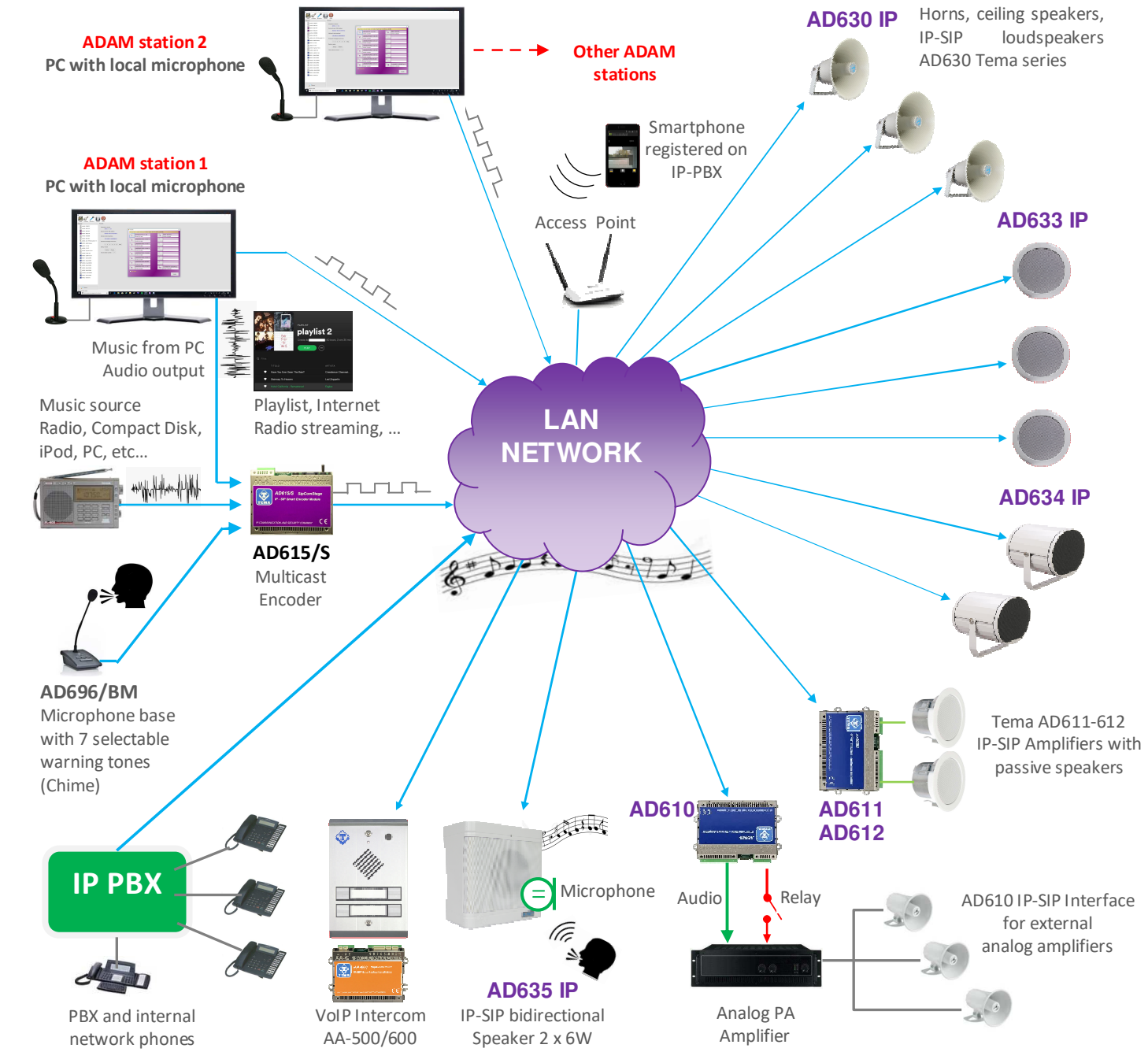
Adam is able to capture in digital format any audio content played at that moment on the PC capturing it from its sound card, in this way it is possible to activate a second Multicast Stream that can be sent to a specific IP address normally used by receivers for background music. For example, if the PC is playing a radio or TV channel streamed from the internet, the content will be sent on the established Multicast channel and played by all the Tema AD600 series decoders in the LAN network enabled for the service.

With ADAM, the PC also becomes a multimedia station for the transmission of music and media content on the LAN. **Internet Radio and TV streaming, Youtube, Spotify, iTunes, Playlist, CD players, USB, local Smart Cards, etc.**

16

ADAM Audio Domain & Access Management Software: ADAM-32/64/128/256

For large and articulated plants.



Base Services (Without IP-PBX)

- Different Multicast music according to zone preferences
- Microphone alert messages by zone or all zones
- Messages from IP-SIP TEMA AA-500/600 series Intercom
- Multicast messages from a suitable SIP phone with function keys
- SIP calls in P2P (Peer to Peer)

Additional services in the presence of an IP-PBX

- Bidirectional telephone call on each SIP loudspeaker
- Telephone call from smartphones registered on the IP-PBX
- Messages from smartphone with iOS/Android APP or softphone
- Night call ringtone repetition (Night Ringer)

It is possible to insert multiple AD615/S encoders in the network, without limits, each of which transmits a musical sound stream on a specific Multicast channel, in this way the IP-SIP speakers can be tuned to different musical contents according to the needs and preferences of the environments to be sounded.

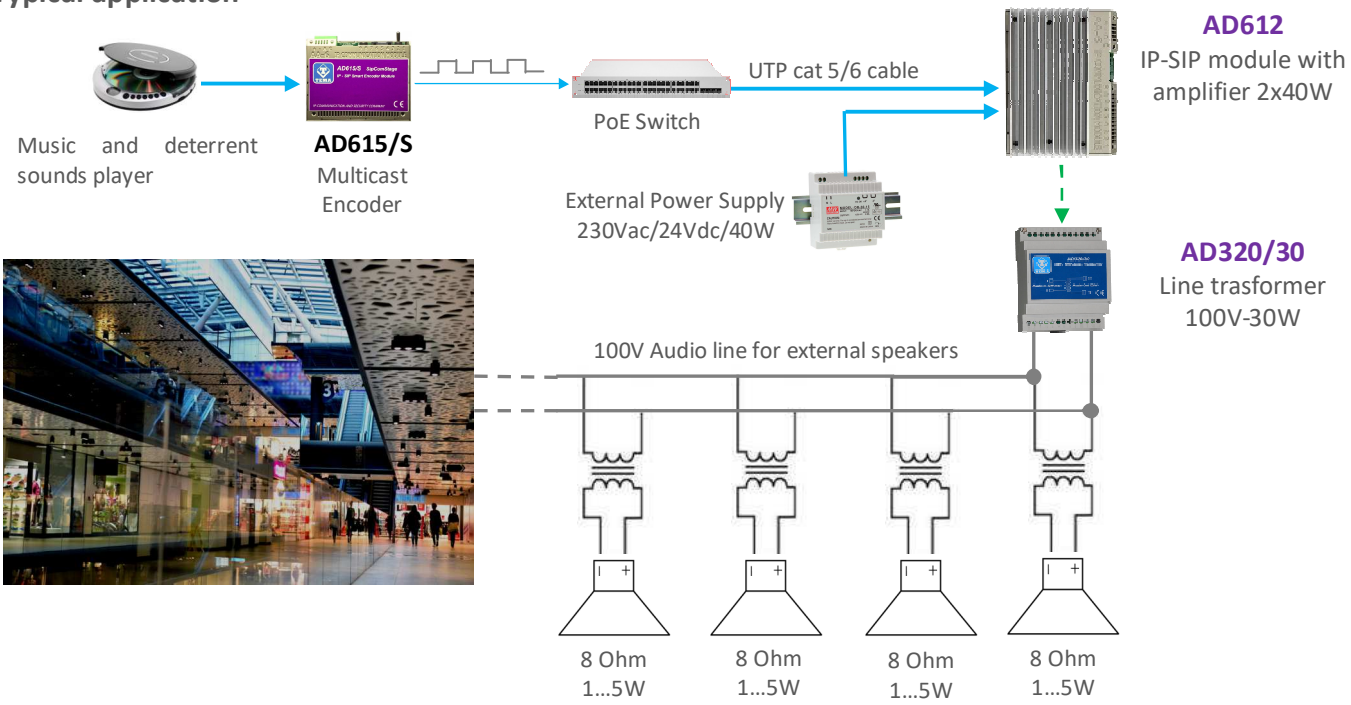
AD610 allows to interface a traditional amplification system to the LAN network while the IP AD611-612 amplifiers in the same way allow to drive the speakers and the passive horns of the previous traditional system.

