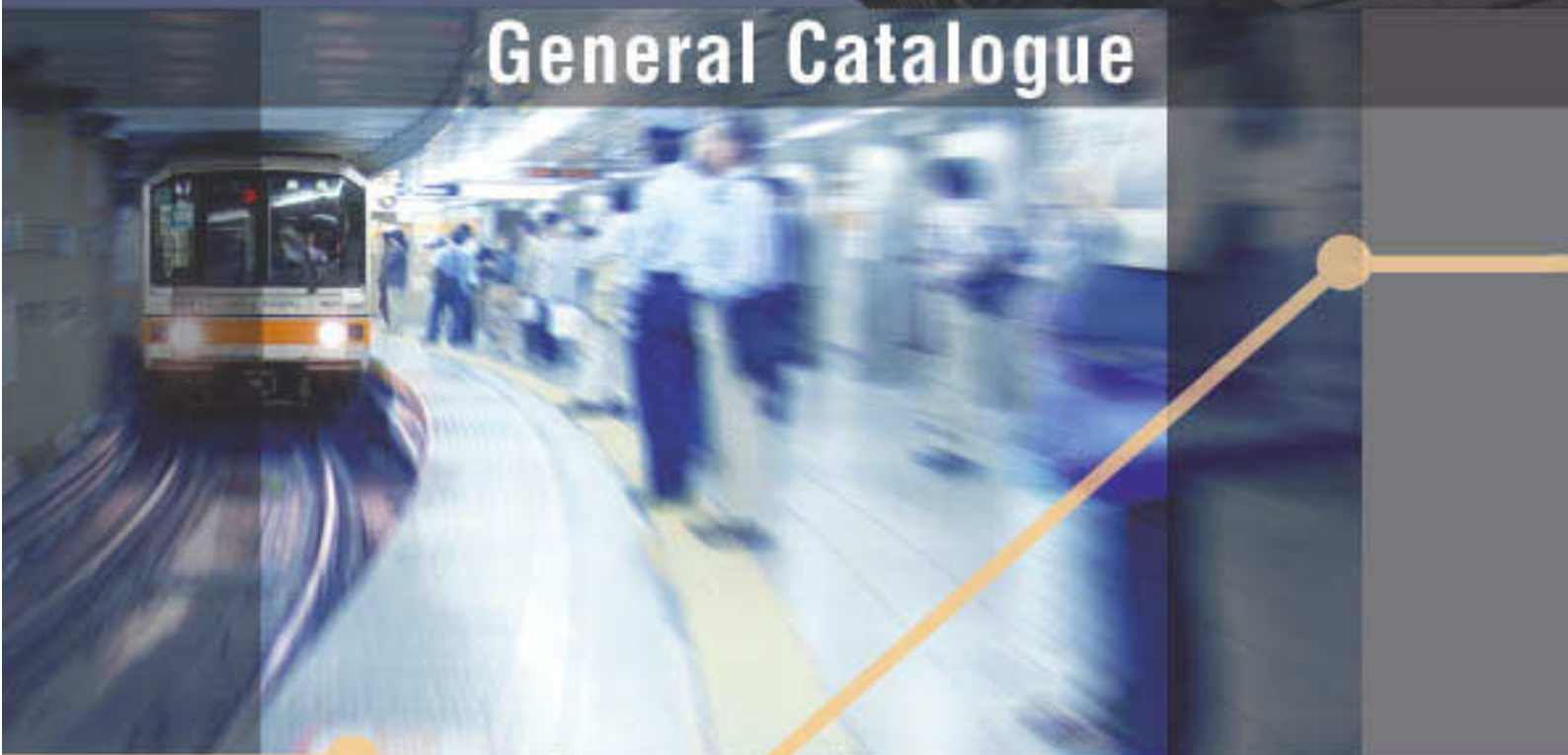


QUICK BROWSING
INSTRUCTIONS

>>

SOUND AND COMMUNICATION General Catalogue



OPTIMUS
SOUND AND COMMUNICATION

1933 - 2008

75

THE WIDEST RANGE OF PRODUCTS

You will find at OPTIMUS any product you may need for your sound and communication installations, from amplifiers or loudspeakers to the most sophisticated microprocess control systems. The best products to offer for the best sound solutions.

FOREFRONT TECHNOLOGY

We offer top technology. In our Research and Development Department we are working every day to get for our products the most advanced technology, the best components and the latest materials, to guarantee all the time forefront first class products.

OUR OWN DESIGN

Our brand and our products have their own personality. We attach great importance to our designs, combining modernity and a functional character, because we know that often it is not enough to have only the best quality and technology. Our products are lasting, reliable and decorative, easily integrable. Definitely, products bearing the stamp of the OPTIMUS brand.

THE QUALITY OF A LEADER BRAND

Our ranges, technology and design are only a part of the best quality secret. Our manufacturing process, furthermore, do fulfil the most modern and strictest controls along all the production line. Therefore, we can assure full quality, with the guarantee of our long experience as leaders in this field, the recognition of Engineering Companies and Consultants all around the world, and our constant vocation to get the best for our clients.

A PROFESSIONAL TEAM AT YOUR SERVICE

We offer the best products but also the best service. A professional team with a long experience in this field will help you any time, before, during and after the installation. Our Engineers will assist you in the design of any installation, and our Technical Service will solve any incidence or clarify any technical question that might arise. Our support is constant and effective along the life of the product, so you will always get from us the best answer to your needs.

STANDARDS AND NORMS

Now-a-days all the products and systems are more and more subject to all sorts of standards and norms. This is specially true in the Public Address and Voice Evacuation Systems, which are often used in emergency situations, where they are paramount in the saving of lives. The OPTIMUS products and systems are designed and manufactured accordingly to the highest manufacturing and quality norms and permit also to comply with the most stringent safety norms, such as the EN-60849.

SYSTEM INTEGRATION

The integration of the Public Address and Voice Alarm systems (PA/VA) with other security systems, such like fire alarm, CCTV, intrusion detection and, in general, with any Building Management Systems (B.M.S.), has become an everyday subject due to the increased consciousness and needs in safety and security matters, oriented to the life-saving priorities in case of hazards and abnormal situations.

OPTIMUS provides solutions to the System Integration requirements by means of different Standard Integration Softwares. Additionally, we develop taylor-made System Integration Softwares to cover the most difficult and stringent integration philosophies and situations.

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THE WIDEST RANGE OF PRODUCTS

You will find at OPTIMUS any product you may need for your sound and communication installations, from amplifiers or loudspeakers to the most sophisticated microprocess control systems. The best products to offer for the best sound solutions.





OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

Introduction

OPTIMAX System is a high-end Public Address and Voice Alarm System (PA/VA), specially designed for distributed installations and allowing the transmission audio and control data over IP networks in real time.

OPTIMAX can work in already existing IP networks, sharing it with other existing systems and therefore saving costs on the transmission network structure. All the units have a double Ethernet input for added redundancy on the transmission network side.

It has been designed having in mind the requirements of big and complex distributed installations, where the system is spread over a large area and having to communicate several satellites between them and with a Control Center. OPTIMAX is at its best in installations like trains and metro lines, airports, corporate buildings, large factories, etc., having all the parameters and functionalities of the system under surveillance and control, checking permanently the integrity of the different components of the installation and also of the network, detecting and reporting immediately any default.

The system, that complies with the EN-60849 norm, has been designed under the philosophy of the "no single point of failure" for a total reliability, making it suitable for those installations that require the highest reliability and dependability.

OPTIMAX can be interfaced with other security systems, such like fire alarm, CCTV, intrusion detection and, in general, with any Building Management Systems (B.M.S.) by means of different integration softwares, to cover the most difficult and stringent integration philosophies and situations oriented to the life-saving priorities in case of hazards and emergency situations.

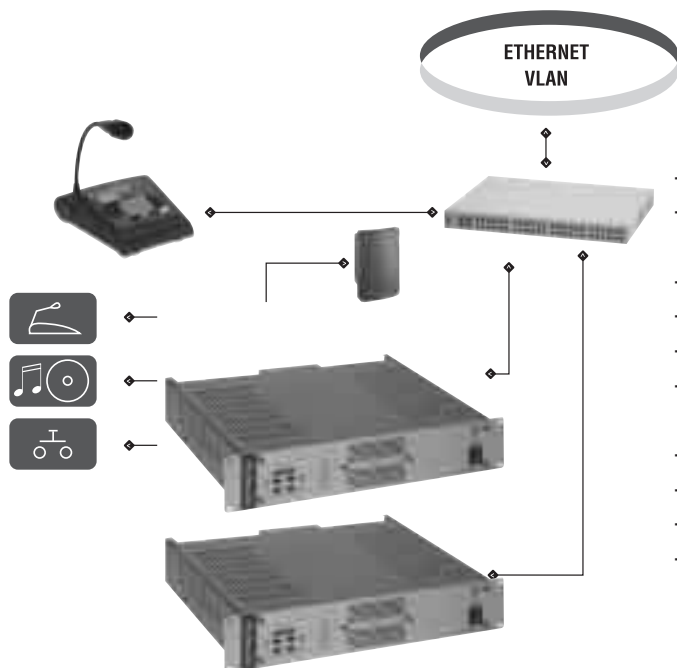


OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

Introduction

Main features:

- Digital audio (UDP/IP Multicast)
 - Dedicated Ethernet: Real time
 - Shared Ethernet through VPN: Real time.
- TCP/IP Control
 - Amplifier parameters general control
 - Heartbeat signals.
- Two Ethernet connections for security installations
 - Automatic switch
 - Permanent supervision of secondary net.
- Server - free system, with only maintenance PC if required.
- IP Address by dipswitch makes easier the equipment replacement for the maintenance staff.
- Digitalized audio at microphone level.
- EN60849 standard certified.
- Complies with the EMC standards for industrial environments.
- Pre-recorded messages at power unit level (preevacuation and evacuation).
- Configurable output/input contacts in each power unit.
- Loudspeakers supervision and emergency signal critical path.
- RS485 connection for peripherals control: noise sensors, etc.
- Analog inputs for:
 - Program
 - Priority
 - Emergency (hardwired maximum priority).



Optimax main components

UP-66ETH	60W RMS Power unit with digital audio reception through Ethernet
UP-126ETH	120W RMS Power unit with digital audio reception through Ethernet
UP-246ETH	240W RMS Power unit with digital audio reception through Ethernet
UP-366ETH	360W RMS Power unit with digital audio reception through Ethernet
COU-01/0ETH	Automatic changeover unit to back-up amplifier
DVA-100ETH	Digital voice announcer
UMX-01/0	Audio matrix mainframe
UMX-ETH	Interconnection unit between the Optimax serie equipment and the UMX-01/0 Matrix
UMX-DVA	Digital voice announcer in UMX-01/0 format
DC-600ETH	Tablestand microphone desk with direct Ethernet connection
FC-600ETH	Embedded & rack mounted microphone desk with direct Ethernet connection
NS-485	Noise sensor with RS485 communication
SCM-01	Monitoring, configuring and control software



OPTIMAX SYSTEM
PA/VA OVER IP NETWORKS



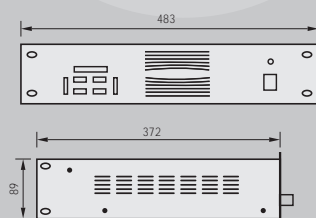
OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

UP-ETH series digital power units

The UP-366ETH, UP-246ETH, UP-126ETH and UP-66ETH models are digital amplifiers with power ratings of 360, 240, 120 and 60 W RMS respectively.

They have been specially designed to be used in P.A. installations, security paging, background music and speech reproduction systems, being a reliable and long-lasting product.

By means of the Ethernet connection, they allow the paging and music diffusion in real time, control data and equipment configuration through an ETHERNET network.



SPECIFICATIONS

	UP-66ETH	UP-126ETH	UP-246ETH	UP-366ETH
Power supply	Mains: 230 V.c.a.; Battery: 24 V.d.c.			
Consumption	Standby: 9,66 VA; Rated output: 118 VA	Standby: 14 VA; Rated output: 233 VA	Standby: 23 VA; Rated output: 462 VA	Standby: 74 VA; Rated output: 690 VA
Nominal power rating (RMS)	60W	120 W	240 W	360 W
I.H.F. power	95W	175 W	312 W	450 W
Total Harmonic Distortion	< 0.8% (1 kHz)			
Frequency response (digital stage) (-3 dB)	40 ÷ 17.500 Hz	50 ÷ 17.000 Hz	50 ÷ 16.500 Hz	50 ÷ 18.000 Hz
Frequency response (analog power stage)	50 ÷ 20.000 Hz			
Signal / noise ratio	> 75 dB			
Inputs	1 program (0 dBu), 1 priority (0 dBu), 1 emergency (0 dBu), 2 Ethernets			
Analogue inputs sensitivity	775 mV (program, priority & emergency)			
Loudspeakers line output	100 V, 70 V, 50 V / 4, 8, 16 Ω			
Controls	program & priority volume			
Input/output contacts	9			
Fan activation temperature	Front Rear	-	-	Configurable
Overheating protection	120 °C			
Dimensions (mm)	483 (width) x 89 (height) x 372 (depth)			
Rack units	2			
Weight	10.2	14.1 kg	17.8 kg	20.1 kg
Finishing	Front panel: iron. Cover: black skinplate			



OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

UP-ETH series digital power units



MAIN FEATURES

- Protection against short-circuit / overloading in the loudspeakers line.
- Thermal protections:
 - Notification of alarm with threshold configurable by the user.
 - Automatic turn off (hardware fix temperature).
- Fans control with thresholds configurable by the user.
- Loudspeakers lines surveillance.
- Digital audio through Ethernet connection.
- DSP functions for the ETHERNET channels: Volume, bass and treble.
- Additional input channels: Emergency, Priority and Program.
- Double Ethernet connection, for added redundancy.
- They occupy two units height in the 19" Rack cabinets.
- Equipped with Fail Safe Relay for the amplifier activity surveillance.
- Operation in stand-alone mode with P.A. Manager control software.
- Pre-recorded messages stored in the amplifier flash memory.
- Emergency input continuous surveillance (critical signal path).
- Input/output contacts configurable for auxiliary functions (emergency messages activation, zones sub-division, etc.).
- RS485 connection for control of peripheral devices (noise sensors,).
- Automatic level control functions.
- Supervision of the equipment operation by means of the P.A. Manager software and/or TELNET basic functions.
- Keyboard locking option, to avoid its unintentional manipulation.
- Loudspeakers lines output in low impedance (4-8-16 Ω) and high impedance (50-70-100 V).
- Security paging auxiliary relay.
- Battery power supply input (24 V.d.c.).
- IP address configuration by dipswitch, which facilitates the equipment replacement in any installation.



OPTIMAX SYSTEM
PA/VA OVER IP NETWORKS



OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

DC-600ETH / FC-600ETH Control and Paging centrals



DC-600ETH

DC-600ETH and FC-600ETH are Control and Paging Centrals that permit to send real time audio and control through an Ethernet network. Both models, as all the other OPTIMAX components have double Ethernet link for redundancy purposes, with two different configurable IP addresses.

Besides the normal paging functions by zone selection, all call or programmable groups, the units allow also the control and activation of a number of functions, such like activation of pre-recorded messages, stored in different parts of the installation. They also provide visual information about the status and integrity of the components of the installation, reporting visually and acoustically any abnormal situation that might arise.

The desk top unit, DC-600ETH, combines an attractive design with a great number of functionalities and features that can be easily accessed thanks to the navigation keys and the graphic LCD display.

DC-600ETH is a desk control and paging central whose main features are:

- Microphone with dynamic microphone capsule.
- Vu-meter (OUTPUT LEVEL) to indicate the audio level from the microphone.
- Navigation keys.
- Monitor Speaker allowing to monitor paging from other sources or pre-recorded messages.
- Graphic LCD Display indicating the zone selection and alarm status of the system.
- Zone selection buttons (0 to 9) used for zone selection, modification and acknowledge of the procedures.
- Leds indicators of power, Ethernet A link & activity, Ethernet B link & activity, alarm, busy, play gong & talk.
- PLAY button to send a pre-recorded message.
- REP button to repeat the last message.
- TALK button to send a paging without Chime.
- GONG+TALK Button to send a paging with Chime.



OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

DC-600ETH / FC-600ETH Control and Paging centrals



FC-600ETH

FC-600ETH is a flush-mounted control and paging central with Ethernet connection that permits to send real time audio and data control through a Ethernet.

Its main features are:

- Double Ethernet link for redundant systems.
- DSP functionality: Noise gate and Volume control.
- Equipment surveillance through P.A. Manager control software and using basic functionalities of a TELNET.
- IP address configuration through dip-switch, that permits to easily change equipment in an installation.
- 14 Zone selection buttons.
- All Call button.
- Pre-recorded message activation button.
- Paging with or without Chime.
- Auxiliary 0dB audio output.
- Music source input.
- Alarm LED.
- Vu-meter.
- Monitor speaker.

SPECIFICATIONS

DC-600ETH

FC-600ETH

Power supply	24 V.d.c.	
Consumption	500 mA	
Inputs	1 Music in (RCA connectors), 2 ethernets	
Microphone Element	Moving Coil Dynamic	
Microphone Polar Patern	Unidirectional	
Microphone frequency response	100 Hz ÷ 8.000 Hz	
Microphone sensitivity	-76dB ± 3 dB (0 dB = 1 V/microbar at 10.000 Hz)	
Microphone output impedance	500 Ohm ± 30% (at 1kHz)	
Microphone material	Aluminium	
Weight	1.9 kg	2.7 kg
Finishing	Grey (RAL7021) Bayblend. Rear plate in black SkinPlate	Front plate in polycarbonate. Cover and rear Plate in black SkinPlate



OPTIMAX SYSTEM
PA/VA OVER IP NETWORKS



OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

DVA-100ETH Digital voice announcer

The DVA-100ETH is an Ethernet controlled messages player and permits to link Optimax system with the other analog systems from Optimus including UMX-01 family.

The DVA-100ETH can have a huge library of pre-recorded messages, in wav format only, stored either in a standard Hard Disk or in a Compaq flash memory card. Its Ethernet link is redundant for security purposes.

The DVA-100ETH can work in different modes: as a Gateway from Optimax system to other systems, as standalone messages player for analog systems and as a Optimax messages player.

Optimax to analog sytems gateway and Stand-alone messages player.

Receives Ethernet Audio and reproduces it in the analog audio output.

Plays back pre-recorded messages from the Compaq Flash or Hard Disk to the analog output.

Records messages in the Compaq Flash or Hard Disk from the following sources:

Local Microphone input

Ethernet Link

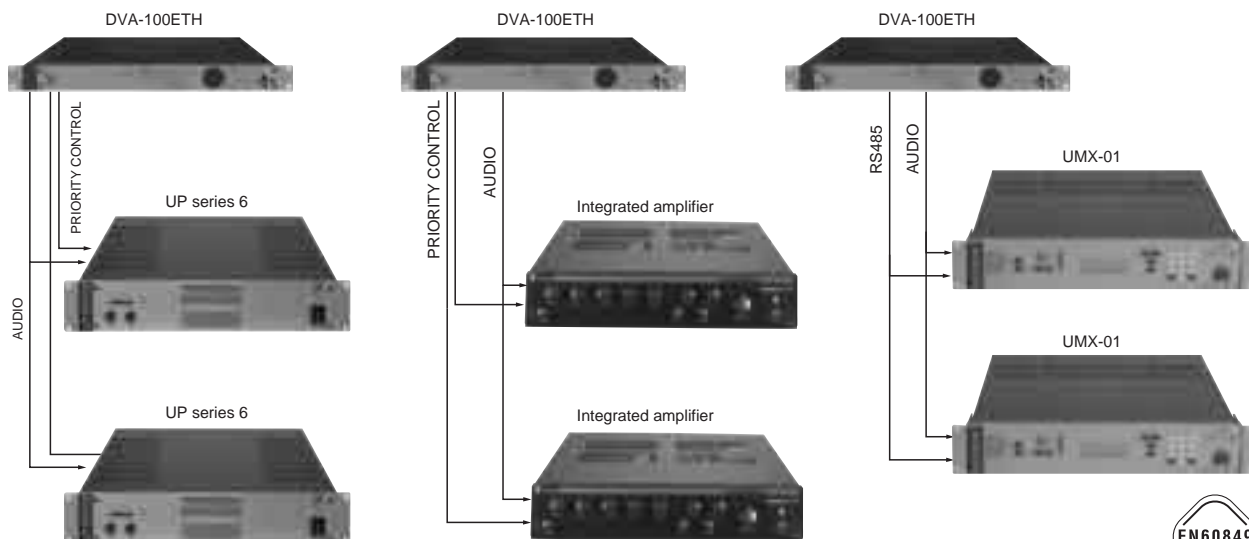
Local USB interface.

The messages can be activated and directed to the zones in the following ways:

Ethernet command

Local dry contacts activation

Front pushbuttons and LCD.



OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

DVA-100ETH Digital voice announcer

The zone selection of the zones to play is done in different ways:

- Dry contacts
- RS485 polling protocol, for external hardware
- RS485 CSMA protocol, for external UMX-01 (analog configuration).

When connected to analog UMX system, indicates the system alarms received from the CSMA bus.

Plays back the pre-recorded messages from the Compaq Flash or Hard Disk, through the Ethernet link, to the Optimax equipment.

Records messages in the Compaq Flash or Hard Disk from the following sources:

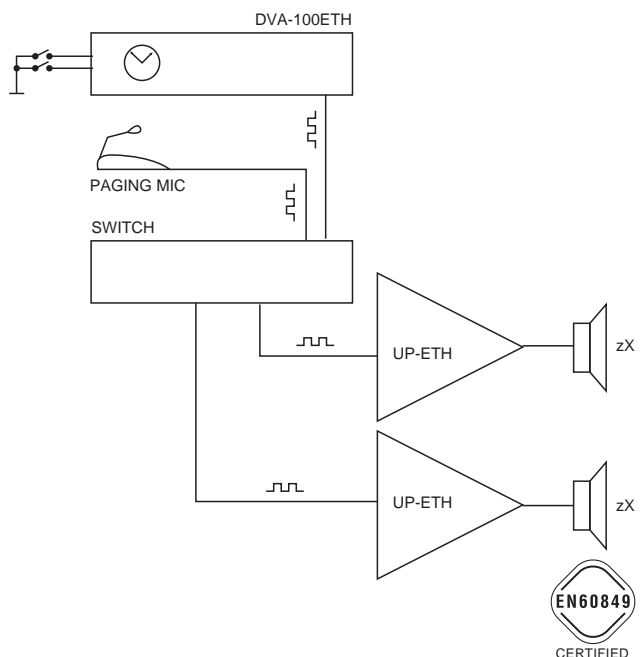
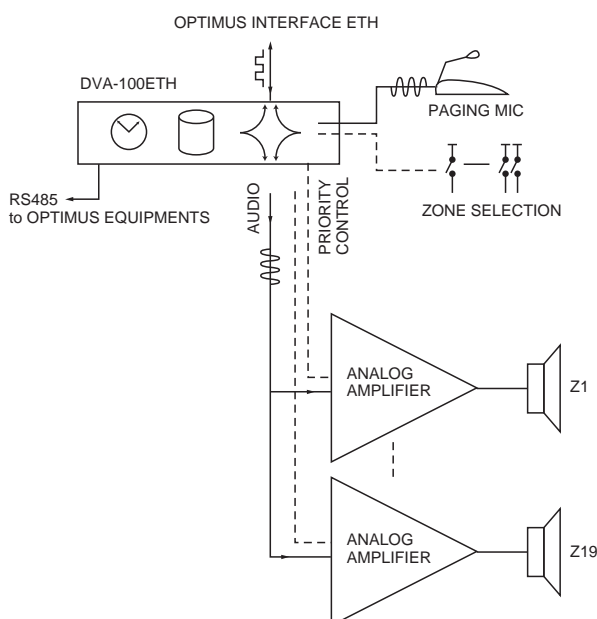
- Local Microphone input
- Ethernet Link
- Local USB interface.

The messages can be activated and directed to the zones in the following ways:

- Ethernet command
- Local dry contacts activation
- Front pushbuttons and LCD.

The zone selection of the zones to play is done through the Ethernet interface.

Alarms, received from the Ethernet interface, are indicated in the front LCD.



OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

UMX-ETH / UMX-DVA / NS-485

UMX-ETH

UMX-DVA

The **UMX-ETH** is an Ethernet connection card to be inserted in the UMX-01 mainframe so as to allow the connection to an Ethernet network of the microprocessed Audio Matrix UMX-01, sending or receiving audio in real time, as well as control data and equipment configuration.

Any signal that comes from any input type card (UMX-2E, UMX-EGC, UMX-ECT or UMX-MP3) can be sent through Ethernet using the UMX-ETH card. In another way, audio signals or data received from the Ethernet through the UMX-ETH card can be directed to the output cards (UMX-2S, UMX-SCT).

The **UMX-DVA** has the same features as the UMX-ETH including moreover storage and playback of evacuation and general purpose messages in Compact Flash Memory.

Main Features:

- Digital audio through Ethernet connection.
- Double Ethernet link, for redundant installations.
- DSP functionalities: Volume, Bass and Treble
- Stand-Alone or PC (with P.A. Manager Control software) monitored configurations
- IP address configuration through dipswitch makes easy the change of equipment from one installation.
- Surveillance of the internal firmware procedures through TELNET facilities of any type of computer and OS.
- Through internal configuration, is possible to differentiate the cards between Paging or Music cards.
- Every UMX-ETH card uses one slot space of the UMX bus.
- The maximum number of UMX-ETH cards in one mainframe is two: one for music and one for paging.
- One open collector output for auxiliary functions.

NS-485 Noise sensor

The NS-485 module is a Noise Sensor for Optimax amplifiers. Through a RS485 bus it communicates with the power units sending the noise level measured in the particular location where it is placed.

Through the control software the noise sensor is assigned to the corresponding amplifier. More than one noise sensor can be assigned to every amplifier. Every noise sensor can have a specific weighting on the measured level.

SPECIFICATIONS

UMX-ETH / UMX-DVA

Connections	ETH A and ETH B (For redundant systems)
Controls	Volume, Bass and Treble adjusted by software control
Current Consumption	600 mA
Outputs	1 Open Collector auxiliary output.

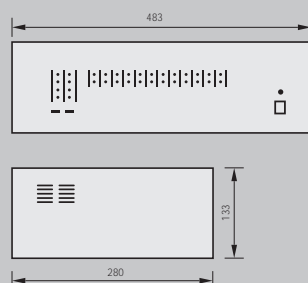
NS-485

Protection Degree	IP-54
Supply	24 V.d.c.
Consumption	135 mA
Weight	0.48 kg
Finishings	Front plate in INOX, painted metal box (RAL-7032)



OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

COU-01ETH Automatic changeover unit to back-up amplifier



The COU-01ETH is an Ethernet controlled automatic change-over unit that commutes 2 analog audio inputs (Priority and Emergency) and the speaker's line from a zone amplifier to the backup one in case of failure. It allows the N+2 configuration.

It has space for 6 COU-01ETH/ES cards, every card is for one zone amplifier.

The Ethernet link permits to notify to other equipment (UMX-ETH, Paging console, etc) the status of the amplifiers that belong to that changeover unit.

In case there is a failure in the zone amplifier, the backup amplifier takes over the faulty amplifier.

In case of more than 3 faulty amplifier, the COU determines what are the 2 that are changed over by the backups following the priority range assigned to every amplifier.

Its main features are:

- Double Ethernet connection for redundant systems.
- Stand-Alone configuration or P.A. Manager software controlled.
- Input/output contacts configurable for auxiliary purposes.
- Equipment monitoring through P.A. Manager software or through basic functionalities of TELNET.
- IP address configured by external dipswitch. Facilitates equipment change in installations.
- Front LEDs that indicate the status of the zone amplifiers:
 - Green: OK
 - FAIL stable: Zone amplifier taken over by the backup amplifier.
 - FAIL blinking: Zone amplifier fail and not taken over.
- Front LEDs that indicate the status of the backup amplifier: OK, STAND-BY, IN USE, FAIL.
- 3U of height in 19" rack cabinet.

SPECIFICATIONS

COU-01ETH

Number of COU-01ETH/ES cards	6
Backup amplifiers connection	2 (N+2 configuration)
Input/output contacts	4 (3 of them configurable)
Power supply	24 V.d.c.
Consumption	300 mA
Dimensions (mm)	483 (width) x 133 (height) x 280 (depth)
Rack cabinet units	3
Weight	5.4 kg
Finishings	Blue colour painted iron, Cover in black skinplate.

COU-01ETH/ES

Number maximum of cards in a mainframe (COU-01ETH)	6
Input/Output contacts	4 (3 configurable)
Consumption	250 mA
Weight	0.26 kg
Finishing	Back plate in black skinplate



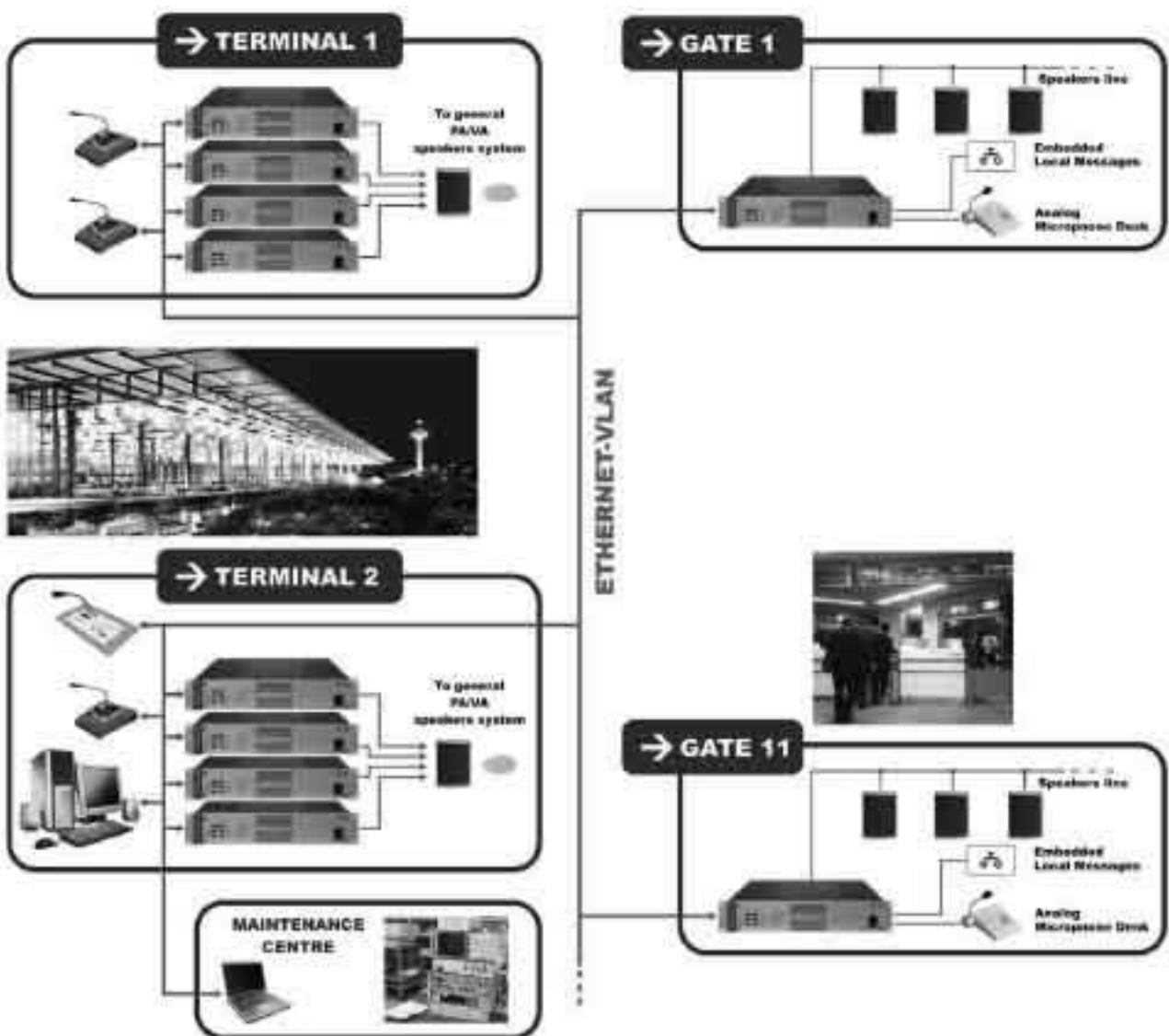
OPTIMAX SYSTEM
PA/VA OVER IP NETWORKS



OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

Example of Block Diagram 1: Airport PA/VA system

Each Terminal and boarding gate have installed locally all the necessary equipment for the whole area or gate. In the example, in Terminal 2 there is also located the Operator Control Centre. The maintenance can be done remotely from a Maintenance Centre.

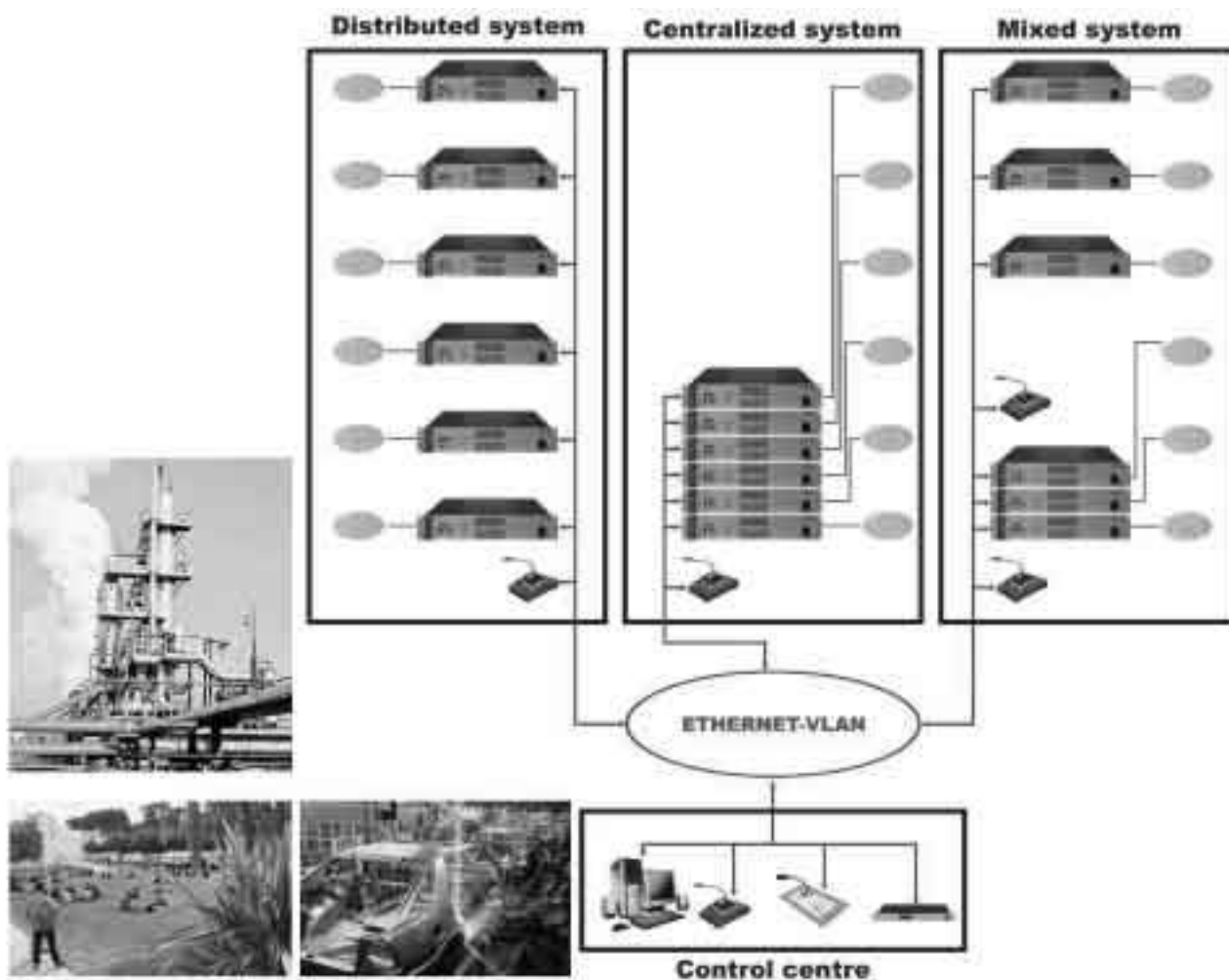


OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

Example of Block Diagram 2:

Installation in Hospitals, Universities and corporate buildings.

The example shows an installation composed by three different buildings belonging to a same complex or company. They can be a few meters or several kilometres away from each other and connected through their own corporate network. The Operator Control Center is located at a different place.



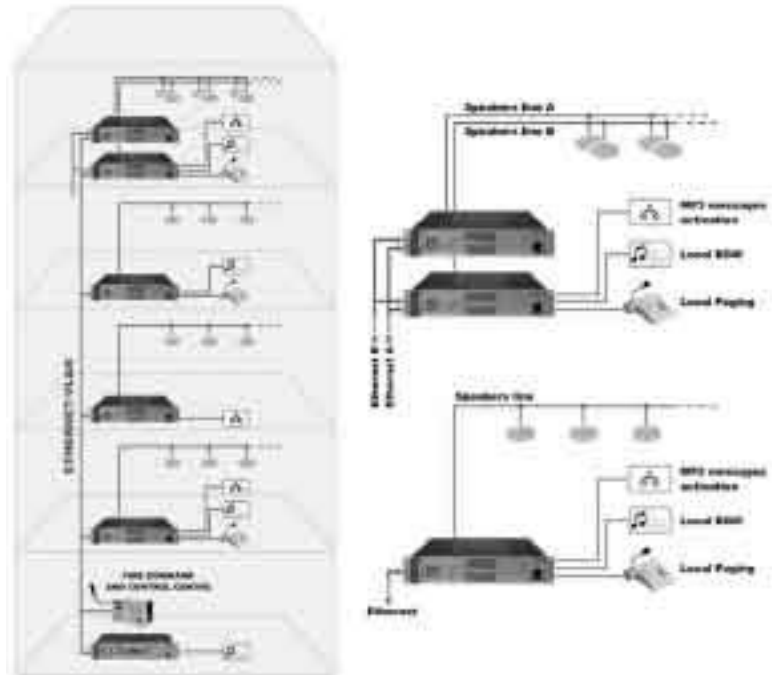
OPTIMAX SYSTEM PAVA OVER IP NETWORKS



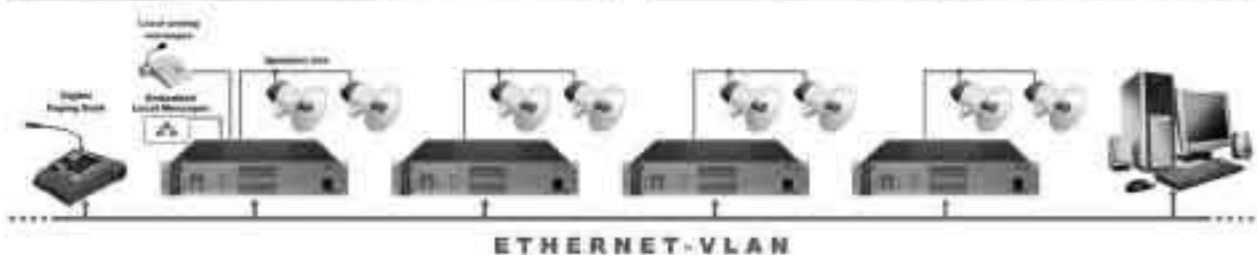
OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

Example of Block Diagram 3: Installation in high-rise building

All the equipments are located in the floor where they are required, together with the local sound sources.



Example of Block Diagram 4: Installation in trains, MRT's, tunnels and highways.



Each station, shelter or satellite, far away from each other, have their own equipment and local sources. The whole installation is controlled remotely from the Operator Control Centre.



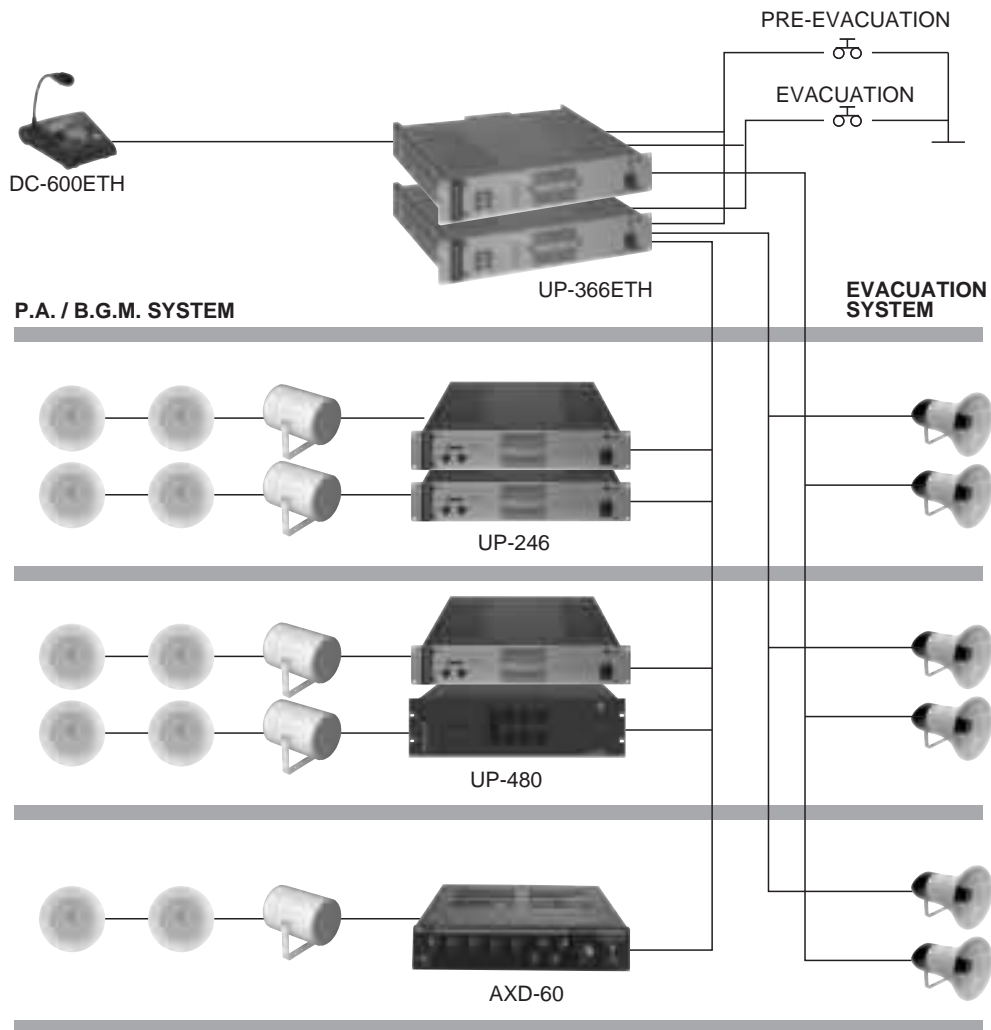
OPTIMAX SYSTEM - PA/VA OVER IP NETWORKS

Example of Block Diagram 5:

Mixed installation with analogue amplifiers / power units for P.A. and B.G.M., combined with OPTIMAX Digital power units for Voice Alarm / Evacuation systems.

This diagram illustrates a mixed installation, using analogue amplifiers (UP-246 / UP-480 / AXD-60) for the normal Public Address / Background Music System, and OPTIMAX UP-366ETH Digital amplifiers for the Voice Alarm / Evacuation System.

The advantage of this combination, is to have an EN-60849 Certified installation for the Voice Alarm / Evacuation System -the OPTIMAX part- , while using normal, analogue amplifiers, for the biggest part of the installation, the P.A. and B.G.M., with a sensible reduction in costs.



OPTIMAX SYSTEM PA/VA OVER IP NETWORKS



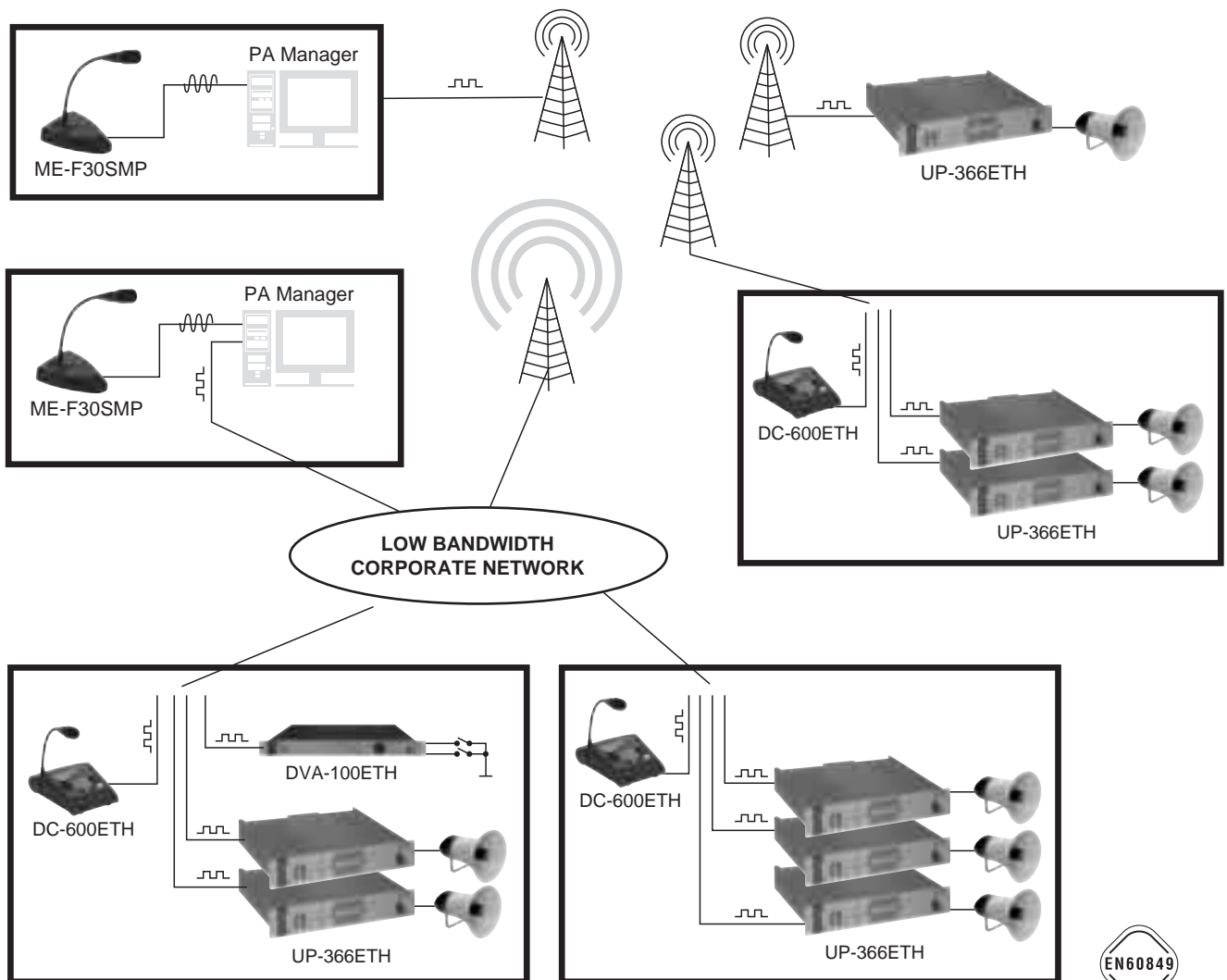
OPTIMAX SYSTEM - PAVA OVER IP NETWORKS

Example of Block Diagram 6:

Installation using a Low Bandwidth backbone corporate network.

Thanks to its capacity of sending OGG-Vorbis compressed files using a very small bandwidth of 2 Mb or less, OPTIMAX equipment can be used in applications where the corporate network, either wired or wireless, is a low bandwidth one. This special feature makes it possible to use OPTIMAX even in remote places, connected via GSM-R, Wi-Fi, WiMax or other wireless systems.

The example illustrates different buildings and equipments, as well as two Operator Control Centres, connected some of them through a wired low bandwidth corporate network and some others connected wireless.



P.A. MANAGER CONTROL AND CONFIGURATION SOFTWARE

SCM-01 / SCS-01 / SCIN-01



The **P.A. Manager**, formerly known as SMP-250V2 control and configuration software, is an integrated software to be used in the different Optimus solutions like Optimax, UMX (new installations, mixed applications with Optimax or maintenance of former ones) and even UDCE (maintenance of former applications), maintaining the same philosophy for all the system.

It is divided into the **SCM-01** Master software, **SCS-01** Client software and **SLT-01** Client software.

SCM-01 is the Configuration and Control Software that permits the setup and configuration of the parameters of the installation according to each and every particular requirement. The software also permits the daily operation and control of all the equipments and functionalities by the PA or Security operator.

SCIN-01 Standard Integration Software allows the integration of OPTIMAX with other security systems, such like fire alarm, CCTV, intrusion detection and, in general, with any Building Management Systems (B.M.S.). SCIN-01 can solve the majority of the integration needs.

Other Custom Integration Softwares are tailor-made to cover the most difficult and stringent integration philosophies and situations.

Each Optimax equipment has an embedded web server that permits to know the status of the equipment using a simple web viewer (i.e. Internet Explorer, Mozilla FireFox, etc).

Using this web server it is possible to do all maintenance works like:

Firmware version of every hardware of the equipment supervision

Firmware update

Chimes Update (in paging desks)

Input/output contacts status (in amplifiers)

Network A and B status

Start/Stop embedded applications

Local configurations Monitoring

The web browser is embedded in every equipment and permits to completely change the firmware of the equipment.

The local configurations cannot be changed using the web server, this can ONLY be monitored.



P.A. MANAGER CONTROL AND CONFIGURATION SOFTWARE



P.A. MANAGER CONTROL AND CONFIGURATION SOFTWARE

SLT-01 Paging software

SLT-01 is an application making part of the P.A. Manager Control and Configuration software for Public Address systems, that allows to send digital and live messages to any zone/s or group/s.

One of its main advantages is that the **SLT-01** software can be installed in a PC not dedicated to the Public Address functions. This way, any installation with a local network (offices buildings, supermarkets chains, industries, railway stations, etc.) can use any PC for sending messages through the network standard connection, without additional cabling.

Main specifications:

Possibility of operation from a PC pertaining to the LAN with IP not fix configuration (assigned by the network server).

Possibility of minimizing the application and keep it resident into the system. Sending PC pre-recorded digital messages to any zone/group of the Public Address system, in a synchronized or unsynchronized way.

Sending UMX-MP3 pre-recorded digital messages to any zone/group of the Public Address system.

Sending live messages via TCP/IP (if the PC has a sound card) to any zone/group of the Public Address system.

Functions of repetition and intervals between repetitions for PC or UMX-MP3 pre-recorded messages.

Quick access menus for configuration of repetitions and intervals between repetitions.

Possibility of making sequences of messages, either for PC or UMX-MP3 pre-recorded messages.

Sequences of messages with option to repetitions or intervals. Possibility of activating a pre-alert gong for any kind of message. Possibility of changing the recording volume of the live messages.

No specific sound cards are required. Both, the audio IP and the pre-recorded messages work with any standard sound card. The SLT-01 software doesn't allow the recording of digital messages but only the playing.

Minimum PC Requirements:

Mainboard Intel Pentium III 20 Gb Hard Disk 256 Mb RAM

Standard sound card (if there is audio IP)

Standard sound card (if there are pre-recorded messages)

PCI 10/100 Mbps Ethernet Card 40x

CD Rom Windows XP Professional Service Pack 2.



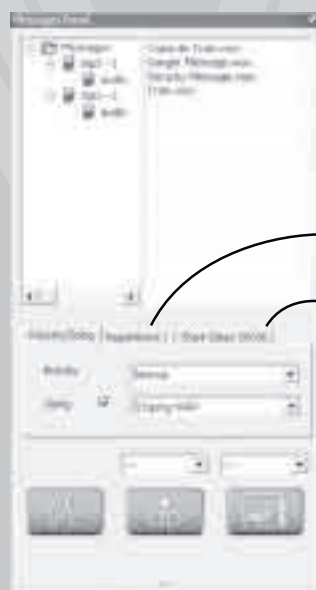
P.A. MANAGER CONTROL AND CONFIGURATION SOFTWARE

Examples of configuration and operation screens

Main Display



Main display detail



Creation and edition of messages sequences



Selection of communication ports



UMX-MP3 Configuration



UMX-94R Configuration



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

UMX-01/0 Mainframe and system components



Modular Microprocess Audio Matrix for Public Address systems. Totally modular, it supports the simultaneous control and addressing of 16 audio signals (program and/or priority) to different outputs, covering all the needs of a Public Address system.

Thanks to its design, it allows to comply with the evacuation standard EN/UNE 60849.

Features:

- "Stand-alone" operation or PC-controlled.
- Audio bus expansion connector (16 channels) for connection of various mainframes.
- RS485 control bus, supporting interconnection of various UMX-01/0 units and/or connection to a PC (optional).
- RS232 front bus for configurations download.
- Loudspeaker for monitoring the 16 audio channels.
- Alphanumeric display of 4 x 20 characters.
- Front keypad.
- Configuration by means of front keypad and/or external PC.
- Independent operation and/or with PC monitoring.
- Occupies 2 units on 19" rack.
- The UMX-01 can be configured and controlled by means of the PA Manager (former SMP250V2) software.

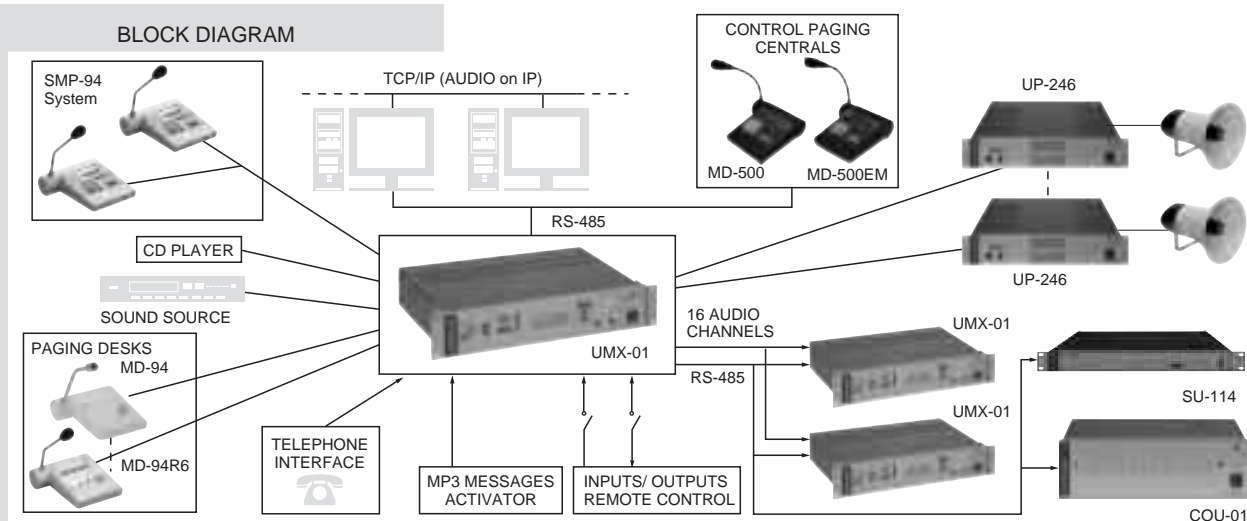
ELEMENTS FUNCTION

UMX-01/0	Mainframe
UMX-2E	Input audio card
UMX-EGC	Input audio card with waiting queues management
UMX-2M	Audio Music Inputs card
UMX-MP3	MP3 Pre-recorded messages card
UMX-TEL	Telephone interface card
UMX-ECT	Optoisolated inputs card
UMX-EM	Emergency card
UMX-94R	Decoder card SMP94
UMX-2S	Output audio card
UMX-SCT	Dry contacts output card

SPECIFICATIONS

Power supply	24 V.d.c.
Consumption	560 mA (without cards)
Capacity	10 cards
Audio channels	16
Communication system	RS-485 by means of RJ45 CSMA/CD protocol
Finishing	Black skinplate
Transmission speed	9600 bps
Accessories	19" Rack mounting brackets
Weight	4.9 kg
Dimensions (mm)	483 x 89 x 290

BLOCK DIAGRAM





UMX-2E AUDIO INPUTS CARD

Two inputs audio card for UMX-01/01.