17

Audio deterrence in public places, companies, stations, shops

In order to discourage the camp of groups of young people near shops, shopping malls, public places and perimeters of companies, the use of specific audio deterrents can be used as needed. Numerous research has shown that for young people and adolescents classical music is unbearable and therefore tend not to stay long in a place where this music is broad-casted. In the United States, a restaurant chain has installed outside the local loudspeakers that broadcast classical and lyr-ical music to ward off groups of people stationed outside compromising the business and often leading to more serious crime actions (See links below). The technique is also applied in the perimeter of companies or establishments, in the corri-dors of railway and underground stations, near condominiums, etc. The type of music and sounds is used on the specific need.

Typical application



Useful links

5 things to know about fighting crime with classical music - Do the sounds of Bach and Vivaldi really have the power to combat loitering and other petty offenses?
https://www.policeone.com/bizarre/articles/475738006-5-things-to-know-about-fighting-crime-with-classical-music/

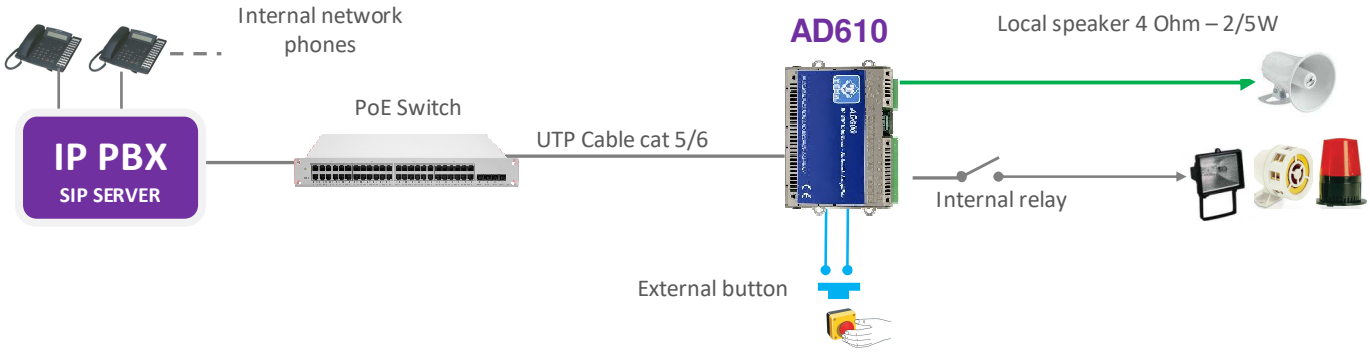
Classical music still effective at dispersing loitering teens
http://latimesblogs.latimes.com/culturemonster/2011/04/classical-music-still-works-at-dispersing-loitering-teens-.html

Classical Music used to scatter Teens
http://www.noiseaddicts.com/2011/05/classical-music-used-to-scatter-teens/

Does Classical Music at Train Stations Really Deter Crime?
https://www.wqxr.org/story/281248-does-classical-music-train-stations-really-deter-crime/

Contours of Control Weaponising Classical Music: waging class-warfare beneath our cities' streets
https://ceasefiremagazine.co.uk/weaponising-classical-music-class-warfare-waged-beneath-cities-streets/

18 AD610 Alarms Transmission via LAN Network, "SIP SECURITY INFO CALL" function

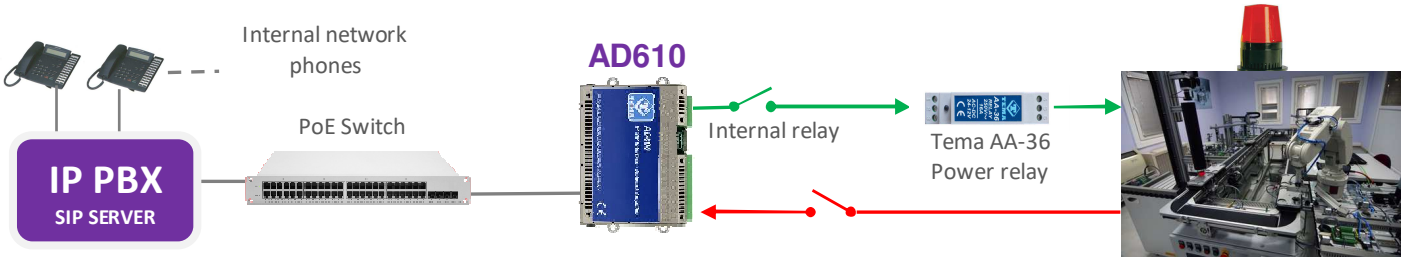


By connecting a **button or an external contact**, AD610 it can call a phone number programmed to alert the event with a warning specific message. The remote operator can acknowledge the event and break the repetition with a code, also can remotely activate a relay. By connecting a speaker to AD610 it is possible to play a message or a prerecorded sound file before sending the call.

This function is ideal in all those cases of **emergency, call for help or information, alarm systems, video surveillance, machine controls** etc.. in any geographical point of the network. The service can be used in a **"fair"** way by banks and security services with a hidden button.

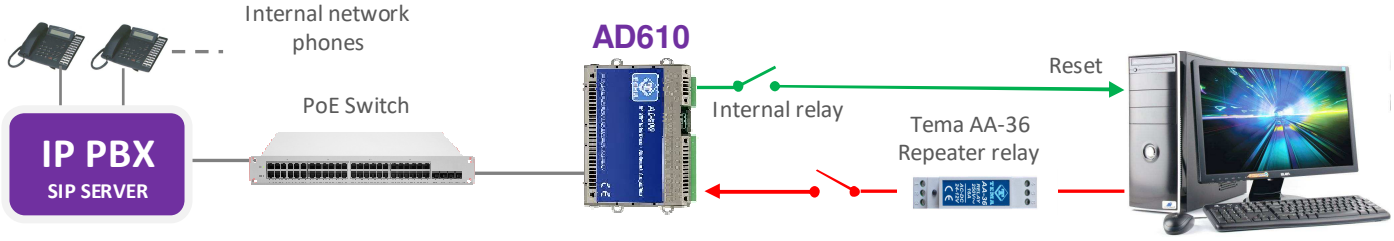
- **Bathroom and Security alarm for Hotels**
- **Banks and Financial Institutions**
- **Machinery Supervision**
- **Remote drives via the network**
- **Security in Courts, Prisons**
- **Security in Educational institutions**
- **Safety of people and things**
- **Alarms transmission via the network**

19 AD610 security application: Drive of industrial machinery



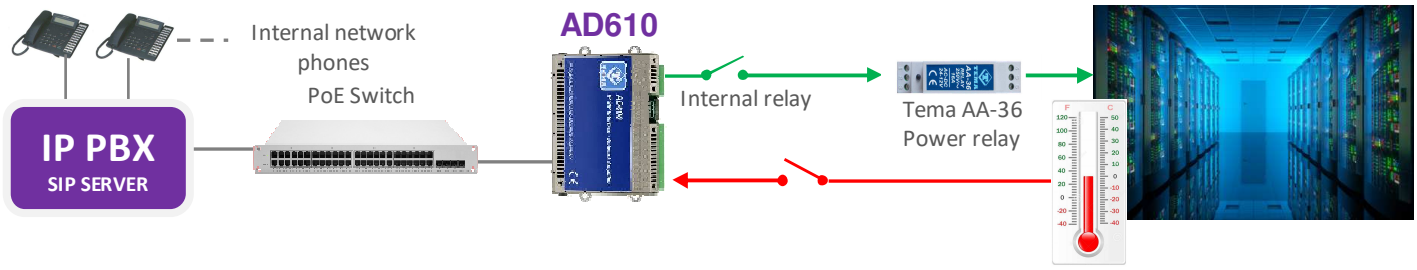
AD610 warns with a SIP call when an industrial machinery is faulty, the called operator can activate a relay for an attempt to re-set the machine.

20 AD610 security application: Computer/Server Control



AD610 warns with a SIP call when a computer or a server is faulty, the called operator can activate a relay for reset.