- UNBALANCED inputs.
- Compatible with the UMX-01/0 matrix with firmware version 10.5 or higher.
- Compatible with the P.A. Manager software version 2.04 or higher.
- Independent inputs using RJ45 connectors.
- Each input has:

Potentiometer for audio level adjustment.

Possibility to pre-set the zones for each input (outputs associated to the input). They must be configured by means of the UMX-01/0 or the control PC. The zones are activated by means of the priority contact.

Signal of activated zones (acknowledge). It allows the synchronisation with external desks (MD-94 family).

Configurable sensitivity through the front keyboard: AUX H (0dB), AUX L (-20dB) and MIC (-60dB).

Configurable input impedance.

Speech filter for the microphone sensitivity.

- Upon specific request, we can supply the cards with:

Transformer balanced inputs.

PHANTOM power supply (24 V.d.c. ,100 mA).

- It occupies 1 slot of the UMX-01/0 bus.

SPECIFICATIONS

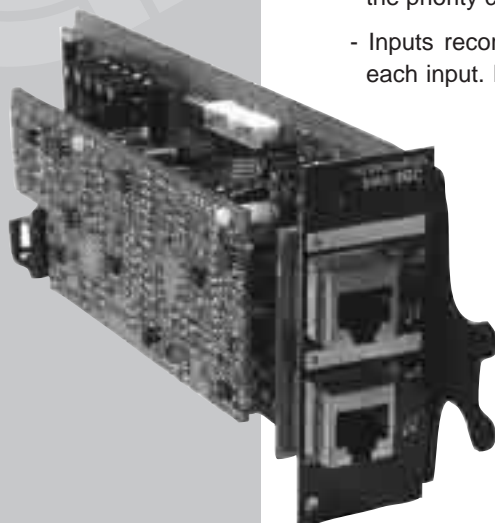
UMX-2E

Number of inputs	2, with RJ45 connectors			
Controls	Potentiometer for audio level adjustment for each input			
Input sensitivity	0 dBm	-20 dBm	-60 dBm	-60 dBm + Speech Filter
Signal / Noise ratio	>75 dB	>75 dB	>63 dB	>63 dB
Frequency response	50 ÷ 20.000 Hz	50 ÷ 20.000 Hz	50 ÷ 18.000 Hz	50 ÷ 18.000 Hz
Input impedance	1.2 kΩ / 220 kΩ			
Power supply	24 V.d.c., through the UMX-01/0			
Consumption	100 mA			

UMX-EGC AUDIO INPUT CARD

Audio input card for UMX-01 with messages queuing system.

- Two independent audio inputs with a 0 dB sensitivity, through RJ45 connectors.
- Both inputs are balanced by a 600 Ohm transformer.
- Independent audio level adjustment for each input.
- Built-in programmable chime (1 to 4 tones), with independent level adjustment for each input.
- Possibility of pre-setting zones for each input (outputs associated to the input). They must be configured by means of the UMX-01 keyboard or the control PC. The zones are activated by means of the priority contact.
- Inputs recording memory up to 60 seconds (waiting queue) for each input. In the case that one or several associated outputs to one input cannot send a message because it is busy playing another one, this memory keeps the message until the output is free
- Personalised pre-announcement: if waiting queues are not required, they can be used as personalised pre-announcement generator.
- RP1 mode function: this card may be used as pre-recorded messages generator. Capacity of 2 messages per card (1 message of 60 seconds per input).
- Signal (acknowledge) of activated zones. It allows the synchronisation with external desks (MD-94 series).
- 24 V.d.c. (100 mA) output to supply the external desks, by means of a Phantom power supply.



SPECIFICATIONS

UMX-EGC

Number of inputs	2
Controls (independent for each input)	Audio level adjustment potentiometer Gong level adjustment potentiometer
Input sensitivity	0 dBm (775 mV)
Impedance	600 Ω
Frequency response (- 3 dB)	40 ÷ 20.000 Hz
Signal / Noise ratio	Better than 74 dB
Maximum recording time	60 seconds
Power supply	24 V.d.c., through the UMX-01/0
Consumption	100 mA



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

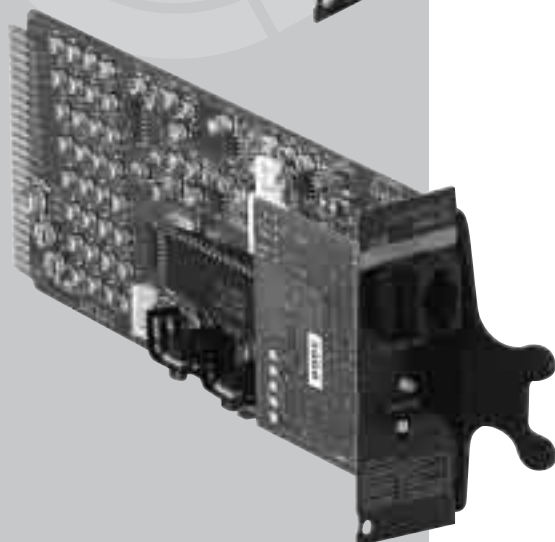
UMX-2M / UMX-TEL



UMX-2M MUSIC INPUTS CARD

Card for the connection of 2 music sources to the UMX-01/0 matrix.

- Compatible with the UMX-01/0 matrix with firmware version 10.5 or higher.
- Compatible with the P.A. Manager software version 2.04 or higher.
- Two independent inputs.
- It uses RCA connectors, adding the L and R channels of each input.
- Potentiometers of audio level adjustment.
- Input sensitivity configurable through the front keyboard: AUX H (775 mV) and AUX L (100 mV).
- It occupies 1 slot of the UMX-01/0 bus.



UMX-2M DTMF TELEPHONE INTERFACE CARD

DTMF telephone interface card for UMX-01/0 matrix allowing the access to any one or to a group of zones, from the telephone installation.

- Connection must be made to an analogical telephone central extension or to an analogical external line with dialling system by DTMF tones.
- Possibility of programming for direct access or protected access by means of a password.
- Configuration can be made through the UMX-01 menu or through the P.A. Manager configuration software.
- 30 different priority levels.
- It occupies 1 slot in the UMX-01/0 bus.

SPECIFICATIONS

	UMX-2M	UMX-TEL
Number of inputs	2, with RCA connectors	
Controls	Potentiometer for audio level adjustment for each input	
Input sensitivity	0 dBm or -20 dBm	
Frequency response	50 ÷ 20.000 Hz	
Signal / Noise ratio	> 75 dB	
Input impedance	82 kΩ	
Power supply	24 V.d.c., through the UMX-01/0	24 V.d.c., through the UMX-01/0
Consumption	100mA	110 mA
Dialling system		By DTMF tones

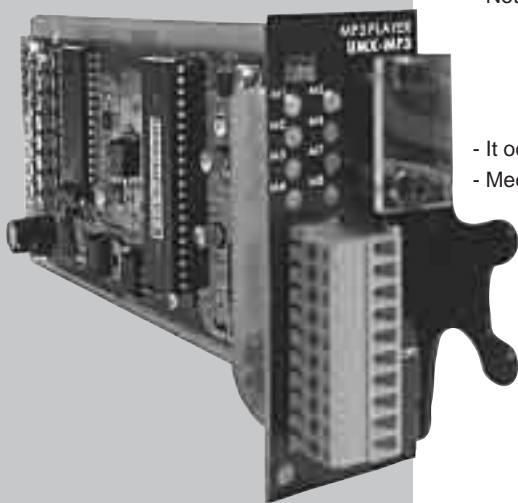
UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM



UMX-MP3 MP3 PRE-RECORDED MESSAGES CARD

MP3 format pre-recorded messages card.

- It uses MULTIMEDIA CARD type (MMC) removable memories.
- It allows up to 9999 messages of different times.
- Recording capacity according to MMC used (Aprox. 1MB x minute).
- Classification of messages:
 - Evacuation : Up to 16 messages.
 - General Purpose.
- Single surveillance of the evacuation messages integrity.
- Creation of messages sequences. A sequence may have up to 20 messages.
- Repetition of sequences/messages configurable in number and time interval.
- Possibility of delayed activation.
- Activation of messages/sequences:
 - By contacts in the same card: it allows the activation of 8 messages / sequences.
 - From the UMX-ECT contacts (UMX-ECT and UMX-MP3 must be installed in the same mainframe).
 - Through the PC
 - Binary activation from the same card (128 messages - NO sequences-)
 - Through SMP-94RS desks connected to a UMX-94R (only messages, NO sequences). The UMX-94R and UMX-MP3 cards must be installed in the same frame.
- Notification of alarms to:
 - Front LCD of the UMX-01/0.
 - LCD in emergency desk.
 - Control Software.
- Alarms of:
 - Not inserted memory
 - Corruption of evacuation messages
- It occupies one slot of the UMX-01/0 bus.
- Mechanical protection of the Multimedia Card Memory removal.



SPECIFICATIONS

UMX-MP3

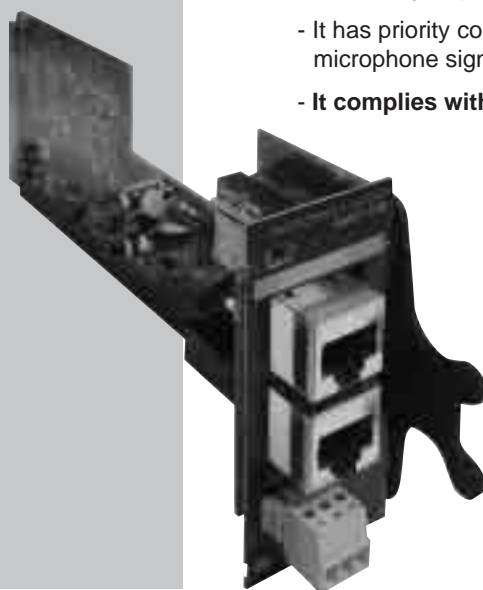
Power supply	24 V.d.c., through the UMX-01/0
Consumption	110 mA
Audio level (maximum)	-
Controls	-
Supported Bitrates	16 to 256 Kbps



UMX-EM EMERGENCY CARD

Emergency input card for UMX-01 (critical path as per UNE/EN 60849).

- Allows the connection of an emergency microphone.
- The input is balanced by transformer, with 0 dB sensitivity. A RJ45 connector is used for the connection.
- This connector has a 24 V.d.c. output (from the power units of the zones) to supply the emergency microphone.
- In an emergency situation, it can operate without power supply in the UMX-01 mainframe.
- Besides, there is an Emergency System Failure relay. This relay is switched if there is a power supply failure in the power units of the zones, indicating that there are problems in the power units and that, in case of supply failure of the UMX-01, the emergency microphone will stop operating.
- It has priority control input. When it is activated, the emergency microphone signal has maximum priority.
- **It complies with the UNE/EN 60849 norm.**



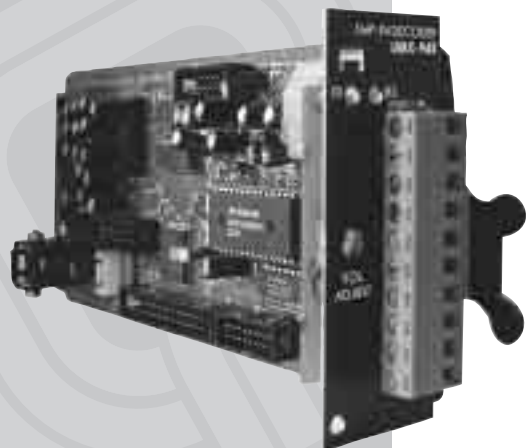
SPECIFICATIONS

UMX-EM

Number of inputs	1
Controls	Audio level adjustment potentiometer
Input sensitivity	0 dBm (775 mV)
Impedance	600 Ω
Frequency response (- 3 dB)	40 ÷ 20.000 Hz
Signal / Noise ratio	Better than 74 dB
Power supply	24 V.d.c., through the UMX-01/0
Consumption	100 mA

UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

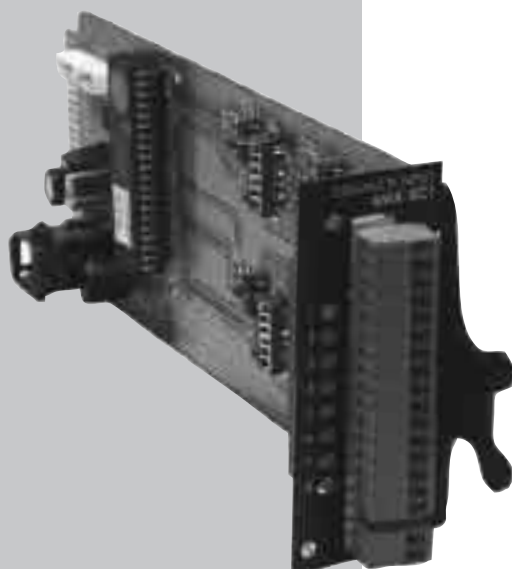
UMX-94R / UMX-ECT



UMX-94R DECODER CARD

SMP-94 Decoder card for UMX-01.

- Direct interface between the SMP-94 system and the UMX-01/0.
- It allows the interconnection of the SMP-94 system elements (SMP-94RS, SMP-94RC, SMP-94R, C-610R94, BX-94) with the UMX-01/0 modular matrix, so that it is possible to send pagings from any desk of the system to one or several zones/groups of the audio matrix and without using the PC.
- It allows the activation of the UMX-MP3 pre-recorded messages from a SMP-94RS desk (the UMX-94R and UMX-MP3 must be installed in the same UMX-01/0 mainframe).
- RX/TX indicator leds and adjustment of audio level.
- Configuration can be made through the UMX01/0 keyboard or through a PC.
- It does not supply the SMP-94 bus.
- It occupies one slot in the UMX-01/0 bus.



UMX-ECT CONTACTS INPUT CARD

Inputs contacts card for UMX-01.

- It has 8 opto-isolated inputs for the connection with external equipment.
- Each input has a led that is lighting when the corresponding input is activated.
- It allows the connection of desks with zones selection and pre-recorded messages activation.
- Configurable activation modes of the inputs:
 - By contact opening.
 - By contact closing.
- Inputs can be turned into opto-isolated inputs by means of the internal card configuration.

SPECIFICATIONS

	UMX-94R	UMX-ECT
Consumption	130 mA	100 mA
Power supply	24 V.d.c., through the UMX-01/0	24 V.d.c., through the UMX-01/0
Number of contacts	-	8 (N/O or N/C)
Audio level (maximum)	775 mV (0 dBu)	
Controls	Potentiometer of audio level adjustment	



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

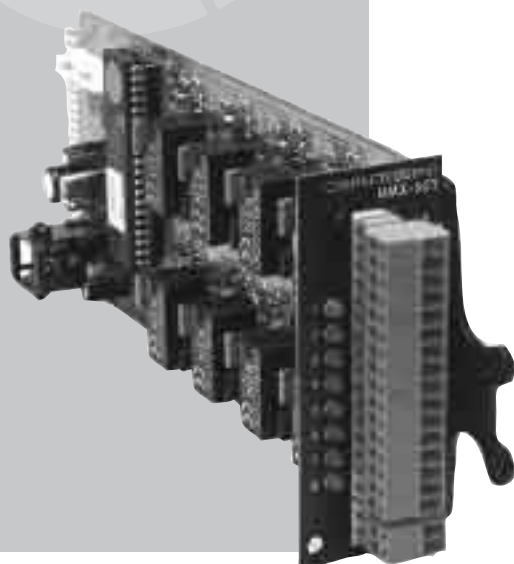
UMX-2S / UMX-SCT



UMX-2S AUDIO OUTPUT CARD

Audio output card for UMX-01.

- Two independent audio inputs with a 0 dB sensitivity, through RJ45 connectors.
- Outputs balanced by transformer.
- Independent audio level adjustment for each output.
- Volume controls, bass and treble (32 positions), controlled by means of the UMX-01 keyboard and/or PC.
- Priority control output.
- Security relay for emergencies (signal critical path as per UNE/EN 60849). In case of power supply failure in the UMX-01, all the output cards are connected automatically to the emergency input (UMX-EM card) so that emergency messages still can be sent to all the outputs.



UMX-SCT CONTACTS OUTPUT CARD

Output contact card for UMX-01.

- It has 8 independent outputs by means of voltage free contacts.
- The outputs can operate as normally open contacts (NO) or normally closed contacts (NC).
- Each output has a led that is lighting when its corresponding output is activated.
- It allows the activation of external equipment (activation of alarms, etc.) as well as the subdivision of zones by switching modules (MC series)
- It allows a total isolation between the UMX-01 ground and the external devices.

SPECIFICATIONS

	UMX-2S	UMX-SCT
Number of outputs	2	-
Controls (Independent for each input)	Audio level adjustment potentiometer Volume (through software). Bass (through software): ± 10 dB at 100 Hz Treble (through software): ± 10 dB at 10 KHz	-
Output level	0 dBm (775 mV)	-
Output impedance	600 Ω	-
Frequency response (- 3 dB)	40 \div 20.000 Hz	-
Signal / Noise ratio	Better than 74 dB	-
Consumption	100 mA	100 mA
Power supply	24 V.d.c., through the UMX-01/0	24 V.d.c., through the UMX-01/0
Number of contacts		8 (N/O or N/C) configurable

UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

SMP-94RS / MD-94 / MCHP-01 / ME-F30SMP Paging Desks



SMP-94RS MICROPROCESSOR MICROPHONE DESK

Zones selection microprocessor microphone desk.

- Connectivity to the UMX-01 or to the control P.C.
- Selection of zones and areas.
- Activation of pre-recorded messages.
- Built-in messages queuing system.
- Automatic internal recording of the last message sent
- Last message repetition push-button

(For more detailed information, please refer to page 57)

MD-94 SERIES MICROPHONE DESKS

- Direct connection to the UMX-01 mainframe.
- Zones configuration in the UMX-01.
- Automatic synchronization of internal chime with UMX-01.
- Pre-recorded messages activation through built-in selector buttons.

(For more detailed information, please refer to page 150)

MCHP-01 MICRO AMPLIFIER

- Preamplifier + optional ME-F30SMP Microphone desk or micro-headphones.
- Operator unit
- Monitorisation unit.
- Signal input and output at 0 dB.
- Internal volume controls for microphone and/or headphones.
- UMX-01 compatible for paging, messages recording and audio channels monitorisation.

ME-F30SMP MICROPHONE DESK

- Dynamic unidirectional microphone type.
- Frequency response from 100 to 15.000 Hz.
- Sensitivity of 76 dB at 1 kHz.
- Includes a 30 cm gooseneck and 2 mini jack male connectors.
- Supplied with a 2,5 metres cable.



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM

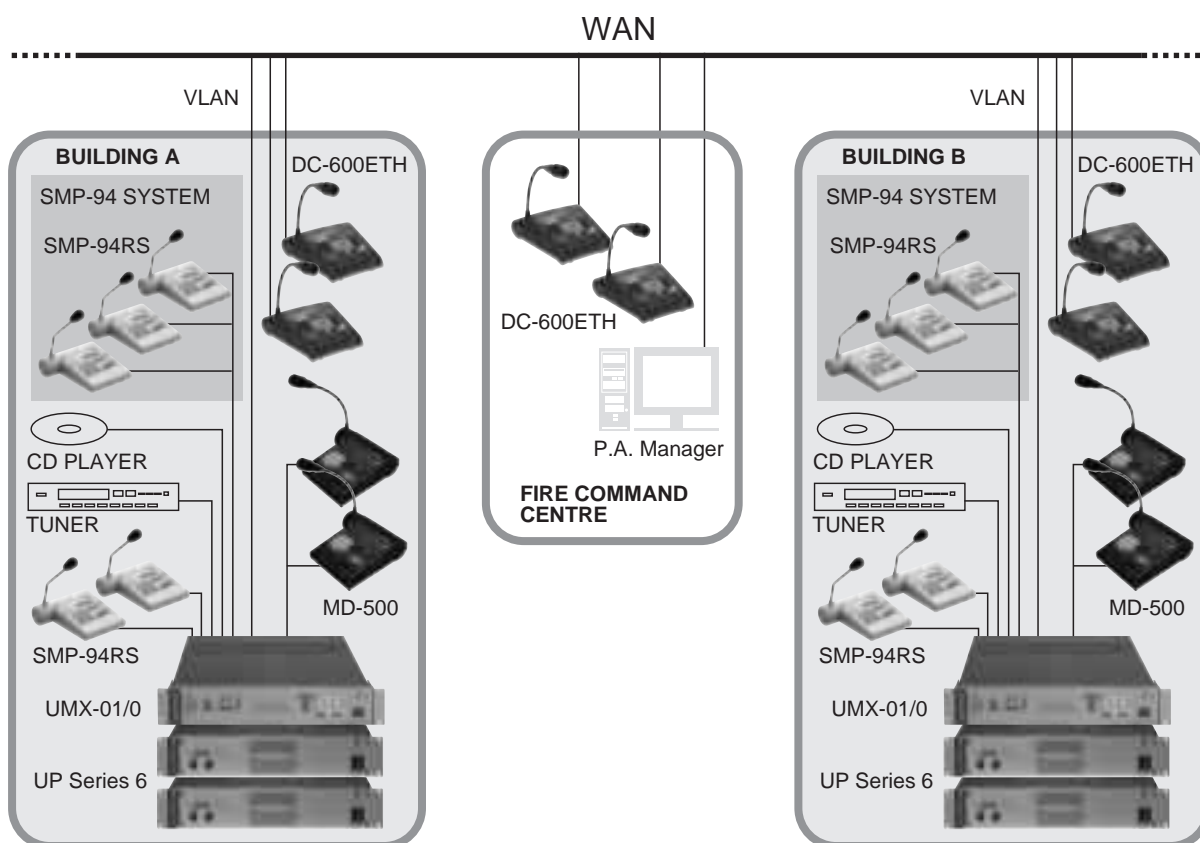
Example of Block Diagram:

Installation with two buildings connected using a VLAN in a common corporate network.

This example illustrates an installation with different buildings connected together using a VLAN in a corporate network. Each building has its own local equipment, sound sources, power units and SMP-94RS Microphone Desks and also MD-500 Emergency Microphones for local pagings only within the building, while other Control and Paging Centrals, type DC-600ETH, can be used for local pagings and also to page to other buildings.

In a separate Fire Command Centre there are Control and Paging Centrals, type DC-600ETH, to call to any of the buildings, and also a P.C. with the P.A. Manager Software for the daily operation, maintenance and monitoring of the installation.

BLOCK DIAGRAM



UMX-01 MODULAR MICROPROCESS AUDIO MATRIX SYSTEM



AMPLIFIERS, LINES AND CRITICAL PATH SURVEILLANCE UNITS

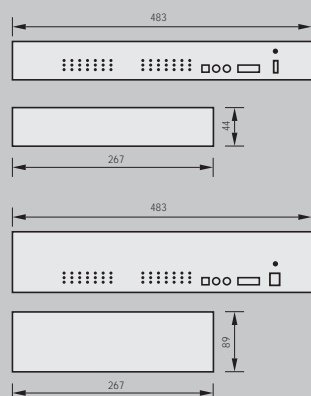
SU-114 / SU-214



SU-114



SU-214/0



The SU-114 and SU-214 represent the new generation of amplifiers, lines and critical path surveillance units. The SU-114 has been specifically designed to work with the UP Series 6 power units, allowing an extremely simple connection between them, via a single dedicated RJ-45 surveillance connector. This compact unit comes ready to control up to 14 different amplifiers and loudspeakers lines.

The SU-214 mainframe can work with any other model of our amplifiers and power units and requires the addition of the SU-LAC cards, one for each amplifier and loudspeaker line to be monitored. It has the capacity to accommodate up to 14 cards.

These Surveillance Units use high frequency tones to detect loudspeakers line open circuit, overload or short-circuit. Besides the loudspeakers line status, the SU-114 and SU-214 can also make the surveillance of the whole Critical Signal Path, from the microphone capsule up to the loudspeakers, as required by the EN-60849 Standard.

The units are equipped with a DSP that generates different frequency tones for a more accurate detection. The monitoring can be done permanently using inaudible high frequency tone of 18 kHz or 20 kHz, but it is also possible to monitor the loudspeakers line using audible tones of 2 kHz and 4 kHz. The monitoring with these frequencies is then configured to be done at scheduled intervals of time. The use of these mid frequencies can also be used to confirm the detection by the high frequencies measurement. In that functionality, the SU units can switch from high to mid frequencies measurement to confirm the failure of a power unit or a loudspeakers line before generating an alarm.

The SU-214 has to be configured using PC connected to its Ethernet link. It can also be connected and configured from Optimax network. Its RS485 port permits to connect the SU-214 to a RS485 installation using the 2 protocols available in Optimus products: CSMA for UMX installations and Polling for former UDCE installations.

These modules can be combined with the COU-01, Automatic Changeover to backup amplifier, activating the replacement of the faulty unit for a stand-by one.

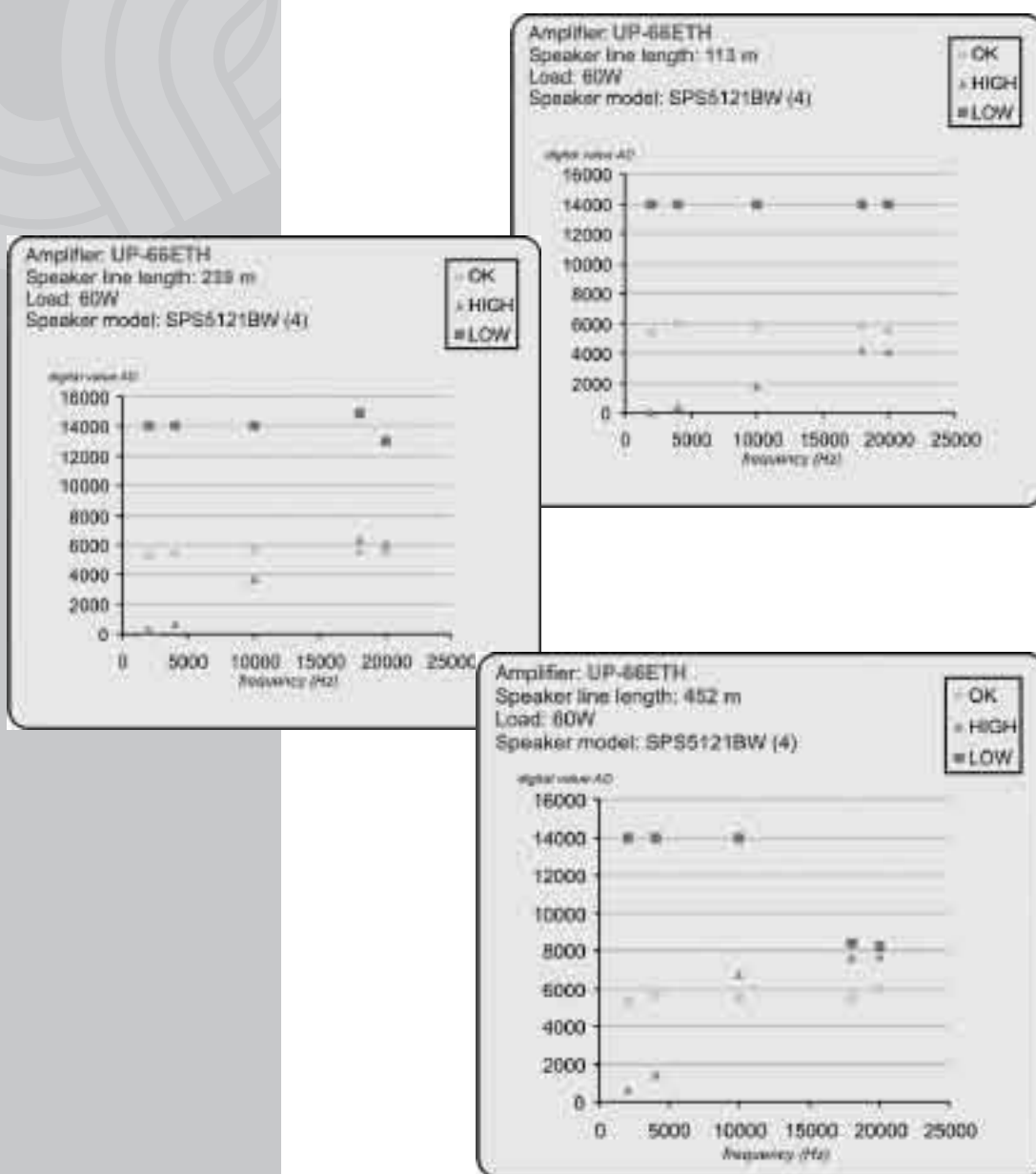
SPECIFICATIONS

	SU-114	SU-214
Surveillance capacity	14 zones (amplifiers, loudspeakers lines and critical path)	
Capacity	-	14 x SU-LAC cards
Power supply	24 V.d.c.	
Consumption	550mA	550mA (without cards); 750mA (with 14 cards)
Weight	3,6 Kg	4 Kg (without card); 5,5 kg (with 14 cards)
Dimensions (mm)	483 (width) x 44 (height) x 267 (depth)	483 (width) x 89 (height) x 267 (depth)
Rack units	1	2
Finishing	Front panel in aluminium and polyester; cover in black "skinplate"	



Measures of short-circuit and open circuit detection with PILOT tones.

The following graphs indicates how the measured level of the pilot tone level changes depending on the speaker's line length and how the mid frequencies are more accurate to detect short and open circuits far away from the rack cabinet.



AMPLIFIERS, LINES AND CRITICAL PATH SURVEILLANCE UNITS

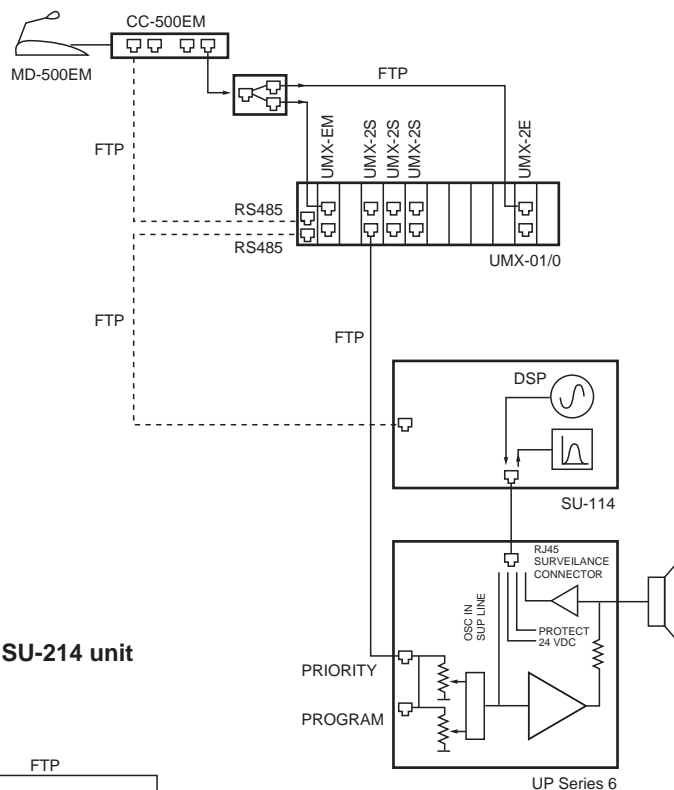
SU-114 / SU-214

View of the configuration wizard screens



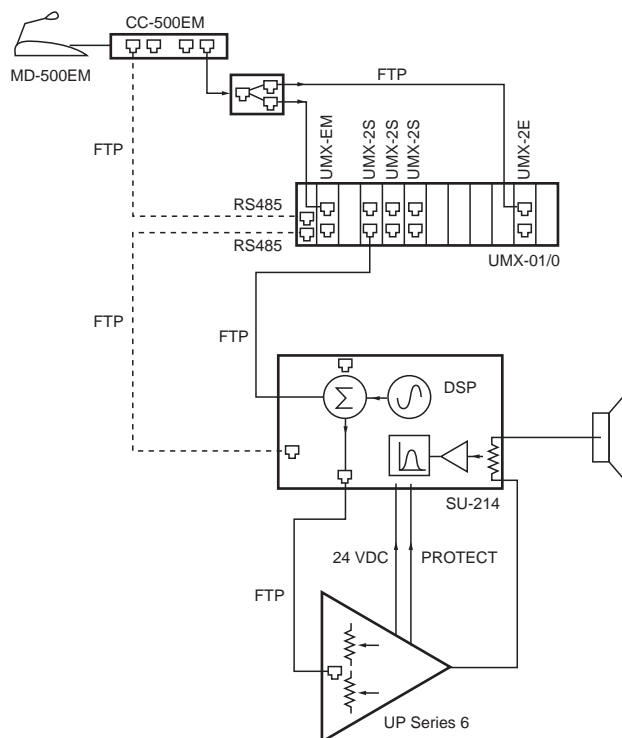
AMPLIFIERS, LINES AND CRITICAL PATH SURVEILLANCE UNITS

Example of connection with SU-114 unit



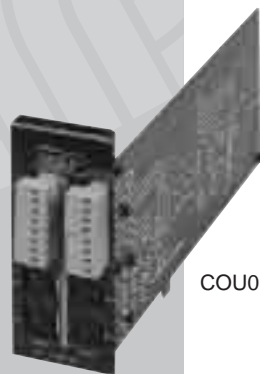
BLOCKS DIAGRAM

Example of connection with SU-214 unit

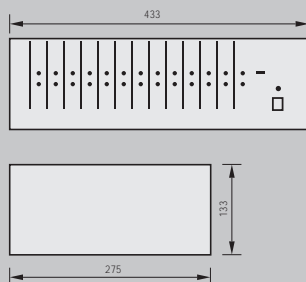


AUTOMATIC CHANGEOVER UNIT TO BACK-UP AMPLIFIER

COU-01



COU01/ES



The COU-01 unit allows for the automatic changeover of a faulty amplifier for a stand-by one. The system consists of a mainframe, COU-01/0, with capacity to insert up to 6 cards COU-01/ES. Each card allows for the connection of two active power units.

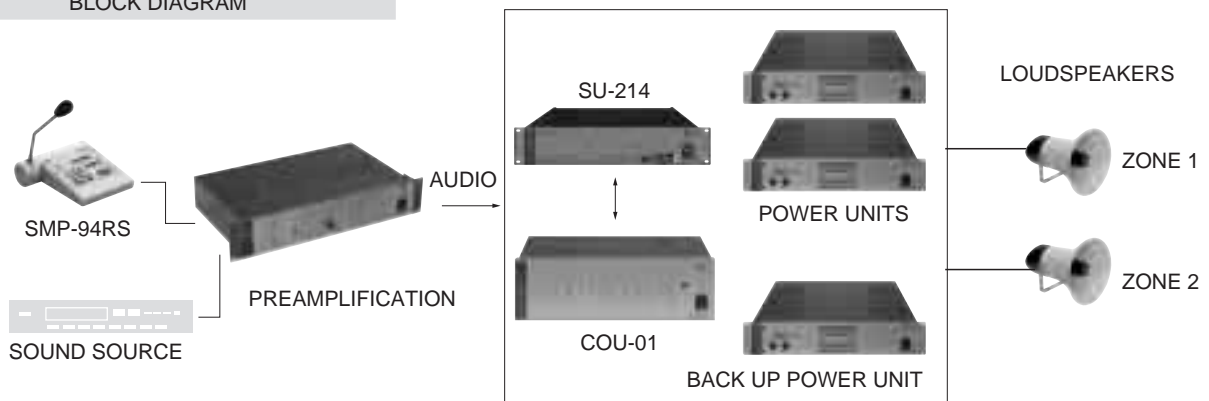
The unit has frontal LED indicators that display the status of each power unit (OK/FAIL). There are other LEDs that show the status of the back-up amplifier (STAND-BY/IN USE). The unit is also provided with a switch to configure the operating mode of the back-up amplifier, according to the hierarchy of the active power units (first-in-first or cascade).

The COU-01 receives the changing orders from the SU units (SU-114 or SU-214); therefore, whenever automatic changeover is required, it is necessary to use SU units (SU-114 or SU-214) in addition of COU-01.

COU-01

Power supply	24 V.d.c.
Consumption without cards	200 mA
Consumption per card COU-01/ES	130 mA
Dimensions (mm)	433 (width) x 133 (height) x 275 (depth)
Weight (completely configured)	5.250 kg
Finishing	Black "skinplate"

BLOCK DIAGRAM



EMERGENCY AND CONTROL MICRO DESKS

MD-500EM / MD-500

MD-500 is a microphone desk for the paging of live or pre-recorded messages, with selection by zones or groups. It allows the constant surveillance of the system, informing about any incidence by means of alarms. It includes the microphone desk with 5 m . interconnection cable and the interconnection module (CC-500).

Features:

- Program and priority levels control (volume, bass & treble) for each zone.
- Control of the music programs assignment to each zone.
- Internal flash Memory for pre-recorded messages, in MP3 format. Download through USB connection.
- Playing MP3 messages to zones and/or groups.
- Live paging priority over pre-recorded messages.
- User levels protected by password: Basic, Operator and Administrator.
- Configuration from the same microphone desk or through the PC, using the P.A. Manager Control software (SCF-01 or SCM-01).
- It indicates the self alarms and the system alarms by means of display, led and acoustic buzzer:
 - Capsule Error
 - RS-485 Communication Error (UMX-01, MD-500EM, and other MD-500)
 - Amplifier, Line errors and Internal Hardware Errors
- Notification of alarms to external systems through relay (NO/NC).
- Monitor Loudspeaker included.
- Equipped with RJ45 safety connector (Ethercon).

MD-500EM has the same characteristics and moreover has been especially designed for emergency situations, with possibility of sending emergency, alert and general pre-recorded messages. Regarding Priority in the emergency mode, in an installation having several MD-500EM microphone desks, only one of them can be in emergency mode.

It is provided with 5 m interconnection cable, the interconnection module (CC-500EM) and 4 ETHERCON connectors.

Particular features:

- Activation of the emergency and alert message through light push-buttons and/or external contacts.
- Priority of live paging over emergency and alert message.
- Priority of emergency message over alert message.
- Two operation modes: Selection by zones and Emergency Mode.
- Access to Emergency Mode: through keyboard (with password) or external contact.
- Surveillance of the integrity of evacuation and alert messages.

SPECIFICATIONS

	MD-500	MD-500EM
Power supply	24 V.d.c.	24 V.d.c.
Consumption	600 mA	600 mA
Audio Output Level	775 mV (0 dBu)	775 mV (0 dBu)
Frequency response	150 ÷ 17.000 Hz	150 ÷ 17.000 Hz
Communication	RS485 CSMA	RS485 CSMA
Speed of transmission	9600 bps	9600 bps
Dimensions (mm)	Micro Desk: 205 x 220 x 65; gooseneck length: 300 mm CC-500: 149 x 46 x 157mm (with connectors)	Micro Desk: 205 x 220 x 65; gooseneck length: 300 mm CC-500EM: 220 x 46 x 220 mm (with conectores)
Weight	1.8 kg (MD-500 + CC-500 + Connector)	2.3 kg (MD500EM + CC-500EM + Connectors)
Finishing	Bayblend black plastic. Connection box in black Skinplate	Bayblend black plastic. Connection box in black Skinplate

EMERGENCY AND CONTROL MICRO DESKS



SMP-230 MICROPROCESS CONTROL SYSTEM

Introduction



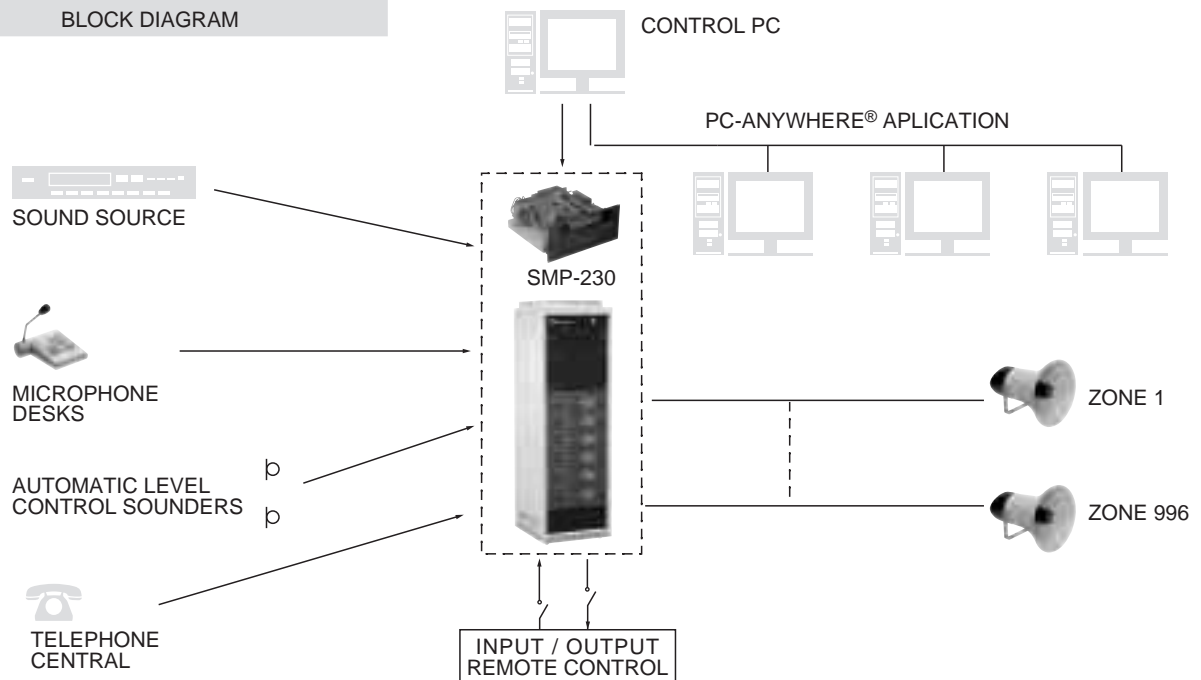
The SMP-230 system is a very powerful Microprocessor Controlled Modular Audio Matrix. This modular system, made up of a 6U 19" mainframe and a number of cards for all the required functions (C.P.U., power supply, inputs, outputs, remote control, pre-recorded messages and alarms, noise sensors, PABX interface, etc.) allows for the customization of all types of specific centrals to meet all the initial requirements of the installation while permitting, at the same time, any future expansion.

The capacity of the matrix is of 64 audio inputs and 996 audio outputs, to which the 512 inputs/outputs must be added via dry contacts and the possibility to integrate it with other external elements and systems (Building Management Systems, Fire Alarm Centrals, Presence Detectors, etc.), via RS-232 protocols.

Configuration and programming of SMP-230 can be done from any external, non dedicated P.C.. These parameters and configurations are kept in the own's system solid state C.P.U., which can be reprogrammed at any time.

When a Control P.C. is assigned permanently to the SMP-230, the system can also be accessed and configured from any other computer connected to the same L.A.N., via a P.C. Anywhere® application.

BLOCK DIAGRAM



SMP-230 MICROPROCESS CONTROL SYSTEM

Introduction



The SMP-230 is a Microprocessor Control System designed for Public Address, Voice-Alarm and Evacuation messages applications, offering the main following features:

- 14 cards mainframe capacity (no limit expansion).
- Up to 64 input channels.
- Up to 16 simultaneous broadcast channels.
- Up to 996 output channels.
- Remote control of messages activation, sirens activation, volume changing, music program changing, etc.
- Output control relays.
- Alarm tones and sirens generation.
- Automatic level control in all zone outputs.
- Up to 63 different priority levels for priority inputs and pre-recorded messages.
- Direct or scheduled pre-recorded messages activation.
- Emergency or ordinary text generation on PC screen.
- Auxiliary functions through remote control inputs and relay outputs.
- Messages activation from microphone desk.
- Change of music program through control inputs, microphone desk keyboard or scheduled program.
- Change of program and/or priority volume level of one or more zones through controls inputs, microphone desk keyboard or horary program.
- Windows NT, 2000 or XP PC, configuration.
- Easy direction modules dip-switch configuration.
- PC connected or stand-alone (PC is required for configuration).
- Hard disk pre-recorded messages, and scheduled control program PC applications.
- PC Windows facilities for messages recording and playing (wav format).

SPECIFICATIONS

Priority inputs (maximum)	64
Program inputs (maximum)	12
Ambient noise sensors (maximum)	32
Loudspeakers zones outputs (maximum)	996
Simultaneous broadcast channels	16
Priority levels	64
System activators (logical control generators)	3072
Microphone desks controllable activators	128
Audio signals level	0 dBm
Power supply	24 V.d.c.

SMP-230 MICROPROCESS CONTROL SYSTEM



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23000 Mainframe and system components

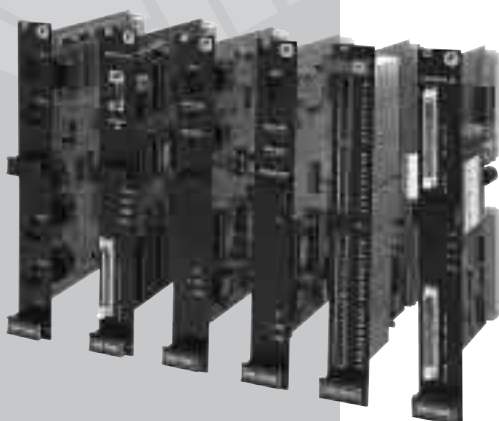


The **SMP-23000** Mainframe occupies 6U height in a 19" standard rack and may hold up to 14 cards each.

As many mainframes as required, up to the maximum capacity of the system, may be linked together to build up the installation.

The first mainframe needs a SMP-23001 C.P.U. card, only one for the whole system, no matter how many mainframes.

Each mainframe must be supplied with 24 V.d.c. and must be equipped with a SMP-23090 card.



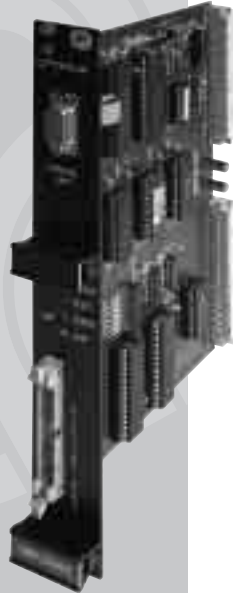
SYSTEM ELEMENTS

Unit	Description
SMP-23000	Mainframe with capacity for 14 cards
SMP-23001	Central Process Unit (CPU) card
SMP-23090	Power supply and extension module (1 card for each mainframe)
SMP-23404	6 music programs input module
SMP-23401	SMP-23301 microphone desk input module
SMP-23403A	Input module for audio from the control computer & Connection module for messages with pre-selection
SMP-23403B	Serial RS-232 / RS-422 port system control card
SMP-23403C	PABX telephone access input card
SMP-23604	4 outputs module for audio with level automatic control
SMP-23201	Noise sensor connection module for level automatic control
SMP-23316	32 opto-isolated digital inputs module
SMP-23416	32 relay digital outputs module
SMP-23406	Alarm and siren generator module (48 messages and 15 sirens)
SMP-23317	Remote audio program selector
SMP-23317R	Programs and levels remote selector
SMP-23301B	Control microphone desk
SMP-23201S	Ambient noise sensor for automatic level control
SMP-23010	Microprocessor control unit
SMP-23116CT	Parameters configuration and control software
SMP-23142	RS232 to RS422 or USB converter module



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23001 / SMP-23090



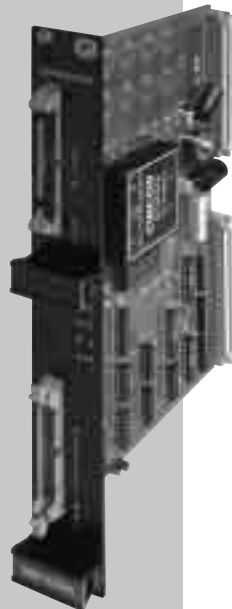
SMP-23001 CENTRAL PROCESSING UNIT CARD (CPU)

This card contains the CPU that holds the configuration of the entire system.

Only one CPU card is needed for each installation. The control signals generated by the CPU are sent over a 34-conductor flat cable to all the mainframe, including the mainframe containing the CPU. This cable, which is known as a digital bus, is connected in parallel to all the digital bus power supply/interconnection inputs on each mainframe.

This card stores the PC configuration in a permanent memory. To make changes in the configuration it is necessary to connect it to a PC but once the card receives the new configuration it will retain it even when the power supply is disconnected.

The External Link Connector located at the front of the CPU card is an RS-232 connection, which communicates with the Control PC (optional).



SMP-23090 POWER SUPPLY AND INTERCONNECTION CARD

This has the double function of supplying the mainframe cards with power and connecting the mainframe to the digital and analog buses. One card is required for each SMP-23000 mainframe.

In its function as a power supply card it receives the 24 V.d.c., which supplies each mainframe with voltages of + 5 V, + 12 V, and - 12 V. There is a pilot light on the front of each card which indicates if power is being supplied or not.

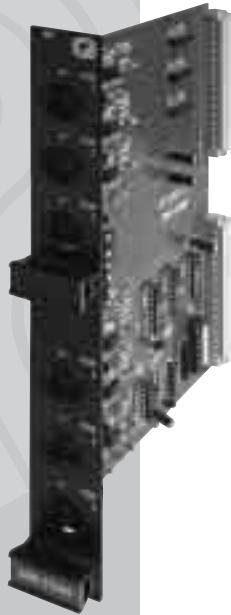
In its function as a mainframe-interconnection card, it has two flat-cable connectors which are connected in parallel on all the cards of this type.

DIGITAL BUS: this transmits the control signals for the entire rack. It is also connected to the digital bus connector on the CPU card located in the first mainframe, through a flat 34 wires cable.

ANALOG BUS: transmits audio signals between the different mainframes. There is no need for a connection if there is only one mainframe in the rack. In case there is more than one mainframe, the interconnection between SMP-23090 has to be done through a flat 40 wires cable.

SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23404 / SMP-23401



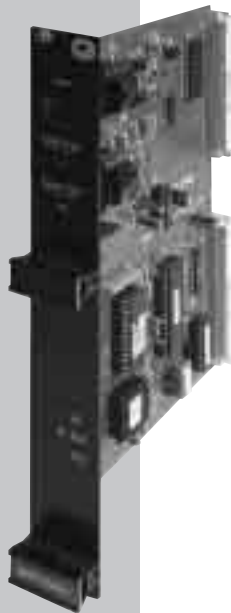
SMP-23404 MUSIC PROGRAM INPUT CARD

Program input card for up to 6 audio inputs for background music. These are distributed to different zones in the absence of priority messages.

It admits differential or earth-linked audio inputs. The type of input is selected by using a module-mounted jumper. If the input signal is not earth-linked, the jumper located next to the input connector must be removed.

Each input has a signal presence detector which activates a LED and notifies the operator in the control centre in the case of a missing input signal.

Up to 2 cards of this type can be used for an entire SMP-230 system, for up to 12 music programs.



SMP-23401 MICROPHONE DESK INPUT CARD

Each microphone desk needs an input card in order to be connected to the system. This card supplies the desk with DC, receives the audio signal and is used as a bridge between the desk and the control centre.

Up to 64 priority inputs cards can be connected in a SMP-230 system, be it microphone desk or direct inputs.

The card includes a 15 tones gong generator and High frequency (HF) and Low frequency (LF) audio filters which can be activated or deactivated from the computer.

Separate audio level adjustments for voice and gongs are possible via adjustable potentiometers which can be accessed through openings on the front marked AUDIO LEVEL and GONG LEVEL.

The audio (basic band) and data (32 kHz tones) signals are transmitted in a balanced way between these cards and the SMP-23301 Microphone Desks.



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23403A / SMP-23403B



SMP-23403A P.C. AUDIO INPUT AND DIRECT INPUT CARD

This card allows priority messages to be received from sources other than the SMP-23301 microphone desks, such as audio coming from the PC audio input when messages are being generated, audio messages and sirens input of the SMP-23106 card and other sources audio input (activated by the priority paging contact).

The audio input is connected at the 'INPUT' connector, which has an additional priority input contact and an output contact which indicates the busy zone.

It has the following features:

- 15 different tones gong generator.
- Audio filters which can be activated or deactivated from the computer keyboard. High frequency (HF) filter and low frequency (LF) filter.
- Separate audio level adjustments for voice and gongs.
- Possibility of requesting access via external contact with the pre-established zone.
- Indication of occupied zones via an open-collector type output.

This card has 4 front LEDs, named SEL, PASS, BUSY and PC, to indicate its different status.



SMP-23403B SERIAL RS-232 / RS-422 PORT SYSTEM CONTROL CARD

This card has exactly the same functions as the SMP-23403A, and in addition it has an RS-232 / RS-422 serial port interface and may also be equipped with optional activation via VOX control.

SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23403C / SMP-23604

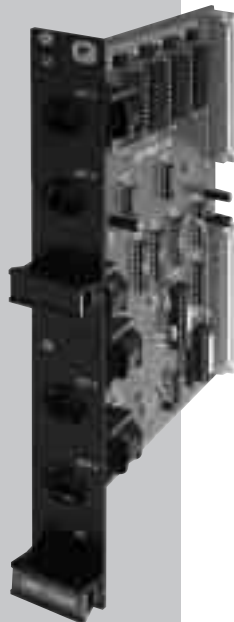


SMP-23403C TELEPHONE EXCHANGE INPUT CARD

This card permits the integration of a PABX exchange unit with the SMP-230, allowing the use of the telephone handsets for paging purposes.

Connecting the input of this card to a free extension of a PABX exchange unit, makes it possible to send pagings from any of the telephones connected to the network, by dialling the appropriate access code.

Using of this card facilitates enormously the wiring of an installation, as there is no need to make additional wirings for simple paging purposes. Also, it frees space in the congested working desks, reducing the need to install a paging microphone desk to only those places where it is also necessary to have control capacity, therefore contributing to lower the cost of the installation.



SMP-23604 MULTIPLEXER OUTPUT CARD WITH AUTOMATIC LEVEL CONTROL.

This card has 4 independent audio outputs of 0 dB level, to directly drive power units. Each output can be assigned a different music program or audio source from the different sources available.

Each of these outputs has a programmable attenuator which can be controlled manually from the computer or automatically, when connected to a noise sensor. In the latter case, it acts as an Automatic Level Control (ALC).

The unit has a LED on the front of the module, which indicates that the control centre is communicating correctly with the card. A total of 4 DIN 180°, 5 pin connector, send both the programs and the priority signals to the corresponding power units.



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23201 / SMP-23316

SMP-23201 NOISE SENSOR INPUT CARD FOR AUTOMATIC VOLUME CONTROL

This unit allows the system to be connected to a SMP-23201S ambient noise level sensor which automatically controls, through the Automatic Level Control, the output volume of music and messages.

Any given sensor may be assigned simultaneously to several outputs, which are jointly controlled in accordance with the sensor reading. The system allows the use of up to 32 sensor input cards.

The SMP-23201 sensor is connected to the card via the SENSOR connector and a parallel cable which at the same time, sends the power supply to the sensor and transmits the results of its measurements.

The card has a 180°, 5 pin DIN connector for its connection to the sounder and 3 front LEDs, with the following names and functions:

- SEL: lights up when the control centre is communicating correctly with the module. It should be permanently lit or flashing.
- SENSOR: indicates that the sensor is connected and in working conditions.
- BUSY: lights up when the sensor is measuring the noise level.

SMP-23316 INPUT CARD FOR REMOTE CONTROL

Reads up to 32 inputs (Voltage-free, normally open contacts) from external contacts. All the inputs are isolated from the audio rack power supply by means of opto-coupler devices and they are connected in groups of 8 using a plug-in terminal block.

These inputs can control different functions, including the automatic generation of messages from the computer, activation/deactivation of the sound sources or changing the output level of the multiplexer zone output cards.

The card has 4 terminal blocks of 9 contacts each, 1 common and 8 inputs; it also has one LED on the front of the module, which indicates that the control centre is communicating correctly with the module.

By using these cards, the SMP-230 system may be very easily integrated with other systems (Fire Alarm, Building Management System, etc.), in a very cost-effective way.

SMP-230 MICROPROCESS
CONTROL SYSTEM



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23416 / SMP-23406



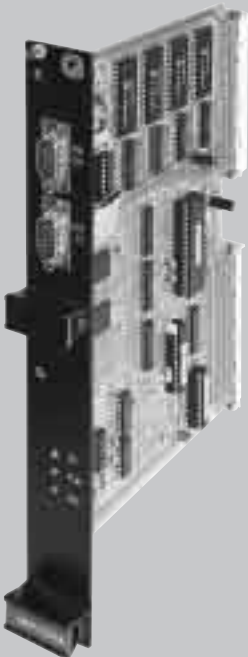
SMP-23416 OUTPUT CARD (RELAYS)

This card has 32 relay outputs (Voltage-free, normally open contacts) which can be activated by the system to perform auxiliary operations, such as the creation of sub-zones, activation of a flashing light, siren or else, opening or closing doors, etc.

These relays may be activated by the system in different ways: timetable activation, from a microphone desk, upon activation of any given input contact, message or zone, exceeding a given ambient noise threshold, etc.

SMP-23416 has one LED on the front panel of the module, which indicates that the control centre is communicating correctly with the module.

By using these cards, the SMP-230 system may be very easily integrated with other systems (Fire Alarm, Building Management System, etc.), in a very cost-effective way.



SMP-23406 ALARM TONES AND SIREN GENERATOR CARD

This card allows for the storing of 48 messages, 15 sirens and 15 alarm tones sirens of 12,5 seconds each, and for the reproduction of 4 messages or sirens, possibly simultaneously. The format used is .wav.

Each message can be recorded in 4 languages and reproduced in one or more selected language.

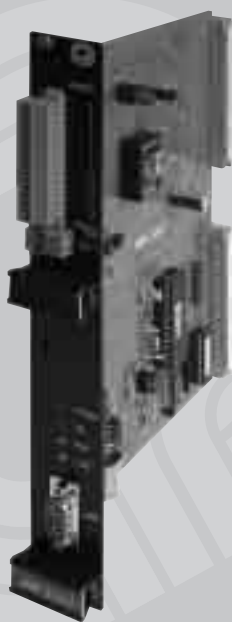
This card has 2 serial ports, one to the PC (LINK PC) and the other one to the CPU card (LINK CPU), to simplify the wiring system and in current functioning of the system, it assumes the repeat function between the two. Under control of the recording program, it receives the messages, sirens and alarm tones through the LINK PC which will be recorded in the flash memory, stopping the communication with the CPU card.

The SMP-23406 may also be used as an RS422/RS232 converter for the communication between PC and CPU as the LINK PC can use RS232 or RS422 format and LINK CPU only uses RS422 format.



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23317 / SMP-23317R General technical specifications



SMP-23317 REMOTE AUDIO PROGRAM SELECTOR

This card has been designed to allow the user to remotely control from each zone not only the volume, but also the program being diffused, in an extremely cost-effective and innovator way and with tremendous saving in wiring and in number of power units.

The SMP-23317 card must be used in combination with the SMP-23317R remote selectors, which shall be installed in (or near) the zones or areas to be controlled; wiring is done via a 2 wire non-polarized cable. Up to 16 of these remote selectors may be connected to a SMP-23317 card.

SMP-23317R PROGRAMS AND LEVELS REMOTE SELECTOR

This unit, in combination with the SMP-23317 card, allows selecting from each zone or area its program and volume level. From each of the SMP-23317R remote selectors, the selection of volume/program is made at 0 dB bus level, rather than making it from the 100 V output of the amplifier. Made this way, it is not necessary any longer to use one dedicated power unit for each program in one given zone, but only a common one (or more, according to the power requirement) in each zone.

GENERAL TECHNICAL SPECIFICATIONS

Priority inputs (maximum)	64
Program inputs (maximum)	12
Ambient noise sensor (maximum)	32
Output zones (maximum)	996
Simultaneous audio channels	16
Different priority levels	64
Number of Logical Control Generators (Activators) from the Microphone Desks	128
Maximum number of Logical Control Generators (Activators)	3072
Audio output / input level	0 dBm
Power supply requirements	24 V.d.c.

Consumption, at 24 V.d.c., of each card:

SMP-23001 (CPU)	50 mA
SMP-23090 (power supply/buffer)	220 mA
SMP-23404 (program input)	30 mA
SMP-23401 (microphone desk input) + SMP-23301 (microphone desk)	80 mA
SMP-23403A (direct input)	50 mA
SMP-23604 (multiplexer)	45 mA
SMP-23201 (noise sensor)	40 mA
SMP-23316 (32 rem. control inputs) (according to n° of activated inputs)	50-100 mA
SMP-23416 (32 output relays) (according to n° of activated relays)	100-300 mA
SMP-23317 (remote audio program selector)	60 mA
SMP-23406 (messages and siren generator)	50 mA



SMP-230 MICROPROCESS CONTROL SYSTEM

View of some of the main SMP-230 screens



View of System Cards Configuration Screen

From this screen, and after having entered properly the specifications of the installation, it comes out automatically a list with a detail of the model and quantities required of each card, so that the requirements of the installation are met.



View of Zones Configuration Screen

This screen, through its different folders, allows the configuration of the parameters and properties of each and every zone: name of the zone, music program assigned to it, program and priority volumes, etc. It also allows monitorizing the signal presence in each of the inputs.



View of Areas Configuration Screen

Besides the normal functions of selective zone paging and all-call, the SMP-230 allows the creation of Groups or Areas, including each of them whatever combination of zones or sub-zones. This way, by simply dialling a two or three digit number, the live or pre-recorded message can be addressed at once to any Group, Area or even combination of Areas.



SMP-230 MICROPROCESS CONTROL SYSTEM

SMP-23010 / SMP-23301 Control units



The control computer **SMP-23010**, equipped with the WINDOWS XP PROFESSIONAL® operating software and the **SMP-23116CT** configuring and operating software, is connected to the mainframe through a RS-232 serial port. The **SMP-23010**, with a built-in sound card, allows for the recording and sending pre-recorded messages, which are stored in its HDD.

This computer control does not need to be permanently connected, as the system keeps the configuration in its own **SMP-23001** CPU card. The SMP-23010 is only required whenever it is necessary to reprogram the parameters of the installation: volumes, programs, priorities, remote controls, etc. or also when it is required to play pre-recorded messages stored in the HDD or time programmed applications.



The **SMP-23301B** Microphone Desks have a double function. On the one hand they allow for the basic function of sending live messages to any zone of the installation. On the other hand, they may be used as a small control desk, because they permit also, from their numeric keyboard, the activation of special functions such like changing volumes or music programs from the zones, releasing pre-recorded messages, activation of external devices, etc..

The units have a built-in LCD and LED indicators of gong, talk and system busy.

SMP-230 MICROPROCESS CONTROL SYSTEM

View of some of the main SMP-230 screens



View of Microphone Desks Configuration Screen

The properties of each microphone desk can be set up from this screen: desk number and type, desk name, type of pre-message chime and after message chime, low and high voice filters, direct call enabling/disabling, etc.

It is possible to configure in each and every of the microphone desks a "restricted range" of zones or areas where they cannot access.



View of Automatic Control Configuration Screen

The Multiplexer output cards have an Automatic Volume Control function, which adjust the program and paging volumes of the zones accordingly to the ambient noise in the area. The parameters and settings of this function may be programmed from this screen: Noise range, remote control activation/deactivation, separate Program (A-B) and Priority (A-B) maximum and minimum working ranges, assigned noise sensor, etc.

The appropriate Noise Sounders in each zone, and Noise Sounder input card in the SMP-23000 mainframe, must be used if this function is required.



Timetable Messages Programmation Screen

All the scheduled pre-recorded messages are very easily programmed from this screen. Each message operating timetable is set by entering its start date and ending date, days of the week active or not, starting hour and ending hour, interval between messages, priority level, zone or area to be addressed, etc.

If timetable programmed messages are required, then a SMP-23010 Control P.C. and a SMP-23403A P.C./messages input card are required.



SMP-230 MICROPROCESS CONTROL SYSTEM

View of some of the main SMP-230 screens



View of Noise Sensor Configuration Screen

This screen allows the setting of the parameters of the Noise Sensor installed in any particular zone: zone name and number, average noise level, reverberation time, status of the sensor, remote control activation/deactivation, maximum time between measurements, separate Program (A-B) and Priority (A-B) maximum and minimum working ranges, etc.



View of Activators Configuration Screens

A long list of different functions of the SMP-230 system, such as pre-recorded messages, priorities, paging and program volumes, music programs, etc, may be activated or deactivated, changed or reprogrammed, by means of the "Activators" functions.

Through different menus, it is possible to program these different functions so that they are performed upon closure of external contacts, manual selection from the Control P.C. keyboard, dialling a number from a microphone desk, etc.

Selection of an activator, in any of the possible ways, can also be associated with the appearance of a descriptive text in the Control P.C. screen, so that the operator knows about a given status, situation or alarm.

SMP-230 MICROPROCESS CONTROL SYSTEM



Example of Block Diagram 1: Installation in a Refinery.

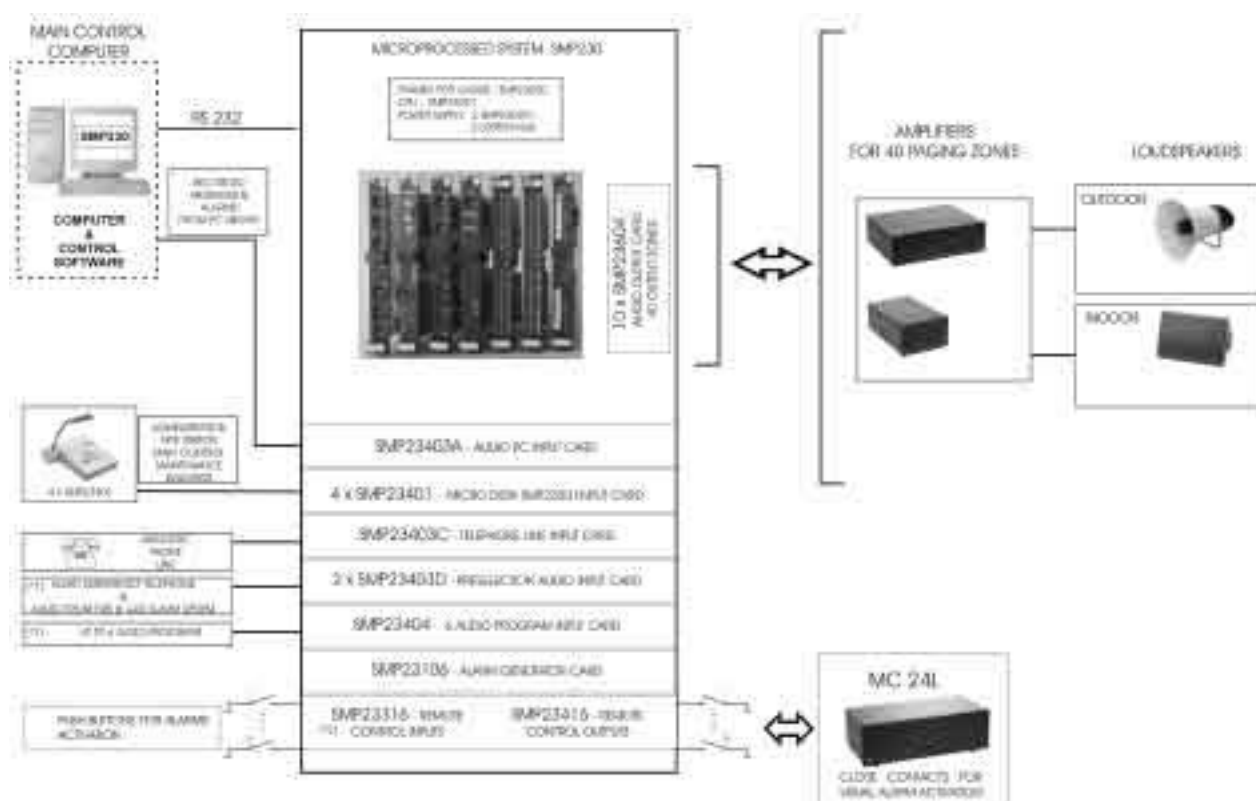
This example illustrates an installation in a Refinery, with 40 indoor and outdoor paging zones. There is a total of 4 Desk Paging Microphones and also a PABX DTMF adaptor, to access to the P.A. system from any telephone handset within the installation.

The system is interfaced with a Fire and Gas alarm system and also to the general Building Management System. The system automatically activates flashing lights / beacons in each of the zones during the pagings, to attract the attention of the operators.

A main Control Computer permits permanent access to all the parameters and configuration of the system and it holds the pre-recorded alert and alarm messages, which can be released from the P.C. and Microphone Desks, from manual push-buttons spread around the installation and also automatically from the Fire and Gas Alarm systems.

This example illustrates an installation in a Refinery, with 40 indoor and outdoor paging zones. There is a total of 4 Desk Paging Microphones and also a PABX DTMF adaptor, to access to the P.A. system from any telephone handset within the installation.

A main Control Computer permits permanent access to all the parameters and configuration of the system and it holds the pre-recorded alert and alarm messages, which can be released from the P.C. and Microphone Desks, from manual push-buttons spread around the installation and also automatically from the Fire and Gas Alarm systems.



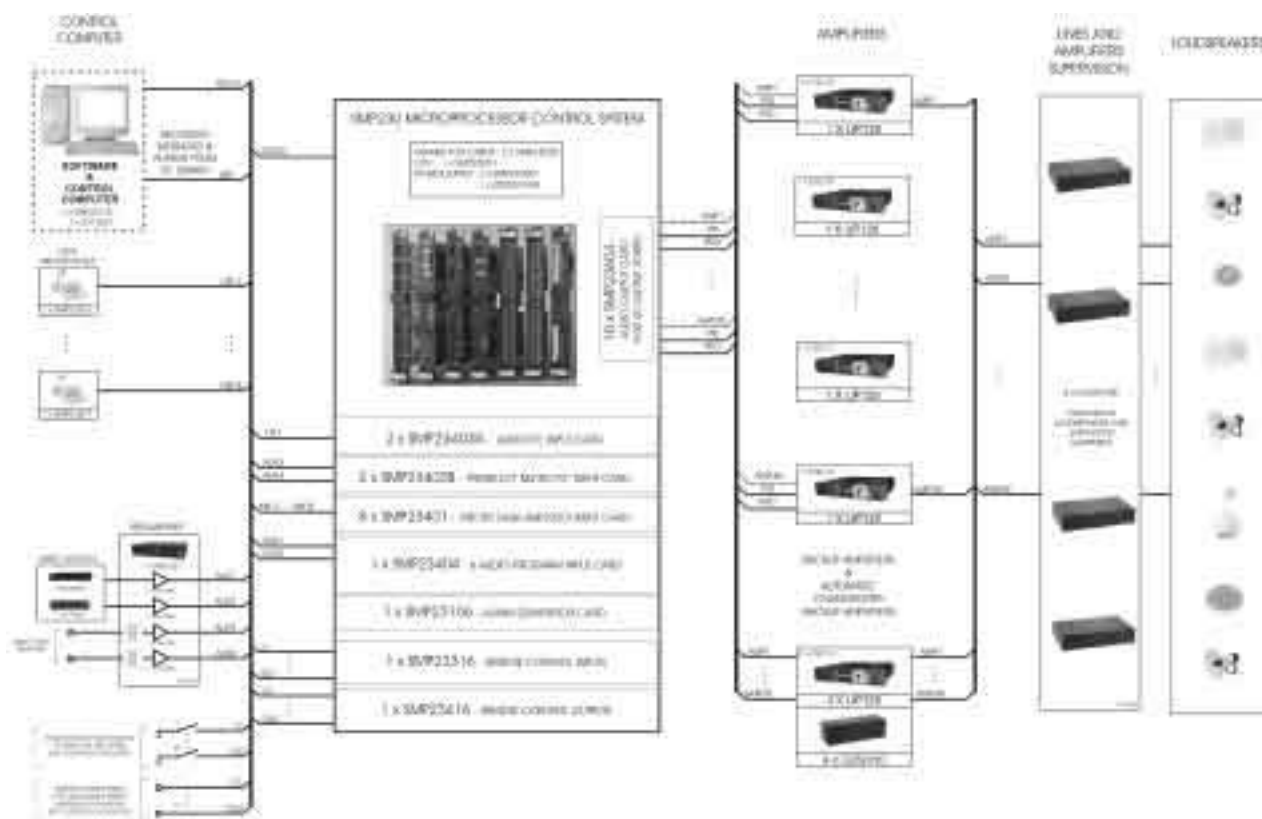
SMP-230 MICROPROCESS CONTROL SYSTEM

Example of Block Diagram 2: Installation in a hangar and offices complex.

This example shows a centralized installation in a hangar and offices complex. A total of 38 different areas have been set up throughout this complex, so that the control centre can modify at any time the program and paging volumes in each of the areas, as well as to change the music program diffused on them. The pre-recorded messages and alarms are stored in the main control P.C.

A number of 8-desk paging microphones have been installed for the selective or all-call live paging. The pre-recorded messages and alarms can also be activated from them. The system is interfaced with a fire alarm central and with a Building Management System; it also receives paging from a remote building.

The installation is equipment with permanent lines and amplifiers surveillance system which permanently monitors its integrity. Four automatic changeover devices will immediately replace any faulty amplifier for one of the four in stand-by. The failure of an amplifier or line, as well as the automatic replacement for a stand-by unit, will be automatically reported in the screen of the control P.C.



SMP-94 MICROPROCESS CONTROL SYSTEM

Introduction



The system consists of two basic elements, the SMP-94RS microphone desk and the SMP-94R decoder, which solve most of the installations requirements where a zones selection system is required. This system can be used for installations from the ones with many transmission points and with different priority levels amongst the desks, to the most simple ones with only one transmission point.

The system allows up to 744 different zones. In special cases, this number can be increased.

One of the most important characteristics of the system is that it includes a function of repetition and waiting queue of messages, with very simple operations, that allows to start it working very quickly and without needing a special training.

To make it work properly, it is advisable to use the OPTIMUS C-384PV1 cable for the communication bus and for a maximum length of 1.200 m according to EIA specifications for RS-485 standard.

SYSTEM ELEMENTS

Unit	Description
SMP-94RS	Microphone desk
SMP-92RC	Remote events detector
SMP-94R	Receiver decoder
SMP-94RZ	Receiver decoder

MAIN FEATURES

- Selection of up to 744 loudspeakers lines.
- 14 programmable priority levels.
- Remote control inputs / outputs to interface with external elements.
- Recording and repetition of the last emitted paging.
- Edition and memorizing of 42 zones groups.
- Waiting queue system for the stand-by messages emission.
- EEPROM for datas permanent safeguarding.
- Liquid crystal display for the operations and message presentation supervision.
- Numerical keyboard for zones selection.
- "First in First" or Cascade priority.
- Pre-paging "gong" selectable and configurable.
- Pending pagings waiting queue system.
- All zones general call.
- Priority emergency call.
- Zones accessibility programmable from the microphone desk.
- General call accessibility programmable from the microphone desk.
- Locking talk key, programmable from the microphone desk.
- Deferred pagings according to the microphone desk programmation.



SMP-94 MICROPROCESS CONTROL SYSTEM

SMP-94RS Microphone desk

SMP-94 is a very powerful microprocessor controlled paging system, consisting of several different components. The data transmission system used in SMP-94 is RS-485; this standard allows for the connection of up to 32 elements, all of them easily connected in parallel within one same bus.

The SMP-94RS, main component of the system, is a microprocessor paging desk that allows a great number of functions, besides the basic ones of zone calling, group calling or all-call. Some of these functions include activation of externally stored pre-recorded messages, automatic internal recording of the last message sent, last message repeat button, messages queuing system, programmable priority in first-in-first or cascade and 14 different programmable levels of priority, programming of the accessible zones, groups of zones, etc.

The programming in the SMP-94RS is done through its numeric keyboard and visualized through a built-in LCD.

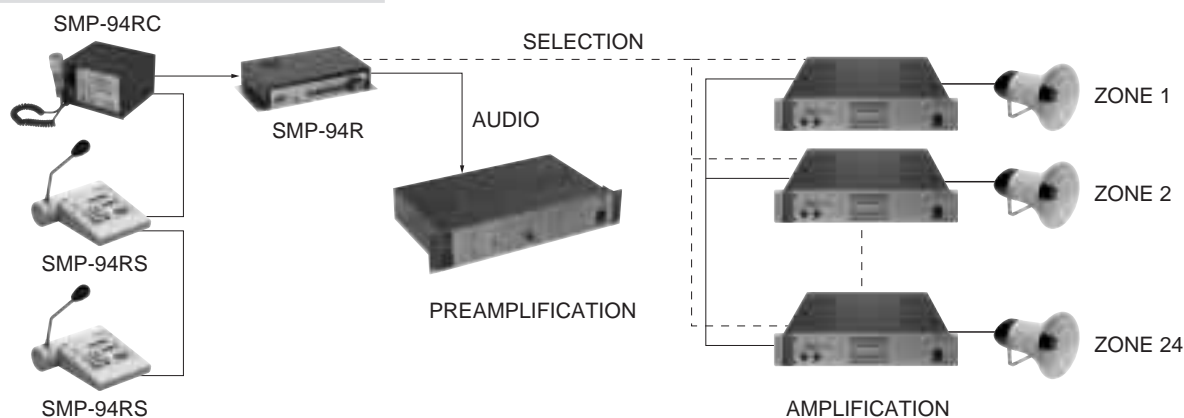
This unit comes with orientable gooseneck microphone and the CX-94 module, which allows its connection to the data and audio bus.

BX-94, SMP-94 bus supply OPTIMUS adaptor. A BX-94 module is required for every three units of SMP-94RS, SMP-94RC or SMP-94R.

SMP-94RS

Microphone	Electret, orientable gooseneck
Power supply	24 V.d.c. For more than 3 elements, adapter BX-94 is required
Consumption	170 mA
Output level	775 mV - 0 dBm
Frequency response (- 3 dB)	280 ÷ 15.000 Hz
Signal / noise ratio	> 56 dB
Last paging recording	Last one emitted (up to 16 s.)
Dimensions (mm)	220 (width) x 205 (length) x 65 (height). Gooseneck of 200 mm
Weight	1.2 kg
Finishing	Ivory ABS
Remarks	Combine with SMP-94R, SMP-94RC and SMP-94RZ elements
Accessories	CX-94 Connection module

BLOCK DIAGRAM



SMP-94 MICROPROCESS CONTROL SYSTEM



SMP-94 MICROPROCESS CONTROL SYSTEM

SMP-94RC Remote events detector



The SMP-94RC retains the same basic functions as the SMP-94RS, such like the automatic internal recording of the last message sent, last message repeat button, messages queuing system, programmable priority in first-in-first or cascade and 14 different programmable levels of priority, programming of the accessible zones, groups of zones, etc.

In addition to these functions, the unit has 7 inputs for remote events detection, which permit the integration with external systems, such as fire alarm centrals. Each of these 7 event detector inputs may be programmed so that externally stored pre-recorded messages are sent to any given zone or zones upon closure of these input contacts.

The programming in the SMP-94RC is done through its numeric keyboard and visualized through a built-in LCD.

This unit, designed mainly for embedded use for Rack mounting, comes with a hand-held microphone with push-to-talk-button. The CX-94 module, which allows its connection to the data and audio bus is also supplied.

BX-94, SMP-94 bus supply OPTIMUS adaptor. A BX-94 module is required for every three units of SMP-94RS, SMP-94RC or SMP-94R.

SPECIFICATIONS

SMP-94RC

Microphone	Dynamic, hand held with extensible cord. Suitable for assembling in 19" Racks
Power supply	24 V.d.c. For more than 3 elements, adapter BX-94 is required
Consumption	180 mA
Audio level	0 dBm
Frequency response	280 ÷ 15.000 Hz
Signal / noise ratio	> 56 dB
Last paging recording	Last one emitted (up to 16 s)
Inputs contacts	7, programmable, to interface with external elements
Dimensions (mm)	216 (width) x 133 (height) x 193 (depth)
Weight	1.2 kg
Finishing	Metal box, cover in black "skinplate"
Accessories	CX-94 connection module
Remarks	Combines with SMP-94R, SMP-94RS and SMP-94RZ elements



SMP-94 MICROPROCESS CONTROL SYSTEM

SMP-94R Receiver decoder

The SMP-94R Decoder is the unit that receives and processes the orders coming from the SMP-94RS and SMP-94RC microprocessor desks. Each decoder has 24 control outputs, which are used for the activation of either the power units priority control input or the MC and MS lines selecting and switching units. The SMP-94R has programming dipswitches that permit its configuration and addressing.

Several SMP-94R decoders can be connected to one same bus in order to expand the number of available zones, up to a maximum of 32 decoders / 736 zones.

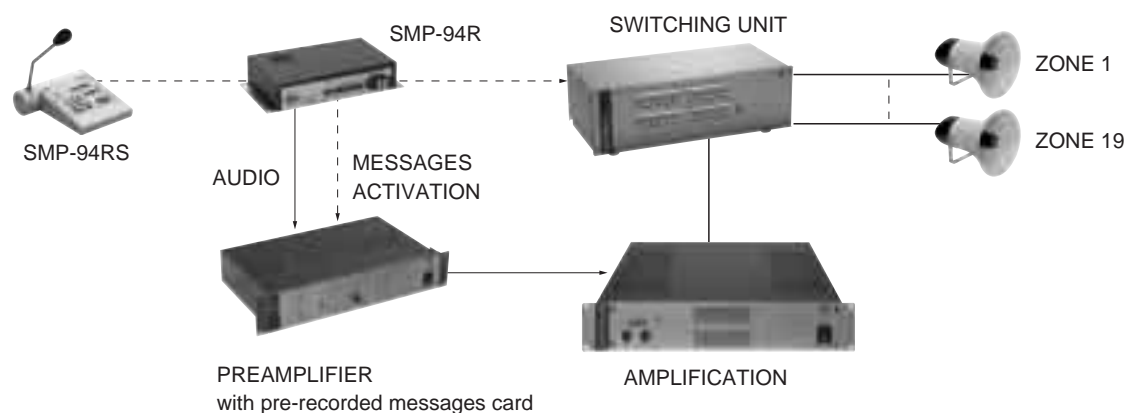
The last 4 contacts, of the 24 available in each decoder, are configurable to permit the activation of externally stored pre-recorded messages from the SMP-94RS and SMP-94RC Microphone Desks, as well as from the Remote Event Detectors of the SMP-94RC.

BX-94, SMP-94 bus supply OPTIMUS adaptor. A BX-94 module is required for every three units of SMP-94RS, SMP-94RC or SMP-94R.

SMP-94R

Power supply	24 V.d.c. For more than 3 elements, adapter BX-94 is required
Consumption	80 mA
Audio level	775 mV - 0 dBm
Frequency response (- 3 dB)	280 ÷ 15.000 Hz
Signal / noise ratio	> 56 dB
Number of zones	24 (19 if messages activation of C-610RP4 or C-610RP1 is used)
C-610RP4 control unit	4 messages + end of message detection
C-610RP1 control unit	1 message + end of message detection
Zone activation	Open collector (max. 10 mA)
Dimensions (mm)	230 (width) x 41 (height) x 105 (depth)
Weight	0.8 kg
Finishing	Metallic frame. Cover in black "skinplate"
Remarks	Control by the SMP-94RS and SMP-94RC microphone desks

BLOCK DIAGRAM



SMP-94 MICROPROCESS CONTROL SYSTEM



SMP-94 MICROPROCESS CONTROL SYSTEM

SMP-94RZ Receiver decoder

The "RZ" elements in the SMP-94 Microprocess Control System have been designed to simplify enormously the wiring in those installations that require a big number of zones with a relatively small power load each of them.

The proper combination of these elements allow for the parallel connection of all the zones in two different bus lines, one for the data and one for the 100V line. If the installation would include also background music, then there will be two 100V lines. The loudspeakers of a particular zone will be connected to the paging channel only upon reception of the specific instructions from the SMP-94RZ decoder.

The SMP-94RZ decoder allows the control of all the loudspeakers zones, spread throughout the installation, from the SMP-94RS and SMP-94RC Microphone Desks. This unit permit the connection of up to 240 SMP94-RZ1 modules, which are the interfaces between each zone speakers and the 100V and data buses.

The advantage of this installation system against the classical one, where a 100V dedicated line must be sent from the Central Rack to each of the zones is obvious, as there is a big saving in the wiring and also in the space required in the lines conducting.



SPECIFICATIONS

SMP-94RZ

Power supply	24 V.d.c.
Consumption	100 mA
Audio level	0 dB
Output impedance	5 kΩ
Nº of zones	240
Dimensions (mm)	230 (width) x 50 (height) x 105 (depth)
Weight	1.2 kg
Finishing	Black "skinplate"
Remarks	Combines with SMP-94RS / SMP-94RC. Requires SMP-94RZ1 decoder



SMP-94 MICROPROCESS CONTROL SYSTEM

SMP-94RZ1/ 2/ 3 Zone decoders



The SMP-94RZ1 module is a loudspeakers zones selector. The unit facilitates the work in installations of up to 744 zones, which can be done in a very simple way, just by using a data bus and a 100V line, connecting all the units in parallel and therefore simplifying enormously the installation by dramatically reducing the wiring requirements. Each SMP-94RZ1 is assigned to a zone number by means of built-in dipswitches.

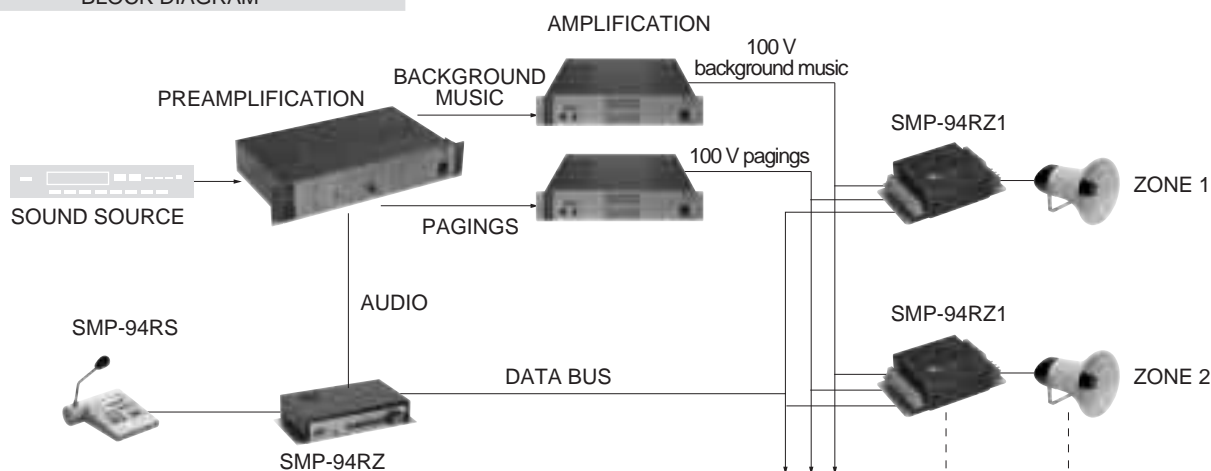
It receives from the amplifiers, the program (music) and priority (pagings) lines, at either 50, 70 or 100 V, and from the SMP-94RZ decoder, the binary code of zone activation. A 3 wires output, compatible with the AV series attenuators, has been designed to allow the use of the security pagings function.

The SMP-94RZ2 module is an optoisolator module for the communication bus. It allows the segmentation or extension of the communication bus.

The SMP-94RZ3 module is a terminal end unit, to be installed at the end of each line.

	SMP-94RZ1	SMP-94RZ2	SMP-94RZ3
Power supply	24 V.d.c.	24 V.d.c.	24 V.d.c.
Consumption	Max. 12 mA	Max. 225 mA	Max. 225 mA
Maximum switching voltage	125 V.a.c.	-	-
Maximum switching intensity	0,5 A	-	-
Priority override	Included	-	-
Dimensions (mm)	70 (width) x 28 (height) x 115 (depth)	70 (width) x 28 (height) x 115 (depth)	70 (width) x 28 (height) x 115 (depth)
Weight	0.2 kg	0.2 kg	0.17 kg
Finishing	Black "skinplate"	Black "skinplate"	Black "skinplate"
Remarks	Combine with SMP-94RS / 94RC elements. Requires SMP-94RZ decoder	-	-

BLOCK DIAGRAM

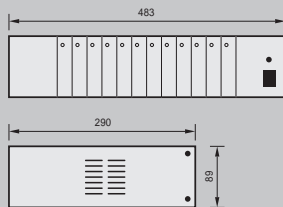
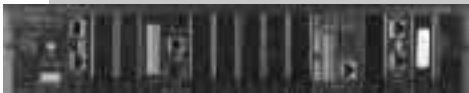


SMP-94 MICROPROCESS
CONTROL SYSTEM



PM-612 PREAMPLIFIER

PM-612/0 Modular mainframe



The PM-612/0 model is a modular circuitry mainframe, with capacity for up to 12 cards and which features 2 internal audio channels: a priority one, for pagings, and a program one, for music sources. Both channels are of 0 dB level and 600 Ω impedance. The PM-612/0 frame has 12 empty slots to house 12 electronic modules.

The different card models –microphone, music source, telephone interface, pre-recorded messages ...- inserted in the frame, send the already pre-amplified audio signal to one of the 2 channels. The channel assigning is made externally, through micro-switches.

The program channel combines all the signals coming from the cards which have the corresponding assignation.

The priority channel accepts only one signal each time; in case this channel is activated by 2 or more modules, then the PM-612/0 only lets out the signal emitted by the module inserted first in the chassis (Cascade priority).

It is possible to link several PM-612/0 to increase the number of audio inputs.

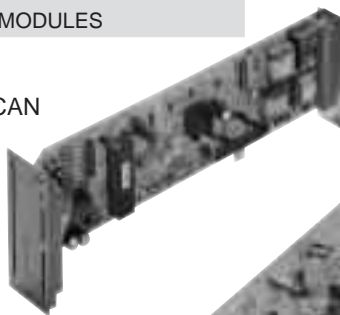
It is also possible to make independent some modules inside one same chassis by means of the C-610LE and C-610LS cards.

PM-612/0

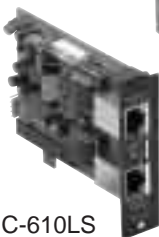
Inputs	12 of programmable sensitivity; 1 of 0 dBu (Program extension); 1 of 0 dBu (Priority extension)
Outputs	1 of 0 dBu (Program); 1 of 0 dBu (Priority), 12 of 0 dBu (Independent)
Power supply	+ 24 V.d.c.
Consumption PM-612/0	50 mA
Dimensions (mm)	483 (width) x 89 (height) x 290 (depth)
Weight	3.2 kg
Finishings	Black "Skinplate"

LIST OF MODULES

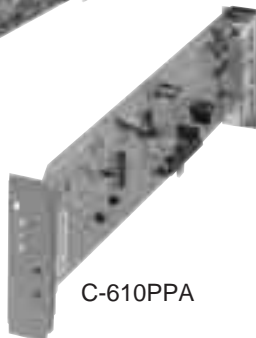
C-610CAN



C-610LS



C-610PPA



Module	Description
C-610PAL	Standard input module (2 u)
C-610MP3	MP3 Card (2 u)
C-610RP1	Pre-recorded message (2 u)
C-610RP4	Pre-recorded messages –1 to 8- (2 u)
C-610Z1	1 Zone telephone adapter (1 u)
C-610Z24	24 Zones telephone adapter (2 u)
C-610E15	Power unit of 15 W and 8 Ω (1 u / 3 u in 100V line)
C-610MA	Microphone (2 u)
C-610CAN	Automatic level control (2 u)
C-610LE	Program-priority inputs (1 u)
C-610LS	Program-priority outputs (1 u)
C-610PPA	Priority paging, program-priority (1 u)
C-610PRJ	Pre-amplifier card (1 u)
C-610LD	Leds indication module (1 u)
C-610RLY	Relay output contact module (1 u)
C-610CLM	Surveillance module of contact by continuity (1 u)



PM-612 PREAMPLIFIER

C-610PAL Preamplification card

C-610PAL, includes preamplifier circuits and volume, bass and treble controls. It can house SMT-3 output and input balanced transformers. Programmable sensitivity and input impedance.



SPECIFICATIONS

C-610PAL

Frequency response (- 3 dB)	Micro (Speech filter): 54 ÷ 16.000 Hz; Aux. L and Aux. H: 43 ÷ 20.000 Hz
Total Harmonic Distortion (THD)	< 0,1 % (100 Hz ÷ 10 kHz)
Consumption	55 mA
Inputs	1 (at rear) programmable
Sensitivity	Micro: 0,8 mV. (2k2 Ω); Aux. L: 100 mV. (2k2 Ω / 100 kΩ); Aux. H: 775 mV.(2k2 Ω / 100 kΩ)
Maximum inputs level	Micro: 30 mV.; Aux. L: 3 V.; Aux. H: 6 V.
Signal / noise ratio	Micro: 54 dB; Aux. L & H (high and low impedance): 80 dB
Input impedances	Low impedance: 2 kΩ. High impedance: 100 kΩ
Outputs	1 independent program or priority 0 dBu (775 mV / 600 Ω), at rear; 1 bus PM-612/0 (program); 1 bus PM-612/0 (priority)
Controls	Volume; Bass: + 10 dB (100 Hz) (auxiliar), - 18 dB (100 Hz) (microphone); Treble: + 10 dB (10 kHz) (auxiliar), - 18 dB (10 kHz) (microphone); Microphone flat response with tone controls at the maximum

PM-612 PREAMPLIFIER

C-610MP3 MP3 Card



The C-610MP3 card is an MP3 format message player, using MULTIMEDIA CARD (MMC) removable memories. It allows to play up to 127 messages of different length and has the following characteristics:

- Recording capacity depending on the MMC used (approximately 1MB x minute).
- Messages classification:
 - Evacuation: Up to 16 messages.
 - General purposes.
- Surveillance of the evacuation messages integrity.
- Configurable number of messages repetition (1, 2, 4 or endless).
- Time interval between repetitions can be configured between 0 (endless repetition) and 63 seconds.
- Messages activation:
 - By contacts in the same card: allowing the activation of up to 8 messages.
 - Binary activation from the same card (127 messages).
 - By means of the card front controls (99 messages).
- Alarms of:
 - Memory not inserted.
 - Evacuation message corrupted.
- Notification of alarms by:
 - Front Leds.
 - Back Leds.
 - Output relay, configurable as NO or NC.
- Front indicator of playing message and its number.
- Confirmation mode: The card has an amplified output that allows the messages monitorisation before sending them. As it works on confirmation mode, the activated message is endless playing until a confirmation contact is activated. Then, the message is sent to the public address system.
- Configurable priority amongst messages (1st in 1st or Cascade).
- Adjustable output volume level by an internal potentiometer.
- Amplified output volume level adjustable by internal potentiometer.
- It occupies 2 slots of the PM-612 bus.
- If the PM-612 has any C-610PAL or C-610PRJ card configured with micro sensitivity, there must be 3 slots left of the PM612 between these cards and the C610MP3 card.
- Provided with a mechanical protection of Multimedia Card Memory removing.

SPECIFICATIONS

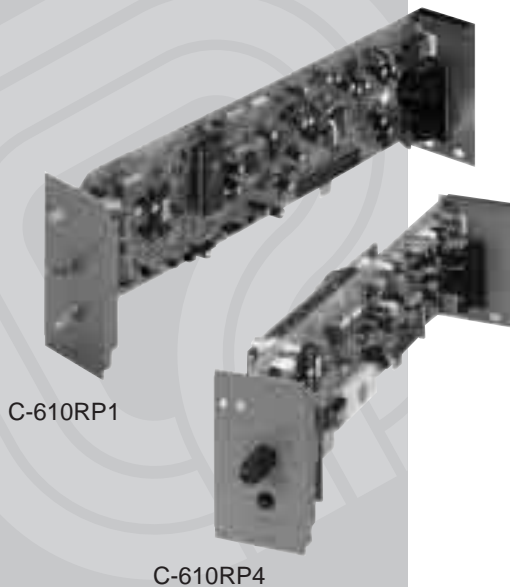
C-610MP3

Power supply	24 V.d.c., through the PM-612
Consumption (normal mode)	170 mA
Consumption (confirmation mode)	360 mA
Independent output	0 dBm. Balanced
Monitorisation Output	8 Ω / 1 W
Bit Rates accepted	16 to 256 Kbps
Format	2 slots in PM-612



PM-612 PREAMPLIFIER

C-610RP1 / C-610RP4 Pre-recorded messages cards



C-610RP1, is a one message recording / playing module, specially designed to fit into the PM-612 preamplifier. It allows the recording and playing of 1 message with a maximum length of 60 seconds. The recording and playing functions are controlled from the front panel, and they can also be activated by remote control from the rear connector. It includes a waiting system of messages confirmation, specially suitable for installations with evacuation systems.

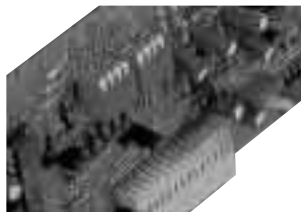
C-610RP4, has been specially designed to be housed in the PM-612 preamplifier. It allows the recording and playing of: 1 message up to 240 seconds, 2 messages up to 120 seconds, 4 messages up to 60 seconds, or 8 messages up to 30 seconds each one. The recording and playing functions are controlled from the front panel, and they can also be activated by remote control from the rear connector. It includes a waiting system of messages confirmation, specially suitable for installations with evacuation systems.

SPECIFICATIONS

	C-610RP1	C-610RP4
Recording capacity	1 message x 60 s	1 Message x 240 s, 2 messages x 120 s, 4 messages x 60 s, 8 messages x 30 s
Inputs	1 (at rear)	1 (at rear)
Sensitivity	Configurable. Micro: - 60 dBu (0,775 mV); Aux.: 0 dBu (775 mV)	Configurable. Micro: - 60 dBu (0,775 mV); Aux.: 0 dBu (775 mV)
Maximum inputs level	Micro: 15 mV. Aux.: 5 V	Micro: 6 mV. Aux.: 5 V
Input impedances	Low impedance: 2k2 Ω , high impedance: 100 k Ω	Low impedance: 2k2 Ω , high impedance: 100 k Ω .
Outputs	1 Independent, at rear, for program or priority; 1 Program for PM-612 bus; 1 Priority for PM-612 bus	1 Independent, at rear, for program and priority; 1 Program for PM-612 bus; 1 Priority for PM-612 bus
Maximum audio level output (RMS)	0 dBu (775 mV)	0 dBu (775 mV)
Frequency response	80 ÷ 4.000 Hz	80 ÷ 4.000 Hz
Independent output impedances	3,3 k Ω	3,3 k Ω
Led indicators	Front leds. Green: reproduction; Red: recording; Yellow: time between repetitions	Front leds. Green: reproduction; Red: recording; Yellow: Time between repetitions
Controls	Front: Recording, Reproduction and Start/ Stop; Rear: Reproduction, Reset and BUS indicator	Front: Recording, Reproduction and Start/ Stop; Rear: Reproduction, Reset and BUS indicator
Consumption	90 mA	190 mA
Power output	-	Optional: 1 W (8 Ω)
Number of messages and repetition	1, 2, 4, or endless	1, 2, 4, or endless

It is recommended to use a C-610PAL card to regulate the audio output level.

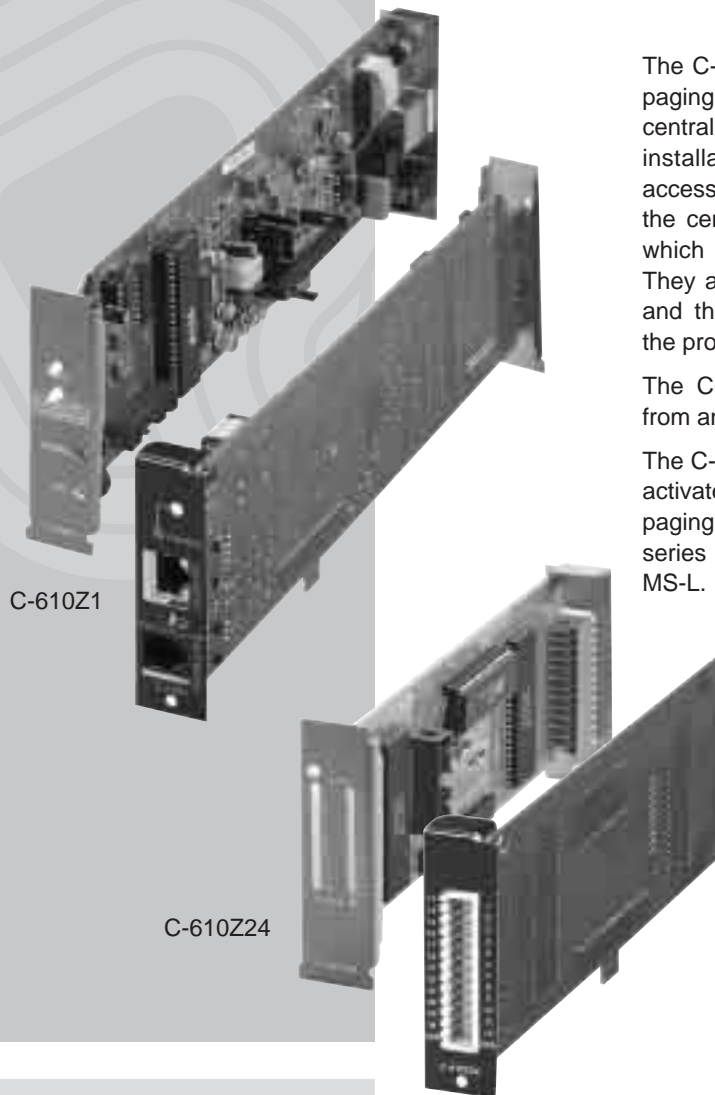
INTERNAL PROGRAMMING OF THE C-610RP4 CARD



A series of microswitch and internal bridges enables to program parameters such as the number of messages (1, 2, 4 or 8), the frequency of repetition or the interval of time between each repetition.

PM-612 PREAMPLIFIER

C-610Z1 / C-610Z24 Telephone paging cards



The C-610Z1 and C-610Z24 cards are telephone paging interfaces that are connected to the PABX central as if they were one extension more of the installation telephone central. They allow the access to the Public Address system from any of the central telephone sets within the installation, which is used, in this case, as a microphone. They are to be inserted into the PM-612/0 frame and they transmit the pre-amplified message to the program or priority channel.

The C-610Z1 permits to send one general call from any telephone set.

The C-610Z24 has an audio output and permits to activate from a telephone set, up to 24 different paging zones, directly from power units of the UP series or through the switching modules MC-L or MS-L.

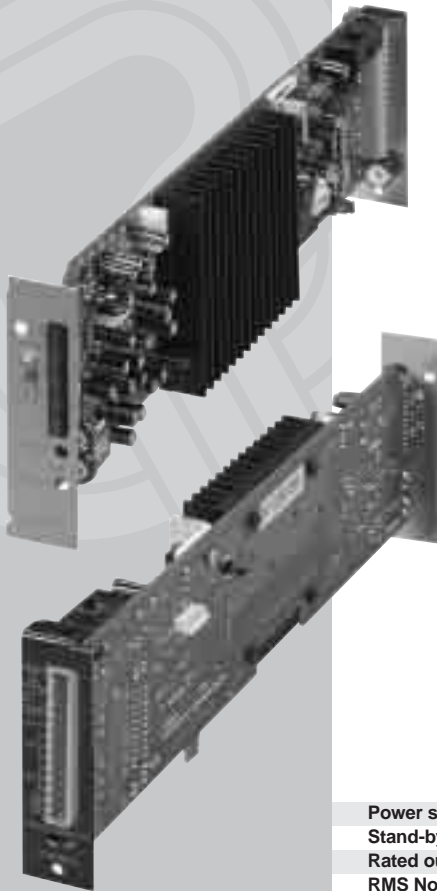
SPECIFICATIONS

	C-610Z1	C-610Z24
Input	PABX, 3 programmable digits DTMF dialling	PABX, 3 programmable digits DTMF dialling
Output	Audio 0 dBm and priority	Audio 0 dBm and priority
Recording	-	60 s
LED indicators	Open line and busy	Open line, busy and recording
Adjustments	General and "gong" volume	General and "gong" volume
Nº of zones	1	24
Consumption	100 mA	150 mA



PM-612 PREAMPLIFIER

C-610E15 15 W 8 Ohm Power unit card



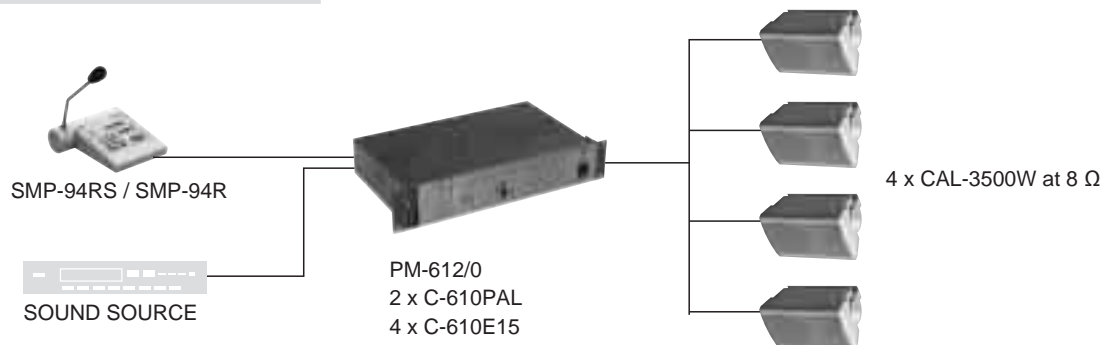
The C-610E15 is a 15 W (8 Ohm) power unit card for PM-612/0 with the following characteristics:

- Low impedance (8 Ohm) or 100V line output (through the optional transformer model T-E15W).
- It allows the direct connection of the C-610MA.
- In low impedance, it occupies one slot in the PM-612/0 bus, in 100V line it occupies three slots in the PM-612/0 bus.
- Maximum of 6 cards in a PM-612/0 frame.
- Operation systems:
 - Independent card: program and priority external inputs, and 100 V line output (using the optional transformer), or low impedance.
 - Commun program input for several C-610E15 through the bus and independent external priority inputs for each card.
 - Monitorisation: in replacement of one C-610LS, it has its same functions (priority and program output) appart from the power output.

C-610E15

Power supply	24 V.d.c. External
Stand-by consumption	3 VA
Rated output consumption	33,6 VA
RMS Nominal power rating	18 W
IHF output power	23 W
Total Harmonic Distortion	0,4% at 1 KHz
Frequency response	40 ÷ 20.000 Hz (40 ÷ 17.500 Hz with 100V line output)
Signal/noise ratio	> 72 dB
Inputs (balanced)	1 program (0dBu), 1 priority (0dBu)
Inputs sensitivity	775mV
Loudspeakers line output	8 Ω (optional 100 V by using the T-E15W transformer)

BLOCK DIAGRAM



PM-612 PREAMPLIFIER



PM-612 PREAMPLIFIER

C-610MA Microphone card

The C-610MA module is a microphone card to be inserted in the PM-612/0 mainframe. The audio signal reaches the program or priority internal bus through a **C-610PAL** or **C-610LS** module.

This card includes an omnidirectional electret type microphone, a gong selector, a microphone and gong volume control, a talk push-button as well as On / Off and gong LEDs indicators.

It also includes a DIN connector for an external microphone, which may have a talk push-button, in this case the talk key on the front panel is disabled.



SPECIFICATIONS

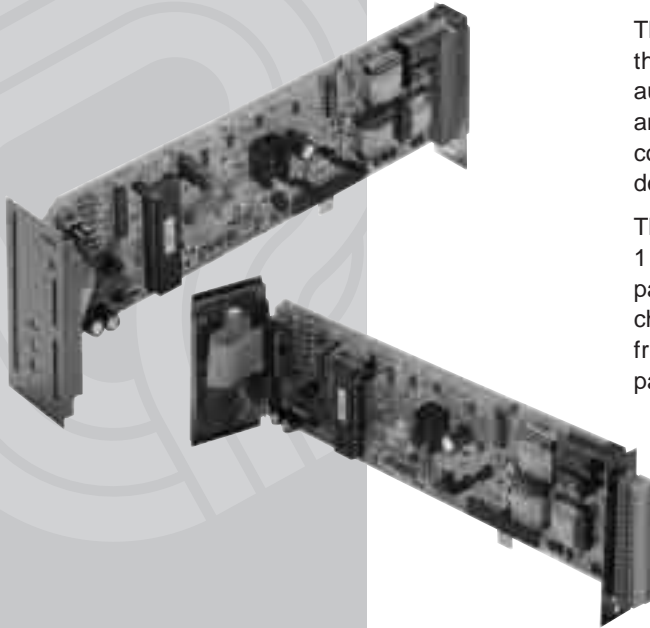
C-610MA

Type	Electret
Power supply	24 V.d.c., internal bus PM-612
Consumption	30 mA
Directionality	Omnidirectional
Frequency response	60 ÷ 15.000 Hz
Sensitivity (1 kHz, 1 µbar) (± 4 dB)	- 37 dB
Signal / noise ratio	> 55 dB
Connection	Through C-610PAL or C-610LS modules
Finishing	Black skinplate



PM-612 PREAMPLIFIER

C-610CAN Automatic level control card



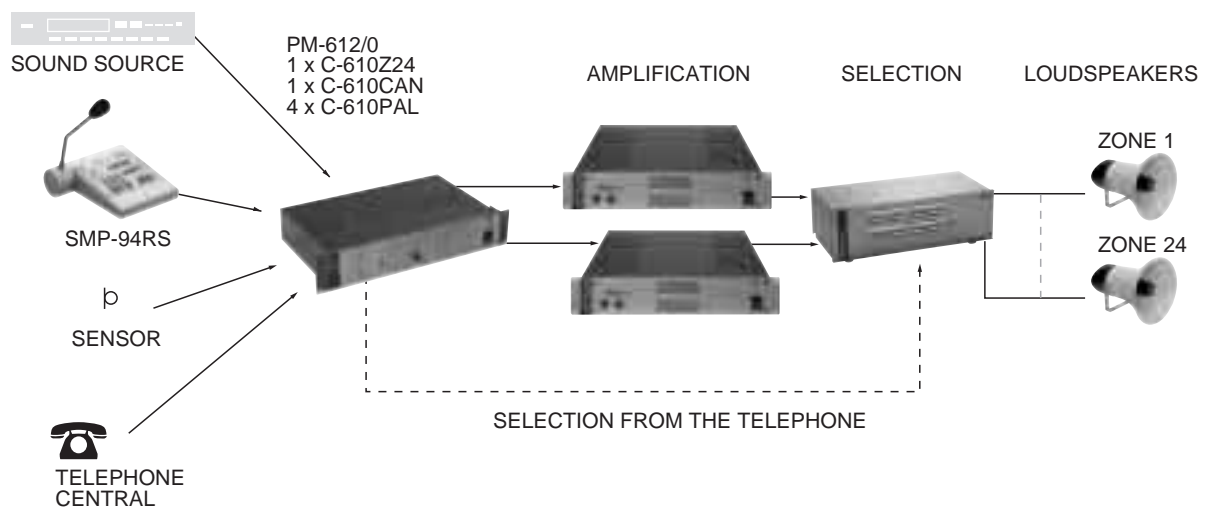
This module has been designed to be housed in the PM-612/0 frame and to regulate, automatically, the audio signal level sent to the amplifiers. The level is adjusted according to the configured parameters and to the ambient noise detected by the sensor connected to the card.