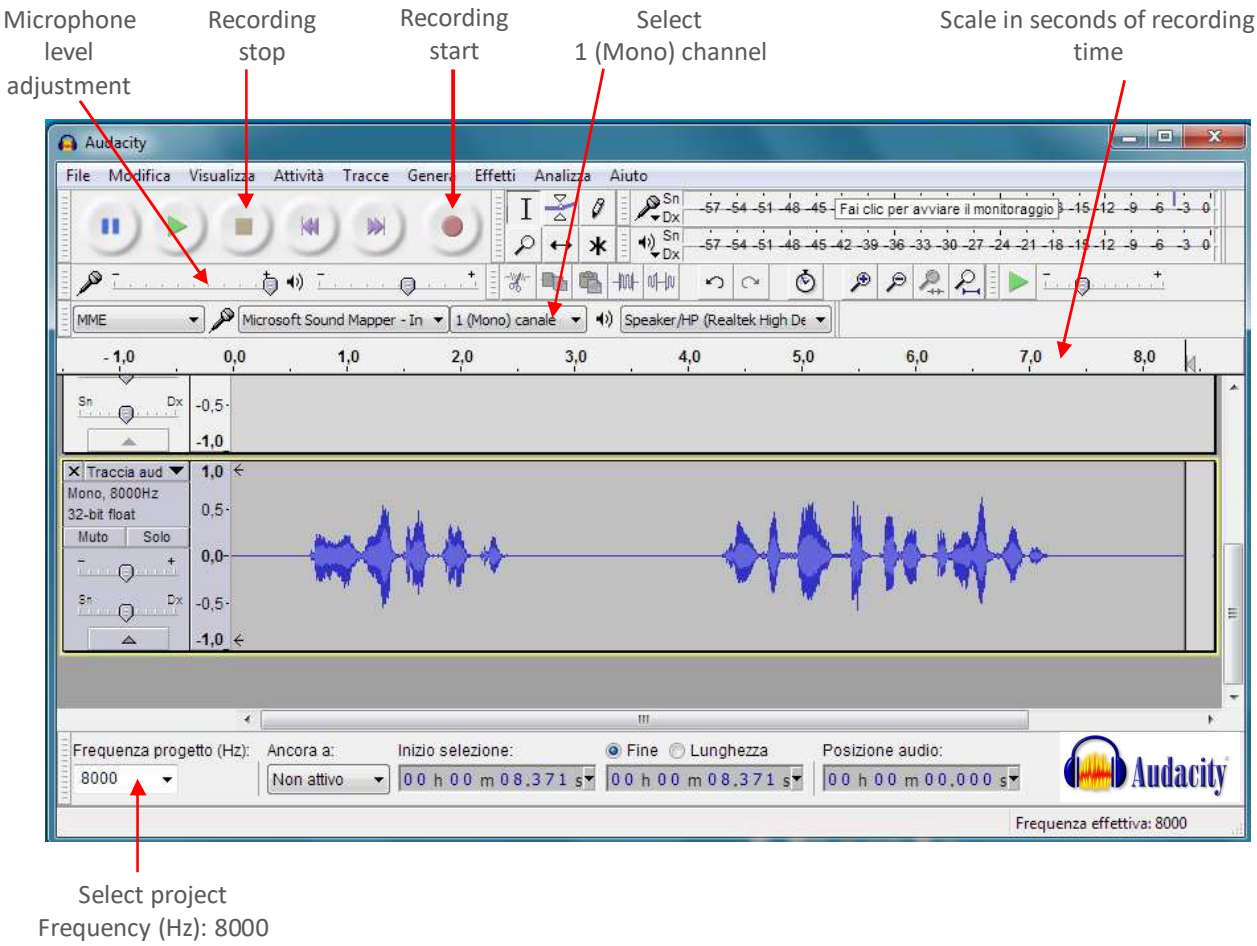
21 AD610 security application: Temperature control in a CED



AD610 warns with a SIP call when the temperature in a server room is faulty, the called operator can activate a relay for re-store the air conditioning system.

22 AUDACITY audio processing software

For recording your audio files, it is possible to use one of the free software such as AUDACITY downloadable for free from the link http://www.audacityteam.org/ remembering to record and save audio files in .WAV format at 8KHz-16Bit Mono, other audio file formats will not work with the AD600 series devices. Below there are some information about basic operations.
For more information on the AUDACITY program, please refer to the manufacturer program guide.



TEMA provides you with its own internal recording studio for the creation of professional prompts with multilingual male and female speakers from texts on customer specifications. Visit our website, section "Recording Studio"

http://www.tematlc.it/personalizzazione-messaggi.asp

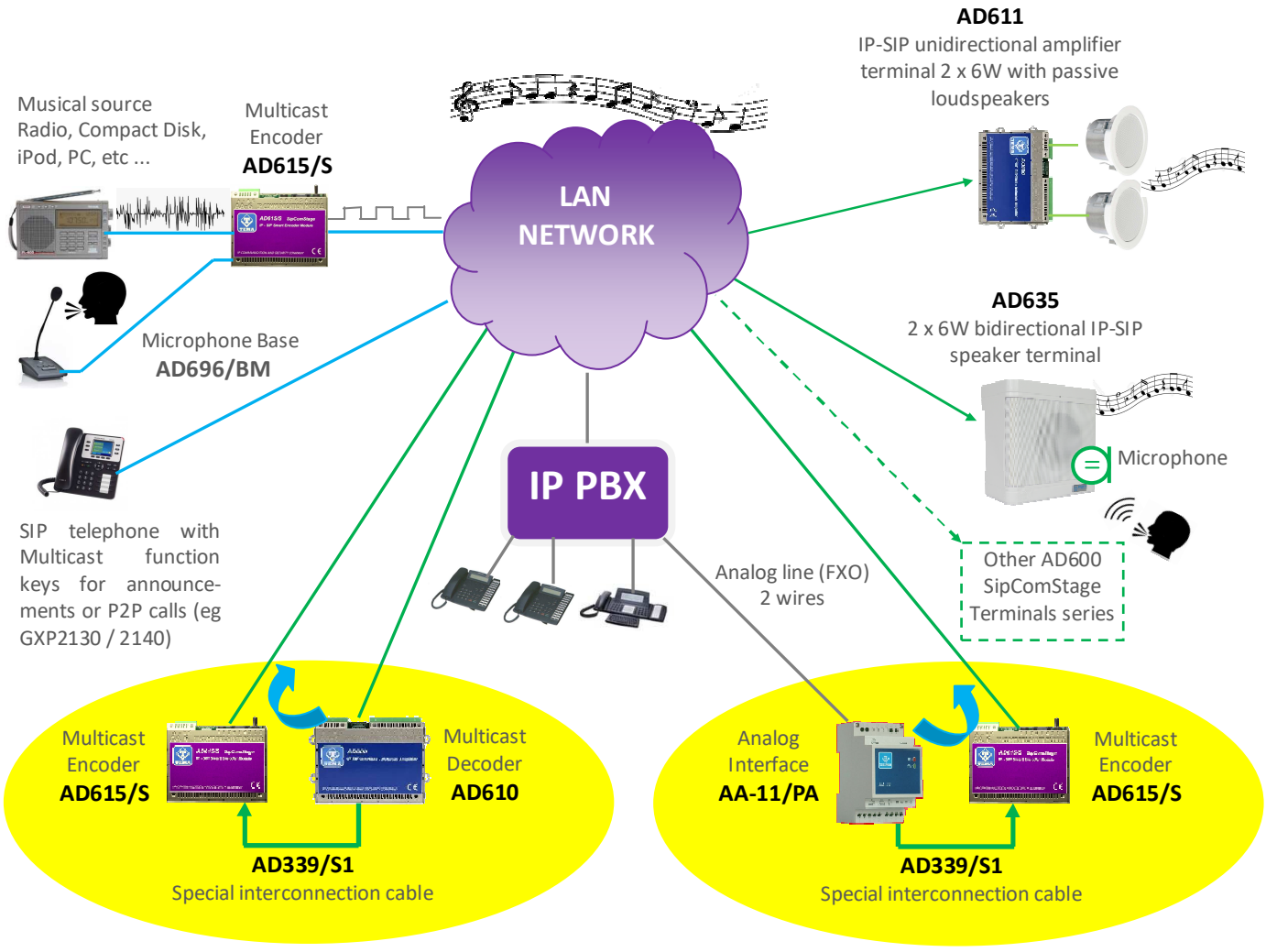
23 General call from all PBX extension phones to the terminals of a SipComStage system

In a typical system with AD600 products and with a PBX it is possible to make a **general call** to the AD600 terminals only from the microphone base station but not from the network telephones, which however can make announcements and interact with each single terminal and, if AD600 IP speaker, also bidirectional in handsfree mode.

Solution

By inserting an AD615/S and AD610 Encoder/Decoder pair in the system, it is possible to make a warning or safety announcement general call that reaches all the SipComStage terminals on a priority Multicast **channel from any telephone in the internal network and any technology (IP SIP, Analog, Wireless Dect, etc.)**. The number to call is the one that is associated with the decoder AD610 which reply and connects the decoded audio to the encoder AD615/S through the special supplied cable AD339/S1. AD615/S activates a priority Multicast channel able to reach all SipComStage terminals in a LAN network tuned to that channel.
The special AD339/S1 cable carries the audio signal and a command generated by AD610 to activate the AD615/S encoder.

Alternatively, an AA-11/PA analog line interface can be used instead of the AD610 to achieve the same function.