This module has 2 input channels (1 program and 1 priority) with independent adjustments. The front panel LEDs indicators shows program or priority channel, status, functions and audio level. The front panel also includes selection and parameters modification push buttons.

C-610CAN

Operating range	40 to 124 dB SPL
Sensitivity	40 dB SPL
Amplification range	10 to - 25 dB
Audio inputs	2 (program and priority) of 0 dB
Input impedances	10 k Ω
Output impedances	600 Ω , balanced by transformer
Consumption	Between 180 mA and 250 mA

BLOCK DIAGRAM



PM-612 PREAMPLIFIER



PM-612 PREAMPLIFIER

C-610PPA Priority paging, program-priority card



The C-610PPA module is a priority paging card, with 2 inputs of 0 dB sensitivity and 1 output, using 8 pin RJ45 connectors with metal housing. Each connector has a dipswitch by means of which the cable shield can be separated from the ground connection of the circuit. This is particularly useful in installations with noise problems caused by ground loops.

Depending on the needs of the installation, both the inputs and the output can be transformed into balanced ones by removing jumpers corresponding to each connector and installing some balancing transformers (T-700).

Both inputs have front volume controls, which permit both the attenuation and gain of the input signals.

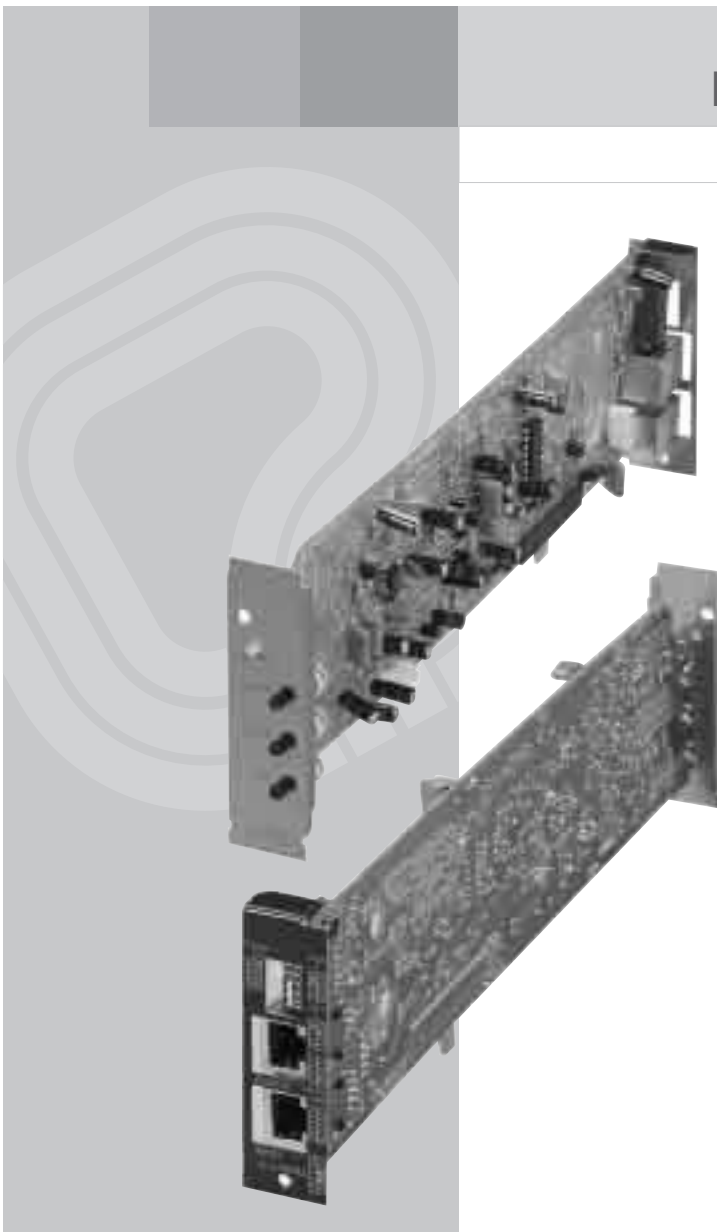
SPECIFICATIONS

	C-610PPA
Number of BUS slots in PM-612	1
Consumption	20 mA
Sensitivity	775 mV
Output level volume control at maximum	+ 2 dB
Output level volume control at minimum	- 73 dB



PM-612 PREAMPLIFIER

C-610PRJ Pre-amplifier card



The C-610PRJ module is a preamplifier card with the following characteristics:

- Externally programmable input levels (MICRO, AUX H and AUX L).
- Selectable input impedance (high 100 K Ohm, low 2,2 K Ohm).
- Front volume, bass and treble controls.
- Audio output and independent priority through RJ connector.
- BUS outputs to Program, Priority and Priority Control.
- Auxiliary input for Electret microphone C-610MA, with priority control.
- Front LED indicating priority control activation.

SPECIFICATIONS

C-610PRJ

Number of BUS slots in PM-612	1
Frequency response (-3 dB)	Micro (Speech filter): 54 ÷ 16.000 Hz; Aux. L and Aux. H: 43 ÷ 20.000 Hz
Consumption	55 mA
Total Harmonic Distortion (THD)	< 0,09% from 100 Hz to 10 kHz
Output level (RMS)	0 dBm (775 mV)
Inputs	1 (Rear)
Sensitivity	Micro: 0,775 mV; Aux. L: 100 mV; Aux. H: 500 mV
Maximum input level	Micro: 30 mV; Aux. L : 3 V ; Aux. H : 6 V
Signal/noise ratio	Micro: 54 dB; Aux. L & H (high and low impedance): 80 dB
Input impedance	Low Impedance: 2k2 Ω, High Impedance: 100 kΩ
Output impedance	600 Ω
Outputs	1 Independent Rear Program or Priority; 1 Program for the PM-612/0BUS; 1 Priority for the PM-612/0 BUS
Controls	Volume; Bass: ± 10 dB at 100 Hz; Treble: ± 10 dB at 10 kHz (Flat response microphone with tone controls at maximum)

PM-612 PREAMPLIFIER

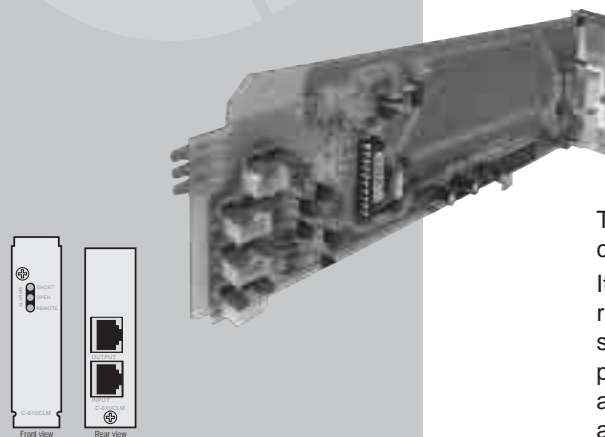
C-610RLY / C-610CLM / C-610LD



The C-610RLY, is a relay output contacts card (7), used for indication, through voltage/free contacts configurable one by one as NC/NO, of:

- Power supply presence in the PM-612/0 BUS
- Power supply presence in C-610PAL and C-610PRJ cards of the PM-612/0
- Alarms detected by the C-610CLM card
- Priority activation of the C-610PAL and C-610PRJ cards

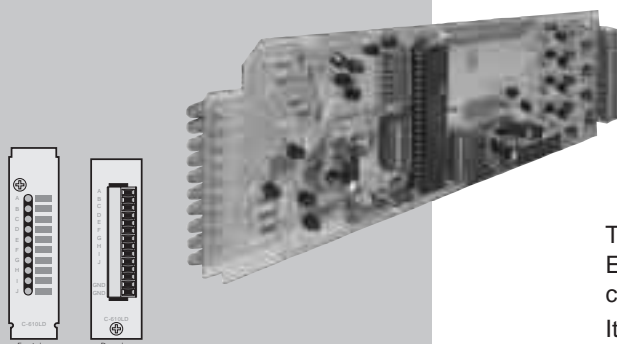
It occupies one slot in the PM-612/0 bus.



The C-610CLM is a surveillance card of contact by continuity for PM-612/0.

It makes the surveillance of the connection status of a remote control, by detecting and informing of a possible short-circuit or open line. The surveilled contact can be a priority contact or an operation push-button (remote alarm...). It has frontal led indicators and internal outputs to activate the C-610RLY card.

It occupies one slot in the PM-612/0 bus.



The C-610LD is a Leds indication card in PM-612/0 format. Each one of the frontal 10 leds light through the 10 input contacts. Fix or blink light, configurable for each led.

It occupies one slot in the PM-612/0 bus.



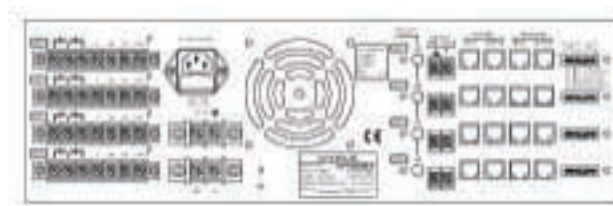
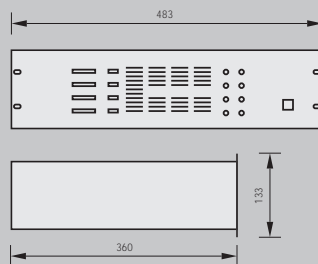
AMPLIFIERS

UP-60M4 / UP-120M4 Modular power unit

UP-60M4 and UP-120M4 are modular, multiple power units, where 4 independent power units of respectively 60 and 120 W RMS each, have been housed within a common 3 U high, 19" mainframe.

The philosophy behind these models is triple-saving: the cost of one of these 4 x 60 or 120 W RMS power unit is much less than 4 physically independent ones (UP-66 or UP-126 respectively) and it takes only about one third of space in the rack, contributing therefore not only in saving space in the rack and lowering the number of racks required, but also lowering significantly the cost of the racks themselves.

As with all the other power units, they have double program/priority volume controls, security paging relay and thermal and short-circuit/overload protections.



SPECIFICATIONS (Each section)

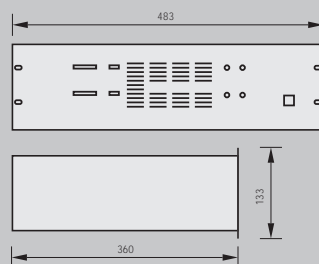
UP-60M4

UP-120M4

Power supply	Mains: 230 V.a.c.; Battery: 24 V.d.c.	
Total consumption (4 sections)	Standby: 28 VA; Rated output: 700 VA	Standby: 56 VA; Rated output: 1400 VA
Nominal power rating (RMS)	60 W	120 W
I.H.F. power	87 W	175 W
Total Harmonic Distortion	< 0.6% (1 kHz)	
Frequency response	55 ÷ 18.000 Hz	
Signal / noise ratio	> 80 dB	
Inputs	1 program (0 dB); 1 priority (0 dB)	
Inputs sensitivity	775 mV (program and priority)	
Loudspeakers line output	100 V, 70 V, 8 Ω	
Controls	Program and priority volumes	
Fans blower activation	Continuous ventilation, with speed variation according to temperature	
Dimensions (mm)	483 (width) x 133 (height) x 360 (depth)	
Rack units	3	
Weight	20 kg	25.3 kg
Finishing	Black anodised aluminium front. Cover in black enamelled steel	

AMPLIFIERS

UP-480 / UP-240M2 Power units



The UP-240M2 is a modular, multiple power unit, where 2 independent power units of 240 W RMS each, have been housed in a common 3U high mainframe, designed to save cost and also to lower the space requirements in the racks.

The UP-480 is a compact 480 W RMS power unit, designed for the use in installations with high power requirements, occupying 3U in a 19" Rack cabinet.

As with all the other power units, they have double program/priority volume controls, including program and priority linked inputs and outputs (0 dBu and 600 Ohms), security paging relay and thermal and short-circuit/overload protections.

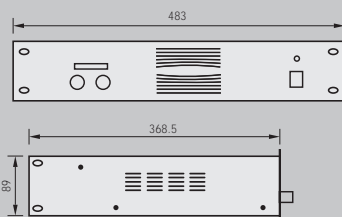
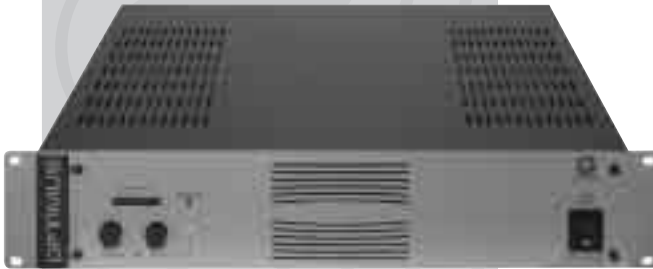
SPECIFICATIONS

	UP-480	UP-240M2
Power supply	Mains: 230 V.a.c; Battery: 24 V.d.c	
Consumption	Standby: 40 VA; Rated output: 1400 VA	Total (2 sections): Standby: 56VA; Rated Output: 1400 VA
Nominal power rating (RMS)	480 W	2 x 240 W
I.H.F. power	585 W	2 x 312 W
Total Harmonic Distortion	< 1 % (1 kHz)	
Frequency response	55 ÷ 18.000 Hz	
Signal / noise ratio	> 80 dB	
Inputs sensitivity	775 mV (program and priority)	
Outputs	Loudspeakers: 100 V, 70 V and 8 Ω	
Adjustments	Program and priority volumes	
Fan blower activation	Continuous ventilation, with speed variation according to the temperature	
Dimensions (mm)	483 (width) x 133 (height) x 360 (depth)	
Rack units	3	
Weight	23.4 kg	24.3 kg
Finishing	Front panel in anodised black aluminium. Top cover in black skinplate.	Front panel in anodised black aluminium. Top cover in black enamelled steel.



AMPLIFIERS

UP Series power units



This series consists of 4 power units, with power ratings of 60, 120, 240 and 360 W RMS, for output lines of 100V, 70V, 50V or low impedances (4, 8 and 16 Ω).

All the models have program and priority inputs and outputs (0 dBu and 600 Ω), with independent volume controls and priority paging function.

They also include built-in pagings security relay to manage the attenuators which exist in the installation (of 3 or 4 wires).

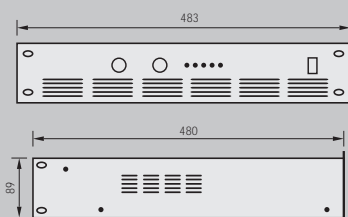
As security features, these series 6 models have built-in thermal protection circuits against over-loading and loudspeakers line short-circuit as well as built-in fail relay which is activated when the protection operates or when the amplifier mains power supply fails. Moreover, this series power units can integrate more complex PA/VA systems by means of a built-in surveillance RJ connector, for loudspeakers lines surveillance and functioning through external devices.

SPECIFICATIONS

	UP-66	UP-126	UP-246	UP-366
Power supply	Mains: 230 V.a.c., Battery: 50 ÷ 60 Hz / 24 V.d.c.			
Consumption	Standby: 16 VA; Rated output : 138 VA	Standby : 7,5 VA; Rated output : 253 VA	Standby : 9,2 VA; Rated output: 460 VA	Standby: 16 VA; Rated output: 736 VA
Nominal power rating (RMS)	60 W	120 W	240 W	360 W
I.H.F. power	82 W	162 W	312 W	482 W
Total Harmonic Distortion	< 0,5% (1 kHz)			<0,65% (1 kHz)
Frequency response (± 3 dB)	50 ÷ 18.000 Hz			
Signal / noise ratio	> 80 dB			
Inputs sensitivity	1 Program (0 dBu / 775 mV) and 1 Priority (0 dBu / 775 mV)			
Maximum input signal	6 V (program and priority)			
Outputs	Loudspeakers: 100 V, 70 V or 50 V line ; for 4, 8, or 16 Ω Program (0 dBu); Priority (0 dBu)			
Adjustments	Program and priority volume			
Fans activation temperature	95°C	110°C		
Dimensions (mm)	483 (width) x 89 (height) x 368.5 (depth)			
Rack units	2			
Weight	8.6 kg	10 kg	13.6 kg	15.7 kg
Finishing	Front panel in metallic blue painted iron and cover in black painted iron			
Remarks	Includes security paging relay			

AMPLIFIERS

MT-1500 / MT-3500 Low impedance stereo power units



Low impedance power units with two independent channels, 2 x 150 W at 8 Ω (MT-1500) and 2 x 350 W at 8 Ω (MT-3500), with 2 audio inputs and independent volume controls, VU-meter for the signal level and protection indicators. It has two operation modes: stereo or parallel.

The power circuits include over-heating, overcharge and short-circuit protection. These power units are also equipped with a selectable high-pass filter for the loudspeakers protection.

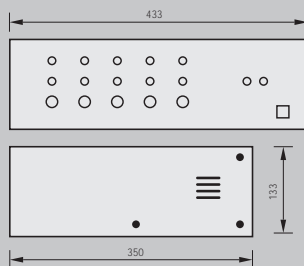
SPECIFICATIONS

	MT-1500	MT-3500
Nominal power rating (RMS)	2 x 300 W at 2 Ω ; 2 x 225 W at 4 Ω ; 2 x 150 W at 8 Ω	2 x 700 W at 2 Ω ; 2 x 500 W at 4 Ω ; 2 x 350 W at 8 Ω
Total Harmonic Distortion	0,004 % (1 kHz / 8 Ω); 0,008 % (1 kHz / 4 Ω); 0,15 % (20 Hz \div 20 kHz / 8 Ω); 0,2 % (20 Hz \div 20 kHz / 4 Ω)	0,015 % (1 kHz / 8 Ω); 0,03 % (1 kHz / 4 Ω); 0,15 % (20 Hz \div 20 kHz / 8 Ω); 0,2 % (20 Hz \div 20 kHz / 4 Ω)
Frequency response	20 \div 20.000 Hz; 0,2 dB (8 Ω 1 W)	
Damping Factor	> 200 below 8 Ω	
Signal / noise ration	\geq 110 dB	
Input sensitivity	0,775 V RMS	
Input impedance	20 k Ω balanced inputs; 10 k Ω unbalanced inputs	
Input signal	XLR / Jack Balanced Input	
Mode selection	Stereo / Parallel	
Low Cut Frequency	< 30 Hz	
"Slew Rate"	38 V/ μ s	45 V/ μ s
Tension gain	AV = 45	AV = 68
Front panel indicators	Power Supply LED: 2 x green LED; Signal LED: 2 x green LED (-30 dB) + 2 x yellow LED (-6 dB); CLIP LED: 2 x red LED; PROTECT LED: 2 x red LED	
Dimensions (mm)	483 (width) x 89 (height) x 480 (depth)	
Weight	17 kg	24 kg



AMPLIFIERS

PA Series



The models PA-124 and PA-244 are 120 W R.M.S. and 240 W R.M.S. power integrated amplifiers respectively. They have been designed to be used in Public Address installations, emergency pagings, background music, speech reproduction systems, etc.

Both models include protections against short-circuits / overloadings in the loudspeakers line, as well as a thermic protection to avoid damages caused by overheating. Moreover, we have included an ANTICLIPPING system that avoids an excessive saturation of the power unit and reduces the distortion beyond the nominal power, increasing so the loudspeakers security margin.

As the precedent models, they have lateral mounting brackets for mounting in 19" Rack cabinets. These units have been designed according to the Electromagnetic Compability and Electrical Security standards.

SPECIFICATIONS

	PA-124	PA-244
Power supply	230 V.a.c., 50 ÷ 60 Hz; Battery: 24 V.d.c.	
Consumption	Standby: 22 VA, Rated output: 260 VA	Standby: 27 VA, Rated output: 462 VA
Nominal power rating (RMS)	120 W	240 W
I.H.F. power	175 W	312 W
Total Harmonic Distortion	< 0,8% (1 kHz)	
Frequency response (± 3 dB)	50 ÷ 16.500 Hz	
Signal / noise ratio	Micro: > 57 dB; Aux. L / H: > 78 dB	
Programmable sensitivity inputs	5 inputs, Micro: - 60 dBu (0,7 mV), Aux. L: -18 dBu (100 mV), Aux. H: 0 dBu (775 mV); Program MAIN-IN: 0 dBu (775 mV), Priority MAIN-IN: 0 dBu (775 mV)	
Loudspeakers outputs	4 Ω, 8 Ω, 16 Ω; 100 V, 70 V, 50 V line	
PRE-OUT outputs	1 Program output : 0 dBu (775 mV); 1 Priority output : 0 dBu (775 mV)	
Tone controls (only for programmable inputs)	Bass: ± 10 dB (100 Hz); Treble: ± 10 dB (10 kHz); Micros: linear response with the controls at the maximum	
Current drawn from battery (nominal power)	8 A	19,5 A
Adjustments	Volume and individual tones, program and priority volume	
Dimensions (mm)	433 (width) x 133 (height) x 350 (depth)	
Rack units	3	
Weight	12 kg	18 kg
Finishing	Front panel and cover in black "skinplate"	
Remarks	Inputs with Cascade priority, configurable. Includes a security relay for pagings	

AMPLIFIERS

AXD Series



The AXD series of amplifiers consists of 4 integrated amplifiers of 30, 60, 120 and 240 W respectively, specially designed to be used in all kind of Public Address fix installations: emergency pagings and background music for offices, restaurants, churches, etc.

The 30 W model has two microphone and two auxiliary inputs. The 60 W, 120 W and 240 W models have five microphone and two auxiliary inputs.

All the models include:

- Priority of the microphone inputs over the auxiliary inputs.
- Configurable priority (on/off) of micro 1 over the rest of microphones.
- Priority emergency input over the rest of inputs. This input is not affected by any volume control of the amplifier.
- 100V, 70V, 50V or low impedance (4, 8 & 16 Ω) lines output.
- Pre-call gong and ON/OFF phantom power supply configurable for each microphone input.
- Thermal protection.
- Priority external relay direct activation.
- 24 V.d.c. output in microphone 1 DIN connector and in emergency input RJ45 connector.
- Supplied with mounting brackets for 19" rack mounting.

Upon specific request, these amplifiers can be equipped with a built-in DTMF real telephone interface.

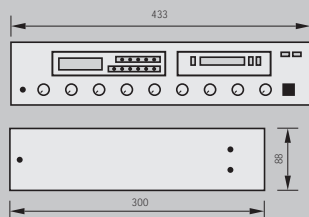
SPECIFICATIONS

	AXD-30	AXD-60	AXD-120	AXD-240
Power supply	230 V.a.c., 50 ÷ 60 Hz; Battery: 24 V.d.c.			
Consumption	Standby: 11,5 VA; Rated output: 57,5 VA	Standby: 16 VA; Rated output: 129 VA	Standby: 18,4 VA; Rated output: 276 VA	Standby: 20,7 VA; Rated output: 529 VA
Nominal power rating (RMS)	30 W	60 W	120 W	240 W
I.H.F. power	40 W	98 W	175 W	350 W
Total Harmonic Distortion (+N Power unit)	<0,75%			
Frequency response	Aux: 50 ÷ 18.000 Hz / Emergency: 50 ÷ 18.000 Hz / Mic: 60 ÷ 10.000 Hz			
Signal / noise ratio	Mic: -65 dB; Aux: -73 dB	Mic: -65 dB; Aux: -72 dB	Mic: -66 dB; Aux: -70 dB	Mic: -65 dB; Aux: -70 dB
Inputs: Micro.	2 balanced	5 balanced	5 balanced	5 balanced
Aux.			2 balanced	
Emergency			1 unbalanced	
Inputs sensitivity: Micro.			-60 dB	
Aux.			Adjustable between 150mV and 1V	
Emergency			0 dB	
POWER IN	775 mV (0 dB)			
Loudspeakers line output	100, 70, 50 V and 4,8,16 Ω			
Other outputs	PRE OUT: 775 mV (0 dB) / LINE OUT 775 mV			
Dimensions (mm)	430 (width) x 89 (height) x 250 (depth)	430 (width) x 89 (height) x 280 (depth)	430 (width) x 89 (height) x 290 (depth)	430 (width) x 89 (height) x 380 (depth)
Rack units	2			
Weight	6 kg	7.5 kg	9 kg	13 kg



AMPLIFIERS

A-5120AV / A-5240AV



The A-5120AV and A-5240AV amplifiers include two slots for two optional sound sources (TM-4, CD-4 or CP-2 models) and can function as a small sound system central, ideal for simple installation of up to 120 W RMS and 240 W RMS respectively.

Besides two optional sound sources -radio, cassette or compact-disc- this series also admits four balanced microphones, an additional external sound source and an emergency audio signal (TEL).

They also include a selector for 2 loudspeakers zones.

They include a paging priority function, activated by an audio signal detection in the MIC1 input, which attenuates the current signals in the rest of inputs except the Emergency one (TEL). They also include a selector for 2 loudspeakers zones.

This series also admits phantom supply, configurable for each microphone and gong input (optional).

A paging security function can be added by means of the optional external **MPP-01** relay module.

SPECIFICATIONS

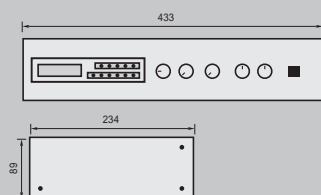
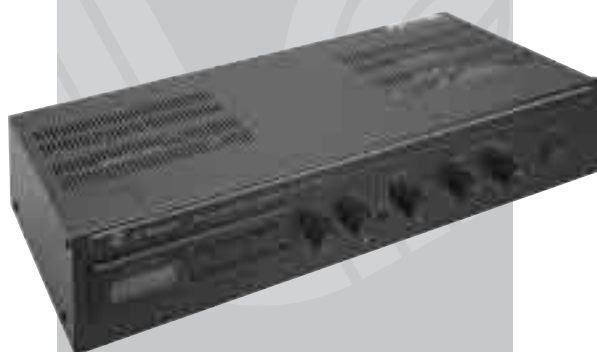
A-5120AV

A-5240AV

Power supply	230 V.a.c., 50 ÷ 60 Hz; Battery: 24 V.d.c.	
Output power	120 W RMS	240 W RMS
Outputs	Loudspeakers: 8 Ω, 100 V, 70 V and 25 V; Line: 600 Ω, 1 V MOH: 8 Ω, 1 W / 600 Ω, 1 V balanced	
Inputs:		
Micro.	Mic1, Mic2, Mic3, Mic4: 250 Ω, 1 mV, balanced with phantom option	
Aux.	47 kΩ, 200 mV, unbalanced	
Emergency	0,1 to 1 V, 600 Ω, adjustable, balanced	
Frequency response (± 3 dB)	60 ÷ 15.000 Hz	
Priorities	Mic1 over the rest of inputs, except the Emergency one (TEL), with activation per level (VOX)	
Tone control	Bass and treble; ± 10 dB at 100 Hz and 10 kHz	
Dimensions (mm)	430 (width) x 88 (height) x 300 (depth)	430 (width) x 88 (height) x 385 (depth)
Sound sources	TM-4 Tuner and CP-2 cassette player or CD-4 compact-disc player (optional)	
Weight	10 kg	13 kg

AMPLIFIERS

A-4030M2 / A-4060M2



The A-4030M2 and A-4060M2 amplifiers of 30 and 60 W RMS power rating, are versatile equipment providing the same functions as a complete central for P.A. system basic installations. The corresponding models of 120 and 240 W RMS are the A-5120AV and A-5240AV.

With possibility of inserting a sound source unit –radio, cassette or compact-disc player –, they admit 2 balanced microphones and 1 additional external sound source.

Their priority paging function, which is activated when an audio signal is detected in the Mic 2 input, attenuates the current signals in the rest of inputs.

The plug-in and optional music source units are the following:

TM-4: Radio tuner AM-FM with 6 pre-settings memories

CP-2: Auto-reverse cassette player

CD-4: Compact-disc player compatible with MP3 format

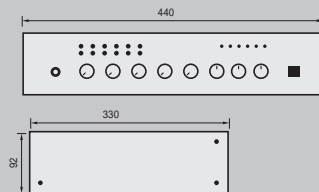
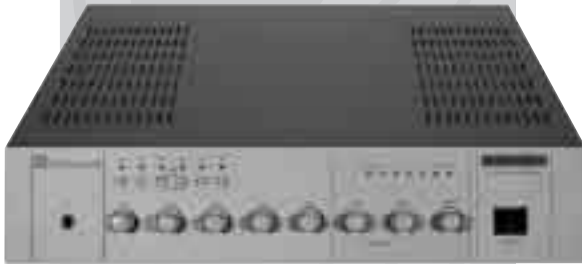
Optional functions may be added to these amplifiers series, such as:

- Microphone connection with phantom supply through internal electronic circuit.
- Security paging relay through module **MPP-01**.

SPECIFICATIONS

	A-4030M2	A-4060M2
Power supply	220 ÷ 240 V.a.c., 50 ÷ 60 Hz; Battery: 24 V.d.c.	
Output power	30 W RMS	60 W RMS
Outputs	Loudspeakers: 8 Ω, 100 V, 70 V; Line: 600 Ω, 1 V	
Total Harmonic Distortion	< 2% at nominal power	
Inputs: Micro.	Mic 1, Mic 2: 600 W, 1,5 mV; balanced. SNR > 60 dB	
Aux.	Aux 1, Aux 2: 47 kW, 100 mV; unbalanced. SNR > 75 dB	
Sound sources	Optional, 1 tuner TM-4, 1 cassette player CP-2 or 1 compact disc player CD-4	
Frequency response (± 3 dB)	60 ÷ 15.000 Hz	
Priorities	Mic 2 over the rest of inputs, with activation per level	
Tone control	Bass and treble; ± 10 dB at 100 Hz and at 10 kHz	
Dimensions (mm)	433 (width) x 89 (height) x 234 (depth)	
Weight	6 kg	8 kg





The A-5240Z6 amplifier makes up a small Public Address central, suitable for basic installations that require a power of less than 240 W RMS.

This amplifier has 3 micro inputs, 2 auxiliary inputs and 1 auxiliary output to allow the interconnection with other equipment. It is also provided of a 6 zones distribution in a 100 V line.

It has a priority paging function, which is activated by the detection of audio signal on the Mic 1 frontal input, which attenuates the present signals in the rest of inputs.

It has a short-circuit protection with alarm.

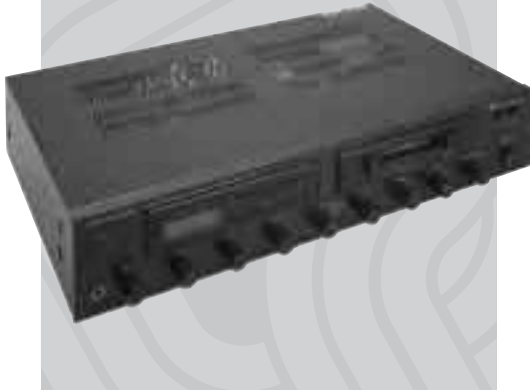
SPECIFICATIONS

A-5240Z6

Power supply	220 ÷ 240 V.a.c., 50 ÷ 60 Hz
Consumption	480 VA
Nominal power rating (RMS)	240 W
Total Harmonic Distortion	< 0,3 % at 1 kHz, 1/3 nominal power
Frequency response (± 3 dB)	100 ÷ 16.000 Hz
Signal / noise ratio	Mic 1, Mic 2, Mic 3: ≥ 66 dB ; Aux 1, Aux 2: ≥ 70 dB
Inputs	Mic 1, Mic 2, Mic 3: 600 Ω, 6 mV (unbalanced)
Aux.	Aux 1, Aux 2: 10 kΩ, 250 mV, (unbalanced)
Outputs	Loudspeakers: 4-16 Ω, 100 V, 70 V; Line: Aux: 600 Ω, 1 V
Priorities	Mic 1 over the rest of inputs, with activation by level (VOX)
Mute function	0 to -30 dB
Tone controls	Bass and treble; ± 10 dB at 100 Hz and at 10 kHz
Dimensions (mm)	440 (width) x 92 (height) x 330 (depth)
Weight	14.5 kg
Finishing	Light grey
Accessories	Rack mounting brackets

AMPLIFIERS

A-5030M2 / A-5230M2



The A-5030M2 amplifier has 2 built-in sound source modules and can be used as a small P.A. system central, especially in the basic installations which do not require more power than 30 W RMS.

Besides the 2 sound sources (radio, cassette or compact-disc player), this amplifier admits 4 balanced microphones, 1 additional and external sound source and 1 emergency audio signal unit (TEL).

It also includes a priority paging function, which is activated when an audio signal is detected in the Mic. 1 input, attenuating simultaneously the signals existing in the rest of inputs.

These models are equipped with a two-zone selector.

A security paging function can be added by connecting a relay module **MPP-01**.

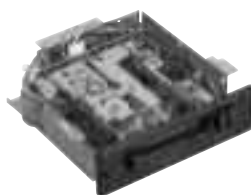
SPECIFICATIONS

A-5030M2

A-5230M2

Power supply	220 ÷ 240 V.a.c., 50 ÷ 60 Hz; Battery: 24 V.d.c.
Output power	30 W RMS
Total Harmonic Distortion	< 1% at 1 kHz
Outputs	Loudspeakers: 8 Ω, 25 V, 70 V, 100 V; Line: 600 Ω, 1 V; 8 Ω, 1 W / 600 Ω, 1 V balanced
Inputs: Micro.	Mic. 1, Mic. 2, Mic. 3, Mic. 4: 250 Ω, 1 mV, balanced with "phantom" option. SNR > 60 dB
Aux.	47 kΩ, 200 mV, unbalanced. SNR > 70 dB
Sound sources	Tuner TM-4 and cassette player CP-2 Tuner TM-4 and compact disc player CD-4
Telephone	From 0,1 to 1 V, 600 Ω, adjustable, balanced
Frequency response (± 3dB)	60 ÷ 15.000 Hz
Priorities	Mic. 1 over the rest of inputs, except the telephone one, with activation per level
Zones selector	1 direct output + 2 switched outputs
Tone control	Bass: + 10 dB at 100 Hz and treble: + 10 dB at 10 kHz
Dimensions (mm)	433 (width) x 89 (height) x 300 (depth)
Weight	7 kg

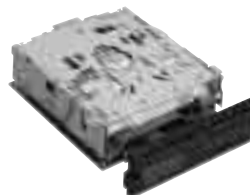
SOUND SOURCES ELEMENTS



CP-2 is a cassette-player module with reproduction controls, automatic auto-reverse function as wells as fast-forward and rewind.

CP-2

Frequency resp. (± 4 dB)	125 ÷ 6.300 Hz
Signal / noise ratio	≥ 40 dB
Distortion	≤ 3%
Tape speed	4,8 cm/s ≤ +3%, ≤ -2%
Wow & flutter	≤ 0,45%
Audio level	500 mV (adjustable)



CD-4 is a CD/MP3 player with digital screen, digital functions of fast forward, rewind, play, pause, stop, repeat, random selection and programming.

CD-4

Signal / noise ratio	> 80 dB
Distortion	< 0,1%
Audio level	850 mV



TM-4

TM-4 is a radio tuner module in AM and FM bands. It includes memory for 5 radio stations, band selection, tuning and automatic station search.

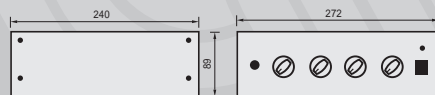
FM	
Audio level	1 V (adjustable)
FM Band	87,5 ~ 108 MHz
Distortion	≤ 1%
Sensitivity	≤ 2μV
Signal / noise ratio	≥ 63 dB
Frequency resp.	30 ÷ 15.000 Hz

AM	
AM Band	522 ~ 1.620 kHz (UE)
Distortion	≤ 1 %
Sensitivity	≤ 30 μV



AMPLIFIERS

A-2010 / BS-12



Easy to operate and cost-effective amplifier, designed for small sound reinforcement installations. Power supply at 12 V.d.c. battery or mains. In addition to the rear inputs, it has a frontal 6.35 mm jack connector for a paging microphone. Separate Bass & Treble controls.

A-2010

Power supply	230 V.a.c., 50 ÷ 60 Hz; Battery: 12 V.d.c.
Output power	10 W RMS at 8 Ω
Outputs	Loudspeakers: 8 Ω, 100 V, 70 V / line
Total Harmonic Distortion	< 3% (at nominal power)
Inputs : Micro.	Mic 1, Mic 2: 600 Ω, 1'5 mV, balanced. SNR > 60 dB
Aux.	Aux 1, Aux 2: 47 kΩ, 100 mV, unbalanced. SNR > 75 dB
Frequency response (± 3 dB)	30 ÷ 15.000 Hz
Priorities	Mic 2 over the rest of inputs with activation per level
Tone controls	Bass and treble, ±10 dB at 100 Hz and 10 kHz
Dimensions (mm)	272 (width) x 89 (height) x 240 (depth)
Weight	3 kg



Lightweight and compact battery amplifier. Power supply at 12 V.d.c. Special for use in cars or boats. It has built-in, two-mode warning siren (fog-siren) and it is equipped with separate volume controls for MIC. and AUX.

BS-12

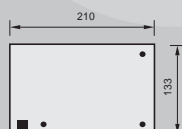
Power supply	12 V.d.c. (nominal 14,4 V.d.c.)
Consumption	< 3 A at maximum power
Output power	15 W RMS at 4 Ω
Output impedances	4 to 16 Ω
Inputs: Micro.	600 Ω, 3,5 mV (± 1 dB)
Aux.	10 kΩ, 85 mV (± 1 dB)
Siren	By frontal selector, electronic tone
Fog	By frontal selector, electronic tone
Accessories	Mounting brackets, screws, nuts and power cables
Dimensions (mm)	152 (width) x 40 (height) x 140 (depth)
Weight	0.7 kg

AMPLIFIERS



SELECTION AND SWITCHING MODULES

MS-L Series



The models MS-12L and MS-24L are supplied with All Call push-button, which selects all the outputs to channel "II" to facilitate emergency paging calls. These models are designed to allow loudspeaker lines switching and to allow zone activation externally.

They are provided with a selection card for every three zones, as well as with a general switching card that includes a stabilized power supply. Each one of these cards has a channel "I" and a channel "II" input, connected to the terminals corresponding to the general connection card. When more than one amplifier per channel is required, they can be connected directly on the switching cards. They have one contact for each selection control input, and three output contacts for each line (+, S, -C), to allow the connection of attenuators with security paging devices.

All the models are provided with an interdiction contact which, as it joins to the ground, cancels all selections made. In standby, the selected channel to each output is "Y", and it is advisable to use this channel for background music.

They have a stabilized 24 V.d.c. output to supply accessory elements.

Their modular design, based on three outputs cards, allows to configure the loudspeakers zones according to the installation size.

- The MS-12L model includes 4 cards C-612RAL of 3 zones (a total of 12 zones).
- The MS-24L model includes 8 cards C-612RAL of 3 zones (a total of 24 zones).
- The MS-L/0 is the empty frame which can admit up to 8 cards C-612RAL of 3 zones.

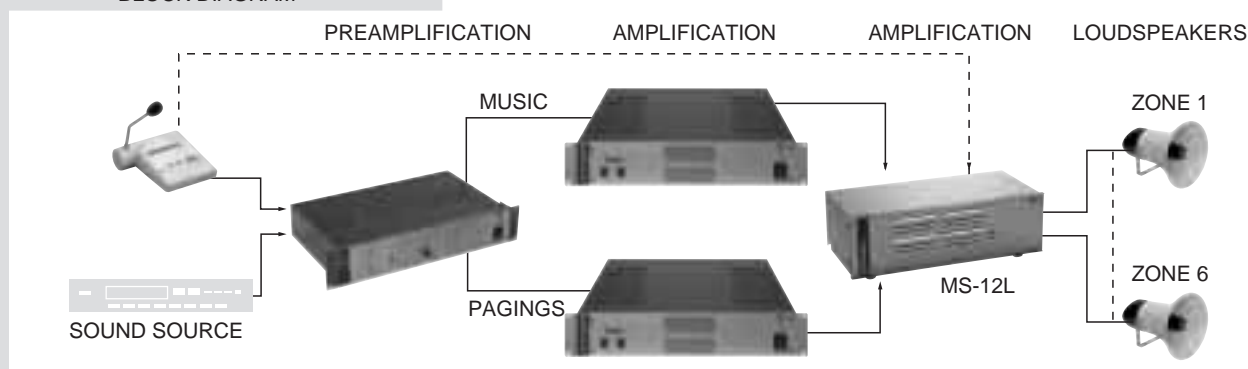
MS-12L

MS-24L

Power supply	230 V.a.c., 50 ÷ 60 Hz	
24 V source output intensity	1 A maximum (for accessory elements supply)	
Maximum power for zone (100 V)	500 W	
Number of zones	12	24
Push-buttons	13 (1 per zone and 1 All Call)	25 (1 per zone and 1 All Call)
Included cards	4 x C-612RAL	8 x C-612RAL
Cards channels	1 music amplifier and 1 pagings amplifier	
Maximum nº of music amplifiers	4	8
Maximum nº of pagings amplifiers	4	8
All call	Included	
Selection	By remote contact or front push-button switch-off	
Security pagings	Included, combined with AV series attenuators	
Rack units	3	
Dimensions (mm)	433 (width) x 133 (height) x 210 (depth)	
Weight	5.4 kg	6.6 kg

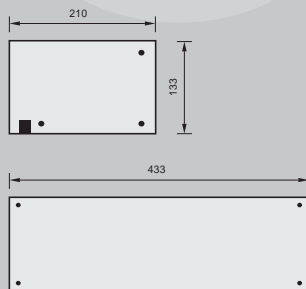
Mounting brackets included, MS-L/0 supplied without C-612RAL card.

BLOCK DIAGRAM



SWITCHING MODULES

MC-L Series



These models are designed to allow loudspeaker lines switching and allow zone activation externally. They are provided with a selection card for every three zones, and a general switching card that includes a stabilized power supply. Each one of these cards has a channel "I" and a channel "II" input, connected to the terminals corresponding to the general connections card. When more than one amplifier per channel is required, they can be connected directly on the switching cards. They have one contact for each selection control input, and three output contacts for each line (+, S, -C), to allow the connection of attenuators with security paging devices.

All the models are provided with an interdiction contact which, as it joins to the ground, cancels all selections made. In standby, the selected channel to each Output is "Y", and it is advisable to use this channel for background music.

They have a stabilized 24V.d.c. output to supply accessory elements.

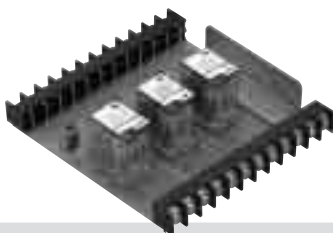
Their modular design, based on three outputs cards, allow to configure the loudspeakers zones according to the installation size.

- The MC-12L model includes 4 cards C-612RAL of 3 zones (a total of 12 zones)
- The MC-24L model includes 8 cards C-612RAL of 3 zones (a total of 24 zones)
- The MC-L/0 is the empty frame which can admit up to 8 cards C-612RAL of 3 zones.

SPECIFICATIONS

	MC-12L	MC-24L
Power supply	230 V.a.c., 50 ÷ 60 Hz	
24 V source output intensity	1 A maximum (for accessory elements supply)	
Maximum power for zone (100 V)	500 W	
Number of zones	12	24
Included cards	4 x C-612RAL	8 x C-612RAL
Channels inputs	1 music amplifier and 1 pagings amplifier	
Maximum nº of music amplifiers	4	8
Maximum nº of pagings amplifiers	4	8
Selection	By remote contact	
Security pagings	Included, combines with the AV series attenuators	
Dimensions (mm)	433 (width) x 133 (height) x 210 (depth)	
Weight	5.3 kg	6.5 kg

They occupy 3 units of height in the Rack (133 mm). Mounting brackets included. MC-L/0 supplied without C-612RAL card.

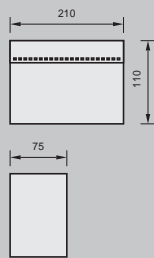


C-612RAL CARD

Each C-612RAL card has switching circuits which can work independently. This way, one unit MC-24L or MS-24L can have up to 8 music amplifiers and 8 pagings amplifiers connected.

SWITCHING MODULES

MC-L Series

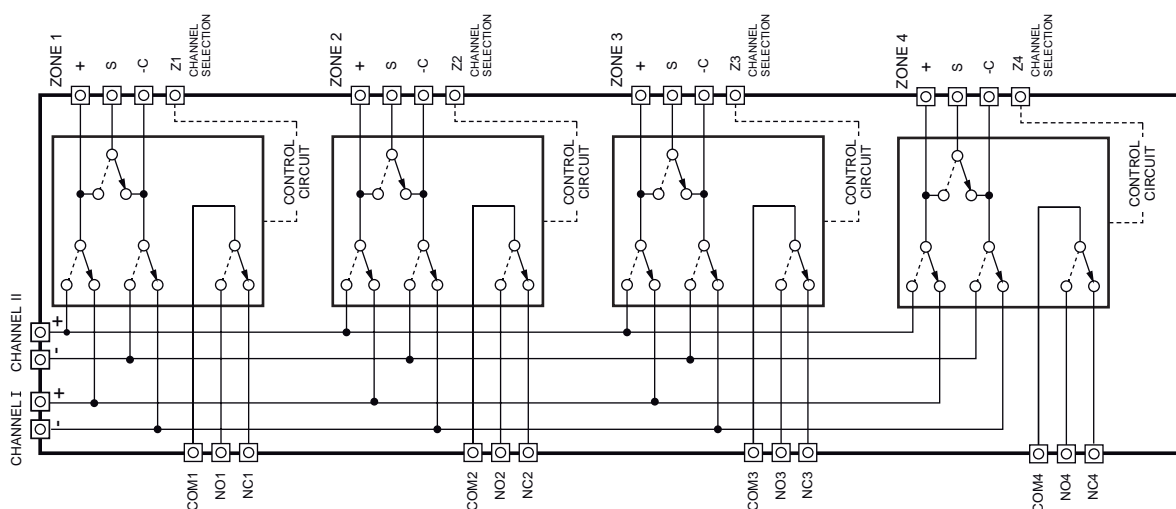


The MC-4L is a 4 zone loudspeakers lines switching module, with channel "I" and channel "II" Inputs. In standby condition each zone is connected to the channel I. It is advisable to use this channel as a background music one. Connecting to ground the channel selectors Z1 to Z4, the Output is routed to the channel II. Each Output has three connections (+, S, -C), for the activation of the security paging function in those installations with attenuators. The module is also supplied with auxiliary contacts (NC, NO), for the control of accessory devices.

MC-4L

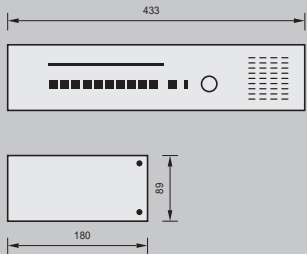
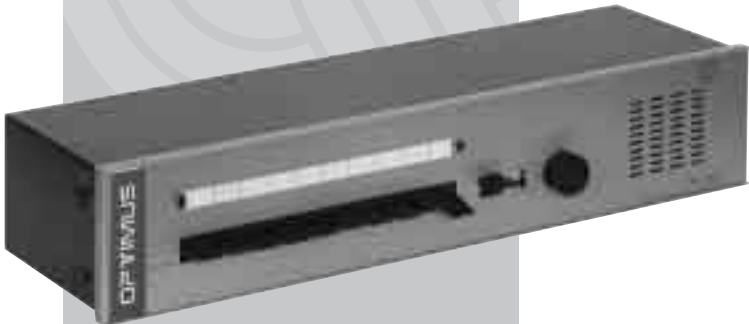
Power supply	24 V.d.c.
Maximum power for zone (100 V)	500 W
Number of zones	4
Channels	2 (music / pagings)
Selection	By contact
Security pagings	Included, it combines with the AV series attenuators
Max. Consumption	220mA
Dimensions (mm)	150 (width) x 110 (height) x 75 (depth)
Weight	0.585 kg
Format	46277 & 50022 DIN rail

BLOCK DIAGRAM



LINES SELECTOR

SL-104



Selector for 10 zones or loudspeaker lines.

Capacity for connection to two amplifiers, one for background music and the other for announcements. Options for announcing messages on the line or lines selected, without interrupting the background music on the others.

Contains a monitor loudspeaker with volume control and switch. The lines switch are prepared for priority override, when the installation has attenuator boxes models AV-4, AV-40 or AV-100.

Occupies 2 units of height in the rack (89 mm). Mounting brackets are included.

SPECIFICATIONS

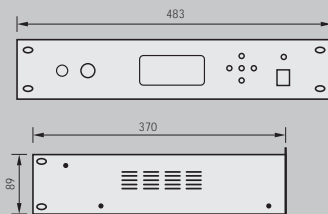
	SL-104
Number of zones	10
Amplifiers	1 music and 1 pagings
Monitor loudspeaker	Included, with volume control
Security paging	Included, to be combined with the AV series attenuators
Rack units	2
Dimensions (mm)	433 (width) x 89 (height) x 180 (depth)
Weight	2 kg



AUDIO MATRIX

A-2716

8 x 8 Audio Matrix, with 8 independent inputs and outputs plus an additional input for the priority alarm function and another one with microphone independent preamplifier. Assignment of channels by means of push-buttons in the front panel and digital display. Contact Inputs for priority alarm activation. Switch off with memory effect.



SPECIFICATIONS

A-2716

Power Supply	110 ÷ 120 / 220 ÷ 240 V.a.c., 50 ÷ 60 Hz
Consumption	< 10 W
Output Signal Level	Auxiliar (same as in the input)
Frequency response	20 Hz ÷ 20.000 kHz
Activation of Contacts	By Positive 5~24 Vdc; By Negative 0 V.d.c.
Dimensions (mm)	483 (width) x 89 (height) x 370 (depth)
Weight	6.5 kg



DIGITAL FEEDBACK SUPPRESSOR

LS-320



The LS-320 processor reduces the acoustic feedback, produced by the close distance between a loudspeaker and a microphone.

The functioning principle of this equipment is based on a frequency shifting between the input and the output signals, so that feedback is delayed, enabling an equivalent power increase of approx. 10 dB.

Two-channel, ultra-high resolution Feedback suppressor with built-in parametric equalizer. With 24-bit A/D and D/A converters and 64/128 times over-sampling, it has 24 fully programmable parametric filters that can be set manually or via MIDI. Each filter provides single-shot, auto and manual modes. In manual mode the unit allows

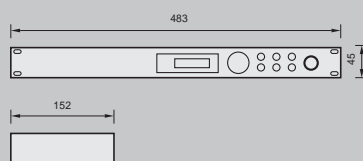
setting 2x12 parametric filters, including frequency, bandwidth and gain.

Its 24-bit ultra high performance DSP processor guarantees signal's resolution and dynamic range, automatically searching and destroying up to 12 frequencies per channel. Its convenient setting enables immediate and easy feedback destroyer performance, through the single-shot mode that automatically searches and destroys feedback and locks the filter until manually reset.

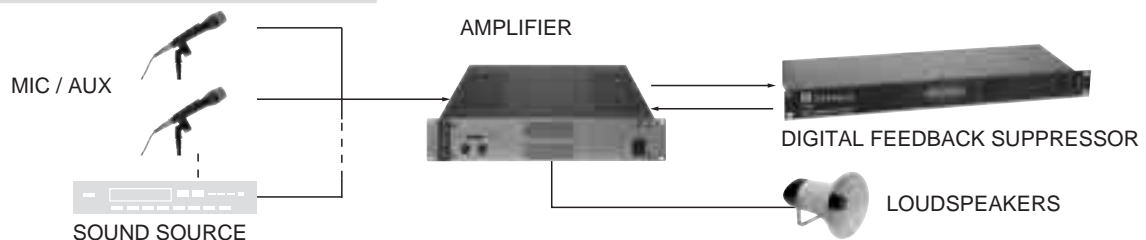
The LS-320 is fitted with back-lit 2x16 digital numeric LCD display, switch with delay and anti-clipping and noise gate functions. In manual mode the unit allows setting 2x12 parametric filters, including frequency, bandwidth and gain.

LS-320

Power supply	110 / 230 V.a.c., 50 ÷ 60 Hz
Consumption	10 W
Inputs	Analog, with XLR and 1/4" jack connectors; RF filtered, servo-balanced, 20 kΩ unbalanced
Outputs	Analog, with XLR and 1/4" jack connectors; Electronically servo-balanced output stage
Inputs impedance	40 kΩ balanced, 20 kΩ unbalanced
Outputs impedance	66 Ω balanced, 33 Ω unbalanced
Inputs nominal operating level	- 20 dB to + 4 dB
Maximum input level	+ 16 dB at + 4 dB nominal level, + 2 dB at -20 dB at nominal level
Maximum output level	+ 16 dB at + 4 dB nominal level, + 2 dB at -20 dB at nominal level
Bandwidth	20 ÷ 20.000 Hz
Noise	98 dB, weighted, 20 ÷ 20.000 Hz
Total Harmonic Distortion	0,0065% typ. at + 4 dB, 1 kHz, gain 1
Crosstalk	- 95 dB, 20 ÷ 20.000 Hz
MIDI interface	5-Pin-DIN-Socket IN/OUT/THRU
Dimensions (mm)	483 (width) x 45 (height) x 152 (depth)
Weight	3 kg



BLOCK DIAGRAM

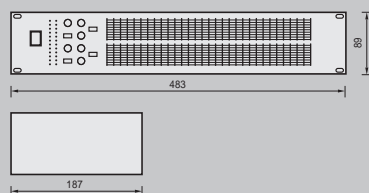


DIGITAL FEEDBACK SUPPRESSOR



PROFESSIONAL GRAPHIC EQUALIZER (2 x 31 bands)

EQ-150



Dual channel -31 band- graphic equalizer. With 1/3 octave filter and Constant-Q filters, this unit allows 20 Hz to 20 kHz effective equalization range. Hi-cut (2.5 kHz to 30 kHz) and Low-cut (10 Hz to 400 Hz) frequency adjustable filters allow for the most effective speech equalization and also for the cancellation of the low frequencies that generate the most disturbing echoes and reverberations.

Fitted with XLR connectors, the unit allows for balanced-unbalanced modes, adjusting therefore to the needs of each particular application.

SPECIFICATIONS

EQ-150

Power supply	230 V.a.c., 50 ÷ 60 Hz	
Consumption	12 W	
Frequency response (± 1 dB)	20 ÷ 20.000 Hz	
Signal/Noise Ratio	> - 95 dBu, unweighted, 22 ÷ 22.000 Hz	
Total Harmonic Distortion	0,002 % typ. at 20 ÷ 20.000 Hz	
Gain	- 15 to + 15 dB	
EQ range	- 12 to + 12 dB or - 6 to + 6 dB (switch control)	
Hi-cut filter	2'5 to 30 kHz	
Low-cut filter	10 to 400 Hz	
Output indicators	12 segment high accurate LEDs; -30 -24 -18 -12 -6 -3 0 +3 +6 +9 +12 CLIP dB	
Audio inputs	Type	Balanced and unbalanced with XLR and 1/4" Jack connectors
	Impedance	20 kΩ, balanced
	Nominal level	0 dBV (1 V RMS)
	Maximum level	+ 18 dBu (8 V RMS)
Audio outputs	Type	Balanced and unbalanced with XLR and 1/4" Jack connectors
	Impedance	660 Ω balanced
	Nominal level	0 dBV (1 V RMS)
	Maximum level	+ 18 dBV unbalanced, + 24 dBV balanced
Dimensions (mm)	483 (width) x 89 (height) x 187 (depth)	
Weight	3.54 kg	



SOUND SOURCES

MM-CDT

The MM-CDT model is a mainframe of 1 unit high for 19" racks with two built-in sound sources, a CD-4 compact-disc player unit (audio CD / compatible with MP3 format) and a TM-4 AM/FM tuner unit.

The compact-disc player module includes fast track search, fast forward and rewind within the tracks and pause functions. The tuner module includes memory for 10 radio stations, band selection, tuning and automatic station search functions.