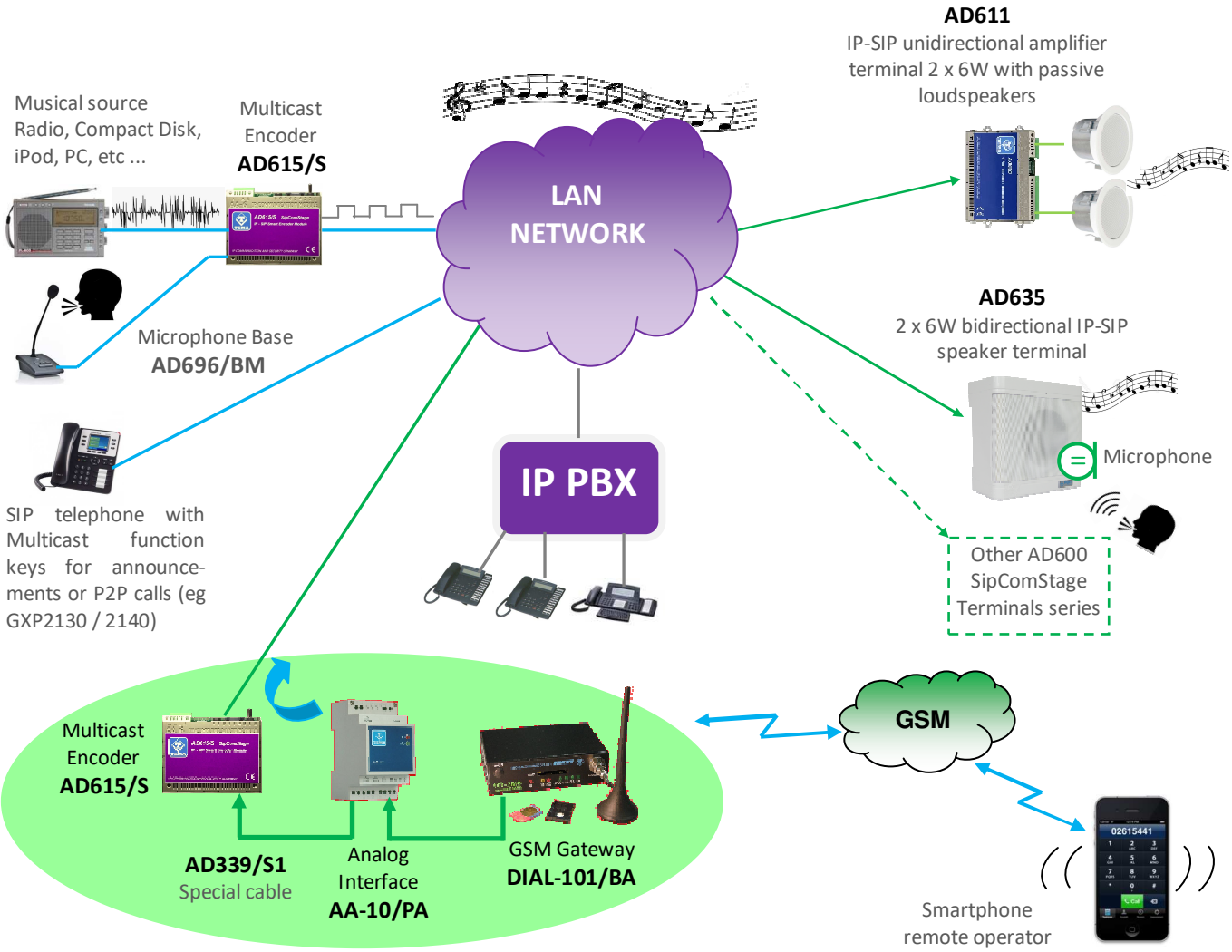
24 General call via GSM/UMTS in a SipComStage system

Announcements on remote cellphone speaker network without the use of any fixed telephone line. The AA-10/PA interface combined with the GSM Gateway FXO DIAL-101BA allows to interface a SipComStage IP system to broadcast warning messages from any remote telephone, both mobile and fixed.

The operator who has the phone number of the SIM card inserted in the DIAL-101BA can then broadcast warning messages simply by dialing that number. DIAL-101BA will respond and engage the line by pairing the phone. When the operator hears a warning tone, he can start talking to send the message. When the operator is hung up or a programmable timeout expires, the message will be released.

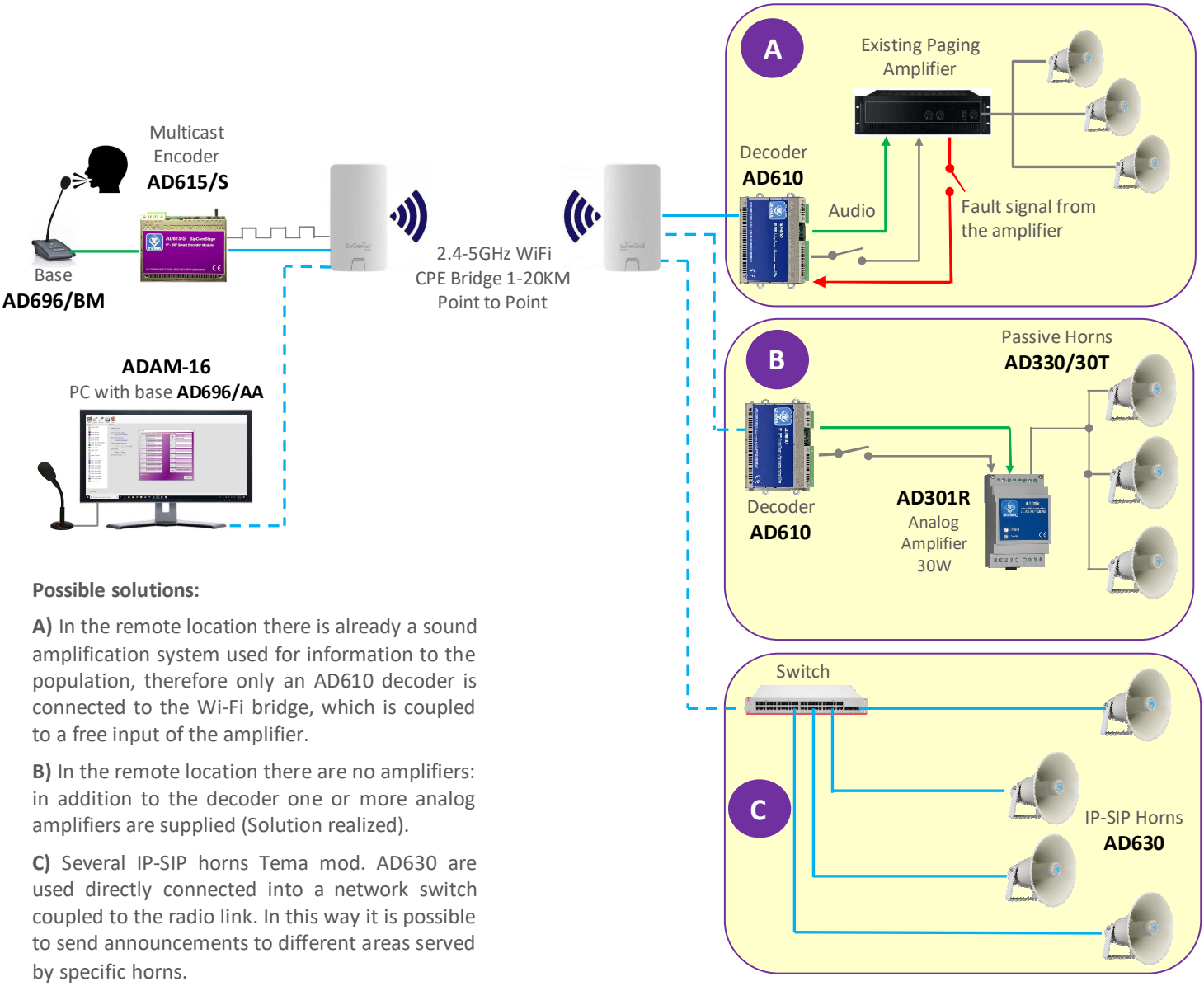
It is possible to limit access to the service to a limited number of calling numbers, maximum 10, by programming the special table present in DIAL-101BA that recognizes the "Caller ID" to allow access to the service only to the numbers present in it .

An integrated relay in AA-10/PA closes and remains closed for the whole time of the announcement, this is used to signal to the Encoder AD615/S to activate itself for the emission of the message on the network of the AD600 terminals.



25 Warning/emergency announcements in rural villages with Wi-Fi bridge (Case story)

In a rural community with decentralized blocks of flats compared to the urban center, there was a need for civil protection in the municipal building to be able to warn distant communities in the event of danger due to meteorological turbulence or other, with announcements audible to all the distant population. In the municipal office a microphone base has been provided connected to an encoder on the LAN network, connected to a Wi-Fi radio bridge to the remote location where decoders have been installed with amplifiers that supply suitable sound power horns suitable. When a danger event occurs, the civil protection officer pushes the microphone button and sends an announcement to the remote location. The system can also be used to send announcements or sounds of public utility.