This mainframe has independent outputs for each sound source, including level adjustment, and one mixed output.



SPECIFICATIONS

RADIO TUNER

Frequency range	FM: 87,5 ÷ 108 MHz; AM: 522 ÷ 1620 kHz
Sensitivity	FM: 2 microV (26 dB S/N); AM: 30 microV (20 dB S/N)
Frequency response	30 ÷ 15.000 Hz (+1 / -3 dB)
Distortion	< 1 %
Signal / noise ratio	> 63 dB (1 mV, FM)
Audio level	500 mV (adjustable)

CD PLAYER

Distortion	< 0,1 %
Signal / noise ratio	> 80 dB
Audio level	850 mV (adjustable)

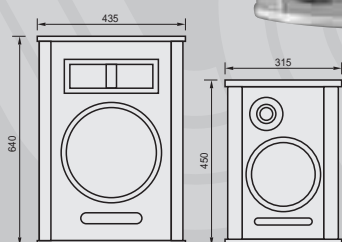
SOUND SOURCES



TWO-WAY PROFESSIONAL SPEAKERS

AR Series

AR-02



AR-01



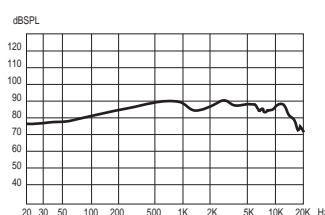
Compact, modern looking, two-way bass-reflex loudspeaker systems family, designed for sound reinforcement and public address installations in indoor environments. AR-01 is equipped with a 8" woofer and a 1" dome tweeter and has a RMS power rating of 100 W; AR-02 comes with a 12" woofer and a horn type tweeter and has a RMS power of 150 W. Their size, design and specifications, with a high efficiency, make them very appropriate for using in music bars, shopping malls, churches, theatres, pubs, ballrooms, sport halls, airports, etc., where is required a high SPL with a Hi-Fi sound coverage. AR-02 is equipped with transport handles.

The AR-01 model may be mounted on the SS-3 telescopic floorstand.

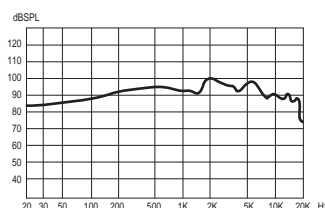
SPECIFICATIONS

	AR-01	AR-02
Loudspeakers	Bass: 1 x 8"; Treble: 1 x 1"	Bass: 1 x 12"; Treble: 1 x Ti 35
Power (RMS)	8 Ω : 100 W; 100 V: 100 W	8 Ω : 150 W; 100 V: 150 W
Impedance / Line	8 Ω / 100 V	8 Ω / 100 V
Music power	8 Ω : 200 W; 100 V: 100 W	8 Ω : 300 W; 100 V: 300 W
Frequency response	8 Ω : 50 ÷ 20.000 Hz	8 Ω : 45 ÷ 20.000 Hz; 100 V: 45 ÷ 16.000 Hz
Sensitivity (1 kHz) (SPL)	92 dB (1W, 1m)	99 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	112 dB (100 W, 1 m); 115 dB (200 W, 1 m)	120 dB (150 W, 1 m); 123 dB (300 W, 1 m)
Crossover frequency	4,2 kHz	3,6 kHz
Dimensions (mm)	315 (width) x 450 (height) x 260 (depth)	435 (width) x 640 (height) x 400 (depth)
Finishing	Silver-plated wood, metallic grill	Silver-plated wood, metallic grill
Weight	11 kg	27 kg

AR-01



AR-02



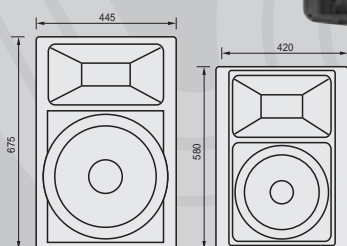
FREQUENCY RESPONSE



TWO-WAY PROFESSIONAL SPEAKERS

DK Series

DK-1502



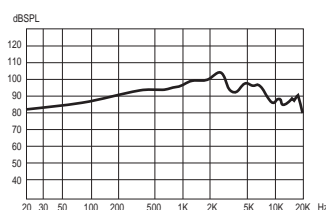
DK-1202

Family of plastic injected two-way bass-reflex loudspeakers, suitable for both indoor and outdoor use. They are equipped with a 12" woofer (DK-1202) and a 15" woofer (DK-1502), and a horn type tweeter. Their size, design and specifications, with a RMS power of 200 W and 225 W respectively and with a remarkably high SPL, make them specially appropriate for all sorts of outdoor installations in places like open air bars, fair ground attractions, open air dancing areas, sport stadiums, etc. The units are fitted with transport handles in both sides.

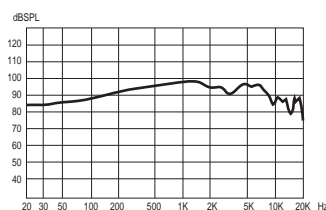
SPECIFICATIONS

	DK-1202	DK-1502
Loudspeakers	Bass: 1 x 12"; Treble: 1 x Ti 35	Bass: 1 x 15"; Treble: 1 x Ti 35
Power (RMS)	8 Ω : 200 W; 100 V: 150 W	8 Ω : 225 W; 100 V: 150 W
Impedance / Line	8 Ω / 100 V	8 Ω / 100 V
Music power	8 Ω : 400 W; 100 V: 300 W	8 Ω : 450 W; 100 V: 300 W
Frequency response	8 Ω : 45 \div 20.000 Hz; 100 V: 45 \div 16.000 Hz	8 Ω : 42 \div 20.000 Hz; 100 V: 42 \div 16.000 Hz
Sensitivity (1 kHz) (SPL)	99 dB (1 W, 1 m)	99 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	120 dB (150 W, 1 m) (100 V) 122 dB (200 W, 1 m) (8 Ω)	120 dB (150 W, 1 m) (100 V) 123 dB (225 W, 1 m) (8 Ω)
Dimensions (mm)	420 (width) x 580 (height) x 310 (depth)	445 (width) x 675 (height) x 350 (depth)
Finishing	Plastic, black colour	Plastic, black colour
Remark	Suitable for outdoor use	Suitable for outdoor use
Weight	22 kg	25 kg

DK-1202



DK-1502



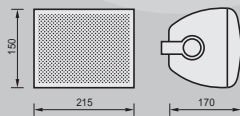
FREQUENCY RESPONSE

TWO-WAY PROFESSIONAL SPEAKERS



TWO-WAY SPEAKERS

BS Series



This series of two-way loudspeakers have respective 20 W and 40 W power rating for 100 V line, and are especially appropriate for background music in shops, restaurants, shopping malls, conference rooms etc. Their trapezoid design allows for an excellent radiation angle and easy installation.

They include a 4" polypropylene loudspeaker for low and medium frequencies and a 1" tweeter for high frequencies.

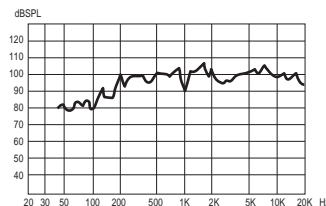
Their built-in "U" shaped swivel mounting bracket helps to orient the loudspeakers to the suitable direction and they include a rotating switch for the power selection in 100 V line. They can also be connected directly in low impedance (8 Ohms).

They are available in black colour (BS-20BA and BS-40BA) or in white colour (BS-20WA and BS-40WA).

SPECIFICATIONS

	BS-20BA	BS-40BA
Loudspeaker	1 x 4" and 1 tweeter	1 x 6" and 1 tweeter
Power (RMS)	20 W	40 W
Impedances	250, 500, 1k, 2k, 4k and 8 Ω	125, 250, 500, 1k, 2k and 8 Ω
100 V line	20, 10, 5 and 2'5 W	40, 20, 10 and 5 W
70 V line	20, 10, 5, 2'5 and 1'25 W	40, 20, 10, 5 and 2'5 W
Power selector	Rotating switch	Rotating switch
Frequency response	100 \div 20.000 Hz	70 \div 20.000 Hz
Sensitivity (1 kHz) (SPL)	89 dB (1 W, 1 m)	88 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	102 dB (20 W, 1 m)	104 dB (40 W, 1 m)
Dimensions (mm)	170 (width) x 215 (height) x 150 (depth)	215 (width) x 284 (height) x 190 (depth)
Weight	2.2 kg	3.5 kg
Finishing	BS-20WA: ABS, in white colour BS-20BA: ABS, in black colour	BS-40WA: ABS, in white colour BS-40BA: ABS, in black colour
Accessories	"U" shaped mounting bracket	"U" shaped mounting bracket

FREQUENCY RESPONSE

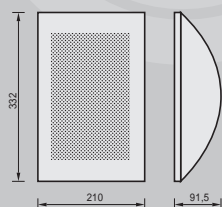


WALL SPEAKERS

WSP Series

This two-way speakers series with wide frequency range have respective power of 20 and 50 W RMS.

With modern and attractive outlook, these loudspeakers are suitable for background music installations in shopping malls, fashion shops, offices, etc., supplying at same time a suitable SPL for paging diffusion.

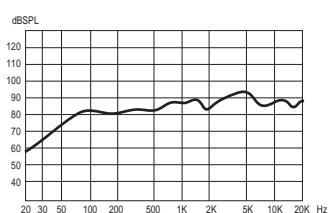


These loudspeakers are injected with V0 fire rated ABS, according to UL-94 safety norm.

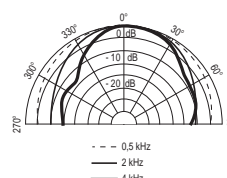
SPECIFICATIONS

	WSP-4200R	WSP-4500R
Loudspeakers	1 x 4" and 1 tweeter	1 x 4" and 1 tweeter
Power (RMS)	20 W	50 W
Impedances	250 Ω, 500 Ω, 2 kΩ, 3 kΩ and 4 kΩ	100 Ω, 200 Ω, 400 Ω, 800 Ω and 8 Ω
100 V line	20, 10, 5 and 2'5 W	50, 25, 12'5 W and 8 Ω
Frequency response	100 ÷ 20.000 Hz	100 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	86 dB (1 W, 1 m)	86 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	99 dB (20 W, 1 m)	103 dB (50 W, 1 m)
Radiation angle	145°	145°
Protection range	IP-40	IP-40
Dimensions (mm)	210 (width) x 332 (height) x 91.5 (depth)	210 (width) x 332 (height) x 91.5 (depth)
Weight	1.95 kg	2.4 kg
Finishing	Body in ABS (UL 94V0) with metallic grill	Body in ABS (UL 94V0) with metallic grill
Colour	White (RAL 9016)	White (RAL 9016)

FREQUENCY RESPONSE



POLAR DIAGRAM

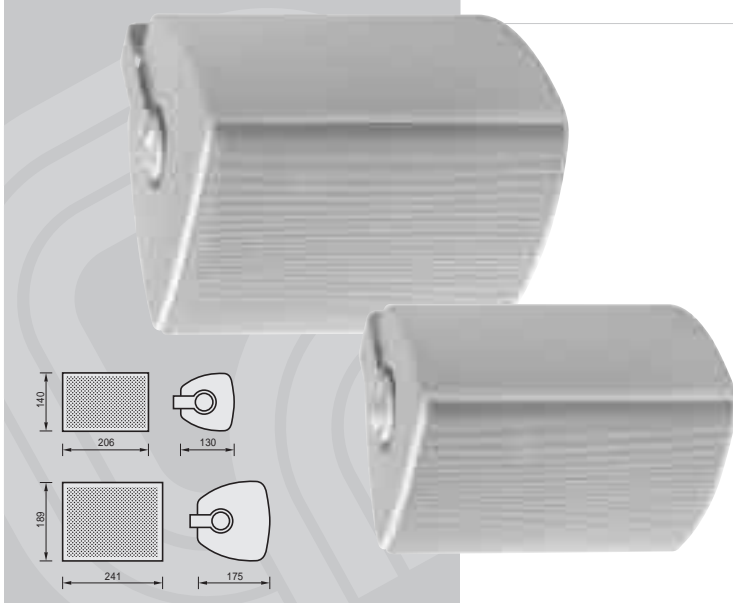


WALL SPEAKERS



WALL SPEAKERS

CAL Series



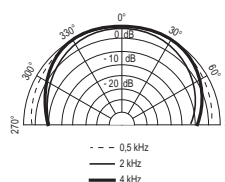
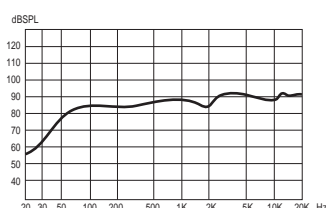
This series of two-way loudspeakers have respective 15 W and 30 W power rating for 100 V line, and are especially appropriate for background music in shops, restaurants, shopping malls, etc.

Their modern but discreet outlook make them blend perfectly in all sorts of decoration styles. They are available in black colour (CAL-3150 and CAL-5300) and also in white colour (CAL-3150W and CAL-5300W). The built-in "U" shaped swivel mounting bracket helps to orient the loudspeaker to the suitable direction.

SPECIFICATIONS

	CAL-3150	CAL-5300
Loudspeakers	1 x 3,5" and 1 tweeter	1 x 5" and 1 tweeter
Power (RMS)	15 W	30 W
Maximum power	25 W	45 W
Impedances	667, 1k3, 2k6, 5k2 and 8 Ω	167, 333, 667, 1k3, 2k6 and 8 Ω
100 V line	15, 7'5, 3'75, 1'9 W and 8 Ω	30, 15, 7'5, 3'75 W and 8 Ω
70 V	7'5, 3'75, 1'9, 1 W and 8 Ω	15, 7'5, 3'75, 1'9 W, 8 Ω
Power selector	Switch	Switch
Frequency response	85 ÷ 25.000 Hz	75 ÷ 25.000 Hz
Sensitivity (1kHz) (SPL)	88 dB (1 W, 1 m)	89 dB (1 W, 1 m)
Sound pressure level (1kHz) (SPL)	100 dB (15 W, 1 m)	104 dB (30 W, 1 m)
Radiation angle	200° / 130°	190° / 125°
Protection range	IP-40 (IEC-529)	IP-40 (IEC-529)
Dimensions (mm)	206 (width) x 140 (height) x 130 (depth)	241 (width) x 189 (height) x 175 (depth)
Weight	1.81 kg	2.56 kg
Finishing	CAL-3150: Black polystyrene (RAL-9005); CAL-3150W: White polystyrene (RAL-9016)	CAL-5300: Black polystyrene (RAL-9005); CAL-5300W: White polystyrene (RAL-9016)
Accessories	"U" shaped mounting bracket	"U" shaped mounting bracket

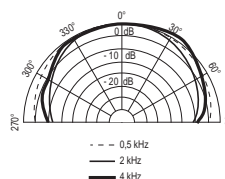
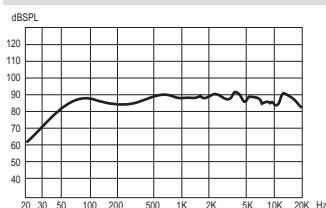
CAL-3500



FREQUENCY RESPONSE

POLAR DIAGRAM

CAL-5300



WALL SPEAKERS

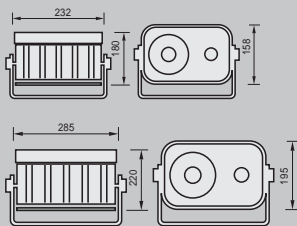
WCS Series



WCS-5300U/S



WCS-6500U

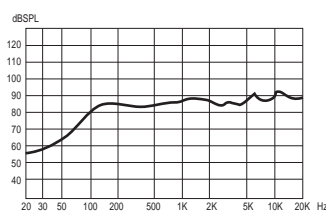


The WCS series Wall Speakers (WCS-5300U/S and WCS-6500U of 30 and 50 W respectively) are strong-built models, recommended for outdoor installations. They are perfectly damp and rainproof and offer a clear speech and music reproduction. They are usually installed in restaurants and bar terraces, shopping centre corridors or parkings.

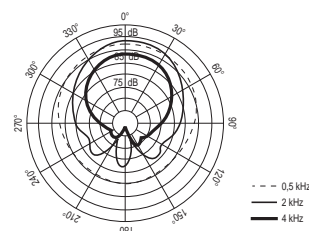
They include a 100 V line transformer, various power tapplings and direct connection in low impedance of 8 Ω . They are also supplied with a standard swivel bracket for wall or ceiling mounting.

	WCS-5300U/S	WCS-6500U
Loudspeakers	1 x 5" and 1 x 1" (tweeter); Bass reflex enclosure	1 x 6" and 1 x 1" (tweeter); Bass reflex enclosure
Power (RMS)	30 W	50 W
Maximum power	45 W	75 W
Impedances	333, 667, 1k3, 2k7 and 8 Ω	200, 400, 800, 1k6 and 8 Ω
100 V line	30, 15, 7'5, 3'75 W and 8 Ω	50, 25, 12'5, 6'3 W and 8 Ω
Frequency response	80 ÷ 20.000 Hz	70 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	87 dB (1 W, 1 m)	92 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	100 dB (30 W, 1 m)	109 dB (50 W, 1 m)
Protection range	IP-55 (IEC-529)	IP-55 (IEC-529)
Dimensions (mm)	232 x 158 x 180	285 x 195 x 220
Weight	2.7 kg	3.8 kg
Finishing	WCS-5300U/S: black ABS WCS-5300WU/S: white ABS	WCS-6500U: black ABS
Accessories	Metallic swivel mounting bracket	Metallic swivel bracket
Remarks	Weatherproof	Weatherproof

WCS-5300U/S

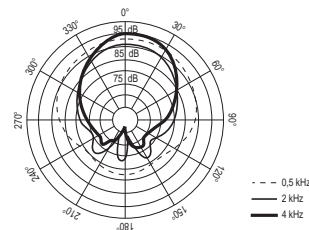
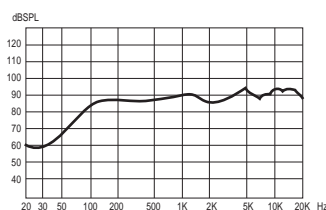


FREQUENCY RESPONSE



POLAR DIAGRAM

WCS-6500U

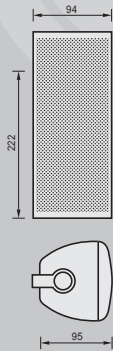


WALL SPEAKERS



TWO-WAY ACOUSTIC COLUMNS

C-710 / C-710VA



Two-way acoustic columns with 10 W RMS power rating in 100 V line and several intermediate power settings which can be selected by means of a switch. They include two loudspeakers: one of 3" and the other one of 2".

Due to their small shape, two ways and built-in speech filter, these models are adequate for speech applications when high intelligibility is required like in train stations or metro corridors for example. They can be dissimulated into wall lamps.

They are made of steel, in white colour (RAL 9003) and include an "L" shaped brackets for wall or ceiling mounting.

The C-710VA model includes, moreover, fire-resistant cables for power selection and is built according to the BS-5839, part 8 standard, making it suitable for VA (Voice Alarm) installations.

The use of these acoustic columns makes it possible to comply with the voice evacuation safety standards in force, BS-5839.

SPECIFICATIONS

	C-710	C-710VA
Loudspeakers	1 x 3" + 1 x 2"	
Power (RMS)	10 W	
Impedances	1k, 2k, 4k and 8 kΩ	1k, 2k and 4 kΩ
100 V line	10, 5, 25 and 1'5 W	10, 5 and 25 W
Power selector	By switch	By fire-resistant cables
Frequency response	170 ÷ 20.000 Hz	
Sensitivity (1 kHz) (SPL)	85 dB (1 W, 1 m)	
Sound Pressure Level (1 kHz) (SPL)	95 dB (10 W, 1 m)	
Radiation angle (1 kHz)	190° (H) x 150° (V)	
Speech filter	400 Hz	
Dimensions (mm)	94 x 222 x 95	
Weight	1.3 kg	
Finishing	Metal, in white colour (RAL 9003)	
Accessories	"L" shaped mounting brackets	"L" shaped mounting brackets
Remarks		Complies with the BS-5839, part 8, standard



TWO-WAY ACOUSTIC COLUMNS

C-740VA

Two-way acoustic column with 10 W RMS power rating in 100 V line and several intermediate power settings which can be selected by means of fire-resistant cables. It includes five loudspeakers: four of 3" and one of 2".

It offers a high sound quality, with an excellent speech reproduction even in premises with difficult acoustic conditions. Its acoustic pressure of 106 dB SPL at 40 W makes it also adequate for situations where high SPL is required.

The column is made of steel, in white colour (RAL 9003) and it includes "L" shaped brackets for wall or ceiling mounting.

This model is built, moreover, according to the BS-5839, part 8 standard, making it suitable for VA (Voice Alarm) installations.

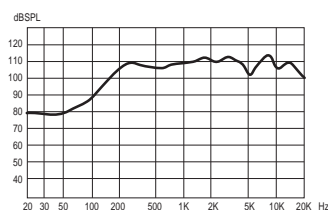
The use of this model makes it possible to comply with the voice evacuation safety standards in force, BS5839.



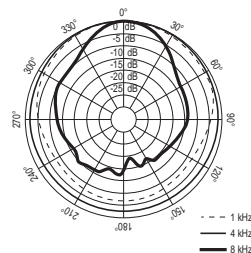
C-740VA

Loudspeakers	4 x 3" + 1 x 2"
Power (RMS)	40 W
Impedances	250, 500, 1k and 2k Ω
100 V line	40, 20, 10 and 5 W
Power selector	By fire-resistant cables
Frequency response	140 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	90 dB (1 W, 1 m)
Sound Pressure Level (1 kHz) (SPL)	106 dB (10 W, 1 m)
Radiation angle (1 kHz)	205 ° (H) x 85° (V)
Dimensions (mm)	94 x 469 x 95
Weight	2,8 kg
Finishing	Metal in white colour (RAL 9003)
Accessories	"L" shaped mounting bracket
Remarks	Complies with the BS-5839 / part 8 standard

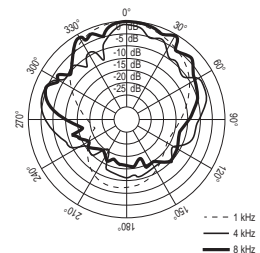
FREQUENCY RESPONSE



HORIZONTAL POLAR DIAGRAM



VERTICAL POLAR DIAGRAM



TWO-WAY ACOUSTIC COLUMNS



ACOUSTIC COLUMNS

C-2000 Series

Complete range of acoustic columns suitable for music and speech, with an excellent frequency response and high efficiency.

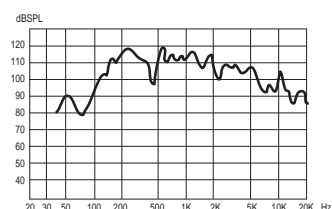
Powers from 10 to 60 W RMS with intermediate power settings.

Finishing in white aluminium, with a metallic swivel bracket for wall mounting. Suitable for outdoor and indoor use.



FREQUENCY RESPONSE

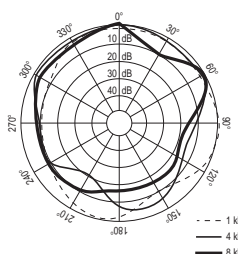
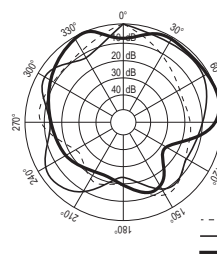
C-2060



HORIZONTAL POLAR DIAGRAM

VERTICAL POLAR DIAGRAM

C-2060



SPECIFICATIONS

	C-2010	C-2020	C-2040	C-2060
Loudspeakers	1 x 6"	2 x 6"	4 x 6"	6 x 6"
Power (RMS)	10 W	20 W	40 W	60 W
Impedances	1k and 2 kΩ	500 and 1 kΩ	250 and 500 Ω	167 and 333 Ω
100 V line	10 and 5 W	20 and 10 W	40 and 20 W	60 and 30 W
Power selector	By cables			
Frequency response	140 ÷ 15.000 Hz			
Sensitivity (1 kHz) (SPL)	93 dB (1 W, 1 m)	94 dB (1 W, m)	96 dB (1 W, 1 m)	98 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	103 dB (10 W, 1 m)	107 dB (20 W, 1 m)	112 dB (40 W, 1 m)	116 dB (60 W, 1 m)
Dimensions (mm)	227 x 304 x 125	227 x 520 x 125	227 x 952 x 125	227 x 1384 x 125
Weight	3.2 kg	5 kg	8.6 kg	12.5 kg
Finishing	White aluminium			
Accessories	Metal swivel bracket			

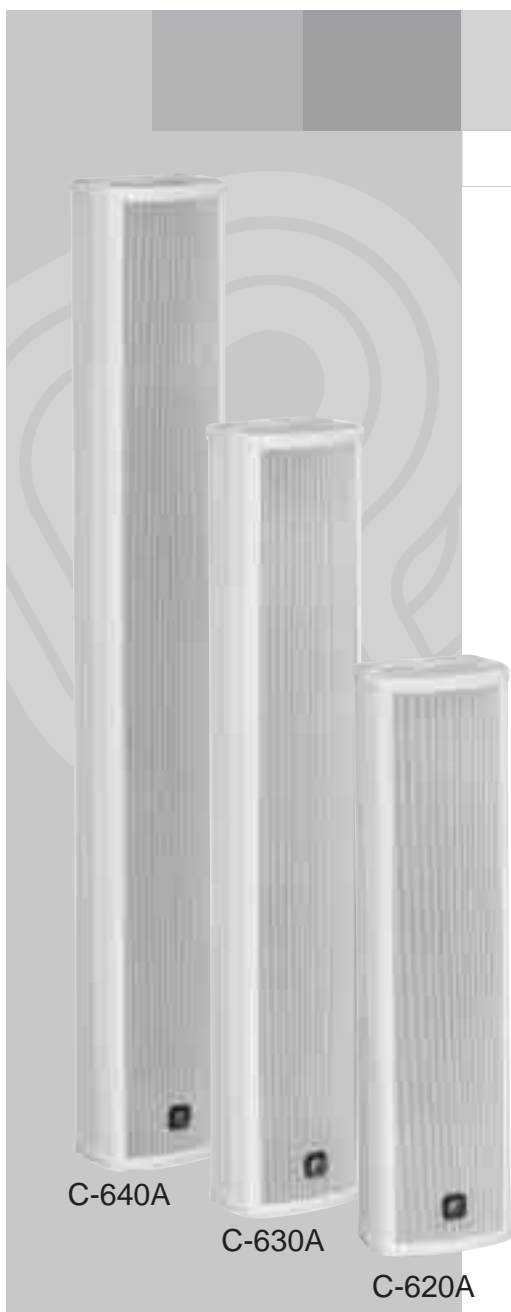


ACOUSTIC COLUMNS

C-600A Series

Range of acoustic columns for speech and music applications. They have power ratings from 20 to 40 W RMS with intermediate power settings.

Their finishing is in white aluminium, with a metallic swivel bracket for wall mounting and they are suitable for outdoor and indoor use.



C-640A

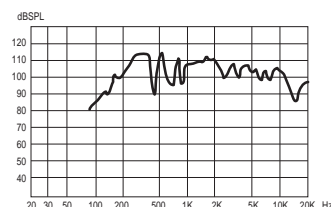
C-630A

C-620A

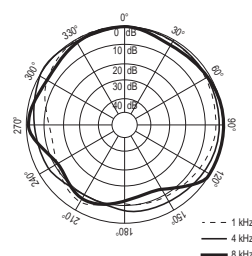
C-640A

C-640A

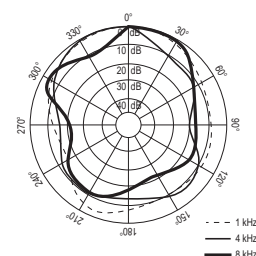
FREQUENCY RESPONSE



HORIZONTAL POLAR DIAGRAM



VERTICAL POLAR DIAGRAM



SPECIFICATIONS

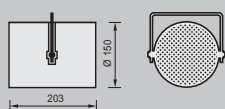
	C-620A	C-630A	C-640A
Loudspeakers	4 x 2,5"	6 x 2,5"	8 x 2,5"
Power (RMS)	20 W	30 W	40 W
Impedances	500 and 1 kΩ	333 and 667 Ω	250 and 500 Ω
100 V line	20 and 10 W	30 and 15 W	40 and 20 W
Power selector		By cables	
Frequency response		170 ÷ 15.000 Hz	
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)	92 dB (1 W, 1 m)	93 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	104 dB (20 W, 1 m)	107 dB (30 W, 1 m)	109 dB (40 W, 1 m)
Dimensions (mm)	106 x 405 x 75	106 x 548 x 75	106 x 691 x 75
Weight	2.04 kg	2.75 kg	3.46 kg
Finishing		White aluminium (RAL 9016)	
Accessories		Metal swivel bracket	

ACOUSTIC COLUMNS



BI-DIRECTIONAL SOUND PROJECTORS

SP-20D



Sound projectors are very appropriate in those places where it is required to have a clear speech and high quality music reproduction in addition to a medium / high Sound Pressure Level. These types of speakers do so by providing a well-defined acoustic beam which is directly projected over the targeted area. Some of the most common places where a sound projector is at its best are parking lots, railway stations, shopping malls and sport venues.

The SP-20D is a 20 W RMS / 100 V line bidirectional sound projector, with several intermediate power tapings. Because of its bidirectionality, it is specially suitable for corridors or long zones either for indoor or outdoor using.

Enclosure made of autoextinguible UL94V0 ABS, with aluminium grill and a universal aluminium bracket for wall or ceiling mounting.

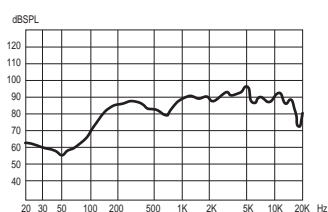
These loudspeakers are injected with V0 fire-rated ABS, according to UL-94 safety standard.

SPECIFICATIONS

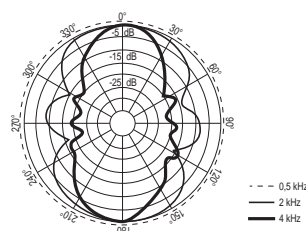
SP-20D

Loudspeaker	2 x 5" bicone. Bidirectional
Power (RMS)	20 W
Impedances	250, 500, 1 k, 2 k and 4 kΩ
100 V line	20, 10, 5 and 2.5 W
Power selector	By cables
Frequency response	120 ÷ 20.000 Hz
Radiation angle	75° / 50° (1 kHz)
Sensitivity (1 kHz) (SPL)	86 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	99 dB (20 W, 1 m)
Protection range	IP-66 (IEC-529)
Dimensions (mm)	Ø 150 x 203
Weight	2.6 kg
Finishing	ABS UL94V0, white colour (RAL9016). Aluminium grill, white colour
Accessories	Orientable U-shaped aluminium bracket

FREQUENCY RESPONSE

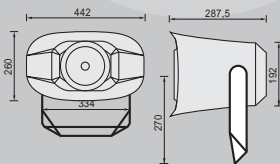


POLAR DIAGRAM



WIDE RANGE SPEAKERS

FR-30T



The FR-30T is a wide range, high efficiency, fully weatherproof loudspeaker. It has two driver units, one woofer and one tweeter, which gives a unique sound quality.

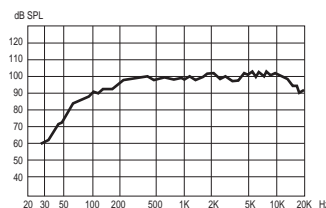
It is specially suitable for those places where, in addition to a crystal-clear speech, a high quality background music reproduction is required: indoor and outdoor pools, leisure centers, railway and underground stations, sports stadiums, etc.

SPECIFICATIONS

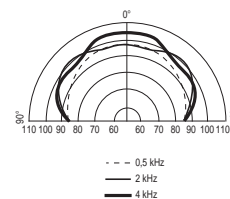
FR-30T

Loudspeakers	1 x 5", 1 x 1.5" (tweeter)
Power (RMS)	30 W
Maximum power	45 W
Impedances	2k6, 1k3, 666 and 333 Ω
100 V line	30, 15, 7'5 and 3'75 W
Frequency response	80 ÷ 22.000 Hz
Radiation angle	70° (H/V)
"Q" factor (direction)	9,38
Sensitivity (1 kHz) (SPL)	98 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	113 dB (30 W, 1 m)
Protection range	Weatherproof, IP-65 (IEC-529)
Dimensions (mm)	442 x 260 x 287,5
Weight	11.9 kg
Finishing	Grey ABS (RAL 7035)
Accessories	Aluminium bracket

FREQUENCY RESPONSE



POLAR DIAGRAM



WIDE RANGE SPEAKERS



SOUND PROJECTORS

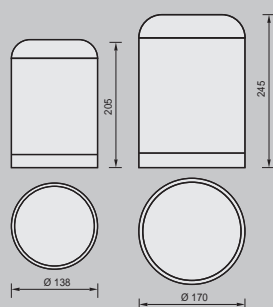
SP-510PW / SP-520PW



These models, with respective power rating of 10 and 20 W for 100 V line, have been designed to be suspended from a ceiling via a metallic cable, hidden inside the power cable.

Their enclosure is made out of ABS plastic for SP-510PW and high impact (HIPS) plastic for SP-520PW, both with a metallic grill.

Both also include intermediate power settings of 5 and 2,5 W (SP-510PW) and 10 and 5 W (SP-520PW).



The use of these sound projectors makes it possible to comply with the voice evacuation safety standards in force, BS5839.

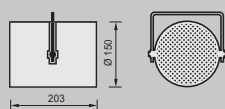
SPECIFICATIONS

	SP-510PW	SP-520PW
Loudspeaker	5"	6,5"
Power (RMS)	10 W	20 W
Impedances	1k, 2k and 4 kΩ	500, 1k and 2 kΩ
100 V line	10, 5 and 2'5 W	20, 10 and 5 W
Power selector	By cables	
Frequency response	130 ÷ 15.000 Hz	110 ÷ 15.000 Hz
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)	92 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	101 dB (10 W, 1 m)	105 dB (20 W, 1 m)
Dimensions (mm)	Ø 138 x 205 (depth)	Ø 170 x 245 (depth)
Weight	1.5 kg	1.7 kg
Finishing	ABS with metallic grill, white colour	HIPS plastic with metallic grill, white colour
Remark	Suspended mounting	



SOUND PROJECTORS

SP-20



The sound projector SP-20 is a 20 W RMS / 100 V line model. Its matching transformer includes several intermediate power tapings as well as one of 8 Ω , low impedance direct connection.

Its enclosure is made of white ABS plastic, with an aluminium front grill and a metal orientable mounting bracket. Its protection rating is IP-66.

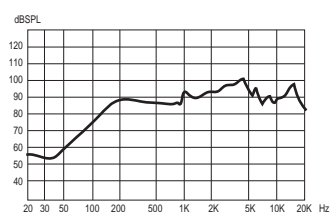
These sound projectors are injected with V0 fire-rated ABS, according to UL-94 safety standard.

SPECIFICATIONS

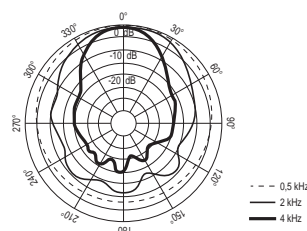
SP-20

Loudspeaker	5"
Power (RMS)	20 W
Maximum power	30 W
Impedances	250, 500, 1 k, 2 k and 8 Ω
100 V line	20, 10 and 5 W
Power selector	Rotating switch
Frequency response	120 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	104 dB (20 W, 1 m)
Radiation angle	210° (1 kHz)
Protection range	IP-66 (IEC-529)
Dimensions (mm)	Ø 150 x 203
Weight	2 kg
Finishing	White ABS (RAL9016). Grill in white aluminium
Accessories	"U" shaped aluminium swivel bracket

FREQUENCY RESPONSE



POLAR DIAGRAM



SOUND PROJECTORS



SOUND PROJECTORS

SP-20VA



The model SP-20VA, 20 W / 100 V, is a classical sound projector of narrow cylindrical shape, with several intermediate power tapings.

Enclosure made of auto-extinguible UL94V0 ABS, with an aluminium grill and a universal aluminium bracket for wall or ceiling mounting.

Its protection degree is IP-66.

Specially designed for evacuation Public Address installations (VA), as it includes ceramic terminal block, a 150°C thermal fuse, and fire-resistant internal cabling, complying with the BS-5839 part 8 standard.

These sound projectors are injected with V0 fire-rated ABS, according to UL-94 safety standard.

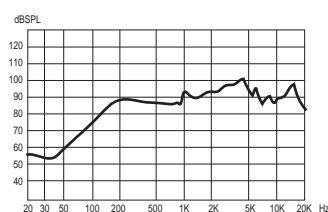
The use of these SOUND PROJECTORS makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

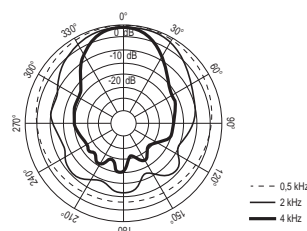
SP-20VA

Loudspeaker	5" bicone
Power (RMS)	20 W
Impedances	500, 1 k and 2 kΩ
100V line	20, 10 and 5 W
Power selector	By cables
Frequency response	120 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	104 dB (20 W, 1 m)
Radiation angle	210° (1 kHz)
Protection range	IP-66 (IEC-529)
Dimensions (mm)	Ø 150 x 203
Weight	2 kg
Finishing	Enclosure: ABS UL94V0, white colour (RAL9016). Grill: aluminium, white colour
Accessories	U-shaped orientable aluminium bracket
Others	Special VA. Complies with the BS-5839 part 8 standard

FREQUENCY RESPONSE



POLAR DIAGRAM

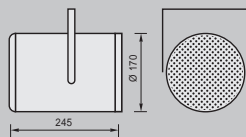


SOUND PROJECTORS

PJ-20

The model PJ-20 is a 20 W / 100 V line round shaped sound projector, with 10 and 5 W intermediate power settings.

Its enclosure is made out of high impact polystyrene (HIPS), very resistant to shocks, with a metallic grill and a universal aluminium bracket for wall or ceiling mounting, for indoor or outdoor use.

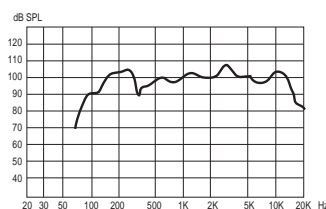


SPECIFICATIONS

PJ-20

Loudspeaker	6,5"
Power (RMS)	20 W
Impedances	500, 1k and 2 kΩ
100 V line	20, 10 and 5 W
Power selector	By cables
Frequency response	110 ÷ 15.000 Hz
Sensitivity (1 kHz) (SPL)	92 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	105 dB (20 W, 1 m)
Dimensions (mm)	Ø 170 x 245 (depth)
Weight	1.75 kg
Finishing	HIPS plastic with metallic grill, white colour
Accessories	U-shaped orientable bracket

FREQUENCY RESPONSE



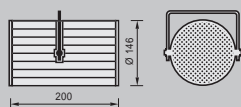
SOUND PROJECTORS



SOUND PROJECTORS

PJ-100

Round shaped, weatherproof aluminium sound projector of modern outlook. Fitted with a 5" bicone speaker and with a 20 W RMS power, this unit is specially suitable for use in railway or underground platforms, parkings, commercial streets, etc. It is also very appropriate for low-ceiling airport areas.

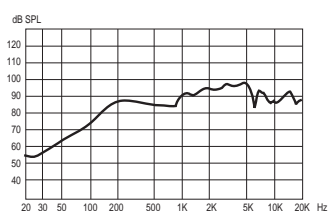


SPECIFICATIONS

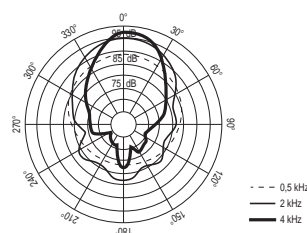
PJ-100

Loudspeakers	5", bicone
Power (RMS)	20 W
Impedances	1 k, 2 k and 500 Ω
100 V line	20, 10, 5 W
Frequency response	100 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	104 dB (20 W, 1 m)
Protection range	Weatherproof, IP-36, IEC-529
Dimensions (mm)	Ø 146 x 200
Weight	2.5 kg
Finishing	White aluminium

FREQUENCY RESPONSE



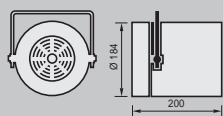
POLAR DIAGRAM



SOUND PROJECTORS

XMR-520PLA

Weatherproof sound projector of a 20 W RMS power, round shaped, made out in ivory colour ABS. This unit, fitted with a 5" bicone loudspeaker, has a very high efficiency (93 dB at 1 W / 106 dB at 20 W), which makes it very appropriate in those places with a medium-high ambient noise.

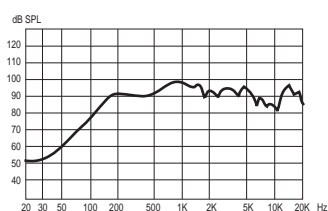


SPECIFICATIONS

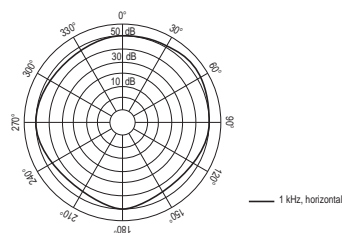
XMR-520PLA

Loudspeaker	5", bicone
Power (RMS)	20 W
Impedances	500, 1k, 2k and 8 Ω
100 V line	20, 10, 5 W and 8 Ω
Frequency response	150 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	93 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	106 dB (20 W, 1 m)
Dimensions (mm)	Ø 184 x 200
Weight	2.1 kg
Finishing	Ivory ABS (RAL 1013)
Accessories	Swivel mounting bracket
Remarks	Weatherproof

FREQUENCY RESPONSE



POLAR DIAGRAM



SOUND PROJECTORS

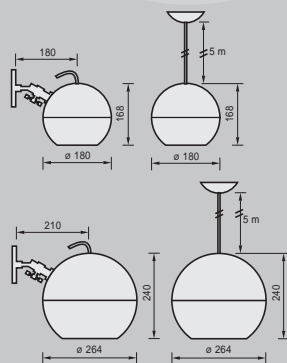


SOUND PROJECTORS

SPS Series

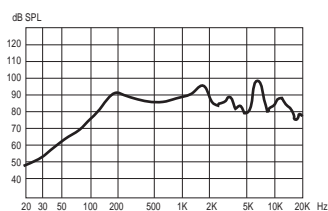


These units have been designed to be suspended from a ceiling via their 5 m connecting cable (P models), or to be mounted on a wall with 360° swivel metal brackets (B models). Injection moulded in high impact self-extinguishing ABS, they are splash waterproof and assure an excellent speech and music reproduction. They are provided with a 100 V line transformer, and allow the direct connection to 8 Ω.

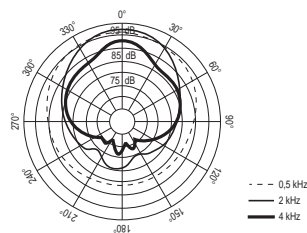


	SPS-5121	SPS-6301
Loudspeakers	5" bicone, polypropylene	6,5" bicone, polypropylene
Power (RMS)	12 W	30 W
Maximum power	15 W	35 W
Impedances	833, 1k1, 1k7, 3k3, 10k and 8 Ω	333, 500, 667, 1k, 2k and 8 Ω
100 V line	12, 9, 6, 3, 1 W and 8 Ω	30, 20, 15, 10, 5 W and 8 Ω
Frequency response	150 ÷ 20.000 Hz	100 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	89 dB (1 W, 1 m)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	100 dB (12 W, 1 m)	106 dB (30 W, 1 m)
Protection range	IP-35 (IEC-529)	IP-35 (IEC-529)
Diameter (mm)	Ø 180	Ø 260
Weight	1.4 kg, model P: 1.5 kg	2.3 kg, model P: 2.4 kg
Finishing	Self-extinguishing ABS in ivory colour	Self-extinguishing ABS in ivory colour
Accessories	SPS-5121BW: swivel mounting bracket; SPS-5121PW: 5 m cable	SPS-6301BW: swivel mounting bracket SPS-6301PW: 5 m cable

SPS-5121

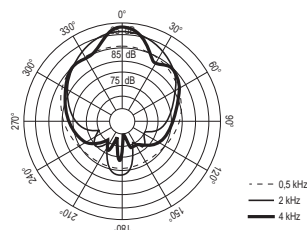
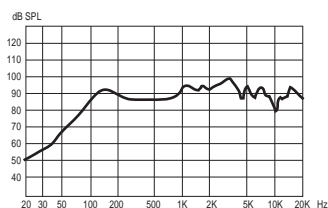


FREQUENCY RESPONSE



POLAR DIAGRAM

SPS-6301



POWERED LOUDSPEAKER

QC-S Power 1



The QC-S is a powered loudspeaker with 15 W RMS power rating. It has 2 unbalanced stereo inputs for direct connection, for example, to projectors or computers. Its built-in amplifier includes individual inputs level adjustment and general output level adjustment.

It includes a coaxially mounted two-way loudspeaker, with an 8" unit for low and medium frequencies and a 0,5" unit for high frequencies. Due to its design and loudspeaker, this model offers a flat frequency response in the full voice and music range, without electronic processing. The Soundsphere technology brings a uniform and wide acoustic dispersion, of 180° in vertical and 360° in horizontal, allowing to reduce the speakers units necessary for an adequate coverage.

This model is ideal for classrooms, hotels lounges or meeting rooms, for instance, or any other place which has more than 3,5 metres high ceilings, to make the best use of its power and acoustic coverage.

SPECIFICATIONS

QC-S

Loudspeakers	1 x 8" + 1 x 0,5" (coaxial)
Power (RMS)	15 W
Power supply	24 V.d.c., 1'2 A
Gain	20 ~ 30 dB
Total Harmonic Distortion	< 0,5%
Inputs level	365 ~ 1.100 mV RMS
Input impedance	10 kΩ
Frequency response (± 4 dB)	55 ÷ 16.000 Hz
Sensitivity (1 kHz) (SPL)	89 dB (1 W, 1 m)
Sound Pressure Level (1 kHz) (SPL)	101 dB (15 W, 1 m)
Radiation angle	180° (V) x 360° (H)
Dimensions (mm)	Ø 318 (grill) x 206 (depth)
Weight	3.5 kg

POWERED LOUDSPEAKER



"SOUNDSPHERE" SPEAKERS

110B



The soundsphere speakers consist of an external reflector and one or various internal loudspeakers, set into a spherical box achieving this way radiation angles of 360° in horizontal pattern and 180° in vertical pattern. These loudspeakers guarantee an even acoustic coverage in wide surfaces, with an excellent frequency response.

The 110B model is a 35 W soundsphere, with 4 Ω impedance, and an internal dual cone loudspeaker.

The optional **40 W** transformer permits the connection with 100 V line and its power rating allows P.A. systems designs with several units connected to the same amplification line.

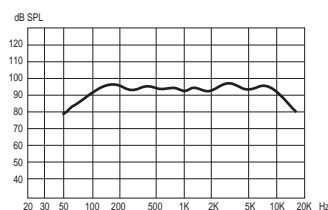
This model is appropriate for commercial centers, warehouses, major buildings halls or fashion shops.

SPECIFICATIONS

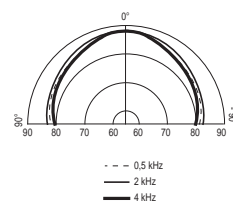
110B

Loudspeaker	6,5"
Power (RMS)	35 W
Impedance	4 Ω
Frequency response	70 ÷ 16.000 Hz
Radiation angle	360° x 180°
Sensitivity (1 kHz) (SPL)	92 dB (1 W, 1 m)
Sound pressure level (SPL)	107 dB (35 W, 1 m)
Dimensions (mm)	292 x 381 - Ø 254
Weight	4.1 kg
Finishings	Polyester and fiber-glass, white
Remarks	100 V line transformer optional

FREQUENCY RESPONSE



POLAR DIAGRAM



"SOUNDSPHERE" SPEAKERS

Q-8



The Q-8 soundsphere has a power rating of 100 W, impedance of 8 Ω and includes one 8" and one 1" loudspeakers for high frequencies, with a coaxial mounting.

Its optional **100 W** transformer permits the connection with 100 V line.

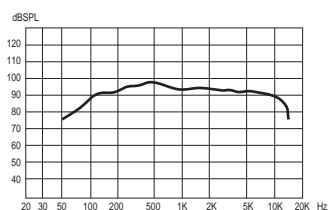
The excellent frequency response of this model makes it ideal for restaurants, hotels halls or big fashion shops sound systems, and in general for any high ceiling installation where its power and acoustic pressure of 114 dB can perform at their best. The whole of its design (shape, colour and finishing) makes it easy to integrate all the architects projects.

SPECIFICATIONS

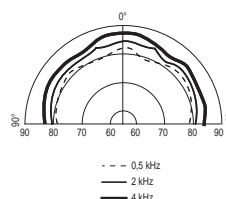
Q-8

Loudspeakers	Coaxial, 1 x 8" LF – 1x 1" HF (dome tweeter)
Power (RMS)	100 W
Impedance	8 Ω
Frequency response (\pm 6 dB)	55 ÷ 17.000 Hz
Radiation angle	360° x 180°
Sensitivity (1 kHz) (SPL)	94 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	114 dB (100 W, 1m)
Dimensions (mm)	508 x 483 – \varnothing 406 mm
Weight	10.2 kg
Finishing	Polyester and fiber-glass, white colour
Remarks	100 V line transformer optional

FREQUENCY RESPONSE



POLAR DIAGRAM



"SOUNDSPHERE" SPEAKERS



“SOUNDSPHERE” SPEAKERS

Q-12A



The Q-12A soundsphere has a power rating of 250 W, impedance of 8 Ω and includes one 12" bass and one tweeter loudspeakers, built coaxially.

The optional **200 W** transformer permits the connection with 100 V line, although usually one separate amplifier is used for each Q-12A unit, directly connected in low impedance.

The high sound pressure level provided by this soundsphere (121 dB SPL) makes it perfectly suitable for big sports halls, factories, fairs or passengers terminals –in airports, train and bus stations, ports ...-.

Improved response in low frequencies can be achieved by using the **Q-SB2** bass loudspeaker, and to install easily several soundspheres and the bass loudspeaker, we have designed sets including it all:

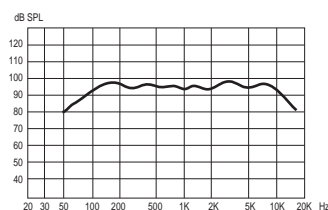
- **BK2:** special support with 2 x Q-12A
- **BK3:** special support with 2 x Q-12A and 1 x Q-SB2
- **BK4:** special support with 4 x Q-12A
- **BK5:** special support with 4 x Q-12A and 1 x Q-SB2

SPECIFICATIONS

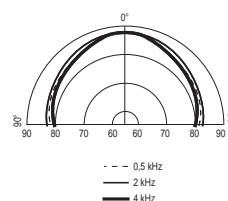
Q-12A

Loudspeaker	Coaxial: 1x12" – 1 x 1" (tweeter) (LF and HF share common magnetic circuit)
Power (RMS)	250 W
Impedance	8 Ω
Frequency response (\pm 6 dB)	60 ÷ 16.000 Hz
Radiation angle	360° x 180°
Sensitivity (1 kHz) (SPL)	97 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	121 dB (250 W, 1 m)
Dimensions (mm)	660 x 635 - Ø 560 mm
Weight	17.6 kg
Finishing	Polyester and fiber-glass, white colour

FREQUENCY RESPONSE



POLAR DIAGRAM



SPECIAL SPEAKERS

AEX-15TA / AEX-15TC / AEX-15TF Explosion proof exponential horns



The AEX-15TA, AEX-15TC and AEX-15TF models are exponential horns to be used in hazardous environments, with a protection range of IP67 (according to IEC-529 standard) and 15 W RMS power rating in 100 V line. Like for all the exponential horns, they are highly efficient and have respective maximum acoustic pressures of 118, 116 and 113 dB SPL.

Their finishing is LM6 aluminium alloy for the enclosure, in blue colour, and steel for the wall/ceiling mounting bracket.

Their respective protection ranges are the following:

AEX-15TA:

EX II 3 G

EEx nA II T6 -50°C<Ta<+50°C (for zone 2)

AEX-15TC:

EX II 2 GD

EEx of IIB+H2 T5 (IIB explosion group and explosive gas and dust environments).

AEX-15TF:

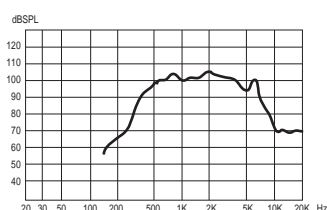
EX II 2 GD

EEx of IIC T5 (IIC explosion group and explosive gas and dust environments).

SPECIFICATIONS

	AEX-15TA	AEX-15TC	AEX-15TF
Power (RMS)	15 W		
Impedances	666, 1k3, 2k, 2k5, 5k and 12'5k Ω	666, 1k, 1k3, 2k5, 3k8 and 5k Ω	666, 1k, 1k3, 2k5, 3k8 and 5 Ω
100 V line	15, 7'5, 5, 4, 2 and 0.8 W	15, 10, 7'5, 4, 2'6 and 2 W	15, 10, 7'5, 4, 2'6 and 2 W
Frequency response	370 ÷ 7.000 Hz	410 ÷ 7.000 Hz	420 ÷ 7.000 Hz
Sensitivity (1 kHz) (SPL)	107 dB (1 W, 1 m)	105 dB (1 W, 1 m)	101 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	118 dB (15 W, 1 m)	116 dB (15 W, 1 m)	113 dB (15 W, 1 m)
Radiation angle (1 kHz / 4 kHz) (-6 dB)	150° / 40°	140° / 40°	105° / 35°
Operating temperatures	-50° C to +50° C	-50° C to +60° C	-50° C a +60° C
Protection range	IP67 (IEC-529)		
Certifications	EX II 3 G (ATEX); EEx nA II T6 (EN50014)	EX II 2 GD (ATEX); EEx of IIB+H2 T5 (EN50014)	EX II 2 GD (ATEX); EEx of IIC T5 (EN50014)
Dimensions (mm)	\varnothing 163 X 247		
Weight	2.5 kg	2.8 kg	2.8 kg
Finishing	LM6 aluminium alloy, in blue colour (RAL 7035)		
Accessories	Wall / ceiling mounting bracket, steel		

FREQUENCY RESPONSE



SPECIAL SPEAKERS

AES-20A Under-water loudspeaker



The AES-20A model has been designed for swimming-pools interiors and is built with oxidation and damp-proof materials.

This sub-aquatic loudspeaker is usually installed in the swimming-pools of private residences, hotels, leisure areas... The fluency of sound transmission under water makes adequate its 20 W power rating and 105 dB SPL sensitivity for any installation.

It offers an IP68 protection range, according to the IEC529 standard, against dust and water and its finishing is blue colour.

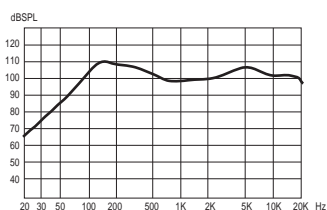
The sound frequency modification by the water must be taken into account when appreciating its perception in comparison with sound transmission in air.

SPECIFICATIONS

AES-20A

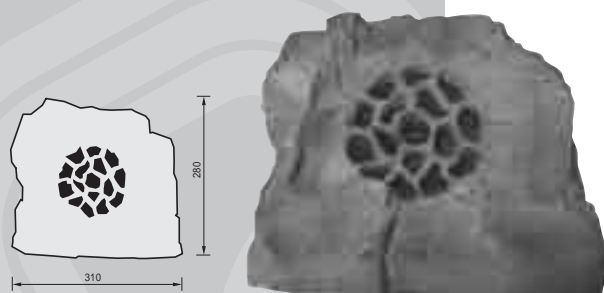
Power (RMS)	20 W
Impedance	8 Ω
Frequency response	80 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	105 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	118 dB (20 W, 1 m)
Radiation angle	180°
Protection range	IP68 (IEC-529)
Operating temperatures	-20 to +90 °C
Dimensions (mm)	137 x 137 x 53
Weight	2.2 kg
Finishing	ABS in blue colour (NCS 1070-B)
Accessories	5 m connection cable
Remark	Mounting with 4 screws

FREQUENCY RESPONSE



SPECIAL SPEAKERS

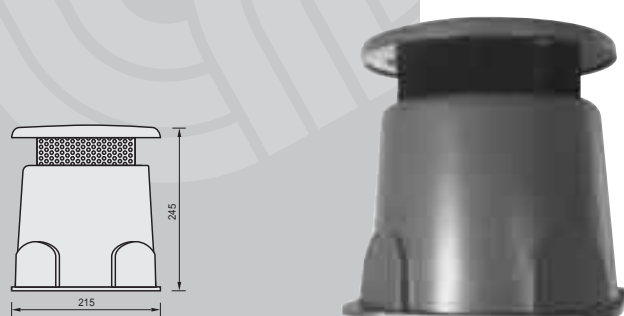
AER-20T / AEM-15T



AER-20T

The AER-20T and AEM-15T have a power rating of 20 W in 100 V line and have been designed basically for outdoor installations and to integrate environments such like gardens, streets, courtyards, squares...

Their enclosure look like a rock, in brown colour, for the AER-20T and reminds the shape of a mushroom, in green colour, for the AEM-15T.

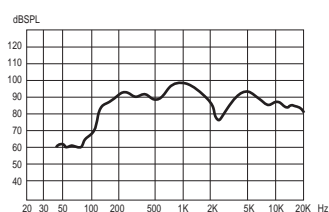


AEM-15T

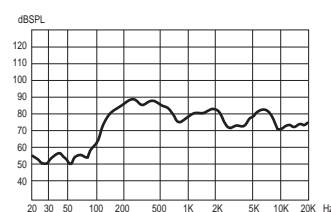
SPECIFICATIONS

	AER-20T	AEM-15T
Loudspeaker	Bass: 4"; Treble: 0,5"	
Power (RMS)	20 W	
Impedances	500 and 1k Ω	
100 V line	20, 10 W	
Frequency response (± 6 dB)	80 ÷ 15.000 Hz	
Sensitivity (1 kHz) (SPL)	93 dB (1 W, 1 m)	95 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	106 dB (20 W, 1 m)	108 dB (20 W, 1 m)
Dimensions (mm)	280 (height) x 310 (width) x 270 (depth)	Ø 215 x 245
Weight	5.8 kg	2.04 kg
Finishing	Glass fiber, metal grill, in brown colour	ABS, metal grill, in green colour.
Remarks		

FREQUENCY RESPONSE



AER-20T



AEM-15T

SPECIAL SPEAKERS

AEI-12T Marine & industrial exponential horn

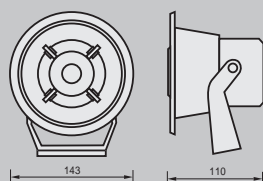


The AEI-12T model is a 12 W exponential horn speaker for 100 V line, especially designed to be used in industrial and marine (ports, ships...) environments. It has a protection degree of IP-67, according to the IEC529 standard, and can work in temperatures ranging from -50° to +100°C. The box is made of nylon and fibber, with UL94V0 and UV protection (against ultra-violet rays).

It has various inputs to select the more adequate power tapping, at 12, 9, 6, 3 and 1 W. It also includes an 8 Ohms impedance connection.

It can be either mounted on walls, floors or ceilings by means of the included stainless steel mounting bracket or flush-mounted.

This model is injected with V0 fire-rated ABS, according to UL-94 safety standard.



SPECIFICATIONS

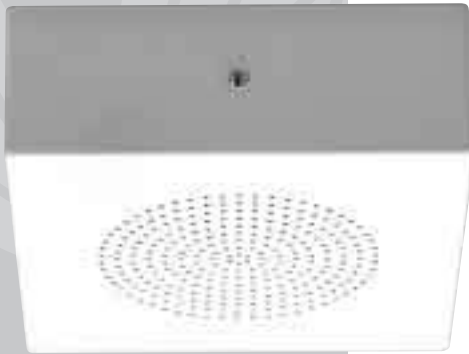
AEI-12T

Power (RMS)	12 W
Impedances	833, 1k1, 1k7, 3k3 Ω and 8 Ω
100 V line	12, 9, 6, 3, 1 W and 8 Ω
Frequency response	600 ÷ 11.000 Hz
Sensitivity (1 kHz) (SPL)	102 dB (1 W)
Sound pressure level (1 kHz) (SPL)	112 dB (12 W, 1 m)
Operating temperature	-50° C to 100° C
Protection range	IP67 (IEC-529)
Dimensions (mm)	Ø 143 x 110
Weight	1.05 kg
Finishing	Nylon + fibber
Accessories	Wall / ceiling stainless steel mounting bracket
Remarks	UL94V0 and UV protection



SPECIAL SPEAKERS

WSM-5061VA Fire-resistant wall loudspeaker



The WSM-5061VA model has a 5" loudspeaker and 6 W power rating. Its construction complies with the British anti-fire norm BS-5839, part 8, which gives it its protection grade against fire.

This model is square shaped, to be surface mounted on walls or in ceilings. It includes a quick screws mounting system.

Its finishing is in white plain steel and it includes internal ceramic terminal block, with fireproof wires and thermal fuse. Security screws have been used for its construction and need a special tool to be manipulated.

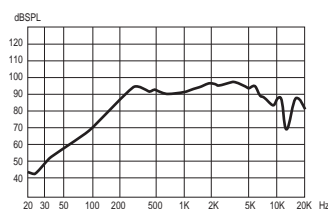
The use of these loudspeakers makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

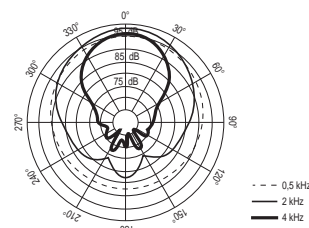
WSM-5061VA

Loudspeakers	5" bicone
Power (RMS)	6 W
Impedances	1k7, 3k3, 6k7 and 13k3 Ω
100 V line	6, 3, 1'5, 0'75 W
Frequency response	150 ÷ 18.000 Hz
Radiation angle 1 kHz / 4 kHz	165° / 70°
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	99 dB (6 W, 1 m)
Certification	BS-5839 part 8
Dimensions (mm)	163.5 x 163.5 x 60
Weight	2.1 kg
Finishing	White plain steel (RAL 9010)

FREQUENCY RESPONSE



POLAR DIAGRAM

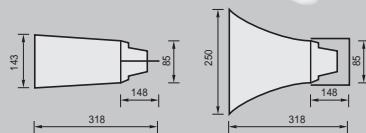


EXPONENTIAL HORNS

OR-1500T

Exponential horn speakers are the most effective ones to reach a high sound pressure level with a minimum amplifying power. This is why they are used for outdoor P.A. systems, in factories, and all installations requiring an excellent acoustic pressure to overcome long distances and high ambient noise.

These loudspeakers ensure high speech intelligibility and clear music programs reproduction.



The exponential horn OR-1500T is a model with rectangular horn and small dimensions, which provides up to 120 dB SPL with 15 W in 100 V line.

Its switch allows to select the most adequate power settings for the installation. The model OR-1500 has no 100 V line transformer, as its impedance is of 8 Ω .

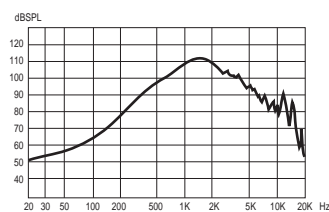
The finishing is in ABS plastic, with metallic "U" shaped bracket for ceiling or wall mounting. This model has a protection range of IP-65.

SPECIFICATIONS

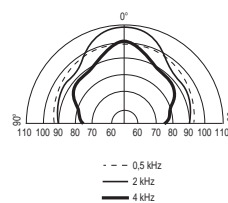
OR-1500T

Power (RMS)	15 W
Maximum power	22 W
Impedances	667, 1k, 2k and 4k Ω
100 V line	15, 10, 5, 2.5 W
Frequency response	475 ÷ 5.250 Hz
Radiation angle	100 ° (V) x 50° (H)
Sensitivity (1 kHz) (SPL)	108 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	120 dB (15 W, 1 m)
"Q" factor (directionality)	6
Protection range	IP-65 (IEC-529)
Frontal dimensions (mm)	250 x 143 x 318
Weight	1.5 kg
Finishing	ABS
Accessories	Steel mounting bracket

FREQUENCY RESPONSE



POLAR DIAGRAM

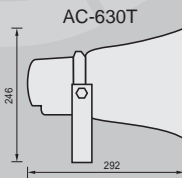
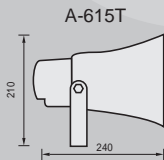
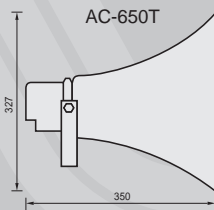


EXPONENTIAL HORNS

AC-615T / AC-630T / AC-650T



AC-615T / AC-630T



AC-650T

Exponential horns with wide circular horn and power rating of 15 W (AC-615T), 30 W (AC-630T) and 50 W (AC-650T), in 100 V line with intermediate power setting.

Finishing in aluminium and included "U" shaped orientable steel mounting bracket for easy mounting, both on walls and ceilings.

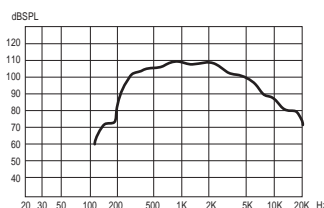
SPECIFICATIONS

	AC-615T	AC-630T	AC-650T
Power (RMS)	15 W	30 W	50 W
Impedances	666 and 1K3 Ω	333 and 666 Ω	200 and 400 Ω
100 V line	15 and 7,5 W	30 and 15 W	50 and 25 W
70 V line	7,5 and 3,75 W	15 and 7,5 W	25 and 12,5 W
Power selector	By cables		
Frequency response	300 ÷ 8.000 Hz	250 ÷ 8.000 Hz	380 ÷ 6.500 Hz
Sensitivity (1 kHz) (SPL)	102 dB (1 W, 1 m)	105 dB (1 W, 1 m)	109 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	114 dB (15 W, 1 m)	117 dB (30 W, 1 m)	126 dB (50 W, 1 m)
Dimensions (mm)	Ø 210 x 240	Ø 246 x 292	Ø 327 x 350
Weight	1.3 kg	2.1 kg	2.3 kg
Finishing	Aluminium and steel		
Accessories	"U" shaped orientable bracket		

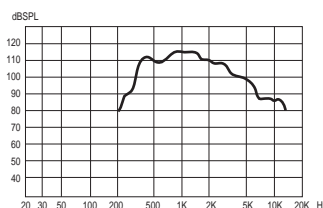
FREQUENCY RESPONSE



AC-615T

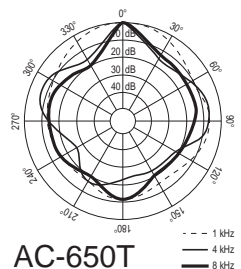


AC-630T



AC-650T

POLAR DIAGRAM



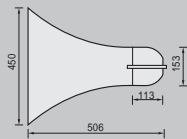
AC-650T

EXPONENTIAL HORNS



EXPONENTIAL HORNS

OR-4530T / OR-4550T



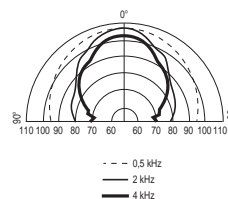
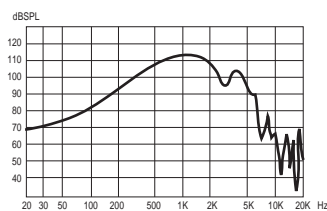
Exponential horns with wide circular horn (diameter of 450 mm), and power rating, in 100 V line, of 30 W (OR-4530T) and 50 W (OR-4550T). Their high acoustic pressure, 129 dB SPL for the OR-4550T, makes them specially suitable for outdoor P.A. systems.

They have various inputs to select the more adequate power tapping for the installation, they also include a 16 Ω low impedance connection.

Finishing is in ASA plastic, with metallic "U" shaped bracket for ceilings or wall mounting. Their protection range is IP-65.

	OR-4530T	OR-4550T
Power (RMS)	30 W	50 W
Maximum power	45 W	75 W
Impedances	333, 500, 1k2 and 16 Ω	200, 285, 500 and 16 Ω
100 V line	30, 20, 13 W and 16 Ω	50, 35, 20 W and 16 Ω
Frequency response	300 ÷ 5.500 Hz	300 ÷ 5.500 Hz
Radiation angle	50°	50°
"Q" factor (directionality)	17	17
Sensitivity (1 kHz) (SPL)	113 dB (1 W, 1 m)	112 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	128 dB (30 W, 1 m)	129 dB (50 W, 1 m)
Protection range	IP-65 (IEC-529)	IP-65 (IEC-529)
Dimensions (mm)	Ø 450 x 506 x 153	Ø 450 x 506 x 153
Weight	5.3 kg	5.5 kg
Finishing	ASA	ASA
Accessories	Stainless steel mounting bracket	Stainless steel mounting bracket

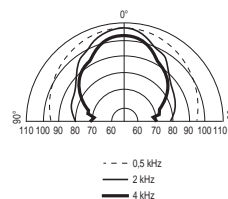
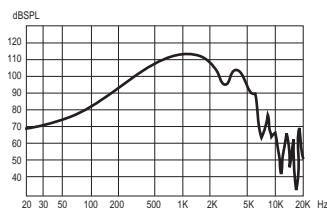
OR-4530T



FREQUENCY RESPONSE

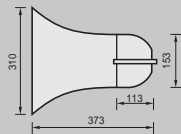
POLAR DIAGRAM

OR-4550T



EXPONENTIAL HORNS

AC-20T / AC-30T



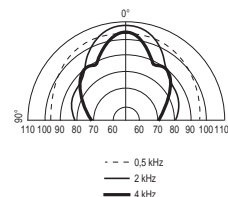
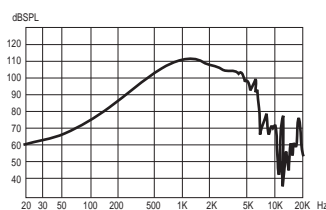
Exponential horns with circular horn and power rating, in 100 V line, of 20 W (AC-20T) and 30 W (AC-30T). They suit most of indoor or open air installations (protection range of IP-65).

They have various inputs to select the more adequate power supply for the installation and also include a 16 Ω low impedance connection.

The finishing is in ASA plastic, with metallic "U" shaped bracket for ceilings or wall mounting.

	AC-20T	AC-30T
Power (RMS)	20 W	30 W
Maximum power	30 W	45 W
Impedances	500, 770, 1k2 and 16 Ω	333, 555, 770 and 16 Ω
100 V line	20, 13, 8 W and 16 Ω	30, 20, 13 W and 16 Ω
Frequency response	350 ÷ 6.000 Hz	350 ÷ 6.000 Hz
Radiation angle	80°	80°
"Q" factor (directionality)	8	8
Sensitivity (1 kHz) (SPL)	109 dB (1 W, 1 m)	109 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	122 dB (20 W, 1 m)	124 dB (30 W, 1 m)
Protection range	IP-65 (IEC-529)	IP-65 (IEC-529)
Dimensions (mm)	Ø 310 x 373 x 153	Ø 310 x 373 x 153
Weight	3.5 kg	3.9 kg
Finishing	ASA	ASA
Accessories	Stainless steel mounting bracket	Stainless steel mounting bracket

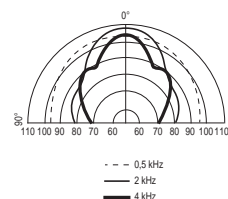
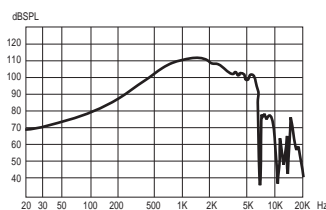
AC-20T



FREQUENCY RESPONSE

POLAR DIAGRAM

AC-30T



EXPONENTIAL HORNS



EXPONENTIAL HORNS

AC-530VA



The AC-530VA model is a 30 W, 100 V line, horn speaker of medium size (diameter of the horn of 23 cm; total length of 31 cm). It is suitable for indoor and outdoor using, especially for evacuation Public Address installations and Voice Alarm (PA / VA), as it includes ceramic terminal blocks, a 150° thermal fuse and fire-resistant inside cabling, complying with the BS-5839 part 8 standard.

It has a switch to select the most suitable power according to the installation.

Its finishing is in UL94V0 autoextinguible ABS, with a U-shaped bracket for wall or ceiling mounting. This horn speaker has an IP-66 protection degree.

These exponential horns are injected with V0 fire-rated ABS, according to UL-94 safety standard.

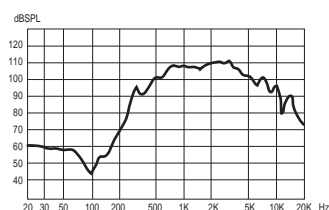
The use of these exponential horns makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

AC-530VA

Power (RMS)	30 W
Impedances	333, 667 and 1k3 Ω
100 V line	30, 15, and 7'5 W
Power selection	By cables
Frequency response	400 ÷ 7.500 Hz
Sensitivity (1 kHz) (SPL)	110 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	125 dB SPL (30 W, 1 m)
Protection range	IP-66 (IEC 529)
Dimensions (mm)	Ø 233 x 309
Weight	2.1 kg
Finishing	ABS UL94V0 light grey (RAL7035)
Accessories	Orientable steel bracket
Others	Special VA. Complies with the BS-5839 part 8 standard

FREQUENCY RESPONSE



EXPONENTIAL HORNS

AL-20T / AL-30T

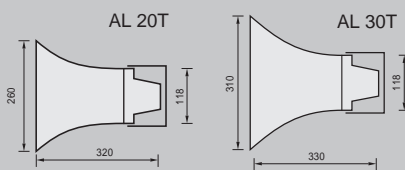


Exponential horn speakers with circular horn and power rating, in 100 V line, of 20 W (AL-20T) and 30 W (AL-30T). They suit most of outdoor (protection range IP-65) or indoor installations.

Their switch allow to select the most adequate power settings for the installation and the same models exist without incorporated 100 V line transformer (AL-20 of 20 W and at 8 Ω ; AL-30 of 30 W and at 8 Ω).

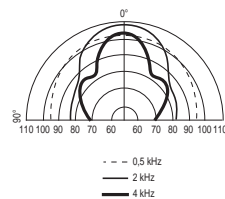
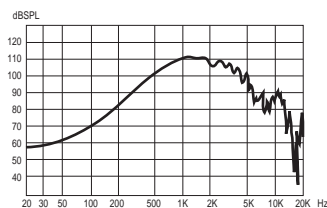
They are aluminium made and both the exponential profile, driver unit cover and the "U" shaped standard mounting bracket are in metal.

The choice of these materials allows to reduce considerably the speakers weight in order to ease their transport, storage and installation.



	AL-20T	AL-30T
Power (RMS)	20 W	30 W
Maximum power	30 W	45 W
Impedances	500, 660, 1k and 2 k Ω	333, 400, 500 and 667 Ω
100 V line	20, 15, 10, 5 W	30, 25, 20, 15 W
Frequency response	400 ÷ 5.000 Hz	425 ÷ 5.000 Hz
Radiation angle	80°	75°
"Q" factor (directionality)	8	11
Sensitivity (1 kHz) (SPL)	109 dB (1 W, 1 m)	110,5 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	122 dB (20 W, 1 m)	125 dB (30 W, 1 m)
Protection range	IP-65 (IEC-529)	IP-65 (IEC-529)
Dimensions (mm)	Ø 260 x 320 x 118	Ø 310 x 330 x 118
Weight	2.2 kg	2.4 kg
Finishing	Aluminium	Aluminium

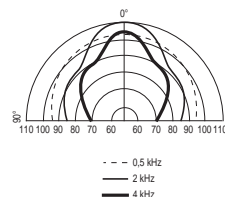
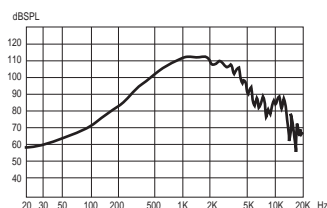
AL-20T



FREQUENCY RESPONSE

POLAR DIAGRAM

AL-30T

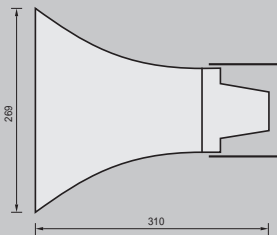


EXPONENTIAL HORNS



EXPONENTIAL HORNS

AL-20FR



Fire resistant exponential horn speaker with circular horn and power rating, in 100 V line, of 20 W. It is suitable for VA installations, for indoor and outdoor using (IP66 protection degree).

Provided with a power selection switch allowing the most suitable power in each installation, it is finished in aluminium and FR ABS and has a universal U-shaped metal mounting bracket.

SPECIFICATIONS

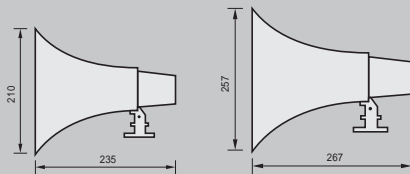
AL-20FR

Power (RMS)	20 W
Impedances	500, 670, 1 k and 2k Ω
100 V line	20, 15, 10 and 5 W
Power selector	Rotating switch
Frequency response	250 ÷ 10.000 Hz
Radiation angle	80°
Sensitivity (1 kHz) (SPL)	108,5 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	121,5 dB (20 W, 1 m)
Protection degree	IP 66 (IEC-529)
Dimensions (mm)	Ø 269 x 310 (length)
Weight	2.2 kg
Finishing	Horn: aluminium; Horn & rear cover: FR ABS
Colour	Horn: white; Horn & rear cover: light grey
Accessories	Orientable U-shaped mounting bracketed
FR features	Plastic parts: FR ABS (fire resistant), 100 V line cable and internal cabling: fire resistant material, 100 V transformer equipped with a thermal protection fuse. Activation at 110° C



EXPONENTIAL HORNS

AL-815T / AL-830T

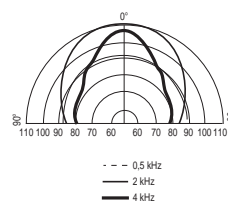
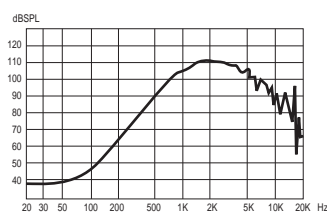


Exponential horn speakers with circular horn and small dimensions ; with a power rating , in 100 V line, of 15 W (AL-815T) and 30 W (AL-830T). Their protection range IP-65 makes them perfectly suitable for outdoor P.A. systems.

They are entirely aluminium made and they include a swivel bracket for ceiling or wall mounting.

	AL-815T	AL-830T
Power (RMS)	15 W	30 W
Impedances	667, 1k3, 2k5 and 5 k Ω	333, 667, 1k3 and 2k5 Ω
100 V line	15, 7'5, 4 and 2 W	30, 15, 7'5 and 4 W
Frequency response	550 \div 8.000 Hz	400 \div 6.500 Hz
Sensitivity (1 kHz) (SPL)	105 dB (1 W, 1 m)	105 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	118 dB (15 W, 1 m)	120 dB (30 W, 1 m)
Protection range	IP-66 (IEC-529)	IP-66 (IEC-529)
Dimensions (mm)	\varnothing 210 x 235	\varnothing 257 x 267
Weight	1.5 kg	2.4 kg
Finishing	Aluminium, ivory colour	Aluminium, ivory colour
Remarks	Swivel bracket	Swivel bracket

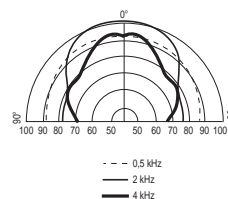
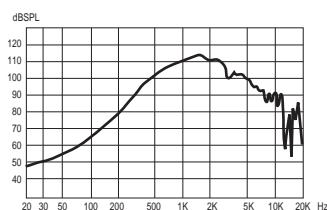
AL-815T



FREQUENCY RESPONSE

POLAR DIAGRAM

AL-830T

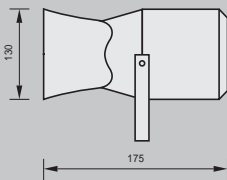


EXPONENTIAL HORNS



EXPONENTIAL HORNS

AC-520 / AC-520T



The AC-520T model is a small sized exponential horn speaker (horn diameter of 13 cm and total length of 17,5 cm), with a power rating of 20 W, in 100 V line. It can be used indoor or outdoor and is perfectly convenient for these installations which need small and discreet units but providing the same functions as bigger ones.

The same model is available without the 100 V line transformer (AC-520), with an impedance of 8 Ω .

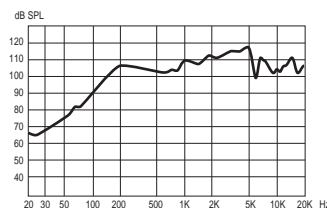
Finishing in ABS plastic, with metallic "U" shaped bracket for ceiling or wall mounting. Their protection range is IP-66.

SPECIFICATIONS

AC-520T

Power (RMS)	20 W
Impedances	AC-520T: 500, 1k and 2k Ω ; AC-520: 8 Ω / 500, 1k, 2k Ω
100 V line	20, 10, 5 W
Frequency response	200 ÷ 7.000 Hz
Sensitivity (1 kHz) (SPL)	105 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	118 dB (20 W, 1 m)
Protection range	IP-66 (IEC-529)
Dimensions (mm)	Ø 130 x 175
Weight	AC-520T: 1.7 kg; AC-520: 1.4 kg
Finishing	ABS white
Accessories	Steel swivel mounting bracket

FREQUENCY RESPONSE



EXPONENTIAL HORNS

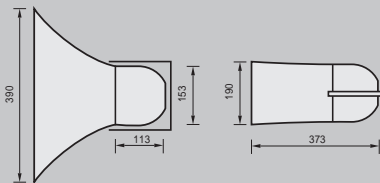
AR-20T / AR-30T



Exponential horn speakers with rectangular horn and power rating, in 100 V line, of 20 W (AR-20T) and 30 W (AR-30T). They suit most of outdoor (IP-65 protection range) or indoor installations.

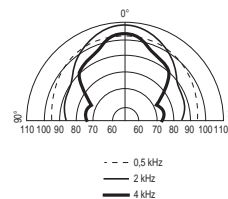
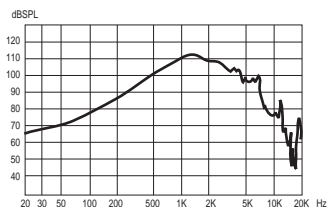
They have various inputs to select the more adequate power tapping for the installation and they include a 16 Ω low impedance connection.

Finishing is in ASA plastic, with a metallic "U" shaped bracket for ceiling or wall mounting.



	AR-20T	AR-30T
Power (RMS)	20 W	30 W
Maximum power	30 W	45 W
Impedances	500, 770 1k2 and 16 Ω	333, 500, 770 Ω
100 V line	20, 13, 8 W	30, 20, 13 W
Frequency response	450 ÷ 6.750 Hz	350 ÷ 6.000 Hz
Radiation angle	115° (V) x 52° (H)	115° (V) x 52° (H)
"Q" factor (directionality)	8	8
Sensitivity (1 kHz) (SPL)	109 dB (1 W, 1 m)	109 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	122 dB (20 W, 1 m)	124 dB (30 W, 1 m)
Protection range	IP-65 (IEC-529)	IP-65 (IEC-529)
Dimensions (mm)	373 (length), horn: Ø 390 x 190	373 (length), horn: Ø 390 x 190
Weight	3.7 kg	4.2 kg
Finishing	ASA	ASA
Accessories	Steel mounting bracket	Steel mounting bracket

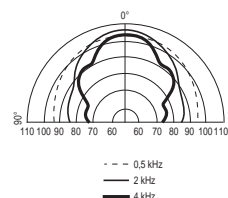
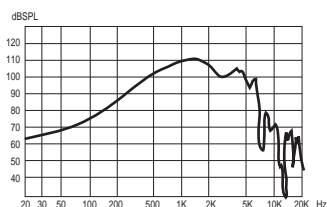
AR-20T



FREQUENCY RESPONSE

POLAR DIAGRAM

AR-30T



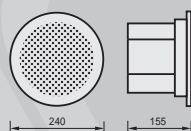
EXPONENTIAL HORNS



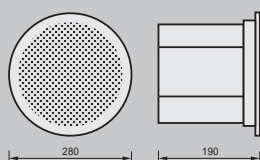
HIGH QUALITY CEILING SPEAKERS

A-256MAC / A-258MAC

A-256MAC



A-258MAC



These compact high dispersion 2-way, ceiling loudspeakers are ideal for background and sound reinforcement. They offer surprising high frequencies coverage and extended bass response, thanks to their ported and tuned enclosure.

The models A-256MAC and A-258MAC are compact 2-way ceiling speakers, of respective power rating of 30 W and 40 W, ideal for high quality sound installations.

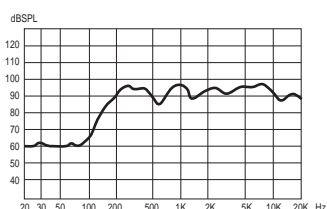
They include a 6" woofer and 0,5" tweeter (A-256MAC) and a 8" woofer and 0,5" tweeter (A-258MAC).

Both have a back box with a rotating tabs mounting system and are finished in white ABS with metal grill.

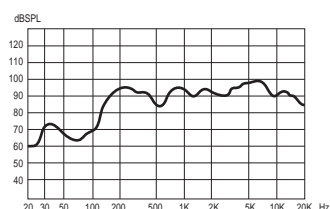
SPECIFICATIONS

	A-256MAC	A-258MAC
Loudspeaker	Bass: 6"; Treble: 0,5"	Bass: 8; Treble: 0,5"
Power (RMS)	30 W	40 W
Impedance	330 Ω	250 Ω
Frequency response	100 ÷ 20.000 Hz	100 ÷ 18.000 Hz
Sensitivity (1 kHz) (SPL)	90 dB (1 W, 1 m)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	105 dB (30 W, 1m)	107 dB (40 W, 1m)
Dimensions (mm)	Ø 240 x 155 (depth)	Ø 280 x 190 (depth)
Weight	2 kg	2.8 kg
Finishing	ABS, metal grill	ABS, metal grill
Accessories	Rotating mounting tabs	Rotating mounting tabs
Ø of the embedding hole	210 mm	250 mm
Colour	White (RAL 9016)	White (RAL 9016)

FREQUENCY RESPONSE



A-256MAC



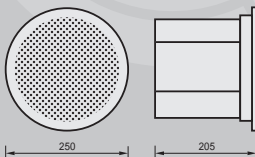
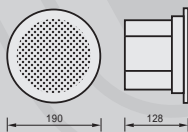
A-258MAC



HIGH QUALITY CEILING SPEAKERS

A-265MAC / A-266MAC

A-265MAC



A-266MAC

The A-265MAC model is a bass-reflex type loudspeaker and the A-266MAC model employs a very high quality 6.5", 2-way polypropylene driver unit.

Their rotating mounting tabs and removable locking connector with screw-down 2 input and 2 loop-through output terminals, provide easy, trouble-free and fast mounting.

Rear view



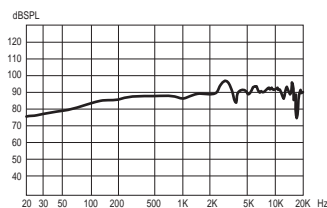
These loudspeakers are injected with V0 fire-rated ABS, according to UL-94 safety standard.

SPECIFICATIONS

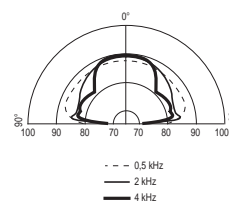
	A-265MAC	A-266MAC
Loudspeaker	1 x 3,5" and 1 x 0,5" tweeter	1 x 6,5" and 1 x 0,75" tweeter
Power (RMS)	15 W	30 W
Impedances	667, 1k3, 2k6, 5k2 and 8 Ω	333, 667, 1k3, 2k6 and 8 Ω
100 V	15, 7'5, 3'75, 1'9 W and 8 Ω	30, 15, 7'5, 3'75 W and 8 Ω
70 V	7'5, 3'75, 1'9, 1 W and 8 Ω	15, 7'5, 3'75, 1'9 W and 8 Ω
Power selector	Rotating switch	Rotating switch
Frequency response	85 ÷ 25.000 Hz	75 ÷ 25.000 Hz
Sensitivity (1 kHz) (SPL)	86 dB (1 W, 1 m)	89 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	98 dB (15 W, 1 m)	104 dB (15 W, 1 m)
Radiation angle (1 kHz / 4 kHz)	210° / 140°	140° / 75°
Protection range	IP-40	IP-40
Dimensions (mm)	190 x 128 (depth)	250 x 205 (depth)
Weight	1.63 kg	3.58 kg
Finishing	Baffle in white ABS (UL94V0) (RAL 9016); Metallic rear box	Baffle in white ABS (UL94V0) (RAL 9016); Metallic rear box
Accessories	Rotating mounting tabs	Rotating mounting tabs
Ø of the embedding hole	170 mm	220 mm

FREQUENCY RESPONSE

A-266MAC



POLAR DIAGRAM

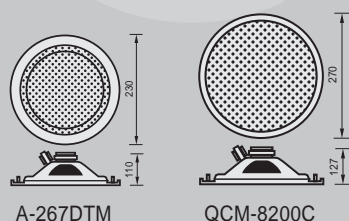


HIGH QUALITY CEILING SPEAKERS



TWO-WAY CEILING SPEAKERS

QCM-8200C / A-267DTM



The QCM-8200C model includes 2 loudspeakers coaxially mounted, one for low and medium frequencies (8" woofer) and the other for high frequencies (tweeter). Their power rating, in 100 V line, is of 20 W.

These characteristics allow a high acoustic pressure of 102 dB SPL and an excellent frequency response of 50 to 20.000 Hz. It is therefore a high performance model, ideal for major buildings halls, conference halls and big fashion shops sound systems.

Its mounting is a clutch and spring mounting system and the transformer it includes has various inputs to select the more adequate power tapping for the installation.

The A-267DTM model has an RMS power rating of 8 W and includes 2 loudspeakers, of 6" and 2" mounted coaxially. It has a spring-type quick mounting system.

Metallic ceiling loudspeaker to be embedded, it includes a 100 V line transformer with various inputs for power tapplings and white grill.



Optional: metallic embedding fire-resistant box **FID-6520** (A-267DTM) or **FID-8020** (QCM-8200C) and accessories **FID-2** (ceramic terminal block and thermal fuse).

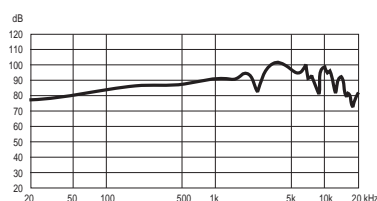
The use of these accessories makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

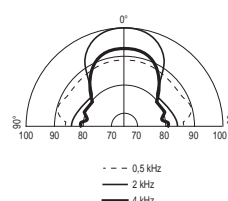
	QCM-8200C	A-267DTM
Loudspeaker	8" Woofer + 2" tweeter, coaxial mounting	6"+ 2"
Power (RMS)	20 W	8 W
Maximum power	25 W	12 W
Impedances	500, 1k, 2k and 4k Ω	1k25, 2k5, 5k 10 k Ω
100 V line	20, 10, 5 and 2,5 W	8, 4, 2 and 1 W
Frequency response	140 ÷ 17.000 Hz	190 ÷ 20.000 Hz
Radiation angle (1 kHz / 4 kHz)	-	100° / 45°
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)	97 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	105 dB (20 W, 1 m)	107 dB (8 W, 1 m)
Dimensions (mm)	Ø 270 x 127 (depth)	Ø 230 x 110 (depth)
Weight	2.8 kg	1.9 kg
Finishing	Metal in white colour	Metal in white colour
Ø of the embedding hole	230 mm	200 mm

FREQUENCY RESPONSE

QCM-8200C



POLAR DIAGRAM



IP RATED CEILING SPEAKER

A-264IP



The A-264IP is a ceiling loudspeaker of discreet design for embedding use. Complete with auto-extinguishing ABS back box and aluminium grill, with an IP-55 protection, this 4" loudspeaker comes also with a spring fast mounting system and several intermediate power settings.



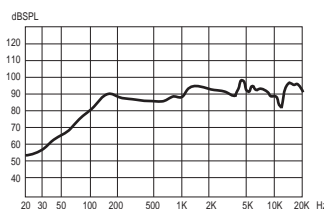
This ceiling speaker is injected with V0 fire-rated ABS, according to UL-94 safety standard.

SPECIFICATIONS

A-264IP

Loudspeaker	4"
Power (RMS)	6 W
Impedances	833, 1k667, 3k333, 6k667 and 8 Ω
100 V line	6, 3, 1'5 W & 8 Ω
Power selector	By cables
Frequency response (-10 dB)	150 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	88 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	95 dB (6 W, 1 m)
Radiation angle (1 kHz / 4 kHz)	210° / 130°
Protection range	IP-55 (IEC 529)
Working temperature	From -30° C to 60° C
Dimensions (mm)	Ø 140 x 135 (depth)
Weight	0.96 kg
Finishing	Baffle and rear box in ABS UL94V0, grill in aluminium. White colour (RAL9016)
Accessories	Spring-type mounting system
Ø of the embedding hole	125 mm

FREQUENCY RESPONSE



IP RATED CEILING SPEAKER



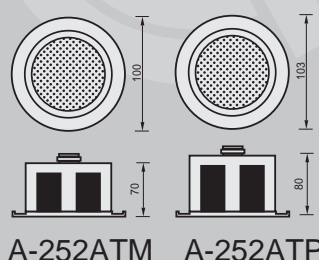
COMMERCIAL RANGE CEILING SPEAKERS

A-252ATM / A-252ATP

The ceiling speakers are the best cost-effective way to make a sound distribution in places like corridors, offices, halls, shops, etc.

When properly installed and spaced, they ensure an even coverage throughout all the area. The wide range of power, sizes, shapes and mounting systems, as well as the featuring of bicones, high frequency disperses in most of the models, and coaxially mounted tweeters in some of them, makes it easy to select the most appropriate model for every particular type of installation.

A-252ATM



A-252ATP

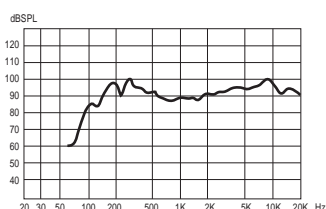
The A-252ATM and A-252ATP models are 2,5" ceiling loudspeakers with 6 W power rating and an intermediate power setting of 3 W. They have a sensitivity of 87 dB (1 W, 1 m and 1 kHz) and a maximum acoustic pressure of 94 dB (SPL) at 1 kHz, 1 m. Both have a quick spring-type embedding mounting system.

The A-252ATM is in white metal (RAL 9016) and the A-252ATP is in white ABS with a metallic grill (RAL 9016).

SPECIFICATIONS

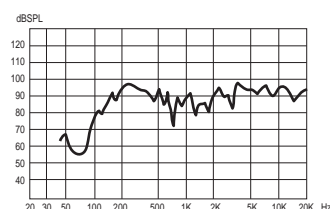
	A-252ATM	A-252ATP
Loudspeaker	2,5"	2,5"
Power (RMS)	6 W	6 W
Impedances	1k7 Ω and 3k3 Ω	1k7 Ω and 3k3 Ω
100 V line	6 and 3 W	6 and 3 W
Power selector	By cables	By cables
Frequency response	120 ÷ 20.000 Hz	120 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	87 dB (1 W, 1 m)	87 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	94 dB (6 W, 1 m)	94 dB (6 W, 1 m)
Dimensions (mm)	Ø 100 x 70 (depth)	Ø 103 x 80 (depth)
Weight	0.35 kg	0.5 kg
Finishing	Metal in white colour (RAL 9016)	ABS, metal grill in white colour (RAL 9016)
Ø of the embedding hole	80 mm	95 mm
Accessories	Spring-type mounting system	Spring-type mounting system

FREQUENCY RESPONSE



A-252ATM

FREQUENCY RESPONSE

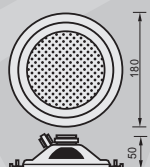


A-252ATP

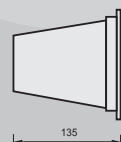


COMMERCIAL RANGE CEILING SPEAKERS

A-254ATM / A-254ATC



A-254ATM



A-254ATC



The A-254ATM and A-254ATC are 4" ceiling loudspeakers with 6 W power rating, and an intermediate power setting of 3 W. Their respective sensitivity is of 90 dB and 91 dB (1W, 1 m, 1 kHz) and maximum acoustic pressure of 98 dB and 99 dB (SPL) at 1 kHz, 1 m. Both have a quick spring-type embedding mounting system.

A-254ATM is in white metal (RAL 9016) and A-254ATC in ABS plastic, with a metallic grill, in white colour (RAL 9016).

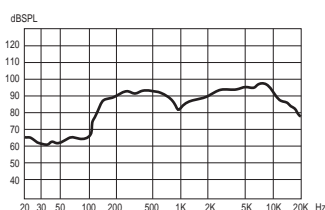
The A-254ATC model includes a rear box and is adequate for outdoor use.

SPECIFICATIONS

	A-254ATM	A-254ATC
Loudspeaker	4"	4"
Power (RMS)	6 W	6 W
Impedances	1k7 and 3k3 Ω	1k7 and 3k3 Ω
100 V line	6 and 3 W	6 and 3 W
Power selector	Transformer terminal block	By cables
Frequency response	110 ÷ 15.000 Hz	150 ÷ 18.000 Hz
Sensitivity (1 kHz) (SPL)	90 dB (1 W, 1 m)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	98 dB (1 W, 1 m)	99 dB (6 W, 1 m)
Dimensions (mm)	Ø 180 x 50 (depth)	Ø 140 x 130 (depth)
Weight	0.7 kg	0.9 kg
Finishing	Metal, in white colour (RAL 9016)	ABS in white colour (RAL 9016)
Accessories	Spring-type mounting system	Spring-type mounting system
Ø of the embedding hole	155 mm	125 mm
Remarks	-	Weatherproof

FREQUENCY RESPONSE

A-254ATM



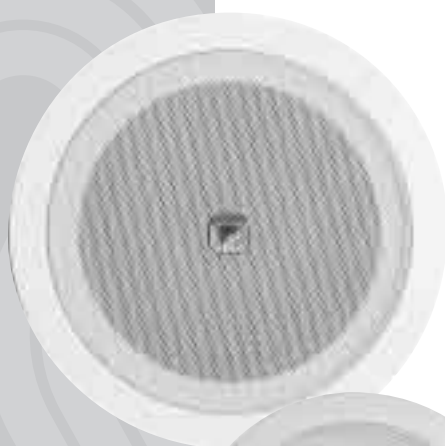
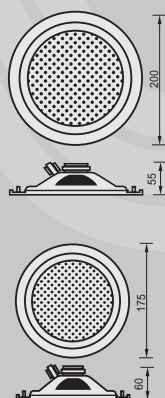
COMMERCIAL RANGE CEILING SPEAKERS



COMMERCIAL RANGE CEILING SPEAKERS

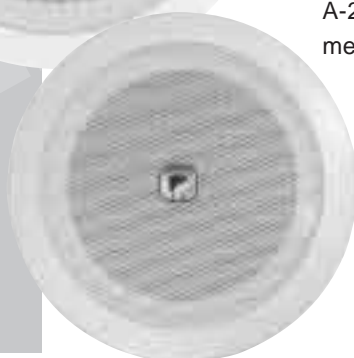
A-255ATM / A-255ATP

A-255ATM



The A-255ATM and A-255ATP models are 5" ceiling loudspeakers with 6 W power rating and an intermediate power setting of 3 W. Their respective sensitivity is of 91 dB and 92 dB (1W, 1m and 1 kHz) and maximum acoustic pressure of 99 dB and 100 dB (SPL) at 1 kHz, 1 m. Both have a spring-type mounting system.

A-255ATM is in white metal (RAL 9016) and A-255ATP is in white ABS (RAL 9016) with a metallic grill.

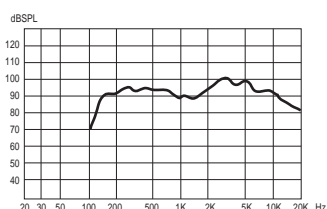


A-255ATP

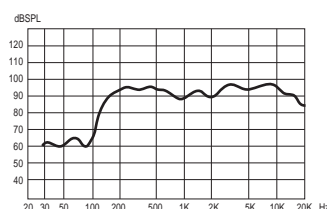
SPECIFICATIONS

	A-255ATM	A-255ATP
Loudspeaker	5"	5"
Power (RMS)	6 W	6 W
Impedances	1k7 and 3k3 Ω	1k7 and 3k3 Ω
100 V line	6 and 3 W	6 and 3 W
Power selector	Transformer terminal block	Transformer terminal block
Frequency response	110 ÷ 15.000 Hz	100 ÷ 15.000 Hz
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)	92 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	99 dB (6 W, 1 m)	100 dB (6 W, 1 m)
Dimensions (mm)	Ø 200 x 55 (depth)	Ø 175 x 60 (depth)
Weight	0.75 kg	0.5 kg
Finishing	Metal, in white colour (RAL 9016)	ABS, metal grill in white colour (RAL 9016)
Ø of the embedding hole	170 mm	150 mm
Accessories	Spring-type mounting system	Spring-type mounting system

FREQUENCY RESPONSE



A-255ATM



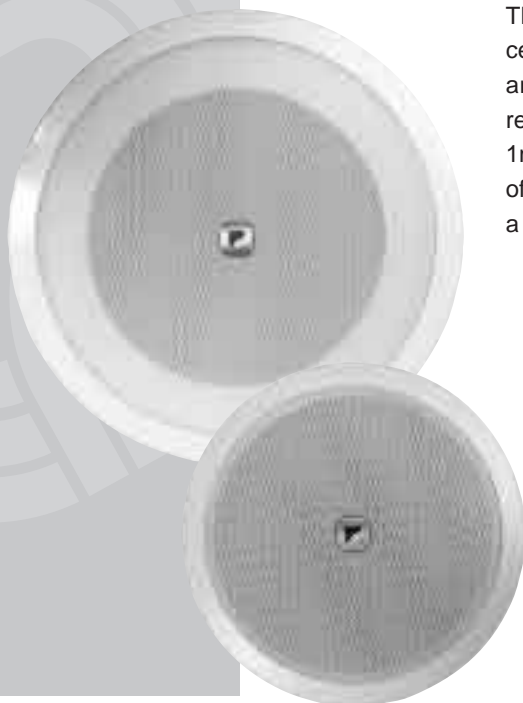
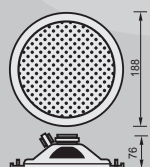
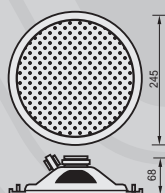
A-255ATP



COMMERCIAL RANGE CEILING SPEAKERS

A-256ATM / A-256ATP

A-256ATM



The A-256ATM and A-256ATP models are 6" ceiling loudspeakers with 6 W power rating and an intermediate power setting of 3 W. Their respective sensitivity is of 92 dB and 93dB (1W, 1m and 1 kHz) and maximum acoustic pressure of 100 and 101 dB (SPL) at 1 kHz, 1 m. Both have a spring-type mounting system.

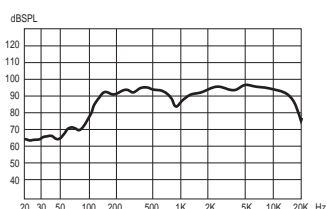
A-256ATM is in white metal (RAL 9016) and A-256ATP is in white ABS (RAL 9016) with a metallic grill.

A-256ATP

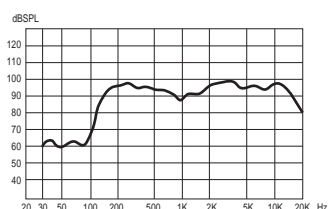
SPECIFICATIONS

	A-256ATM	A-256ATP
Loudspeaker	6"	6"
Power (RMS)	6 W	6 W
Impedances	1k7 and 3k3 Ω	1k7 and 3k3 Ω
100 V line	6 and 3 W	6 and 3 W
Power selector	Transformer terminal block	Transformer terminal block
Frequency response	110 ÷ 15.000 Hz	100 ÷ 15.000 Hz
Sensitivity (1 kHz) (SPL)	92 dB (1 W, 1 m)	93 dB SPL (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	100 dB (6 W, 1 m)	101 dB SPL (6 W, 1 m)
Dimensions (mm)	Ø 245 x 68 (depth)	Ø 188 x 76 (depth)
Weight	1.05 kg	0.75 kg
Finishing	Metal in white colour (RAL 9016)	ABS, metal grill, in white colour (RAL 9016)
Ø of the embedding hole	225 mm	170 mm
Accessories	Spring-type mounting system	Spring-type mounting system

FREQUENCY RESPONSE



A-256ATM



A-256ATP

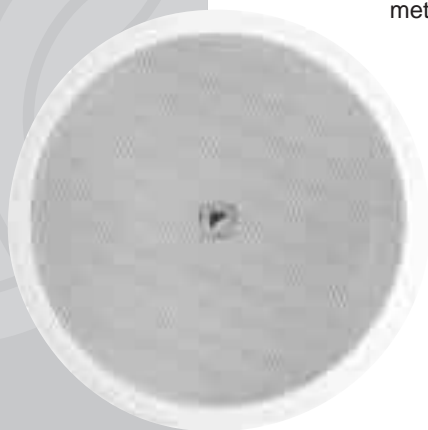
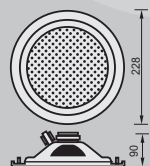
COMMERCIAL RANGE
CEILING SPEAKERS



COMMERCIAL RANGE CEILING SPEAKERS

A-258ATP

The A-258ATP is a 8" ceiling loudspeaker with 10 W power rating and an intermediate power setting of 5 W. Its sensitivity is of 94 dB and maximum acoustic pressure of 104 dB (SPL) at 1 kHz, 1 m. It includes a spring-type mounting system and is in white ABS (RAL 9016) with a metallic grill.

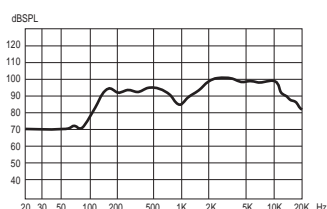


SPECIFICATIONS

A-258ATP

Loudspeaker	8"
Power (RMS)	10 W
Impedances	1k and 2k Ω
100 V line	10 and 5 W
Frequency response	100 ÷ 15.000 Hz
Sensitivity (1 kHz) (SPL)	94 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	104 dB (10 W, 1 m)
Dimensions (mm)	Ø 228 x 90 (depth)
Weight	1 kg
Finishing	ABS, metal grill, in white colour (RAL 9016)
Ø of the embedding hole	207 mm
Accessories	Spring-type mounting system

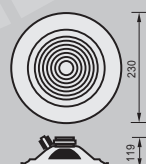
FREQUENCY RESPONSE



COMMERCIAL RANGE CEILING SPEAKERS

A-266BC

A-266BC is a round-shaped 6" 6 W / 100 V ceiling speaker, injected in ABS. It is equipped with a spring-type quick mounting system. Its high efficiency makes it very appropriate to create cost-effective sound solutions.



A-266BC

These loudspeakers are injected with V0 fire-rated ABS, according to UL-94 safety standard.

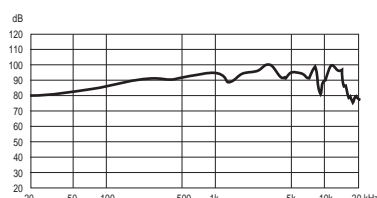
SPECIFICATIONS

A-266BC

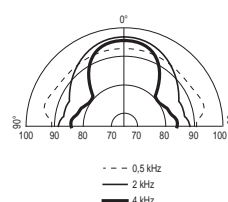
Loudspeaker	6" bicone
Power (RMS)	6 W
Impedance	1k7 Ω
Frequency response	100 ÷ 16.000 Hz
Sensitivity (1 kHz) (SPL)	93 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	101 dB (6 W, 1 m)
Radiation angle	120°
Dimensions (mm)	Ø 230 x 119 (depth)
Weight	0.85 kg
Material	ABS UL94V0
Finishing	White colour (RAL 9016)
Mounting	Springs
Ø of the embedding hole	200 mm

FREQUENCY RESPONSE

A-266BC



POLAR DIAGRAM



COMMERCIAL RANGE
CEILING SPEAKERS

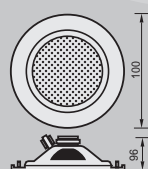


CEILING SPEAKERS

A-200ATP

The A-200ATP incorporates a small 2.5" bicone speaker. The small dimensions of the grill (only 10 cm) makes this model suitable for those places where it is required a low power, small and discreet loudspeaker, in order to easily match the surrounding decoration.

The spring-type mounting system is appropriate for any kind of false ceiling. The grill is of white painted metal and its outer ring is of white ABS.

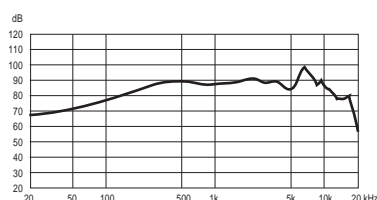


SPECIFICATIONS

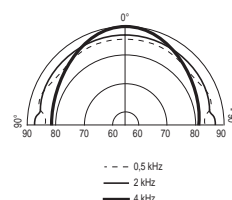
A-200ATP

Loudspeaker	2.5" bicone
Power (RMS)	6 W
Maximum power	8 W
Impedances	1k6, 3k3 and 6k6 Ω
100 V line	6, 3 and 1'5 W
Frequency response	130 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	84 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	92 dB (6 W, 1 m)
Radiation angle (1 kHz / 4 kHz)	190° / 90°
Dimensions (mm)	Ø 100 x 96 (depth)
Weight	0.650 kg
Finishings	White ABS, metal grill
Ø of the embedding hole	92 mm

FREQUENCY RESPONSE



POLAR DIAGRAM



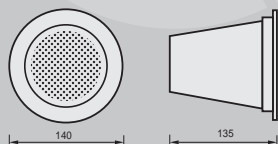
CEILING SPEAKERS

A-264ATM

The A-264ATM model includes a 4" loudspeaker and has an R.M.S. power, in 100 V line, of 6 W.

It also includes a white ABS body with a metallic grill and spring-type mounting system.

Like in all the other ceiling speakers, the included transformer has various inputs to select the more adequate power tapping for the installation.



These loudspeakers are injected with V0 fire rated ABS, according to UL-94 safety norm.

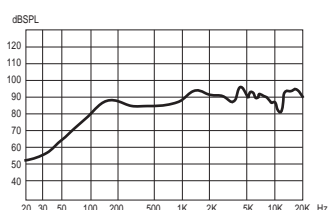
SPECIFICATIONS

A-264ATM

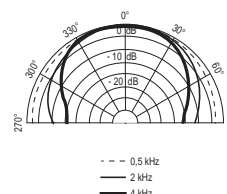
Loudspeaker	4"
Power (RMS)	6 W
Impedances	1k7 Ω , 3k3 Ω , 6k7 Ω , 13k3 Ω and 8 Ω
100 V line	6 W, 3 W, 1'5 W and 8 Ω
Frequency response	150 ÷ 20.000 Hz
Sensitivity (1 kHz) (SPL)	88 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	95 dB (6 W, 1 m)
Radiation angle	210°
Protection range	IP-40
Dimensions (mm)	Ø 140 x 135 (depth)
Weight	0.96 kg
Finishing	Baffle and rear box: in white ABS (UL94V0) (RAL 9016); Grill: metallic
Accessories	Spring-type mounting system
Ø of the embedding hole	125 mm

FREQUENCY RESPONSE

A-264ATM



POLAR DIAGRAM

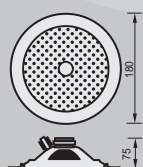


CEILING SPEAKERS



CEILING SPEAKERS

A-265ATM



The A-265ATM model includes a 5" bicone loudspeaker, and has an R.M.S. power, in 100 V line, of 6 W.