Possible solutions:

A) In the remote location there is already a sound amplification system used for information to the population, therefore only an AD610 decoder is connected to the Wi-Fi bridge, which is coupled to a free input of the amplifier.

B) In the remote location there are no amplifiers: in addition to the decoder one or more analog amplifiers are supplied (Solution realized).

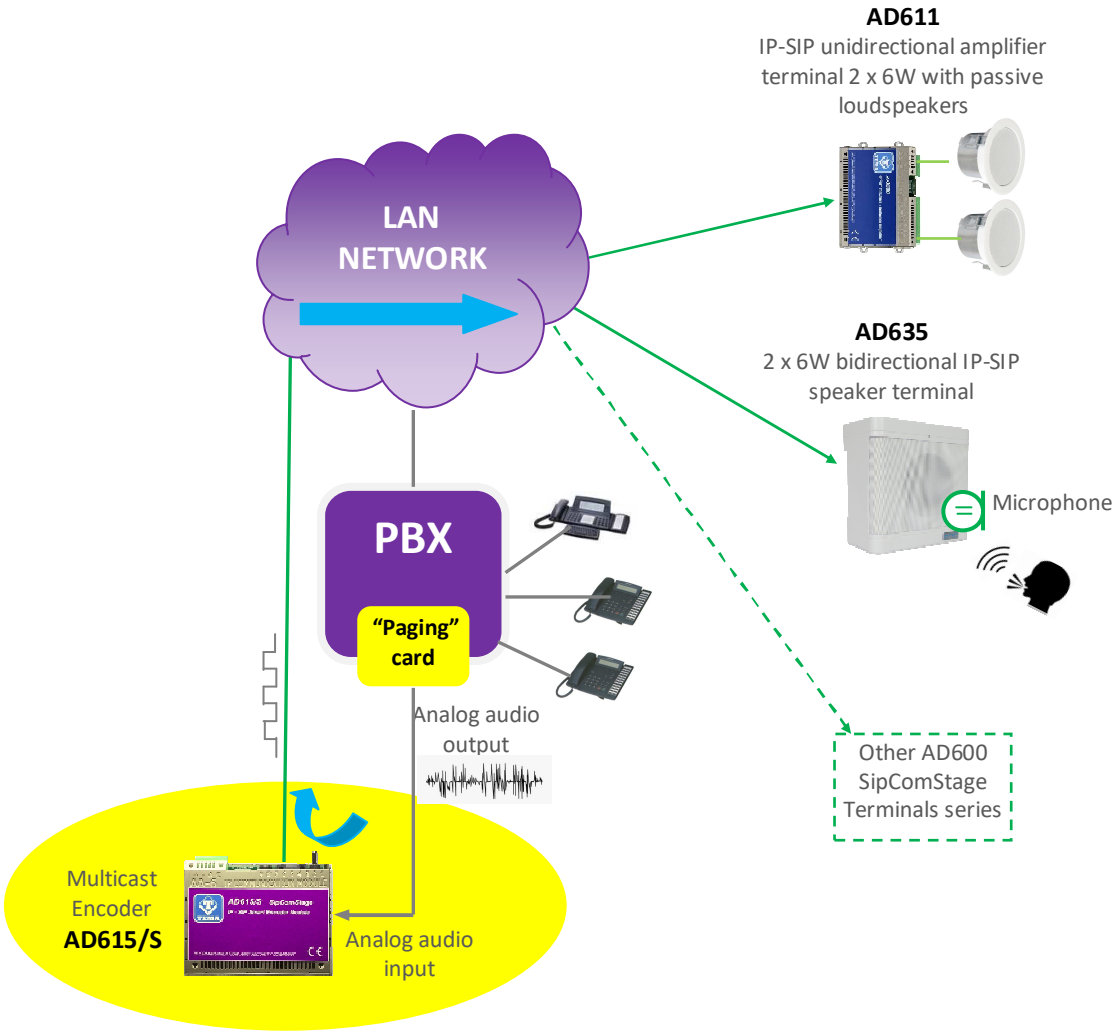
C) Several IP-SIP horns Tema mod. AD630 are used directly connected into a network switch coupled to the radio link. In this way it is possible to send announcements to different areas served by specific horns.

26 General call on the output of the "Paging" card of the PBX

Most of the PBX on the market have an additional card with the "Paging" functions used to couple the voice of a calling user to traditional external analog amplifiers in order to allow the launch of an announcement to search for people, technically called function of "Paging". In this case, in the presence of this board, and in the absence of an amplifier with speaker network, the service is implemented with the equipment of the Tema SipComStage series.

For this purpose an AD615/S Encoder is used, to which the audio coming from the Paging card of the PBX is brought. AD615/S provides to encode the analog signal in a digital stream suitable to be transmitted via LAN and received by one or more AD6xx series IP-SIP modules or speakers devices and to sound the desired zones.

Note that the Tema AD600 devices are real SIP terminals, so they can be registered on an IP-PBX with an account number and be called individually from each telephone of the internal network to diversify the announcements in the different zones. They are also equipped with a 2nd SIP account that can be used, if inserted in the "night" group, to repeat the incoming call with a sound different from the usual one, to be chosen among the many available and loaded in the system.



27 ADAM example of typical configuration for business installation

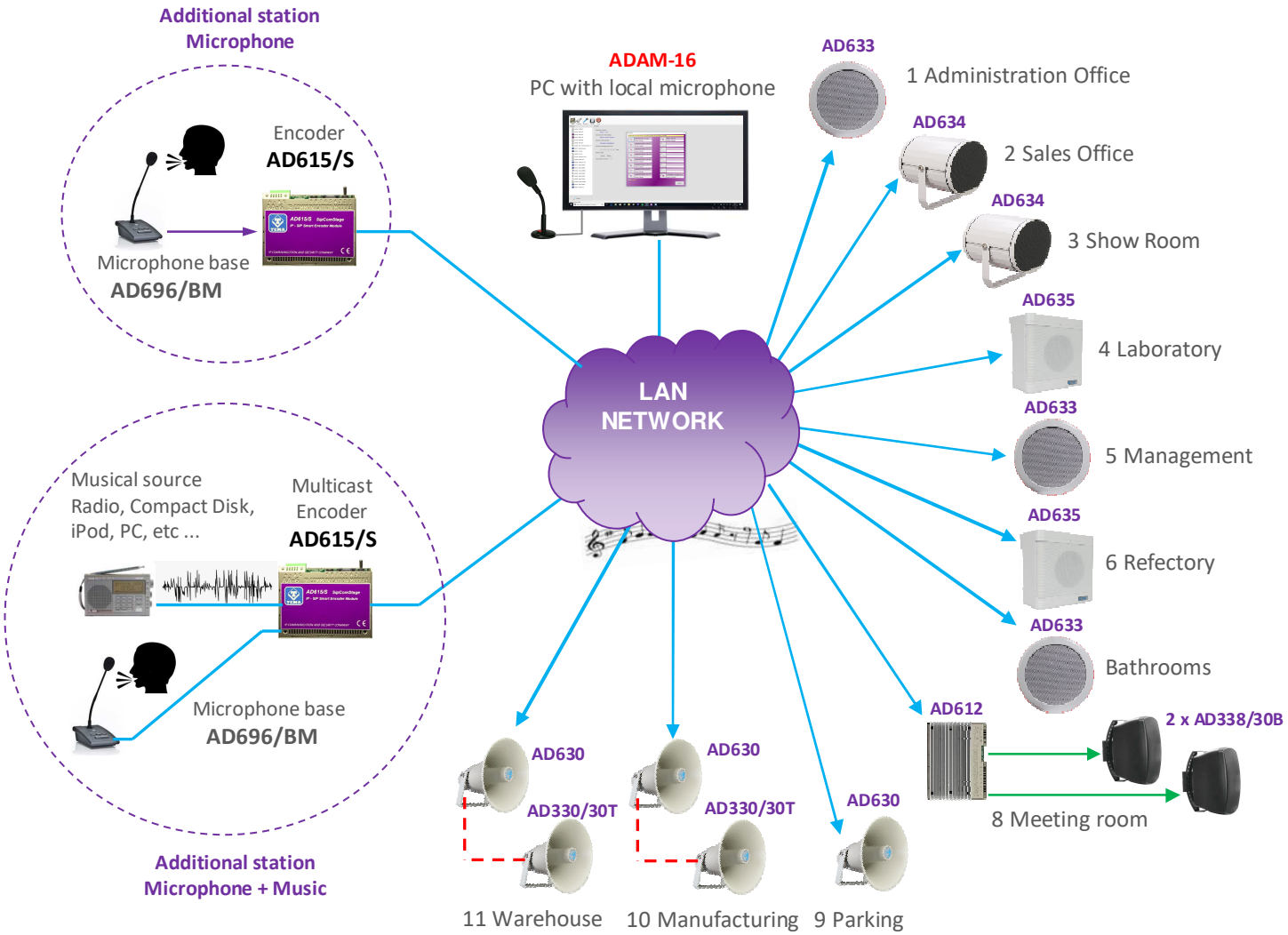
In a typical company system with 11 terminals consisting of speakers and IP-SIP modules, SipComStage AD600 series, it is proposed a configuration of the ADAM software and the programming of the devices in the LAN network suitable for exploiting the maximum potential of the system. The application allows **the sending of announcements to each individual terminal, to groups of terminals, or in general calls to all terminals**. It also allows sending **background music** generated by the computer itself and sent in a special Multicast channel to all terminals with individually adjustable volume for each terminal, which can be differentiated from the volume required for announcements, normally higher.