It also includes a grill in white metal and spring-type quick mounting system.

Like in all the other ceiling speakers, the included transformer has various inputs to select the more adequate power tapping for the installation.



Optional: metallic embedding fire-resistant box **FID-5220** and accessories **FID-2** (ceramic terminal block and thermal fuse).

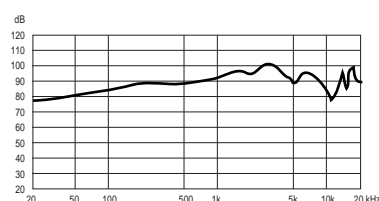
The use of these accessories makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

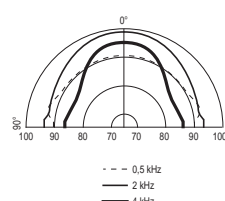
A-265ATM

Loudspeaker	5" bicone
Power (RMS)	6 W
Maximum power	15 W
Impedances	1k7, 3k3, 6k7 and 13k3 Ω
100 V line	6, 3, 1'5 and 0'75 W
Frequency response	140 ÷ 20.000 Hz
Radiation angle (1 kHz / 4 kHz)	130° / 50°
Sensitivity (1 kHz) (SPL)	95 dB (1W, 1 m)
Sound pressure level (1 kHz) (SPL)	103 dB (6 W, 1 m)
Dimensions (mm)	Ø 180 x 75 (depth)
Weight	1.5 kg
Finishing	Metal in white colour
Ø of the embedding hole	160 mm

FREQUENCY RESPONSE



POLAR DIAGRAM



A-265ATM



CEILING SPEAKERS

A-266ATM / A-266AMC



Metallic ceiling loudspeakers with power rating, in 100 V line, of 6 W and including various power tapings

The A-266ATM model has a 6,5" bicone loudspeaker and is to be embedded through spring-type quick mounting system.

The A-266AMC model has a 6" bicone loudspeaker and is to be surface mounted.



Optional for A-266ATM: metallic embedding fire-resistant box **FID-6520** and accessories **FID-2** (ceramic terminal block and thermal fuse).

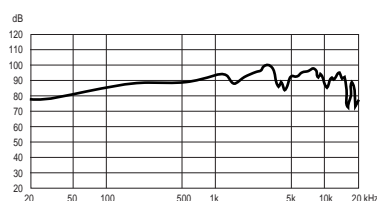
The use of these accessories makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

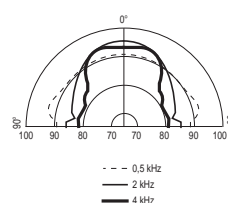
	A-266ATM	A-266AMC
Loudspeaker	6,5" Curvilinear – Bicone	6" bicone
Power (RMS)	6 W	6 W
Maximum power	9 W	9 W
Impedances	1k7, 3k3, 6k7 and 13k3 Ω	1k7, 3k3, 6k7 and 13k3 Ω
100 V line	6, 3, 1'5 and 0'75 W	6, 3, 1'5 and 0'75 W
Frequency response	130 ÷ 20.000 Hz	300 ÷ 19.000 Hz
Radiation angle (1 kHz / 4 kHz)	120° / 90°	120° / 80°
Sensitivity (1 kHz) (SPL)	93 dB (1 W, 1 m)	96 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	101 dB (6 W, 1 m)	104 dB (6 W, 1 m)
Dimensions (mm)	Ø 230 x 75 (depth)	Ø 266 x 90 (depth).
Weight	1.7 kg	1.6 kg
Finishing	White metal	White metal
Remarks	-	Surface mounting speaker
Ø of the embedding hole	195 mm	-

FREQUENCY RESPONSE

A-266ATM



POLAR DIAGRAM



CEILING SPEAKERS



CEILING SPEAKERS

A-256AMC / A-256APC



The A-256AMC and A-256APC models are ceiling loudspeaker for surface mounting, adequate for installations where flush-mounting is not possible. They have a 6,5" loudspeaker and power rating of 10 W RMS in 100 V line. Their transformer includes various inputs to select the more adequate power tapping for the installation.

The A-256AMC has an ABS baffle with a steel grill, in white colour.

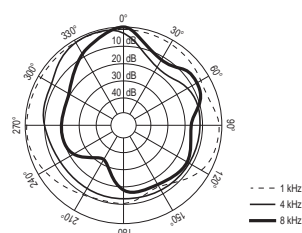
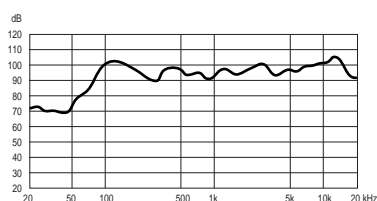
The A-256APC has a baffle and grill in ABS plastic, in white colour.

Both have an external diameter of 265 mm.

SPECIFICATIONS

	A-256AMC	A-256APC
Loudspeaker	6,5"	6,5"
Power (RMS)	10 W	10 W
Maximum power	15 W	15 W
Impedances	1k, 2k and 4 kΩ	1k, 2k and 4 kΩ
100 V line	10, 5 and 2'5 W	10, 5 and 2'5 W
Frequency response	80 ÷ 18.000 Hz	80 ÷ 18.000 Hz
Sensitivity (1 kHz) (SPL)	93 dB	93 dB
Sound pressure level (1 kHz) (SPL)	103 dB (10 W, 1 m)	103 dB (10 W, 1 m)
Dimensions (mm)	Ø 265 x 85 (depth)	Ø 265 x 85 (depth)
Weight	1 kg	1 kg
Finishing	ABS and white steel grill	White ABS

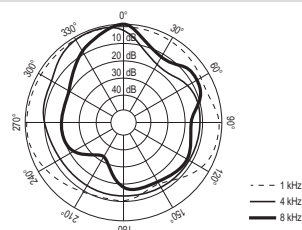
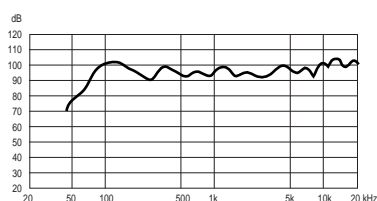
A-256AMC



FREQUENCY RESPONSE

POLAR DIAGRAM

A-256APC



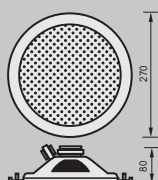
CEILING SPEAKERS

A-268ATM



The A-268ATM model has an RMS power rating of 10 W and includes an 8" bicone loudspeaker, as well as a spring-type quick mounting system.

Metallic ceiling loudspeaker to be embedded, it includes a 100 V line transformer with various inputs for power tapings and white grill.



Optional: metallic embedding fire-resistant box **FID-6520** and accessories **FID-2** (ceramic terminal block and thermal fuse).

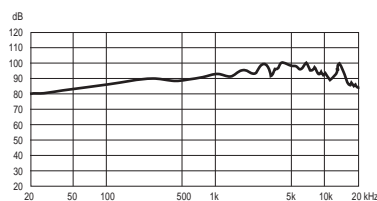
The use of these accessories makes it possible to comply with the voice evacuation safety standards in force, BS5839 and EN60849.

SPECIFICATIONS

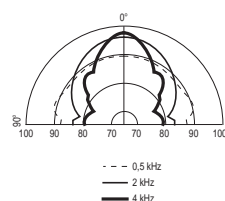
A-268ATM

Loudspeaker	8" curvilinear – bicone
Power (RMS)	10 W
Maximum power	15 W
Impedances	1k, 2k, 4k and 8k Ω
100 V line	10, 5, 2'5 and 1'25 W
Frequency response	90 ÷ 20.000 Hz
Radiation angle (1 kHz / 4 kHz)	100° / 30°
Sensitivity (1 kHz) (SPL)	91 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	101 dB (10 W, 1 m)
Dimensions (mm)	Ø 270 x 80 (depth).
Weight	1.38 kg
Finishing	Metal in white colour
Ø of the embedding hole	230 mm

FREQUENCY RESPONSE



POLAR DIAGRAM

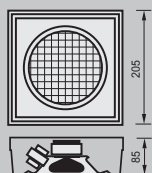


CEILING SPEAKERS



CEILING SPEAKERS

WAS-6061



The WAS-6061 model includes a 6" loudspeaker and has a power rating, in 100 V line, of 6 W. It has a white ABS square salient box and is for surface mounting.

It includes a 100 V line transformer, with various inputs to select the more adequate power tapping for the installation.

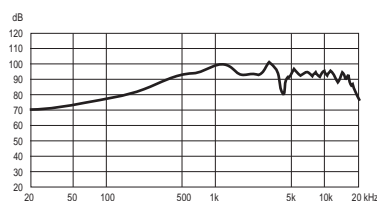
SPECIFICATIONS

WAS-6061

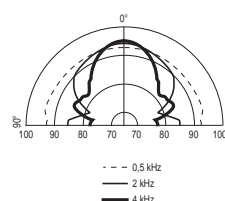
Loudspeaker	6" bicone
Power (RMS)	6 W
Maximum power	9 W
Impedances	1k7, 3k3, 6k7 and 13k3 Ω
100 V line	6, 3, 1'5 and 0'75 W
Frequency response	380 \div 16.000 Hz
Radiation angle (1 kHz / 4 kHz)	120° / 80°
Sensitivity (1 kHz) (SPL)	98 dB (1 W, 1 m)
Sound pressure level (1 kHz) (SPL)	106 dB (6 W, 1 m)
Dimensions (mm)	210 x 210 x 85
Weight	1.21 kg
Finishing	White ABS

FREQUENCY RESPONSE

WAS-6061



POLAR DIAGRAM



CEILING SPEAKERS



ATTENUATORS AND PROGRAM SELECTOR

CV-4 / CV-40 / CV-P



The CV-4 and CV-40 volume controls models have been designed to work on 100 V inputs and outputs lines, with a regulation of 6 steps by means of a 12 positions endless switch. In order to facilitate the volume control, a “zero” has been inserted between every two levels.

They are provided with a surety paging connection that allows to send the messages even though the volume control switch is off. The messages will be sent at the maximum volume. The surety paging can be done simultaneously with the priority paging over the music channel.

They are available in four colours: Ivory, White, Silver and Black.

The CV-P program selector uses a 12 positions endless switch for the program selection, so that, if the position “6” is exceeded, the program selection starts again from 1 to 6.

It is provided with a surety paging facility that connects the Program 1 to the speakers bypassing the selector.

It is also available in four colours: Ivory, White, Silver and Black.

These 3 models can be optionally supplied with colour frames.



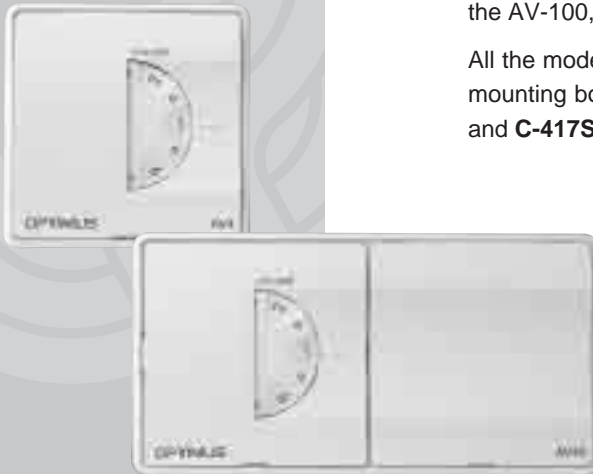
SPECIFICATIONS

	CV-4	CV-40	CV-P
Power supply	24 V.d.c.		
Input	100 V line		6 x 100 V line
Output	100 V line		
Regulated power	Up to 4 W	Up to 40 W	-
Flush-mounting box	Included, model L170		
Consumption	10 mA		
Dimensions (mm)	45 x 45		
Volume control	Regulated by steps (6)		-
Finishing	In Ivory, White, Silver or Black colour		
Remarks	Color frames (optional): Ivory (model M420I), Silver (model M420S), White (model M420W) and Black (model M420B)		



ATTENUATORS

AV-4 / AV-40 / AV-100

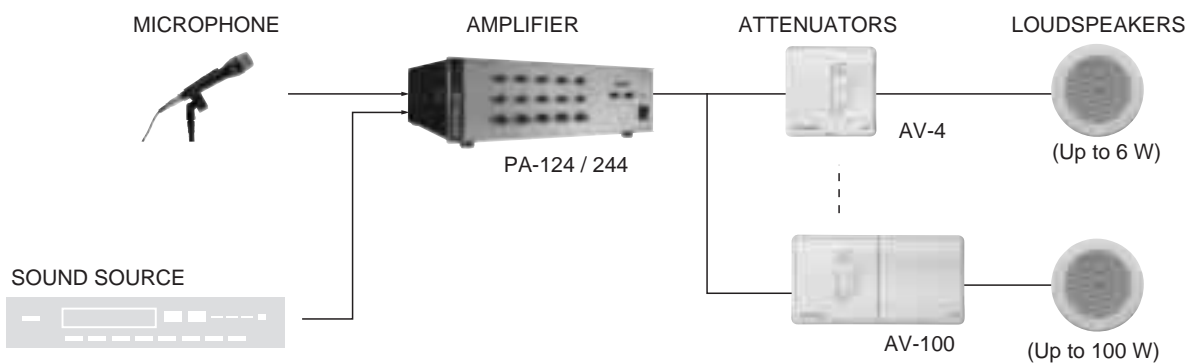


100 V Line attenuators. Built-in security paging system that allows the messages go through at full power, no matter the position of the volume control. The 3 different power handling capacities, 6 W in the AV-4, 40 W in the AV-40 and 100 W in the AV-100, allow to cover any specific power requirement.

All the models include the embedding plastic box. The surface mounting boxes are available under request (**C-417S** for AV-4 and **C-417S2** for the AV-40 and AV-100).

	AV-4	AV-40	AV-100
Input		100 V line	
Output		100 V line	
Regulated power	Up to 6 W	Up to 40 W	Up to 100 W
Dimensions (mm)	78 x 78 x 50 (depth)	150 x 78 x 50 (depth)	150 x 78 x 50 (depth)
Flush-mounting box	Included, model L-170E. 60 x 60 x 42 mm	Included, model C-417RR. 135 x 60 x 42 mm	
Weight	0.09 kg	0.360 kg	0.650 kg
Volume control		Regulated by steps (9)	
Security paging		+, S, -C switching line	
Input programs		1	
Finishing		White ABS	
Remarks	Surface mounting box, optional, model C-417S	Surface mounting box, optional, model C-417S2	

BLOCK DIAGRAM



ATTENUATORS



ATTENUATORS

AV-4P / AV-40P

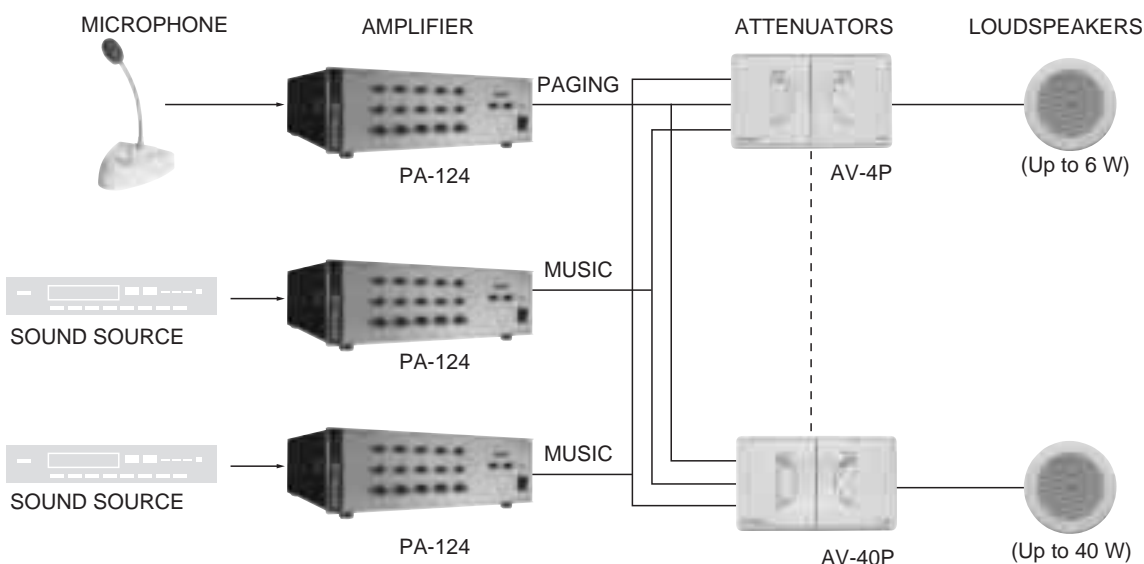


100 V Line attenuators with built-in program selector. Built-in security paging system that allows the messages go through at full power, no matter the position of the volume control and the program selector. Available with two different power handling capacities, 6 W in the AV-4P and 40 W in the AV-40P.

Both models include the embedding plastic box. The surface mounting boxes are available under request (**C-417S2** for AV-4P and **C-419G** for the AV-40P).

	AV-4P	AV-40P
Input	100 V line	
Output	100 V line	
Regulated power	Up to 6 W	Up to 100 W
Dimensions (mm)	150 x 78 x 50 (depth)	
Flush-mounting box	Included, model C-417RR. 135 x 60 x 42 mm	
Weight	0.190 kg	0.325 kg
Volume control	Regulated by steps (6)	
Security paging	24 V.d.c. relay	
Input programs	6, selectable	
Finishing	White ABS	
Remarks	Surface mounting box, optional, model C-417S2	
		model C-419G

BLOCK DIAGRAM



ATTENUATORS



MICROPHONE DESKS

MD-94 / MD-94R

Desktop paging microphones, designed for a maximum easiness of use in the live messages. Its swivel gooseneck type microphone allows the adjustment to the most appropriate position for the operator.



Both models, MD-94 and MD-94R, have different dip-switches at the bottom that allow for their configuration: balanced or unbalanced output, 0 dB or - 60 dB output level and first-in, first-served or cascade priority.

They also have gong on-off switch and LED indicators for “on”, “busy line”, “chime” and “active” status. The model MD-94R has an internal recording system that records the live message at same time that is being sent and a push-button for the automatic repetition of the last message sent.

SPECIFICATIONS

MD-94 / MD-94R

System	Electret
Gong	4 tones programmable
Directionality	Unidirectional – cardioid
Power supply	24 V.d.c. (external or through amplifier)
Output impedance (1 kHz)	600 Ω
Frequency response	180 ÷ 15.000 HZ
Sensitivity (1 kHz, 1 μ bar) (\pm 3 dB)	- 83 dB
Output level	Selectable, 775 mV - 1 mV
Signal / noise ratio	> 56 dB
Dimensions (mm)	205 x 220 x 65 (desk) – 200 mm length (micro support)
Weight	1.2 kg
Finishing	Ivory ABS
Consumption	70 mA
Leds	On / Off, Gong, Talk and Busy
Remarks	16 s recording recall (MD-94R)



MICROPHONE DESKS

MD-94R4 / MD-94R6 / MD-94R12



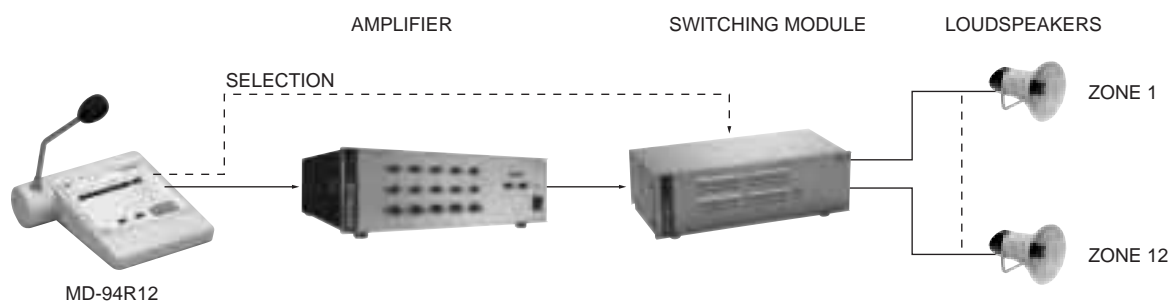
Desktop paging microphones with zones selection, designed for a maximum easiness of use in the live messages. The zone selection can be connected directly to the priority control of the power units or to a MC/MS lines switching unit. MD-94R4 has 4 zones, MD-94R6 has 6 zones and MD-94R12 has 12 zones. All 3 models have also an all-call push-button.

Its swivel gooseneck type microphone allows the adjustment to the most appropriate position for the operator. All models have different dipswitches at the bottom that allow for their configuration: balanced or unbalanced output, 0 dB or - 60 dB output level and first-in first-served, or cascade priority.

They also have gong on-off switch and LED indicators for "on", "busy line", "chime" and "active" status. They have also an internal recording system that records the live message at same time that it is being sent and a push-button for the automatic repetition of the last message sent.

	MD-94R4	MD-94R6	MD-94R12
System	Electret		
Gong	4 tones programmable		
Directionality	Unidirectional – cardioid		
Power supply	24 V.d.c. (external or through amplifier)		
Output impedance (1 kHz)	600 Ω		
Frequency response	180 \div 15.000 Hz		
Sensitivity (1 kHz, 1 μ bar) (\pm 3 dB)	- 83 dB		
Output level	Selectable 775 mV - 1 mV		
Signal / noise ratio	> 56 dB		
Consumption	90 mA	130 mA	250 mA
Leds	On / Off, Gong, Talk and Busy		
Zone selection	4 + all call	6 + all call	12 + all call
Dimensions (mm)	205 x 220 x 65 (desk); 200 mm length (micro support)		
Weight	1.4 kg		
Finishing	Ivory ABS		
Remarks	16 s recording recall		

BLOCK DIAGRAM



MICROPHONE DESKS



MICROPHONE DESKS

MPP-94 Priority adaptor

MPP-94 is a priority management unit for the MD-94 desktop paging microphones. The unit allows for the connection of up to 6 microphone desks, which can then be assigned first-in first served or cascade priority.

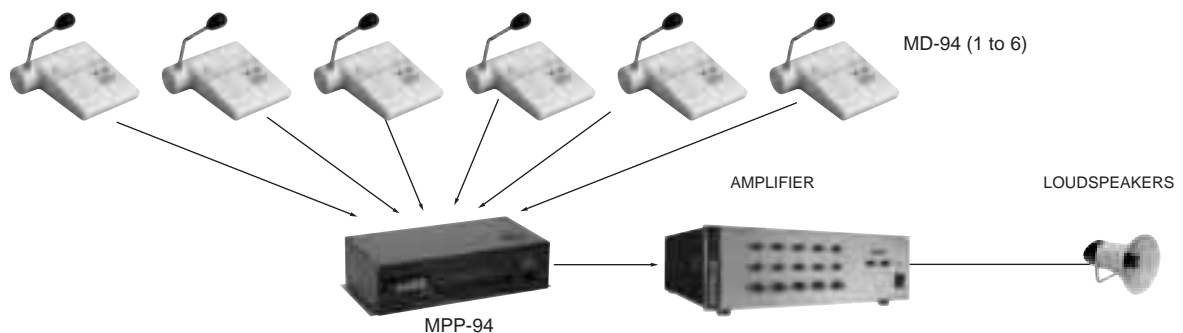
Several MPP-94's can be linked together in order to expand up to the necessary microphone units.



MPP-94

Inputs	6 for microphone desks for MD-94 series + 1 link to another MPP-94
Outputs	6 independent + 1 link to another MPP-94
Priorities	Selectable between cascade and 1st-in-1st
Power supply	24 V.d.c.
Frequency response	180 ÷ 15.000 Hz
Output level	Selectable 775 mV – 1 mV
Signal / noise ratio	> 56 dB
Dimensions (mm)	270 (width) x 75 (height) x 135 (depth)
Weight	1.3 kg
Finishing	Metal frame, cover in black skinplate
Consumption	6 mA, without microphone desk supply
Remarks	Link with other MPP-94 units for the control of more than 6 microphone desks

BLOCK DIAGRAM



MICROPHONE DESKS

ME- F25DP / ME-F25DPG



These two microphone desks have a 25 cm flexible gooseneck, which allows for the most appropriate position adjustment for the operator. Their output level can be internally configured to match the installation's request.

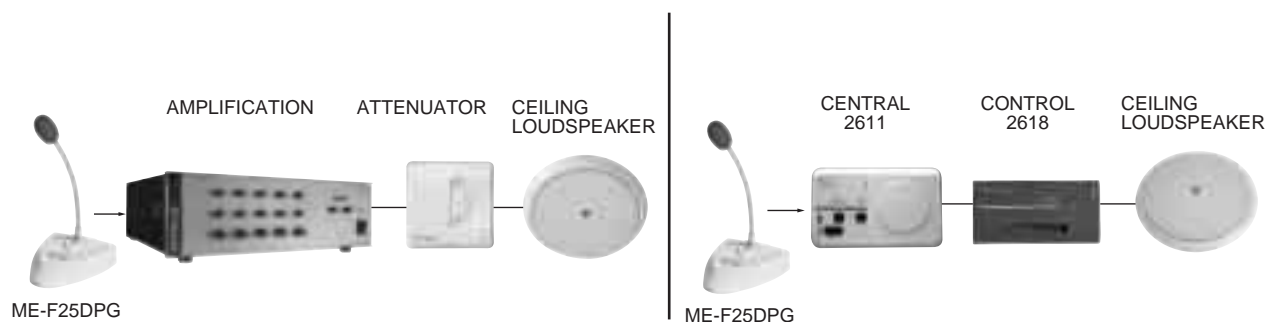
Both models have a Talk push-button, bi-colour LED indicator and priority paging function. The ME-F25DPG also includes a 4 tone chime and an electronically lockable Talk push-button.

ME-F25DP

ME-F25DPG

System	Electret	
Directionality	Unidirectional – cardioid	
Functions	Priority	Priority + 4 tones gong
Power supply	9 – 24 V.d.c., external or through DIN connector	
Output impedance (1 kHz)	Balanced: 600 Ω; Unbalanced: 300 Ω	
Frequency response	200 ÷ 15.200 Hz	
Microphone sensitivity (1 kHz and 1 µbar) (±4 dB)	- 37 dB	
Output signal	- 30 / - 60 dBm, selectable	
Signal / noise ratio	> 55 dB	
Dimensions (mm)	Stand: 122 x 155 x 40; Flexible support: 250 mm / Ø 8 mm	
Weight	1.2 kg	
Finishing	Bayblend plastic	
Consumption	20 mA	30 mA
Controls	Talk key	Talk / Gong + Talk key

BLOCK DIAGRAM



MICROPHONE DESKS



MICROPHONE DESKS

ME- F45CN / ME-F45DPG



The two models consist on a heavy, very stable stand and a 45 cm. flexible gooseneck. Their output level can be internally configured to match the installation's request.

Both models, which are Phantom supplied, have an electronically lockable Talk push-button, LED indicator and priority paging function.

The ME-F45DPG includes a 4 tone chime and a bi-colour LED indicator (Chime-Talk).

The ME-F45CN is a Conference-type black microphone, with Talk push-button and LED indicator.

SPECIFICATIONS

	ME-F45CN	ME-F45DPG
Type	Electret	Electret
Consumption	30 mA	30 mA
Signal / noise ratio	55 dB	55 dB
Power supply	9 to 24 V.d.c.	9 to 24 V.d.c.
Microphone sensitivity (1 kHz and 1 μ bar) (\pm 4 dB)	- 37 dB (0 dB = 1 V / Pa, 1 kHz)	- 37 dB (0 dB = 1 V / Pa, 1 kHz)
Gong	No	4 tones
Controls	Talk, push buttons, electronically configurable with or without locking.	Talk (with or without gong), push buttons, electronically configurable with or without locking.
Leds	Talk	Talk / Gong
Output impedance (1 kHz)	Electronically balanced, 600 Ω	Balanced: 600 Ω - Unbalanced: 300 Ω
Frequency response	200 \div 15.200 Hz	200 \div 15.200 Hz
Output level	- 30 / - 60 dBm	- 30 / - 60 dBm
Dimensions (mm)	Flexible: \varnothing 8 x 450 – Stand: 122 x 155 x 40	Flexible: \varnothing 8 x 450 – Stand: 122 x 155 x 40
Weight	1.4 kg	1.4 kg
Finishing	Bayblend plastic, black	Bayblend plastic, ivory
Accessories	5 m output cable, with 180° male DIN connector	5 m output cable, with 180° male DIN connector



WIRELESS MICROPHONES SYSTEM

Wireless microphones



Multi-channel, PLL technology, wireless microphones system, working on the UHF range of 600 to 960 MHz.

All the components of this family, a receiver and three microphones: one hand-held, another tie-type and a third one aerobic type, are equipped with a switching system that permits to choose the working frequency from a total of 16 different channels.

The Diversity type receiver has two different channels, allowing for the simultaneous reception of two different microphones in two different frequencies. It includes noise and interferences elimination circuitry, to ensure a clear reception while the microphones are within a normal working range.

MH-850C	UHF Wireless microphone
PT-850BC + CM-501	UHF Wireless tie-type microphone and transmitter
PT-850BC + CX-504	UHF Wireless aerobic-type microphone and transmitter
US-902DC	2 channels wireless receiver
US-8001DC	1 channel wireless receiver

SPECIFICATIONS

MH-850C

Microphone type	Handheld
Carrier frequency range	600 ÷ 960 MHz, UHF
Channels selection	16
Frequency response	50 ÷ 16.000 Hz
Carrier power	20 mW
Frequency deviation	± 48 kHz
Frequency preparation	PLL synthesized control
Battery	2 x AA (1,5 V)
Operating temperature	- 10 to + 50°C
LED display	Channel, On / Off, low battery
Controls	On / Off switch, channel Up / Down switch
Dimensions (mm)	Ø 50 x 135
Finishing	Grey plastic body, black metallic grill

PT-850BC + CM-501

PT-850BC + CX-504

	Tie-type	Cardioid	Aerobic-type
Microphone type			
Polar diagram		Cardioid	
Carrier frequency range	600 ÷ 960 MHz, UHF		
Channels selection	16 frequencies		
Frequency response	100 ÷ 10.000 Hz		50 ÷ 18.000 Hz
Carrier power		20 mW	
Impedance	2k2 Ω		680 Ω
Frequency deviation		± 48 kHz	
Modulation system		PLL	
Sensitivity (1 kHz) (± 3 dB)	- 62 dB		- 70 dB
Maximum SPL	100 dB (THD 1%)		130 dB (THD 1%)
Power supply	Battery: 2 x AA (1,5 V.d.c.)		
Operating temperature	- 10 to + 50°C		
LED display	ON/OFF led, low battery		
Controls	ON/OFF and channels selection		
Finishing	Dark grey plastic		
Accessories	Screw-driver, carry-case and windscreen		

WIRELESS MICROPHONES SYSTEM



WIRELESS MICROPHONES SYSTEM

US-902DC / US-8001DC Wireless receivers



US-902DC



US-8001DC

Multi-channel, synthesized PLL technology, wireless microphones system, working on the UHF range of 600 to 960 MHz and with superheterodine diversity type reception. They provide an excellent coverage distance, up to 100 m in open spaces, from the microphone to the receiver.

All the components of this family, two receivers and three microphones, one hand-held, another tie-type, and a third one aerobic type are equipped with a switching system that permits to choose the working frequency from a total of 16 different channels.

Two receiver models are available: US-902DC has two different channels, allowing for the simultaneous reception of two different microphones in two different frequencies and US-8001DC has one channel.

The model US-902DC includes two BNC antenna inputs to connect its two built-in antennas, the UA-900 Antenna splitter or the UB-900 Antenna booster. It is supplied with racks mounting brackets and includes a LCD multifunction display.

The model US-8001DC has two built-in antennas and is not rack mountable.

Both models include noise and interferences elimination circuitry, to ensure a clear reception while the microphones are within a normal working range; the diversity type reception system reduces the fading possibilities in the radiofrequency linkage. Both are compatible with the MH-850C hand-held type, PT-850BC + CM-501 tie-type or PT-850BC + CX-504 aerobic type microphones.

SPECIFICATIONS

US-902DC

US-8001DC

Power supply	Power supply unit; input 230 V.a.c.; 50 ÷ 60 Hz / Output 24 V.d.c.	
Consumption	500 mA (12 V.d.c.)	
Carrier frequency range	600 ÷ 960 MHz, UHF	
Channels	16 frequencies (*)	
Reception	Superheterodine double diversity	
Audio output	- 12 dB 600 Ω, 1 XLR connector (balanced), 1 Jack connector (unbalanced)	
Antenna	BNC	Built-in
Reception sensitivity	- 107 dBm (12 dB S/R)	
Image frequency reuff	> 60 dB	
Channels selection	Manual, by means of frontal keypad and display	
Signal / Noise ratio	> 105 dB	
Total Harmonic Distortion	< 0,6% (1 kHz)	
Frequency response (± 3 dB)	50 ÷ 18.000 Hz	
Operating temperature	- 10 to + 50°C	
Controls	On/Off, volume, channels selector	
Finishing	Metallic, metal grey colour	
Dimensions (mm)	480 (width) x 45 (height) x 232 (depth)	221 (width) x 40 (height) x 152 (depth)
Rack mounting units	1	Not rack mountable
Accessories	Rack mounting brackets	-

(*) Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	786.250 MHz	6	792.500 MHz	A	799.000 MHz	E	803.750 MHz
1	787.500 MHz	7	795.500 MHz	B	800.500 MHz	F	805.250 MHz
2	788.500 MHz	8	796.250 MHz	C	801.000 MHz	D	802.750 MHz
3	789.125 MHz	9	797.875 MHz				
4	790.250 MHz	5	791.125 MHz				



WIRELESS MICROPHONES SYSTEM

UA-900 / UB-900



UA-900

UB-900

These are an antenna splitter and antenna booster modules for the OPTIMUS UHF wireless microphones system.

The antenna splitter works in the UHF band (470 to 870 MHz), it has 2 antennas inputs and receiver outputs. It is used to distribute the signal coming from 2 antennas towards several receivers, within a multichannel system. Simultaneously, it amplifies the radiofrequency signal in order to compensate possible losses. It can also supply 4 receivers. Installing several units in cascade permits to distribute the signal to more than 41 receivers.

The antenna booster works also in the UHF band (470 to 870 MHz) with one output for a receiver. This antenna can be fitted on microphones bases.

SPECIFICATIONS

	UA-900	UB-900
Carrier frequency range	470 ÷ 870 MHz, UHF	470 ÷ 870 MHz, UHF
Antenna gain	1,8 dB	-0,5 to 3 dB
Output isolation	>25 dB	-
Impedance	50 Ω	50 Ω
Coverage angle	-	360°
Receiver power supply	12 ÷ 18 V.d.c. (4 connectors)	-
Operation voltage	12 ÷ 18 V.d.c.	-
Power supply	230 V.a.c., 50 ÷ 60 Hz	12 ÷ 18 V.d.c.
Dimensions (mm)	250 (width) x 480 (height) x 45 (depth)	78 (width) x 50 (height) x 18 (depth)
Rack units	1	Not rack-mountable
Weight	2.15 kg	0.2 kg
Finishing	Dark grey plastic	Dark metal grey colour
Accessories	4 x cables for the receiver supply, 10 x BNC-BNC cables, 2 x antennas	Wall mounting bracket and screws

MICROPHONES

AVL Series

AVL-102

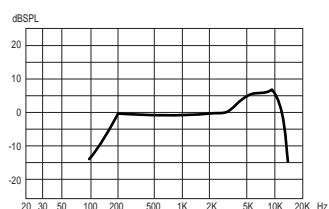
AVL-1620

AVL-2300

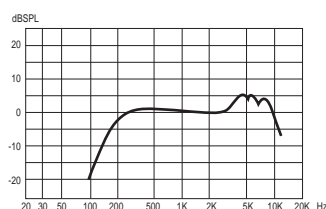
Family of 3 different models of dynamic, hand held microphones, with unidirectional polar diagram. They are in black metal and are supplied with a 5 m cable, including a 5 pins DIN connector for connection to the amplifier. Their different designs and specifications, allow for a variety of choice of the most appropriate one to every specific need.

	AVL-102	AVL-1620	AVL-2300
Capsule type	Dynamic	Dynamic	Dynamic
Directionality	Hypercardioid	Unidirectional	Unidirectional
Output impedance (1 kHz)	250 Ω	500 Ω	250 Ω
Frequency Response	70 ÷ 17.000 Hz	100 ÷ 15.000 Hz	50 ÷ 18.000 Hz
Sensitivity (1 kHz, 1 μbar)	- 72 dB	- 76 dB	- 72 dB
Controls	On / Off switch	On / Off switch	On / Off switch
Dimensions (mm)	Ø 53.5 x 180 length, 5 m cable	Ø 29 x 185 length, 5 m cable	Ø 51 x 168.5 length, 5 m cable
Connection	XLR / DIN	XLR/DIN	XLR/DIN
Finishing	Metal, black colour	Metal, black colour	Metal, black colour

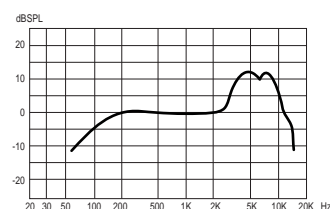
FREQUENCY RESPONSE



AVL-102



AVL-1620



AVL-2300



MICROPHONES

AVL-600

The AVL-600 model is an electret type microphone and has a unidirectional supercardioid polar diagram. It is adequate for picking up an audio signal coming from a distant place without picking the surrounding noise.

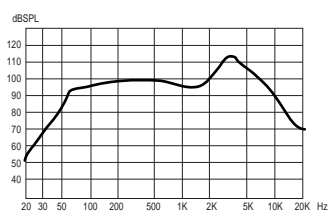
It is in black aluminium and includes an On / Off switch as well as a battery holder. It also includes a 5 m. cable with a 5 pins DIN connector.



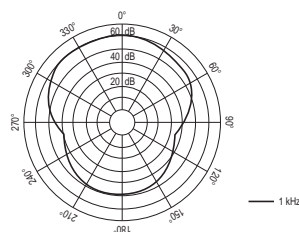
AVL-600

Type	Electret
Directionality	Unidirectional, supercardioid
Power supply	1,5 V (AA-R6) battery
Output impedance (1 kHz)	600 Ω
Frequency response	70 ÷ 16.000 Hz
Sensitivity (1 kHz, 1 μ bar)	- 54 dB
Controls	On / Off switch , Stand-by
Connectors	DIN 3 pins
Dimensions (mm)	\varnothing 22 x 227
Weight	0.243 kg
Finishing	Black aluminium
Accessories	5 m cable and windscreen

FREQUENCY RESPONSE



POLAR DIAGRAM



MICROPHONES



MICROPHONES

PHM-902

The PHM-902 is an electret, boundary type microphone, frequently used in churches (altars).

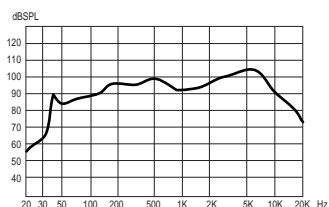
This model is in black metal and includes an adapter for battery supplying if the unit has to be power supplied separately. It can also be phantom supplied, either from an amplifier, or from a phantom supply **AP-48** unit.



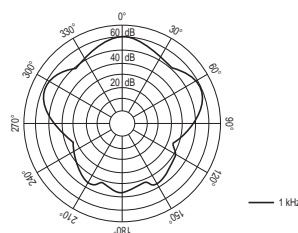
PHM-902

Type	Electret
Directionality	Unidirectional cardioid
Output impedance (1 kHz)	250 Ω (balanced)
Frequency response (± 3 dB)	50 ÷ 18.000 Hz
Sensitivity (1 kHz, 1 μ bar)	- 68 dB
Dimensions (mm)	83.7 x 68.7 x 17
Weight	0.142 kg
Finishing	Black metal; Battery holder in black metal
Accessories	7 m cable + 0.5 m adaptor cable
Battery	1.5 V (AA-R-6) battery or phantom power supply
Connectors	XLR / DIN

FREQUENCY RESPONSE



POLAR DIAGRAM



MICROPHONES

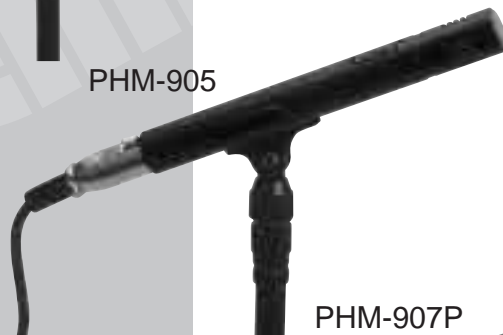
PHM-905 / PHM-907P / PHM-908P

These hand held microphones are electret type and have a unidirectional polar diagram. They are in black metal and include a clamp to allow their mounting on a floor or desk stand; they are also supplied with a 5 m cable including a 5 pins DIN connector for connection to the amplifier.

They have a battery holder if a microphone has to be separately power supplied. They also admit a phantom supply, either from an amplifier, or from an **AP-48** phantom supply unit.



PHM-905



PHM-907P



PHM-908P

SPECIFICATIONS

	PHM-905	PHM-907P	PHM-908P
Type	Electret		
Directionality	Unidirectional cardioid		
Operating voltage	Phantom 9-52 V / 1,5 V (AA-R6) battery		
Output impedance (1 kHz) ($\pm 30\%$)	250 Ω		
Frequency response	70 \div 16.000 Hz	60 \div 18.000 Hz	60 \div 18.000 Hz
Sensitivity (1 kHz, 1 μ bar) (± 3 dB)	- 68 dB	- 65 dB	- 65 dB
Maximum input level (1 kHz at 1% THD)	110 dB	130 dB	150 dB
Signal / noise ratio (0 dB = 1 V / μ bar at 1.000 Hz)	> 40 dB	> 60 dB	> 60 dB
Connectors	XRL/DIN	XRL/DIN	XRL/DIN
Dimensions (mm)	$\varnothing 28 \times 250$	$\varnothing 22 \times 82$	$\varnothing 28 \times 198$
Weight	0.108 kg	0.105 kg	0.110 kg
Finishing	Black metal		
Accessories	5 m cable + clamp		

MICROPHONES

ME-F45C / PA-322B



These pencil-style gooseneck microphones are electret type. They can be connected to the adequate optional desk stand (**BF-45C** or **BF-45CE** models) through an XLR-3 connector. The ME-F45C and PA-322B goosenecks are, respectively, 450 mm and 300 mm long.

Their unidirectional polar diagram, excellent frequency response and wide dynamic range make them perfectly suitable for conferences, conventions, interviews, radio broadcasting ...

They are phantom supplied, either from an amplifier, or from an **AP-48** phantom supply unit.

SPECIFICATIONS

	ME-F45C	PA-322B
Type	Electret	Electret
Directionality	Unidirectional cardioid	Unidirectional cardioid
Power supply	Phantom 9 –52 V. Optional power supply AP-48	Phantom 9 –52 V. Optional power supply AP-48
Output impedance (1 kHz)	1.000 Ω , balanced	250 Ω , balanced
Frequency response	150 ÷ 16.000 Hz	50 ÷ 18.000 Hz
Sensitivity	- 47 dB (+/- 4 dB)	- 65 dB (\pm 3 dB) at 1 kHz and 1 μ bar
Length (mm)	450	300
Weight	0.170 kg	0.116 kg
Finishing	Metal in black colour	Metal in black colour
Accessories	BF-45C or BF-45CE stand (optional)	BF-45C or BF-45CE stand (optional)
Connectors	XLR	XLR



MICROPHONES

AP-48 Phantom supply



AP-48 is a phantom supply unit for up to 4 microphones, with XLR female balanced inputs.

It also has 4 balanced outputs with XLR male connectors and an also balanced mix-out output.

The front panel includes 4 LEDs indicators of possible short-circuit in the microphone cable and a MIX-OUT gain selector.

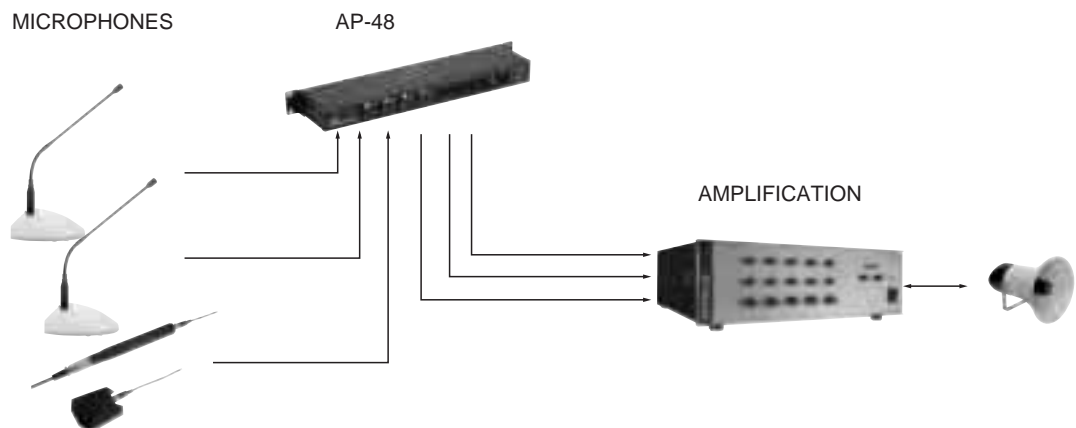
Power supply is of 24 V.d.c., doubled in the rear and front panels for an easier installation.

This module is ideal in the installations where PHM series or PA-322 and ME-F45C microphones are used and require a phantom supply.

AP-48

Nominal Power Supply in Phantom Microphone Inputs	48 V.d.c.
Number of Inputs for Phantom Microphone	4 XLR female, balanced 600 Ω
Inputs	4 XLR male, balanced 600 Ω
Number of single outputs	4 XLR male, balanced 600 Ω
Microphones operation nominal level	- 30 dBm
MIX-OUT Output resulting from the sum of the 4 inputs	1 XLR male, balanced 600 Ω
Frequency response MIX-OUT output (- 3 dB)	50 \div 20.000 Hz
MIX-OUT Inputs-Output Gain	0 dB / +10 dB / +20 dB (Configurable)
MIX-OUT Output Signal-Noise Ratio	72 dB (Gain at 0dB)
MIX-OUT Output Maximum Level	+ 12 dBm (\approx 8 V.p.p. / 600 Ω)
Power Supply / Consumption	24 V.d.c. / 150 mA (max.)
Racks units	1
Finishing	Black Skinplate
Dimensions (mm)	483 x 44.4 x 105 (1 U. 19" Rack)
Weight	1.65 Kg

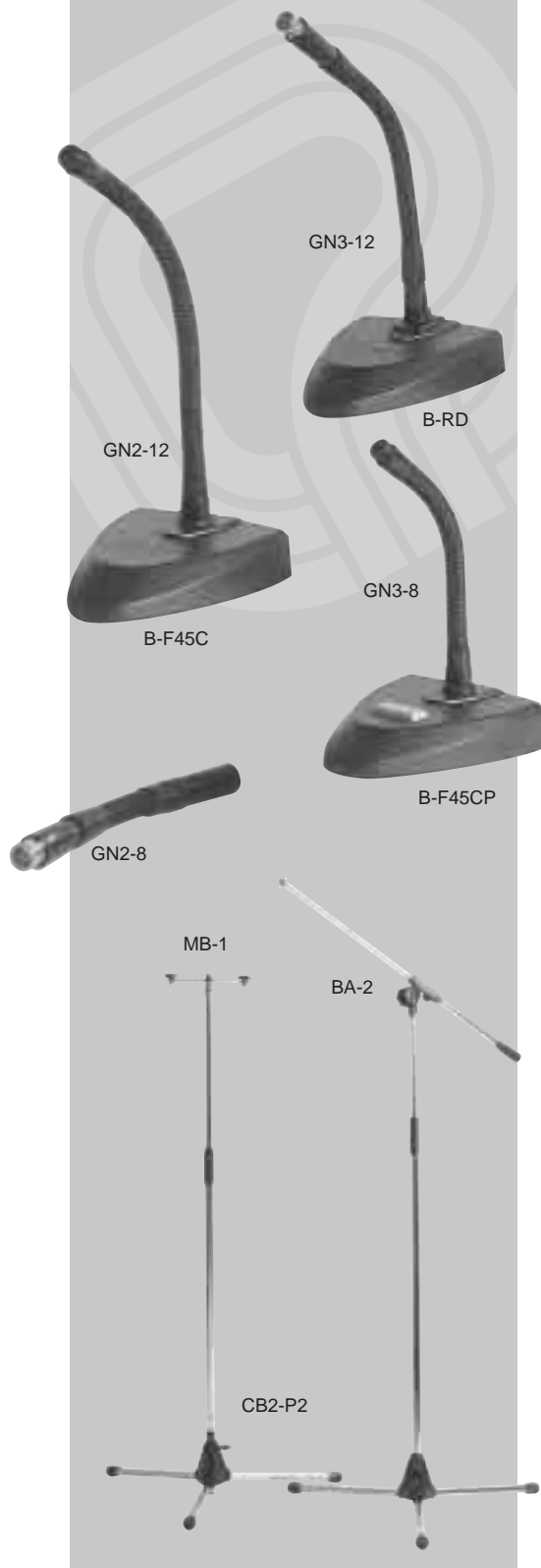
BLOCK DIAGRAM



MICROPHONES



MICROPHONES ACCESSORIES



WALL SOCKETS

BM-CE	XLR-3 connection. Embedding
BM-CS	XLR-3 connection. Surface mounting
BM-DE	DIN connection. Embedding
BM-DS	DIN connection. Surface mounting
BM-JE	Jack 6.35 connection. Embedding
BM-JS	Jack 6.35. Surface mounting

DESK STANDS

B-F45C	XLR-3 connection
B-F45CP	XLR-3 connection, push button (5 m cable and DIN Connection)
B-F45CE	XLR-3 connection, push button with locking device (Phantom microphone)
B-RD	5/8" raccord fixing
B-RP	5/8" raccord fixing, push-button (5 m cable and DIN Connection)
B-R	5/8" raccord for clamps and goosenecks. Fixing by screws

GOOSENECKS

GN3-8	20 cm long 5/8" thread.
GN3-12	30 cm long 5/8" thread.
GN2-8	20 cm long 2 x XLR-3 cannon connectors.
GN2-12	30 cm long 2 x XLR-3 cannon connectors.

FLOOR STANDS

CB2-P2	Extending and folding floor stand. Chrome. 5/8" thread
CB2-P2N	Extending and folding floor stand. Black. 5/8" thread
BA-2	Boom arm for CB2-P2
MB-1	Bracket for 2 microphones, adaptable to CB2-P2, 5/8" threads

CLAMPS

MH-02B	Universal microphone clamp, brass thread
YH-04	Universal microphone clamp, spring fixing
SA-60	Stand Adapter for straight shaft micros



RACKS



These Rack cabinets of standard 19" width, house P.A. central elements, with possibility of different heights (10, 15, 25, 35, 40 or 42 units) according to the needs. The 35, 40 and 42 units models are 800 mm deep for an easy interconnection of the equipments.

They are made of 15" steel and "epoxy" painted. They can be optionally equipped with wheels, metacrilate front door lockable with a key, practicable rear panels for an easy connection of loudspeakers lines, passive and forced ventilation.

	AR-100	AR-150	AR-250	AR-350F8	AR-400F8	AR-42F8
Height units	10	15	25	35	40	42
Width (internal) (mm)	488 (19")	488 (19")	488 (19")	488 (19")	488 (19")	488 (19")
Width (external) (mm)	546	546	546	546	546	546
Depth (mm)	460	610	610	800	800	800
Height (mm)	460	844	1.285	1.732	1.954	2.043
Accessories (included)	Stands	Wheels and rear panel				
Door (optional)	-	P-150	P-250	P-350	P-400	P-420

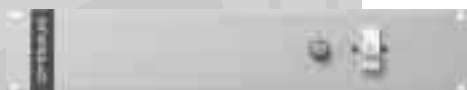


The AR-60 and AR-80 are 19" Rack cabinets of 6 and 8 units high, including front door and removable rear door. They are adequate for audio equipments mounting and transporting. Their wood side panels are 9 mm thick, with reinforced metal corners, "butterfly" type locks, metal handles for easy transport and rubber feet. They include screws for the equipments mounting.

SPECIFICATIONS

	AR-60	AR-80
Height units	6	8
Width (internal) (mm)	488 (19")	
Width (external) (mm)	520	
Depth (mm)	620	
Height (mm)	295	380
Side panels	9 mm. Wood	
Doors	Front door and removable rear door	
Characteristics	Metal corners and handles	

RACKS ACCESSORIES



Z-45



Z-46



Z-52A



Z-60PF



Z-50A

Unit	Description
Z-23	Mounting bracket with screws
Z-23CA	Rack conduit bracket
Z-23CC	Conduit-conduit support
Z-23U10	Mounting bracket for AR-100
Z-24	Mounting plate for special mountings (450 x 315 mm.)
Z-25	Mounting plate (450 x 265 mm.)
Z-030N	Frontal black screw set
Z-30	Screws set, golden colour
Z-040	Set of 4 rubber wheels
Z-45	Main switch front panel (2 u.) with 20 A. magneto-thermal switch
Z-46	Frontal monitor loudspeaker panel (3 u.) with volume control
Z-46S	Frontal monitor loudspeaker panel (3 u.) with volume control and 6 programs selector
Z-50A	Patch panel for cables, 3 groups of 6 RJ45 connectors
Z-52A	20 IN / 20 OUT RJ/RJ Patch panel
Z-55	Rear panel for AR-150 outputs and mains input
Z-56	Rear panel for AR-250 outputs and mains input
Z-57	Rear panel for AR-350 outputs and mains input
Z-58	Rear panel for AR-400 outputs and mains input
Z-60	1 Unit blank panel
Z-60PF	1 Unit blank panel, perforated for ventilation
Z-61	2 Units blank panel
Z-62	3 Units blank panel
Z-63	4 Units blank panel
Z-64N	3 Units black colour half blank panel
Z-67A	Mounting Bracket for Cassette
Z-67B	Mounting bracket for tuner
Z-70	UK 2.5 B terminal
Z-71R5	5 Schuko sockets plate
Z-71E	Mounting bracket for 9 Schuko socket plate
Z-71R9	9 Schuko sockets plate
Z-73	Base + pin
Z-77/4	Unex 40.40.77 conduit, grey colour
Z-103-5	Single assembly kit for 1 x UP-65
Z-104-5	Double assembly kit for 2 x UP-65
Z-900UP	Mounting bracket for UP series
V-22	2 Fans blower unit. Thermostat included
V-44	4 Fans blower unit. Thermostat included



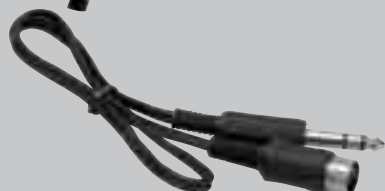
LOUDSPEAKERS AND MIC. ACCESSORIES



FID-8020



SS-3



C-232DJ



C-234-CD



C-284

FLUSH-MOUNTING LOUDSPEAKER BOXES

2050/4	Plastic, for 4" ceiling speakers
2050/6	Plastic, for 6" ceiling speakers
2050/8	Plastic, for 8" ceiling speakers
FID-5220*	Metallic and fire-resistant, for A-265ATM loudspeakers
FID-6520*	Metallic and fire-resistant, for A-266ATM and A-267DTM loudspeakers
FID-8020*	Metallic and fire-resistant, for A-268ATM and QCM-8200C loudspeakers
FID-2*	Connection kit for FID-5220, FID-6520 and FID-8020, terminal block, thermal fuse

(*) According to fire emergency evacuation norm, BS5839 and EN60849

LOUDSPEAKERS STANDS

SS-3	Telescopic floor stand for baffles. 1,8 m. max. height, aluminium
SATU	Car roof stand for 2 exponential horns

EXTENSIONS

C-392B	5 m, Jack 6.35 connectors
C-392DB	5 m, DIN connectors
C-392C	10 m, Jack 6.35 connectors
C-392DC	10 m, DIN connectors

ADAPTERS

C-232DD	Stereo DIN – Male / DIN – Male
C-232DJ	Stereo DIN – Male / Jack 6.35 – Male
C-232DM	Mono DIN – Male / DIN – Male
C-232DR	Mono / Stereo DIN – Male / 2 RCA
C-232DR2	Stereo DIN – Male / 2 RCA
C-232JJ	Stereo Jack 6.35 – Male / Jack 6.35 – Male
C-232JJ1	Mono / Stereo Jack 6.35 – Male / Jack 6.35 – Male
C-232JR	Stereo Jack 6.35 – Male / 2 RCA
C-232JR1	Mono Jack 6.35 – Male / 1 RCA
C-232RR1	Mono RCA / RCA
C-232RR2	Mono / Stereo 1 RCA / 2 RCA
C-234CC	Stereo XLR-3 – Male / XLR-3 – Female
C-234CD	Stereo DIN – Male / XLR-3 – Female
C-234CJ	Stereo XLR-3 – Female / Jack 6.35 – Male
C-234CR	Mono XLR-3 – Female / 1 RCA
C-234DD1	Stereo DIN – Male / DIN – Female
C-234DD2	Stereo DIN – Male / DIN – Female (p4 to p2 bridge)
C-234DJ	Stereo DIN – Female / Jack 6.35 – Male
C-234DJ1	Stereo DIN – Male / Jack 6.35 – Female
C-280	Jack 3.5 – Male to DIN – Female
C-282	Jack 3.5 – Female to DIN – Male
C-284	RJ45 – Male / DIN – Female
C-286	RJ45 – Male / 5 contacts terminal block

CONFERENCE SYSTEM

EDC-1000 Series

Conference system with digital control, with a control capacity up to 10 president microphones and 128 delegate microphones. Its easy configuration allows to comply with the requirements needed in conference halls having different number of attendants, giving a high sound quality and a recording audio signal.