In area 8 (Meeting Room) an IP-SIP AD612 amplifier with two 2-way passive speakers was used for higher sound quality.

In areas 10 and 11 of Manufacturing and Warehouse, being larger than the other areas, an IP-SIP AD630 horn was used, with the relative passive model to double the sound power.

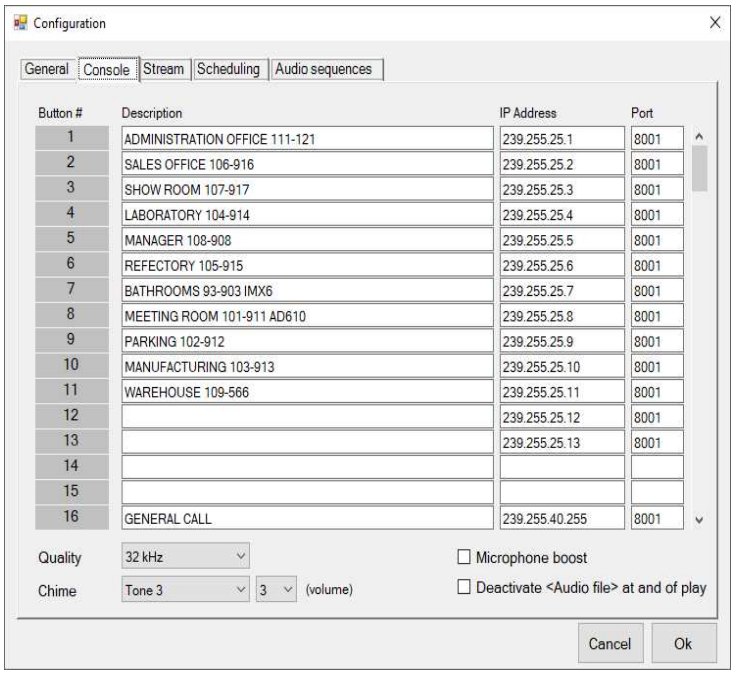
Additional stations may be provided for the launch of announcements consisting of a microphone base and an encoder each, with no limit as the number of stations added on the LAN. If other music channels to be broadcast on the network are needed, just add an Encoder and the music source to be connected to the Encoder itself.
In the same way, other ADAM stations can be added, without number limits, in order to operate on the same terminals from different locations.

Note that by installing the additional **"VideoConsole"** software on the same PC where ADAM is installed (and/or on other PCs), it will be possible to establish bidirectional communications with all the IP-SIP speaker terminals (excluding IP modules AD610-611-612 that do not have an internal microphone). Furthermore, a bidirectional call can be established from each IP-SIP loudspeaker without additional costs, simply by connecting one or two external buttons on the appropriate terminals, even without the use of any PBX.

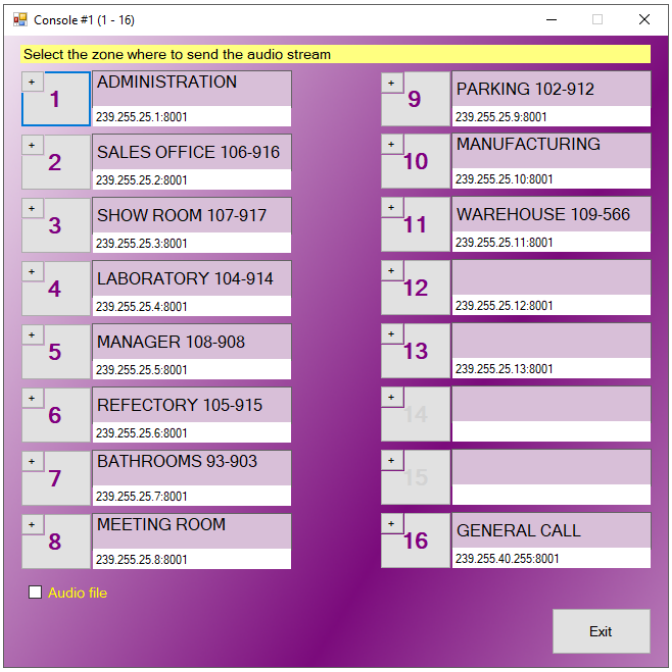


27 Configuration of the ADAM console and AD600 terminals

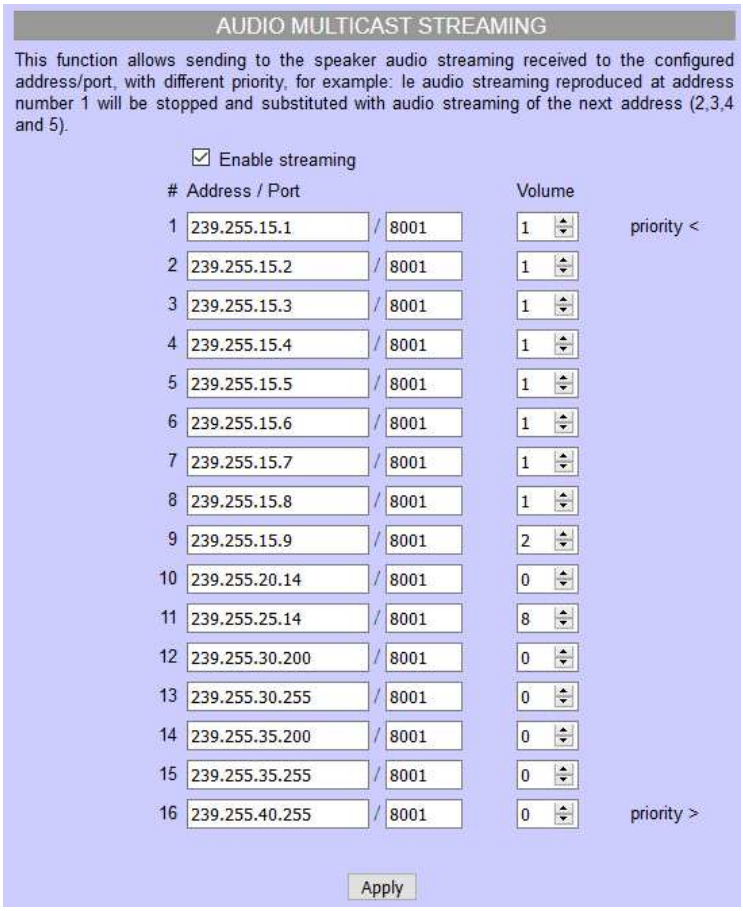
ADAM: configuration of the Console in the appropriate section



ADAM: operation screen of programmed Console



Suggested addresses to be programmed in each AD6xx terminal on the network



The figure shows the programming of the multicast channels of the 1st terminal of the Administration Office, all the other terminals can be programmed in the same way, except for channel 11 which determines the unique number of each terminal. The channels have consecutive priority, channel 1 is the lowest while channel 15 is the highest priority.

Multicast channels with address "15" from 1 to 8 are reserved for low volume background music channels.

Channels 9 and 10 are reserved for services such as audio deterrence and personal streaming (Not considered in the application).

Channel 11 with address "25" is followed by the number assigned to the terminal, in this case the number 1. **Each other terminal must have a different extension** (... 2 ... 3 ... 4 ... etc. up to .255)

Channel 12 is used to receive messages in specific Scheduling of the terminal or by group of terminals.

Channel 13 is used for scheduling at all terminals

Channel 14 is used to send an emergence audio sequence to a group of terminals manually or at set times.

Channel 15 is used to send a general emergency sound sequence to all terminals, either manually or at set times.
Channel 16 (the highest priority) is reserved for general calls from each microphone station, including PC stations with ADAM.

The described application is only a functional example, obviously it is possible to choose other IP addresses to be assigned to the terminals in the range of addresses reserved for Multicast communications established by the international organization for the Internet (class "D" from 224.xxx up to 239.xxx).

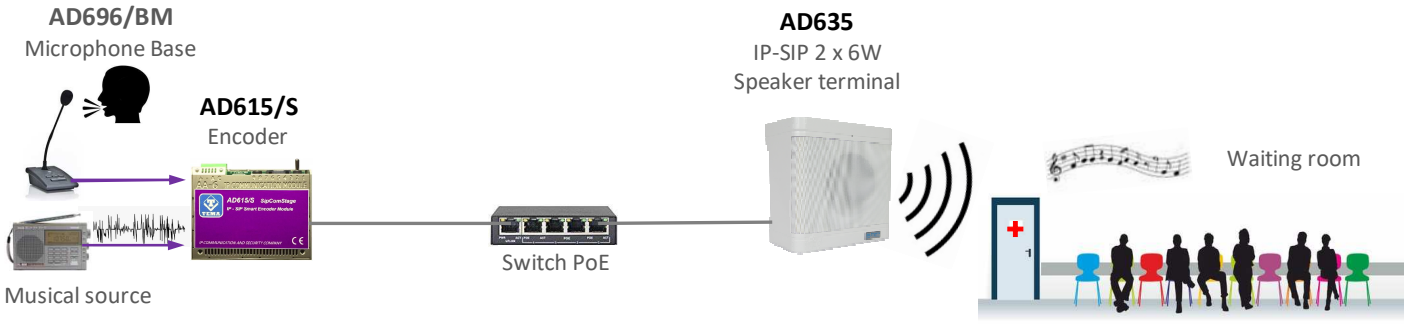
28

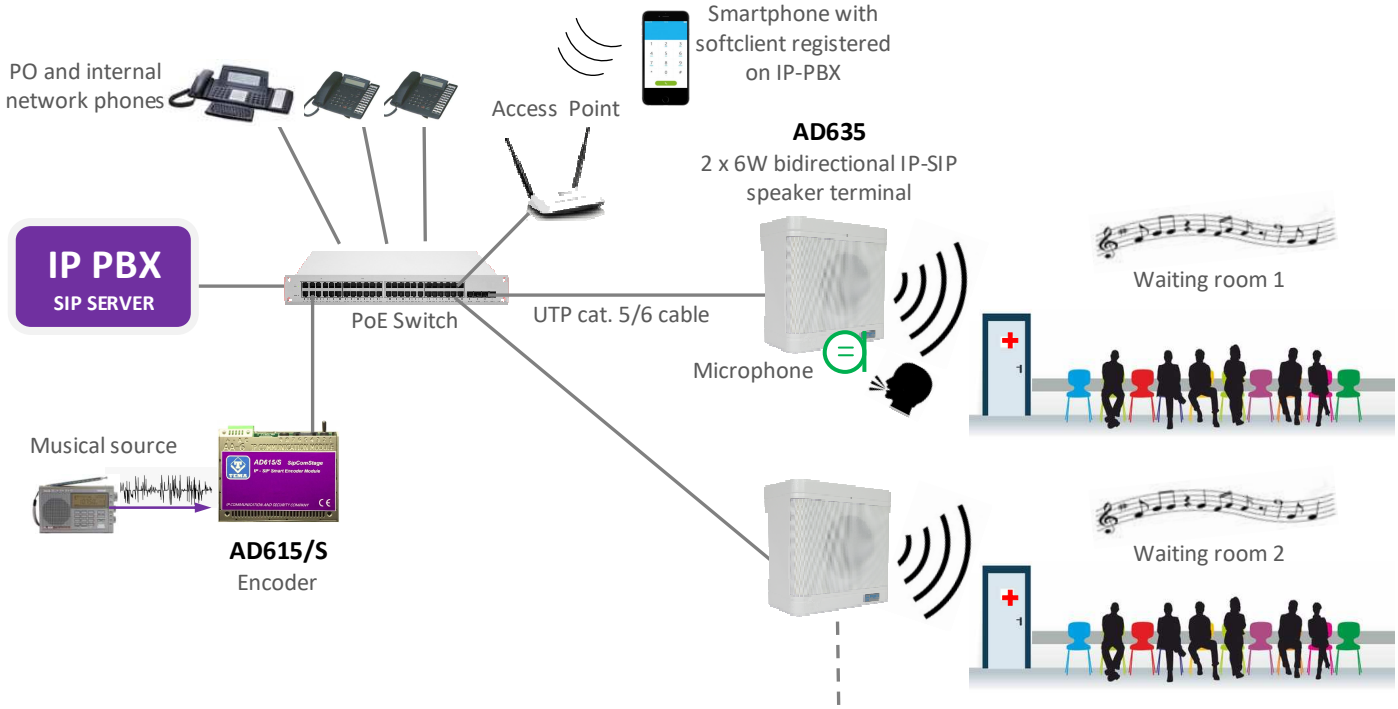
Waiting rooms in medical clinics

The first diagram shows the realization of a simple and inexpensive system for the broadcast of announcements in a waiting room. Only 3 components of the AD600 "SipComStage" series are required: a microphone base with Chime, a Multicast Encoder and an IP-SIP speaker. The medical secretariat through the microphone base calls the waiting patient. At no additional cost it is possible to connect to the Encoder a music source of any kind (Radio, iPod, PC playlist, CD player, etc.) to broadcast low background music in the room, which will be interrupted in the presence of the announcement .

The second diagram shows the same service in the presence of an IP-PBX for the management of multiple waiting rooms and with the possibility to make in every room announcements from any phone in the internal network, of any technology, including Dect cordless and smartphone with softphones registered in the IP-PBX. Since the S600 ADP speakers have an integrated microphone, two-way bidirectional communication with the waiting room is possible.

Note that the Tema AD600 devices are real SIP terminals, so they can be registered on an IP-PBX with a specific account number and be called individually by each telephone of the internal network.





29

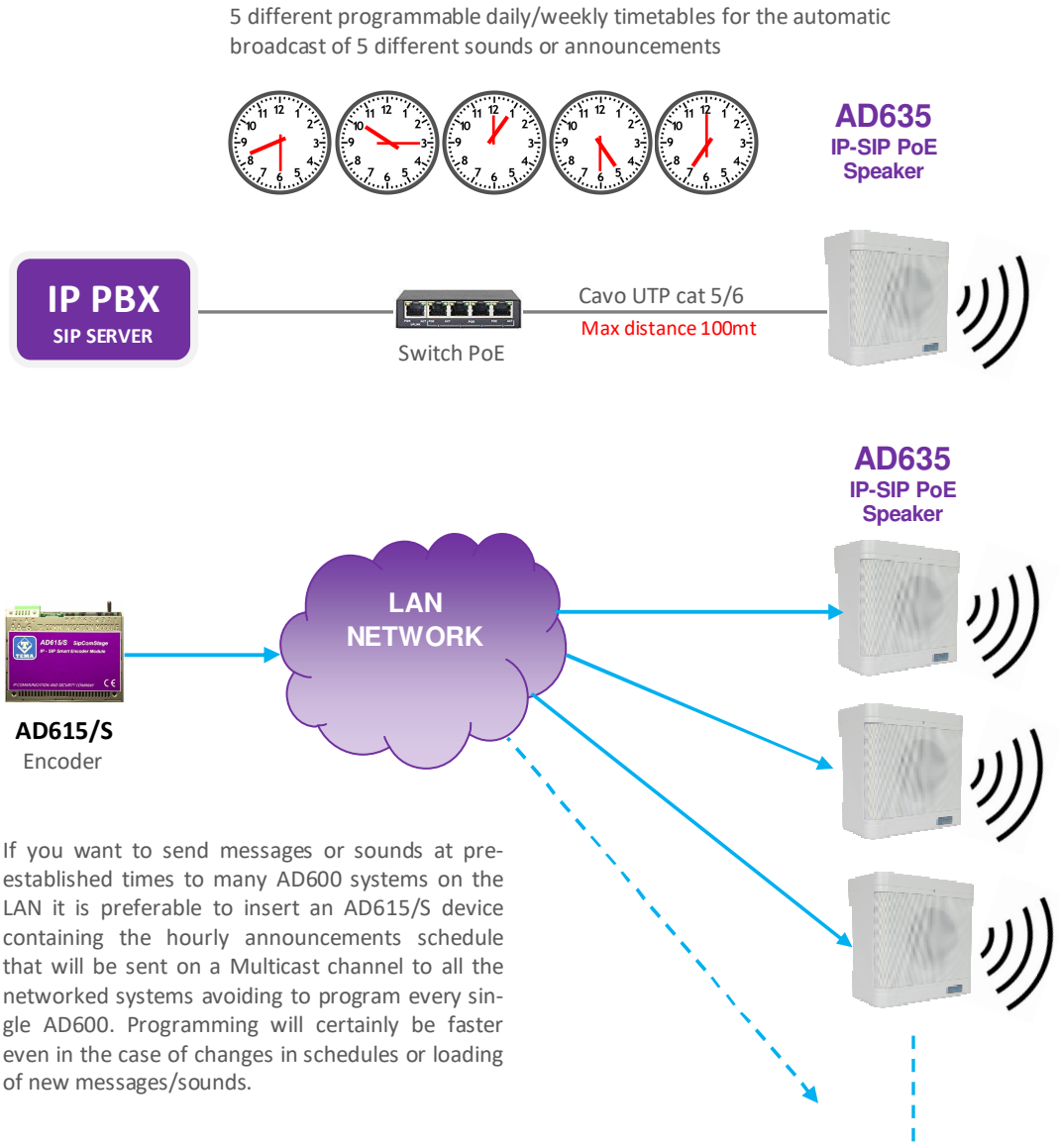
Broadcast of a pre-recorded message or sound at set times, daily, weekly or annual calendar programmability

In every device of the AD600 (*) series it is possible, in addition to all the other functions, to program up to 5 prerecorded messages or sounds that will be automatically played in 5 different times of the day. For example in a school a bell can be broadcasted for beginning or end of lessons, in a factory the notice of the lunch break or beginning/end of the working time. The sounds or messages can be different according to the time and are pre-recorded and stored in the device memory.

It is possible to set a weekly program from Monday to Friday, skipping Saturday and Sunday, directly on the AD600 device via web browser, or set an annual program in an Excel file, which is provided with an empty example template, which it will be imported into the AD600 system, in this way it is possible to program also mid-week holidays and holiday closing periods.

The programming can be changed at any time by accessing the device via ID and password via the web and changing schedules and messages or uploading a new correct Excel file in the case of annual programming.

(*)Only model AD639R SIP call repeater exceeds having only 1 message available for the time scheduled announcement.



If you want to send messages or sounds at pre-established times to many AD600 systems on the LAN it is preferable to insert an AD615/S device containing the hourly announcements schedule that will be sent on a Multicast channel to all the networked systems avoiding to program every single AD600. Programming will certainly be faster even in the case of changes in schedules or loading of new messages/sounds.

30 AD630/SMS industrial application for emergency and security

The AD630/SMS system, in a box with IP66 protection, consists of a VoIP IP SIP horn 20 + 20W Tema AD630, a DIAL-101C GSM Gateway TEMA, a flashing light indicator and a 24Vdc power supply.

AD630/SMS is the ideal system for alarm notification applications that can be activated remotely via SMS messages received for a typical "MAN DOWN" application.

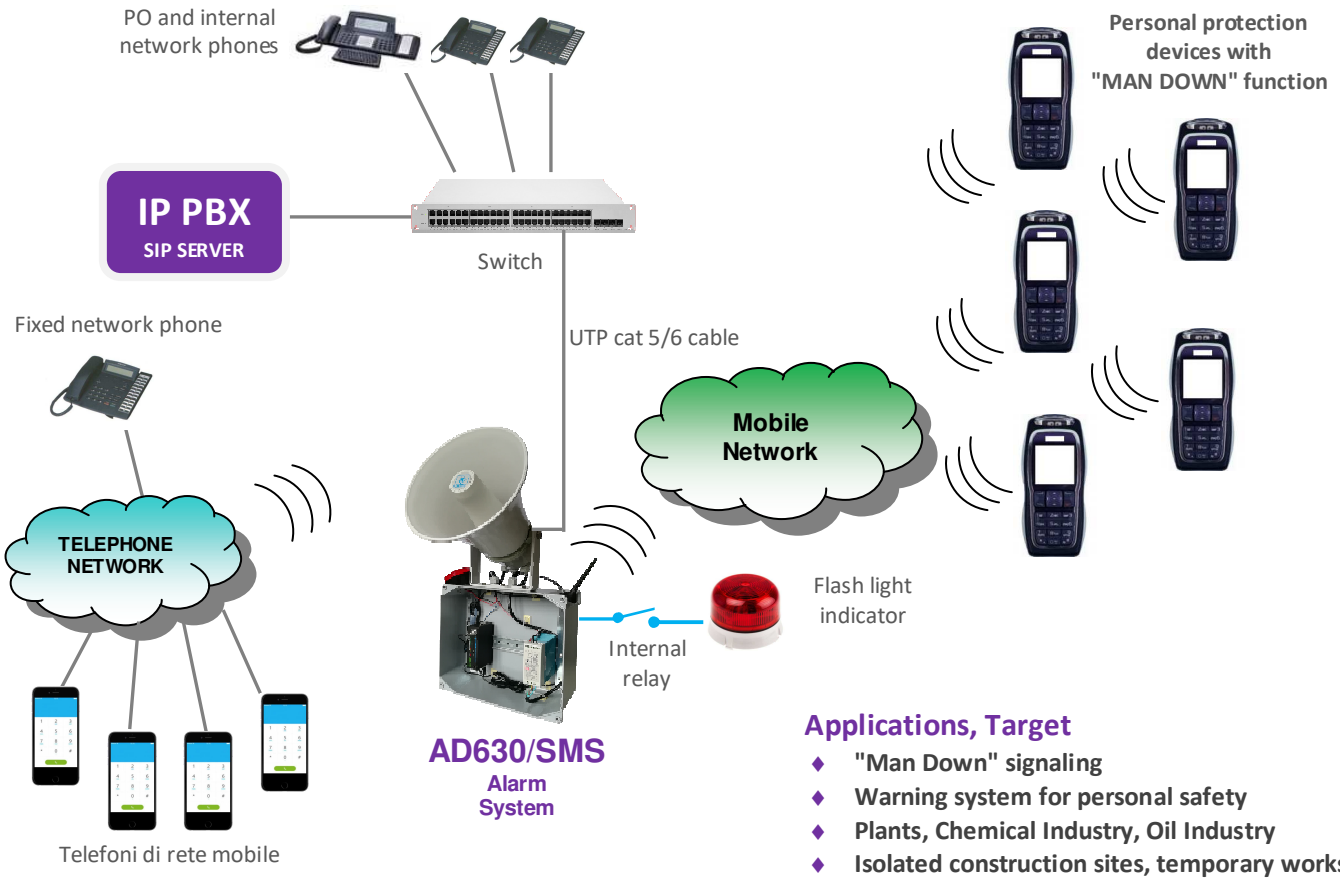
Upon receipt of the appropriately formatted SMS, the system will play the prerecorded message and at the same time notifies via GSM call the alarm event in a cyclic mode to max 4 telephone numbers called in succession, until the alarm is acquired with a code from one of the called numbers. The system will ignore all received SMS messages without the first 4 characters of formatting, avoiding the accidental triggering of the alarm. The telephone numbers of the persons in charge of the notification are easily programmable via SMS.

The system is also reachable with SIP and P2P Peer to Peer calls and is compatible with Multicast applications and the Tema ADAM Audio Management software.


GSM+VoIP Technology, High Sound, Acoustic and Visual Signaling

The installation is made simply by inserting a GSM SIM Card into the DIAL-101C gateway, programming the telephone numbers to be notified, programming the 4-digit alarm activation SMS code and powering up the system. Then it is possible to connect to the VoIP SIP AD630 horn to program its IP address and the alarm message that will be played. If the ADAM software is used, the programming operations of the AD630 will be further simplified.

With the Tema ADAM software it will also be possible to use the IP AD630 horn as a Paging system using the Multicast technology and/or for sending voice announcements.



Applications, Target

- "Man Down" signaling
- Warning system for personal safety
- Plants, Chemical Industry, Oil Industry
- Isolated construction sites, temporary worksites
- Warehouses, Garage, Supermarket, Parking
- Railway Stations, Ports, Airports

TEMA TELECOMUNICAZIONI, founded in 1988 by professionals of the sector, is a leader in the design and manufacture of special systems and services for Fixed and Mobile Telecommunications and Security. The research and development laboratories in Milan, where it is invested more than 15% of sales, are equipped with advanced equipment and skilled personnel in microprocessor technology, hardware-software, programming languages, audio synthesis and Voice-Audio-video processing, LAN technologies, VoIP, Wireless. The company's purpose is to give complete customer satisfaction, continuous improvement of product performance and to offer an excellent technical support service, for that is **UNI EN ISO 9001:2015 quality certified**.

To date TEMA TELECOMMUNICATIONS can claim an installed base of hundreds of thousands of devices and peripherals integrated with protocols of most major brands of PBX and other special systems for Telecommunications and Security.

Operation is ensured at national level through telephone installers and trusted resellers, with technical and commercial support from both the Milan Headquarter office and Rome Branch office. It also organizes regular technical and commercial training courses. The company's revenue is divided between the domestic market and foreign market with exports percentages rising in recent years.

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UNI EN ISO 9001:2015

"IP COMMUNICATION AND SECURITY COMPANY"