Some of its main features are the inclusion of a microphone mixer and sound sources, the addition of a power unit with loudspeakers connection output, the automatic detection of the connected units, the configuration of the priority type, the number of simultaneous active microphones and the automatic disconnection of the microphones that are not used.



EDC-1050 Central unit

System elements

EDC-1050	Central unit
EDC-1011	President unit
EDC-1012	Delegate unit

MAIN FEATURES

- Control of up to 10 president microphones and 128 delegate microphones (the control unit can give power supply to a maximum of 75 units).
- Single connection between the central unit and the president/delegates units by means of a Sub-D 9 pins - DIN8 and DIN8 - DIN8 (Y type) cables.
- The president units can be installed in any point of the system.
- 7 inputs for external signals: 3 aux inputs (-10 dB) and 4 micro inputs (-22 dB).
- 3 audio outputs: signal of the lecturers, recording and general audio units.
- Loudspeaker and headphones output included in the delegate / president units.
- Priority key in the president units.
- Selectable priority in the microphones activation.
- Limitation of the number of simultaneous open microphones.
- Automatic disconnection of the non used microphones.
- Easy checking of correct installation/operation of the system units.
- Possibility of mounting the central unit in a 19" rack cabinet.



CONFERENCE SYSTEM

EDC-1000 Series

EDC-1011



EDC-1012



EDC-1050 CENTRAL UNIT

The EDC-1050 is the central unit of the EDC-1000 Conference System. It has an auto-detection function that checks the status of the connected units. Provided with 3 adjustable buttons and LED indicators of status, that allow the configuration and changing of the microphones operation mode.

EDC-1050

Frequency response	100 Hz ÷ 16 kHz
Line input	-4 dB ÷ +6 dB ≥ 10 kΩ (balanced)
Line output	-4 dB ÷ +12 dB ≥ 200Ω (balanced)
Sensitivity	-16 dB
Harmonic distortion	≤0,5 %
S/N Ratio	90 dB
Lecturer's microphones connection	3 x Sub-D 9 pins
Micro input	4 x 6 mV (-22 dB) / 600 Ω balanced
Aux input	3 x 300 mV (-10 dB) / 20 kΩ unbalanced
Power output	2 x 40 W / 8 Ω
Level indicator	5 LEDs
Power supply	AC 110/220 V, 50/60 Hz, power supply Led
Dimensions (mm)	100 (height) x 430 (width) x 230 (depth)
Weight	10 kg
Accessories	Mounting brackets for 19" rack
Finishing	Black colour

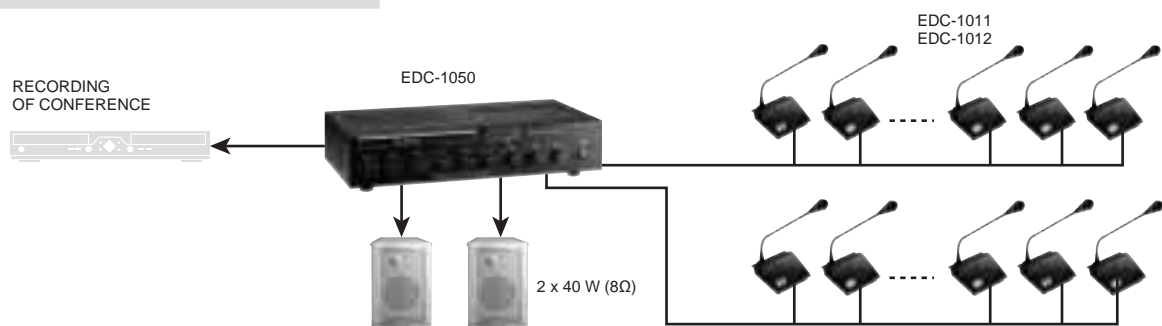
EDC-1011 AND EDC-1012 PRESIDENT AND DELEGATE UNITS

Their main characteristic is the possibility of installation in any point of the system. They are provided with a microphone (WM-43B1R) input, a headphones output and a loudspeaker monitor in some units. The power supply is through a DIN8 cable.

EDC-1011 / EDC-1012

Microphone type	Table
Controls	Call and priority key (EDC-1011) / Call key (EDC-1012)
Connectors	DIN8 - DIN8 (Y type)
Recording/Headphones connector	Mini Jack ø 3,5 stereo
Power supply	12~18 V.d.c.
Consumption	0,5 W RMS
Dimensions of the stand (mm)	48 (height) x 140 (width) x 150 (depth)
Weight	0,82 kg (micro included)

BLOCK DIAGRAM



CONFERENCE SYSTEM



BACKGROUND MUSIC SYSTEM – IMPROVE SERIES

Introduction



A unique system for Hi-Fi Background Music diffusion in Hotels, Offices, Apartments, shopping Malls, etc.

Some of the special features of this system include Stereophonic capability, remote activation of the sound sources, and volume and tonality control in each zone.

The 2600 MODULAR CENTRAL, and its several modules, allows the customising of each particular application, no matter how complex.



BACKGROUND MUSIC SYSTEM SYST-24

2600 Modular central

A central for the distribution of music and pagings can be tailor-made according to the needs of the installation combining different modules.



2600

Power supply	210 - 240 V.a.c.
Power supply output	24 V.d.c., 5 A maximum
Audio output	2 stereo or 4 mono programs + 1 paging program 2600/5 for 5 modules. 330 x 242 mm 2600/8 for 8 modules. 433 x 242 mm 2600/10 for 10 modules. 505 x 242 mm 2600/12 for 12 modules. 575 x 242 mm (Includes the housing for the rest of the modules).
Capacity and dimensions	

MODULES

Module	Description
2602 Master Music	Line output amplifier, for 1 stereo or 2 mono programs, with additional output for recording or external amplifier. Output volume adjustable
2603 Pre-Music	Audio preamplifier for music sources, 1 stereo or 2 mono programs, tone controls.
2604 Master Micro	Line output amplifier for the paging channel. Over-load protection. Output level control.
2605 Pre-Micro	Microphone preamplifier (balanced), with compressor, sensitivity adjustment, tone regulator and noise gate. Output level control.
2606 Acoustic Signals	Gong or siren generator. Adjustment of the gong or siren tone, as well as of the siren length. Balanced output
2607 Micro	Support for electret micro, with XLR connector. All call push-button. Balanced output.
2608 Zone Selector	Zones selector (6 per module). Light indicator of selected zone. Possibility of multiple selection.
2609 Rec / Player	Digital player and recording of 60 seconds message. Playing once, endless repetition until reset or temporised paging.

The IMPROVE background music installations use the codified cable model 2099. Supplied in rolls of 100 m.

BACKGROUND MUSIC SYSTEM SYST-24



BACKGROUND MUSIC SYSTEM SYST-24

2610 / 2611 / 2688 Central Sounds

2610



2611



2688



The Central Sound 2610 and 2611 are the main components of the background music installation, being the connection point of the music sources and from which the audio signal is distributed to the rest of the elements of the system. They include line preamplifiers and amplifiers and supply the rest of the elements with 24 V.d.c. power.

They are small sized and designed for embedding or surface mounting, so that, they easily adapt to all kind of installations. They feature front connectors for music sources along with various inputs for the remote sound sources switch-on from the installation control units.

The 2610 central can distribute 2 stereo or 4 mono programs.

The 2611 central can distribute 1 stereo or 2 mono programs and includes 2 paging microphone desk inputs (to connect ME-F25DPG model, for instance).

2688 Signal power: audio regenerator and auxiliary power supply.

The 2688 Signal Power unit is used in the installations where an additional power supply is required due to the large number of units in use or to a long wiring system.

SPECIFICATIONS

	2610	2611	2688
Power supply		210 – 240 V.a.c.	
Power supply output		24 V.d.c. / 2.5 A	
Front supply output (for sound sources)		220 V.a.c., 330 W	
Programs	2 stereo or 4 mono		1 stereo or 2 mono and 1 micro
Sensitivity (RMS)	80 mV - 1.8 V		80 mV - 1.8 V (line), 17 - 190 mV (mic)
Input impedance	25 kΩ (1 kHz)		25 kΩ (line) or 1.5 kΩ (mic), 1 kHz
Separation between channels		70 dB (typical)	
Audio outputs nominal level		4.4 V.p.p. (+6 dBu)	
Frequency response (-3 dB)		30 ÷ 20.000 Hz	
Radio frequency filter	- 36 dB at 200 kHz		- 36 dB (line) or - 40 dB (mic) at 200 kHz
Colour		Ivory	
Dimensions (mm)		235 x 145	
Audio connectors		2074/DIN, 2074 / Jack 3.5, 2074 / RCA	

Surface and embedding boxes to be consulted in the accessories list.



BACKGROUND MUSIC SYSTEM SYST-24

2618 / 2620 / 2624 Control Sounds

2618



2620



2624



These controls allow the user to adjust the background music program in the desired way for the area where they are installed. They permit not only to adjust the music volume but also the tonality (bass and treble controls in models 2620 and 2624) and to choose the desired music program from between 2 or 4 different ones (2620: 2 stereo programs; 2624: 4 monophonic programs).

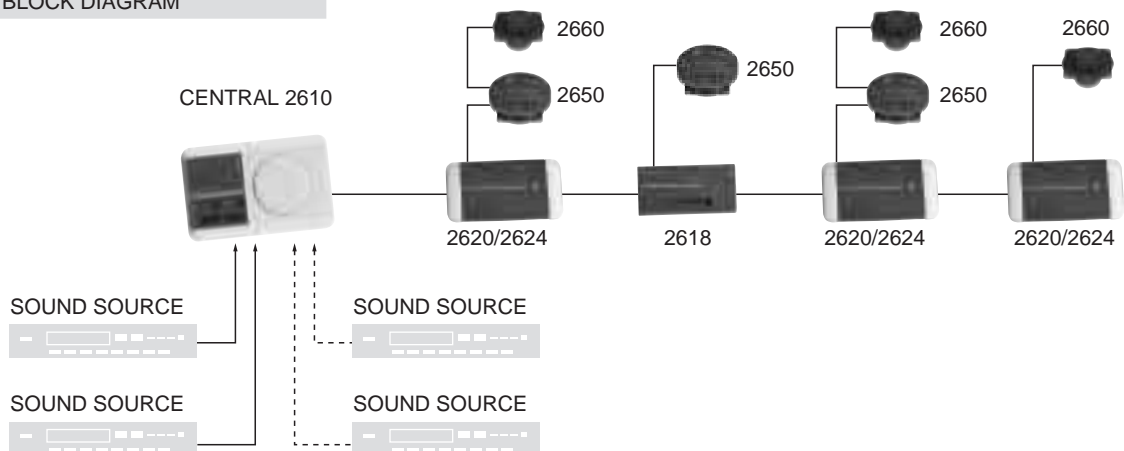
Depending on the requirements of installation, the units may be wired in such a way to permit either the remote activation of the centrally located sound sources or else to permit the security paging function, therefore allowing a message to be broadcasted, no matter the setting of the control.

The models 2620 and 2624 have a built-in 1 W + 1 W power amplifier, allowing the direct connection to passive, common low impedance loudspeakers.

	2618	2620	2624
Programs	1 stereo or 1 mono	2 stereo	4 mono
Amplification power	Passive	1 + 1 W	1 + 1 W
Controls	Volume	Volume, tone, program selection	
Headphones output	32 ÷ 600 Ω	32 ÷ 600 Ω	32 ÷ 600 Ω
Frequency response	15 ÷ 20.000 Hz	30 ÷ 20.000 Hz	30 ÷ 20.000 Hz
Loudspeaker included	No	No	No
Audio inputs nominal level (+ 6 dBu)	4,4 V.p.p.	4,4 V.p.p.	4,4 V.p.p.
Power supply	24 V.d.c.	24 V.d.c.	24 V.d.c.
Average Consumption	20 mA (in priority)	200 mA (w/ 2 x 2660)	175 mA (w/ 2 x 2660)
Colour	Ivory	Ivory	Ivory
Dimensions (mm)	140 x 70	144 x 82	144 x 82

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM SYST-24



BACKGROUND MUSIC SYSTEM SYST-24

2634 Ampli-control



The model 2634 combines in a same unit the volume and bass/treble tonality controls, the 4 program selector, a 2 W RMS amplifier and the loudspeaker. Using this unit, the installation is simplified in places such as offices and hotel rooms.

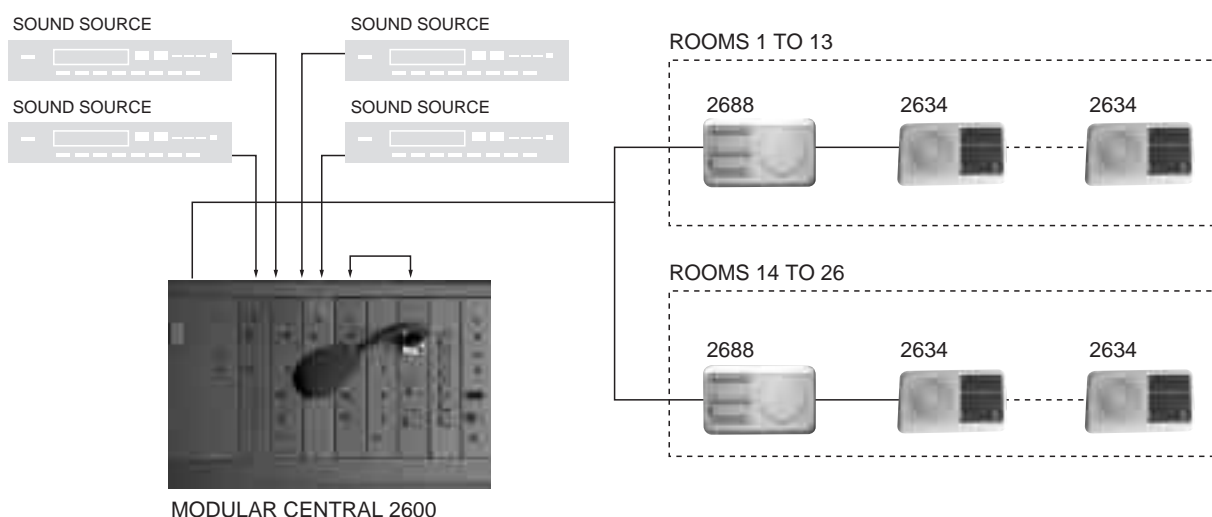
The unit has also an ON-OFF switch and a jack output, which allows the connection of a headphones set. For those installations where the security paging function is required, it has a priority control override, which allows the reception of the announcements, even if the unit is switched off.

2634

Programs	4 mono
Amplification power	2 W
Controls	Volume, tone and channel selection
Headphones output	32 ÷ 600 Ω
Frequency response	30 ÷ 20.000 Hz
Loudspeaker	4"
Audio inputs nominal level (+ 6 dBu)	4,4 V.p.p.
Power supply	24 V.d.c.
Average Consumption	200 mA (w/ 1 x 2660)
Colour	Ivory
Dimensions (mm)	235 x 145

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM SYST-24

2640 / 2645 Column Speakers



The model 2640 is a two-way column speaker with a built-in 12 W RMS amplifier. It is provided with ON-OFF switch and volume control. This unit also has a power output connection that allows to connect one additional passive column speaker, model 2645.

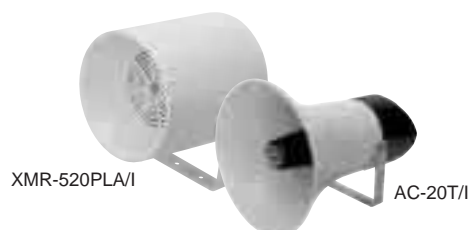
Both units, the 2640 and the 2645 are identical in what refers to its acoustic design: 5" woofer, 2.5" tweeter and low-pass/high-pass filters. Its specially designed swivel-mounting bracket allows for a quick and easy pointing of the column speaker towards the desired direction.

	2640	2645
Type	Acoustic column with built-in amplifier	Passive acoustic column
Loudspeaker	1 x 5" and 1 x 2.5"	1 x 5" and 1 x 2.5"
Power (RMS)	12 W (8 Ω); 18 W (4 Ω)	15 W (8 Ω)
Frequency response (-3 dB)	15 ÷ 22.000 Hz	15 ÷ 22.000 Hz
Power supply	24 V.d.c.	-
Consumption	400 mA (800 mA w/ 2645)	400 mA (800 mA w/ 2645)
Input sensitivity (+ 6 dBu)	4,4 V.p.p. (15 W)	-
Dimensions (mm)	230 x 150 x 125	215 x 15 x 125
Weight	1.985 kg	1.850 kg

RELATED ITEMS



The 2644AS amplifier has been specially designed to be mounted in any kind of passive speaker, so that it may be used in a SYST-24 installation. Its power output is of 12 W RMS at 8 Ω (18 W RMS at 4 Ω).



XMR-520PLA/I and AC-20T/I are two models of loudspeakers types that are also supplied with the built-in 2644AS amplifier.

BACKGROUND MUSIC SYSTEM SYST-24



BACKGROUND MUSIC SYSTEM SYST-24

2693 / 2694 Paging microphones



2693



2694

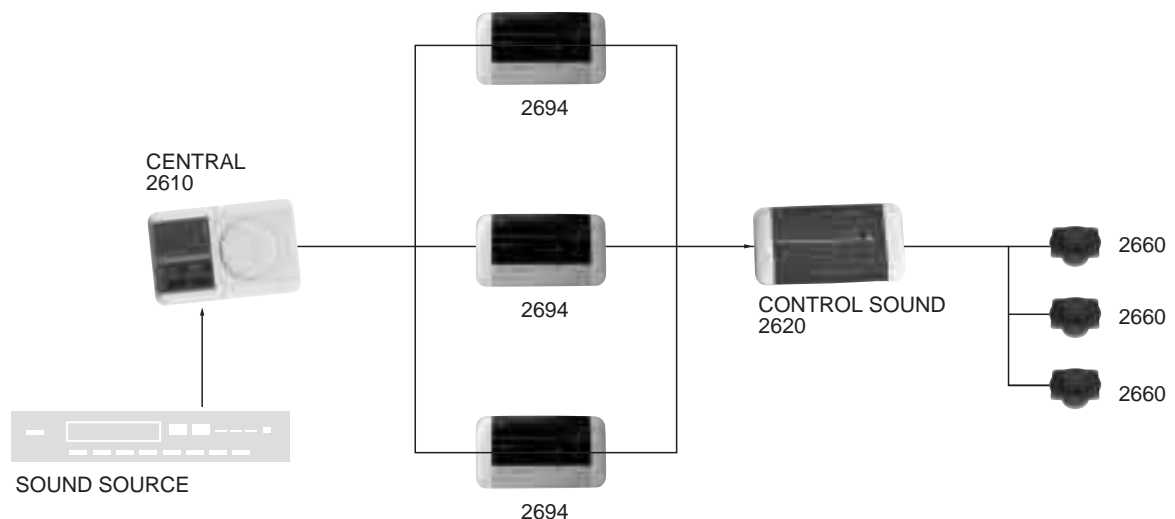
The models 2693 and 2694 are paging microphones; the first one is a desk version and the second one is for wall mounting. Both of them have a "busy" system control to interdict one microphone from paging while there is another one already in use within the same installation.

Both units have a push-to-talk button, sensitivity adjustment and unidirectional electret capsules. A particular built-in feature is the capacity to disconnect the nearest loudspeaker while paging, in order to prevent acoustic feedback.

	2693	2694
Type	Micro Desk with flexible gooseneck	Wall mounting
Power supply	24 V.d.c.	24 V.d.c.
Maximum consumption	90 mA	90 mA
Audio outputs nominal level (+ 6 dBu)	4,4 V.p.p.	4,4 V.p.p.
Frequency response	200 ÷ 15.000 Hz	200 ÷ 15.000 Hz
Features	Adjustable sensitivity	Adjustable sensitivity
Audio switch	Yes (2 channels)	Yes (2 channels)
Connector	SUB-D (15p) / Terminal block	Terminal block
Dimensions (mm)	146 x 79	144 x 82

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM SYST-24

2616 - 6 Zones paging microphone



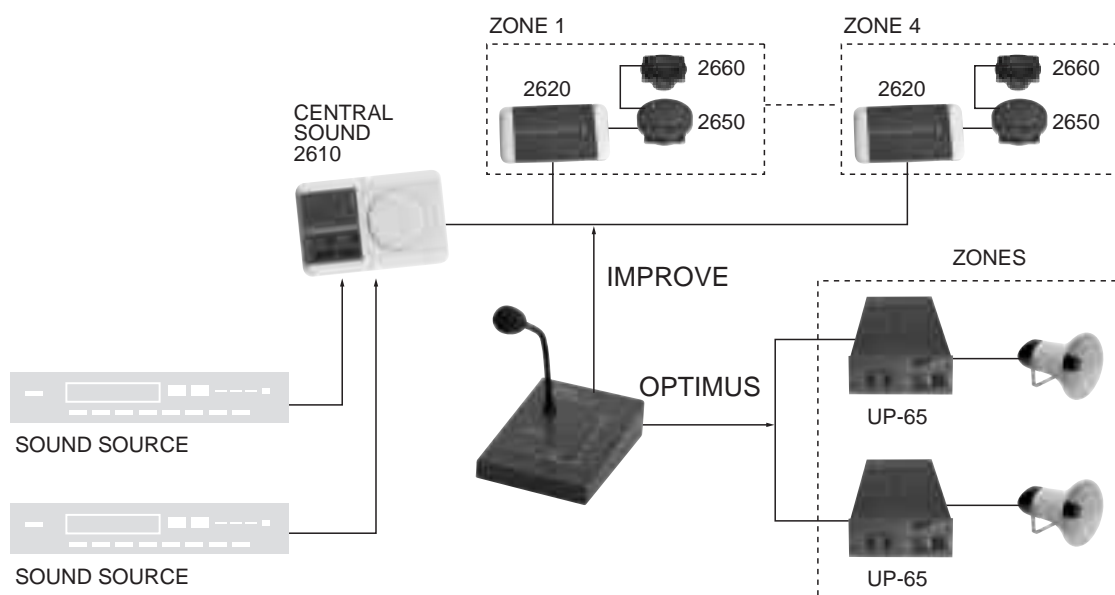
The 2616 is a Desk paging microphone with 6 zones selection capability, which may be used both in SYST-24 installations and also in the classical OPTIMUS public address installations.

The gooseneck microphone is 25 cm long and the capsule is unidirectional, electret type. Its sensitivity is adjustable and it is fitted with a peak level LED indicator and a limiter, to prevent saturation. The push-to-talk key may be configured to have an electronic locking. When so configured, one touch enables the user to speak until the unit is disconnected by a second touch of the key. The zone selection keys have LED indicators to indicate which zones have been selected. It also has busy LED indicator programmable chime and volume adjustment.

2616

Microphone type	Electret, unidirectional
Frequency response	200 ÷ 15.000 Hz
Micro switch on / off	with / without locking (configurable)
Pre-paging gong generator	With light indicator
N° of priority zones	6
Functions	Call to 1, several or all zones (all call)
Light indicators	Gong, busy, active, selected zone
Power supply	24 to 30 V.d.c.
Consumption	150 mA
Connector	SUB-D 15 p. Terminal block
Dimensions (mm)	150 x 200 x 55 (Micro flexible: 250 mm)

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM
SYST-24



BACKGROUND MUSIC SYSTEM SYST-24

2695 Micro Desk Adder

The purpose of the 2695 is to add the balanced signals of up to 4 paging microphones and to address it towards one common output, which then may be directed towards the SYST-24 audio bus. The unit is therefore very useful in those installations with several paging microphones such as conference and meeting rooms.

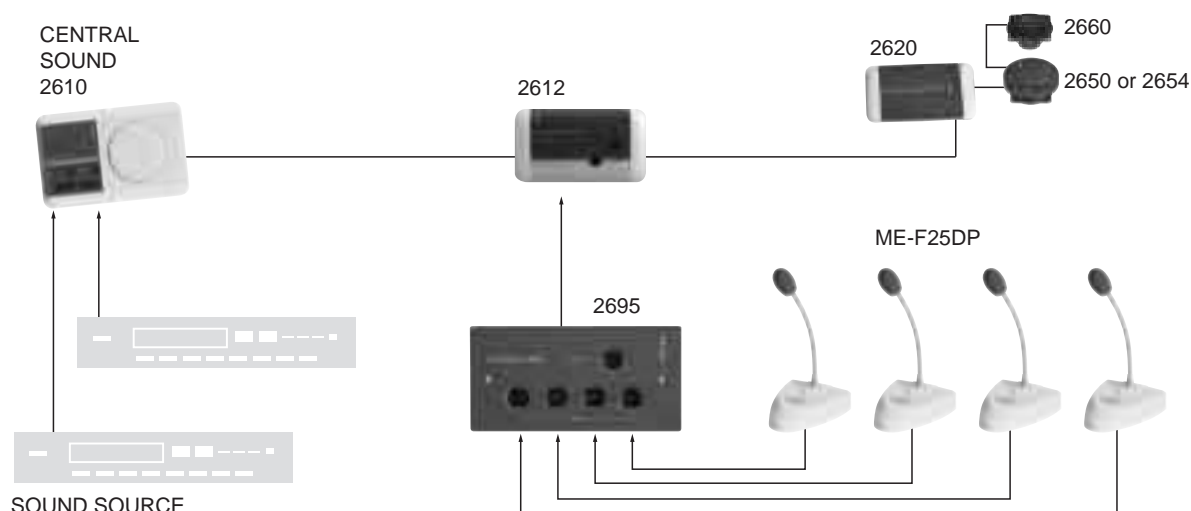


2695

Audio inputs nominal level	4 balanced, - 30 dB (maximum + 10 dB)
Outputs	1 balanced
Power supply	24 V.d.c. (by pin n° 4 of output connector)
Maximum consumption	5 mA (without micro.)
Input impedance (1 kHz)	1,5 kΩ, balanced
Output impedance	200 Ω, balanced
Dimensions (mm)	144 x 82

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM SYST-24

2612 Audio signal input module



The 2612 module is designed to make independent use of any particular zone within a SYST-24 installation. The unit accepts the audio signal coming from whatever microphone, like the MEF-25DPG or MEF-45DPG, and also from any sound source: CD, Cassette, MP3 player, etc.

When the 2612 is switched ON, the area is automatically disconnected from the rest of the installation and it may be used independently of the rest by means of the local sound sources connected to the 2612.

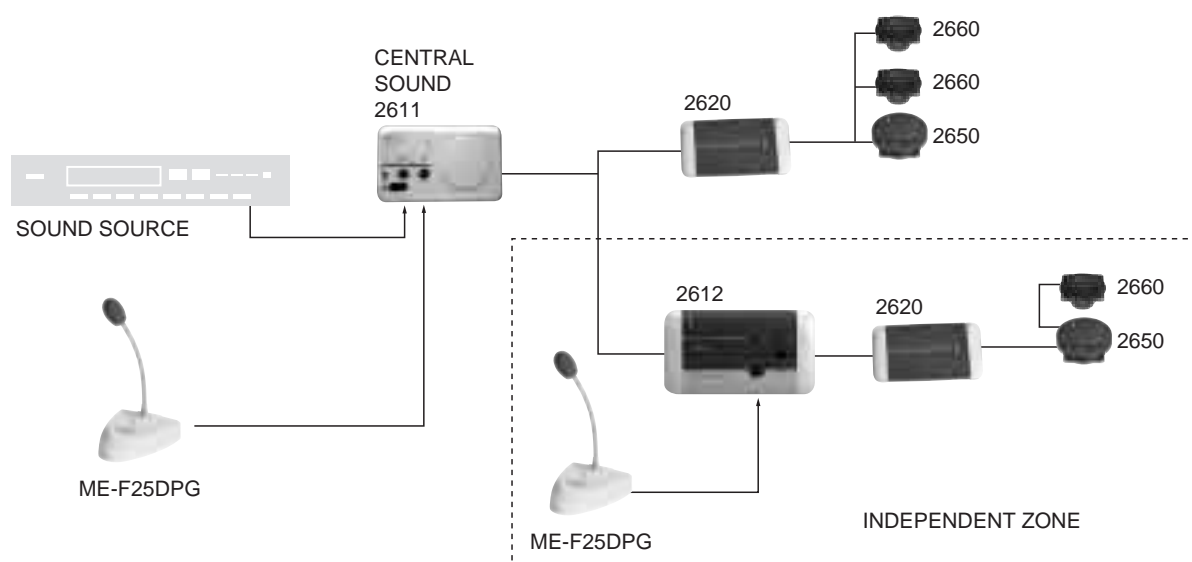
The local program may be overridden, if so configured, when an all-call is sent from a paging microphone.

2612

Power supply	24 V.d.c., 75 mA maximum
Audio switch	Between outputs and the system channels (2 stereo or 4 mono)
Micro input (RMS) (1 kHz)	15 mV ÷ 130 mV / 1,5 kΩ
Line input (RMS) (1 kHz)	80 mV ÷ 1,8 V / 39 kΩ
Audio outputs nominal level (+ 6 dBu)	4,4 V.p.p.
Frequency response (- 3 dBu)	30 ÷ 20.000 Hz
Radio frequency filter	- 40 dB (line) or - 20 dB (micro. at 200 Hz)
Dimensions (mm)	144 x 82

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



BACKGROUND MUSIC SYSTEM
SYST-24



U SERIES

U-1510 / U-1511 Central Sounds



The U-1510 and U-1511 central units are the basic element of the SYST-24 installations. These central units, equipped with preamplifiers and power supply units, pick up the audio signal from the different sound sources and send it throughout the installation, sending at same time the 15 V.d.c. power supply to the rest of the elements composing the system.

They may be either surface mounted or wall embedded and are fitted with front panel connectors, sensitivity adjustment and AC socket, remotely activated, meant for the power supply of the sound sources.

The U-1511 may handle one stereophonic program or two monophonic ones and has also one input for a desk-paging microphone, such like the MEF-25DPG. The U-1510 has the same functions in exception of the paging input.

SPECIFICATIONS

	U-1510	U-1511
Power supply	210 – 240 V.a.c.	210 – 240 V.a.c.
Front supply output	220 V.a.c., 330 W, class 2	220 V.a.c., 330 W, class 2
Programs	1 stereo or 2 mono	1 stereo or 2 mono, 1 micro.
Input line sensitivity	- 23 dBu ÷ + 17 dBu	- 23 dBu ÷ + 17 dBu
Input impedance (line)	30 kΩ	30 kΩ
Input impedance (micro.)	No	60 dBm -12 dBm
Input sensitivity (micro.)	No	600 Ω at 1 kHz
Frequency response	30 ÷ 20.000 Hz	30 ÷ 20.000 Hz
System power supply	15 V.d.c.; 2,5 A	15 V.d.c.; 2,5 A
Nominal audio output level (+ 6 dBu)	4,4 V.p.p.	4,4 V.p.p.
Dimensions (mm)	235 x 145	235 x 145

Surface and embedding boxes to be consulted in the accessories list.

U-1588 SIGNAL POWER



The U-1588 is a power and signal reinforcing unit that is used in those installations where a high number of elements, or length of the wiring, makes it necessary. It reinforces both the audio signal level and the DC power supply, allowing for system expansions.



U SERIES

U-1518 / U-1519 Control Sounds



U-1518



U-1519

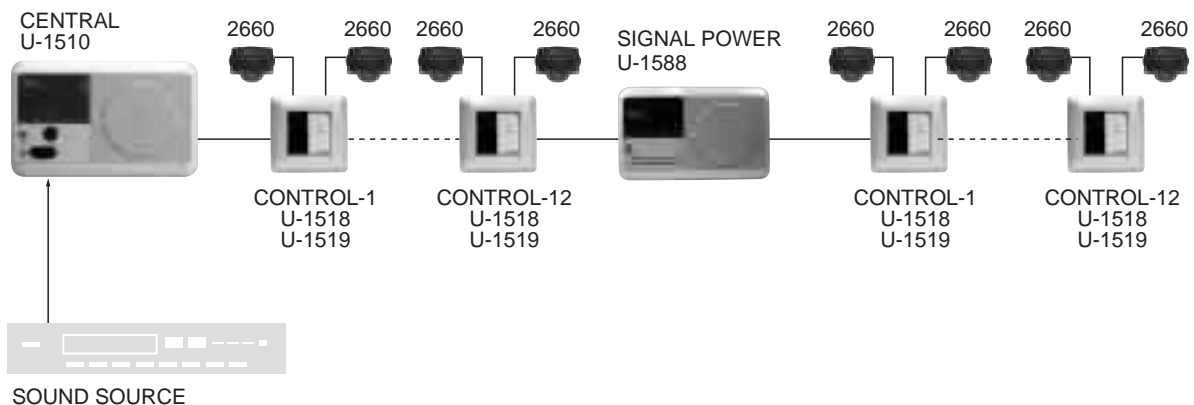
The U Series controls allow the activation of the sound source from any particular room and also its volume adjustment. These compact controls have a built-in amplifier that delivers 1.5 + 1.5 W RMS at 16 Ohm and therefore, they accept the direct connection of any low impedance passive loudspeakers. In case that a higher power output is required, they may also drive any active ampli-sound.

The model U-1518 has one mini-jack output that allows the connection of a headset, and another mini-jack input that permits the connection of a local source such as a CD or cassette player.

	U-1518	U-1519
Programs	1 stereo or mono	
Output power (RMS)	2 x 1,5 W at 16 Ω	
Controls	On / Off, volume	
Headphones output	Mini jack, 32 \div 600 Ω	No
Line input	350 mV, 2 k Ω	No
Frequency response (-3 dB)	50 \div 20.000 Hz	
Audio input level (+ 6 dBu)	4,4 V.p.p., 1 k Ω	
Priority override	Included, w/ volume adjustment	
Power supply and consumption	15 V.d.c., 200 mA w/ 2 x 2660 passive speakers	

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



U SERIES



U SERIES

U-1524 / U-1525 Control Sounds



U-1525

The U Series of controls with 4 programs selector allow the activation of the sound source from any particular room, its volume adjustment and also the selection of 4 different music programs. These compact controls have a built-in amplifier that delivers 1.5 W RMS at 8 Ohm and, therefore, they accept the direct connection of any low impedance passive loudspeakers. In case that a higher power output is required, they may also drive any active ampli-sound.

The model U-1524 has a mini-jack output that allows the connection of a headset into the unit for a private listening of the music program.

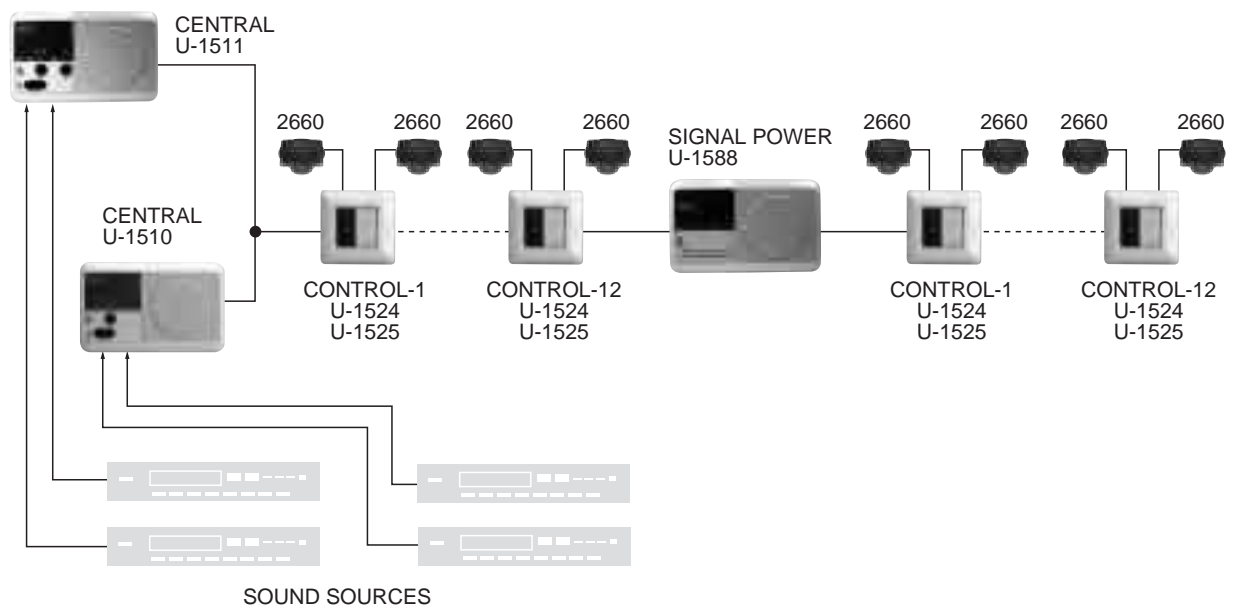
U-1524

U-1525

Programs	4 mono	
Output power	1,5 W / 8 Ω ; 1,2 W / 16 Ω	
Controls	On / Off, volume, program selection	
Headphones output	Mini jack, 32 \div 600 Ω	No
Frequency response (- 3 dB)	50 \div 20.000 Hz	
Audio inputs level (+ 6 dBu)	4,4 V.p.p., 1 k Ω	
Priority override	Included, w/ volume adjustment	
Power supply and Consumption	15 V.d.c., 200 mA w/ 2 x 2660 passive speakers	

Surface and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



U SERIES



PASSIVE SPEAKERS

2660 Series

This range of passive loudspeakers allows the direct connection to the U Series of controls. They may also be connected to the complementary loudspeaker output of the active ampli-sounds.

The variety of their sizes of 2.5", 4", 6" and 8", as well as the choice of shapes and types of grills, permits the selection of the most appropriate for the installation.



2660/2



2660/5RM



2660/4

2660/2	2,5" Loudspeaker, 16 Ω, ABS/metallic grill included
2660/4	4" Loudspeaker, 16 Ω
2660/4RM	4" Loudspeaker, 16 Ω, metallic grill included
2660/5RM	5" Loudspeaker, 16 Ω, metallic grill included
2660/6	6" Loudspeaker, 16 Ω
2660/8	8" Loudspeaker, 16 Ω

Grills, embedding boxes and surface complements to be consulted in the accessories list.

SPECIFICATIONS

	2660/2	2660/4	2660/5RM	2660/6	2660/8
Loudspeaker	2,5" bicone	4" bicone	5" bicone	6" bicone	8" bicone
Nominal power	6 W	6 W	6 W	6 W	6 W
Impedance	16 Ω	16 Ω	16 Ω	16 Ω	16 Ω
Frequency response	190 ÷ 19.000 Hz	125 ÷ 15.000 Hz	100 ÷ 18.000 Hz	85 ÷ 15.000 Hz	65 ÷ 15.000 Hz
Sensitivity (1 W, 1m, 1 kHz) (SPL)	86 dB	85 dB	90 dB	89 dB	88 dB
Diameter (mm)	100	115	180	173	213
Depth (mm)	96	96	75	158	200
Ø of the embedding hole	92	140	160	210	234
Included grill	Yes, ABS/metallic	No*	Yes, metallic	No	No

(*) The 2660/4RM model includes metallic grill

SPECIAL ITEMS

2816 - 7 Channels controls for armchairs



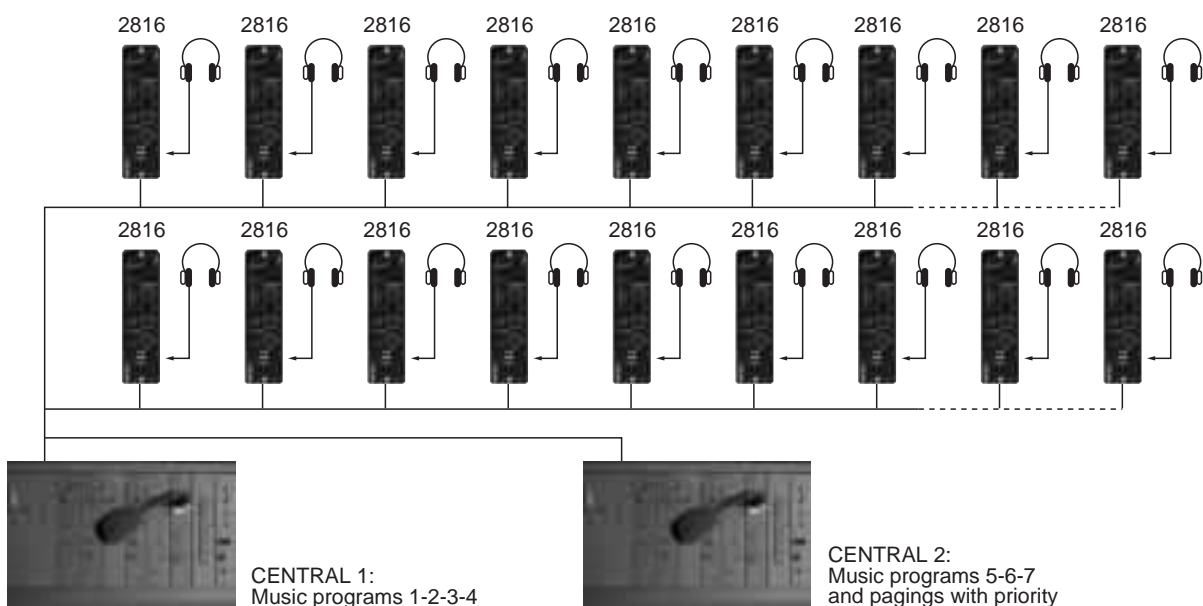
Module designed to be mounted in armchairs, allowing the selection of 7 different music programs and also volume adjustment. This unit has also a paging channel, with priority override function.

Fitted with a headphones output, this unit is specially meant for language schools, conference rooms, simultaneous translation systems, fitness rooms, or other places with similar design and mounting requirements.

2816

Programs	7 mono + 1 paging
Audio output (w/ headphones of 32 Ω)	175 + 175 mV
Frequency response (-3 dB)	16 Hz at 16 kHz
Typical Harmonic Distortion	0,3%
Cross talk between programs	- 72 dB (minimum)
Volume control range	90 dB
Volume digital control n° of steps	256
Audio inputs nominal level (+ 6 dBu)	4,4 V.p.p.
Inputs impedances (1 Hkz)	1 k Ω
Nominal power supply	24 V.d.c.
Average consumption (w/ program and headphones of 32 Ω)	75 mA
External dimensions (mm)	110 x 35
Dimensions of the embedding hole (mm)	90 x 30

BLOCK DIAGRAM



SPECIAL ITEMS



SPECIAL ITEMS

2699 - Digital messages recorder and player

The 2699 module allows up to 60 seconds messages recording and playing. Permanent and digitally stored, the message can be reproduced 1, 3, 5, 7 or 9 times, and also with delays between repetitions. It includes a microphone for recording, front recording and playing controls, start and stop push-button... This unit can also be activated by remote control.

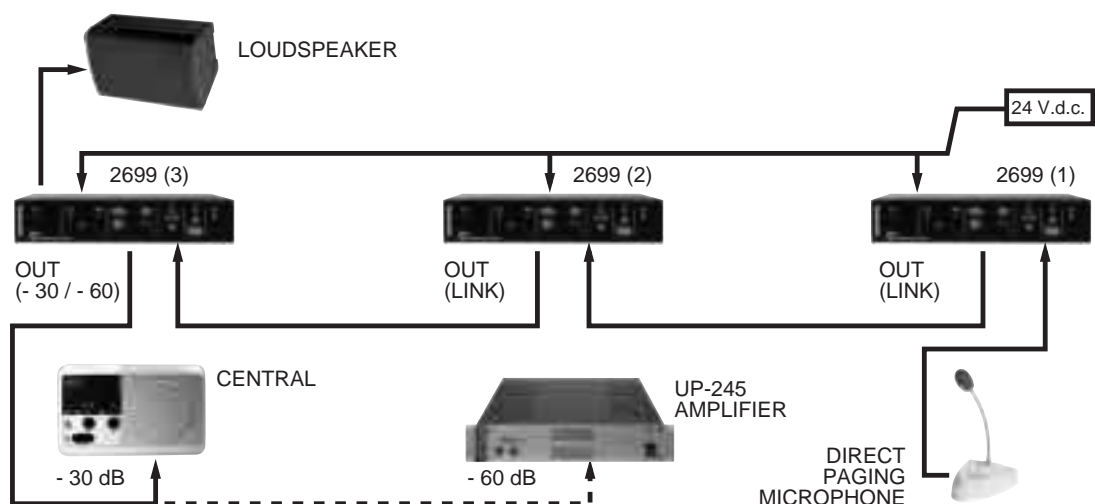
For the applications requiring more than one message, various 2699 modules can be interconnected. It has other incorporated functions like a direct 8 Ω and 6 W power output and a paging microphone input for ME-F25DPG model.



2699

Maximum recording time	60 s
Frequency response	100 ÷ 3.500 Hz
Recording	Built-in microphone
Micro input	30 dB; 1,5 k Ω (1 kHz); balanced
Headphones output	Built-in (32 Ω ÷ 600)
Power output	3,25 W (16 Ω), 6 W (8 Ω), 7,5 W (5,3 Ω) and 9 W (4 Ω)
Consumption	100 mA (unloaded), 260 mA (16 Ω), 440 mA (8 Ω), 580 mA (5,3 Ω) and 680 mA (4 Ω)
Dimensions (mm)	215 x 125 x 45

BLOCK DIAGRAM



SPECIAL ITEMS



SPECIAL ITEMS

2653-AS Hotel room type amplifier



2653-AS



PC-53



2695-MX

This particular model was specially designed to be used in the hotel rooms. It is intended to distribute all over the room, bathroom, etc. the audio of the program selected from the TV unit.

The 2653-AS is connected directly to the SCART connector (EUROCONNECTOR) of the TV, from where it picks the audio signal. Its internal amplifier, of 5 W RMS (at 8 Ohm), permits to easily drive the one or two passive loudspeakers installed in the bathroom, living area, etc. The **PC-53** volume control permits the local adjustment of the volume of these additional loudspeakers.

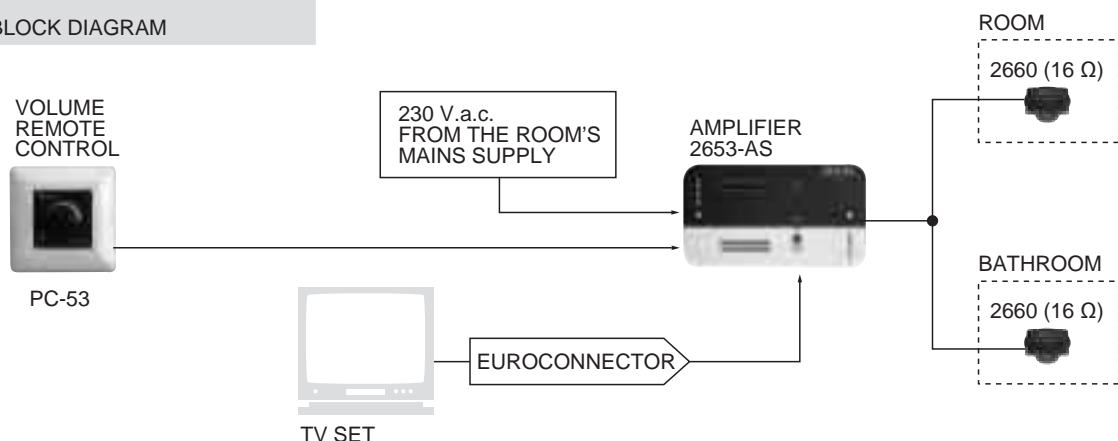
When more than one audio input is required, the **2695-MX**, 4 inputs audio mixer may be used. This mixer has a separate sensitivity adjustment for each of its 4 inputs.

2653-AS

Power supply	230 V.a.c. / 50 Hz, from the room's mains supply
Output power	3,5 W (16 Ω), 5 W (8 Ω)
Harmonic Distortion	< 0,3% at 1,5 W
Minimum input level	- 10 dBu (250 mV RMS / 700 V.p.p.)
Maximum input level	+ 7 dBu (1,8 V RMS / 5 V.p.p.)
Input impedance	> 22 k Ω
Pagings input level	+ 6 dBu / 1.300 Ω (4,4 Vpp)
Pagings priority activation	Control signal, from 15 to 30 V.d.c.
Connections	Through terminal blocks (network, volume regulator and loudspeaker)
Accessories	2 m cable for input signal, from TV with Euroconnector and minijack
Dimensions (mm)	Front panel: 143,5 x 80

Frames and embedding boxes to be consulted in the accessories list.

BLOCK DIAGRAM



SPECIAL ITEMS



SYST-24 ACCESSORIES

U-2650 / 2654 Ampli-sound and Stereo Ampli-sounds



Dimensions	4"	6"	8"
Diameter (mm)	115	173	213
Depth (mm)	56	158	200
Ø of embedding hole (mm)	140	210	234

The ampli-sounds, which are loudspeakers with a built-in amplifier, are one of the main components of the SYST-24. The built-in amplifier, 3 W RMS power, allows not only the driving of its own loudspeaker, but also the connection of two other external additional loudspeakers, which may be connected to the ampli-sound power outlet. These ampli-sounds are provided with internal potentiometers, which allow the adjustment of the maximum volume desired for the unit.

The use of these ampli-sounds is a must when the Control Sounds used are of the passive type (model 2618) and recommended if the Control Sounds used are of the active type (2620 and 2664). Its use adds capacity and flexibility to the system and also makes it easier to do any future expansion.

There is a variety of different ampli-sounds: the monophonic ones, with a 3 W built-in amplifier: the stereophonic ones, where the amplifier is of 3 + 3 W RMS and which need to be connected to a passive speaker. Both types of ampli-sounds are available with 4, 6 and 8" speakers.

	U-2650	2654
Power (RMS)	3 W at 16 Ω	3 W + 3 W at 16 Ω
Frequency response (- 3 dB)	30 ÷ 22.000 Hz	20 ÷ 22.000 Hz
Complementary output	Max. 3 x 2660	1 x 2660 for the other channel / passive speakers
Input sensitivity (+ 6 dBu)	4,4 V.p.p. (3 W)	4,4 V.p.p. (3 W)
Power supply	15 ÷ 24 V.d.c.	24 V.d.c.
Consumption	180 mA*	200 mA

(*) Consumption may vary according to number of connected passive loudspeakers: 360 mA (1); 500 mA (2) or 600 mA (3)

MODELS

Model	Description
U-2650/4	Loudspeaker with built-in mono amplifier, 4" without grill
U-2650/4RM	Loudspeaker with built-in mono amplifier, 4" with metallic grill
U-2650/6	Loudspeaker with built-in mono amplifier, 6" without grill
U-2650/8	Loudspeaker with built-in mono amplifier, 8" without grill
2654/4	Loudspeaker with built-in stereo amplifier, 4" without grill
2654/4RM	Loudspeaker with built-in stereo amplifier, 4" with metallic grill
2654/6	Loudspeaker with built-in stereo amplifier, 6" without grill
2654/8	Loudspeaker with built-in stereo amplifier, 8" without grill
2050/4/6/8	Loudspeakers embedding box, for 4", 6" and 8" models
2094/6/8	Loudspeakers surface box, for 4", 6" and 8" models



ACCESSORIES

Embedding boxes

2010	For 2610, 2611, 2688, 2634, U-1510, U-1511 and U-1588
2020	For 2618, 2620, 2624, 2612, 2694, 2695 and 2653S
2050/4	For 2650/4, 2654/4 and 2660/4
2050/6	For 2650/6, 2654/6 and 2660/6
2050/8	For 2650/8, 2654/8 and 2660/8
L170E	For PC-53, U-1518, U-1519 and U-1525

Wall accessories

2090	For 2610, 2611, 2688, 2634, U-1510, U-1511 and U-1588
2091	For 2618, 2695 and 2653S
2092	For 2620, 2624, 2612 and 2694
2094/6	For 2650/6, 2654/6 and 2660/6
2094/8	For 2650/8, 2654/8 and 2660/8

Grills

2080/6	6" Plastic, mounting with screws
2080/8	8" Plastic, mounting with screws
2081/4	4" Plastic, spring type mounting
2081/6	6" Plastic, spring type mounting
2081/8	8" Plastic, spring type mounting

Colour frames, series U

2018-H	Off white colour
2018-LW	White colour
2018-G	Light grey colour

Connection cables

2074/DIN	Audio connection DIN / DIN
2074/JACK	Audio connection DIN / JACK 3.5
2074/RCA	Audio connection DIN / RCA
2074/2JACK	Audio connection JACK 3.5 / JACK 3.5
2074/2RCA	Audio connection 2RCA / DIN (from 1 stereo to mono)
2074/4RCA	Audio connection 4RCA / DIN (from 2 stereo to mono)

Cables

2099/10	10 wires, codified in colours (100 m)
2095/10	10 wires twisted cable, codified in colours (100 m)
2096/6	6 wires twisted cable, codified in colours (100 m)

Miscellaneous

2070	Blank panel for embedding box 2010. Aluminium
2072	Blank panel for embedding box 2020. Aluminium
2073	Adapter frame for 2470 to 2010

SYST-24 ACCESSORIES



MICROPROCESS NURSE CALL SYSTEM

Introduction

The SMC communication platform has been specially designed for hospitals, clinics, nursing homes and old people's homes, with the purpose of improving the quality of life of the patients and the working conditions of the medical staff.

SPEED AND EFFICACY

The hospital centres do need reliable and quick solutions in the communications between patients and medical staff. The technology and software used in the OPTIMUS SMC series allow to reduce the response time of the system to the user's actions, allowing an easier management of the calls and the best fluidity in the communications.

FLEXIBILITY

Since it is a versatile system and very easy to install, it meets the needs of all kind of hospital centres, from the most simple bathroom in an old people's home to the biggest hospital with rooms of several beds with control terminals in all the installation. The management software between centrals allows the control transfers, the data centralization, the nightly concentration of calls, the simultaneity, etc.; all of it with simple access and program codes.

EASY INSTALLATION

The installation in bus allows the access to any stage of the network in order to add, replace or remove the equipment immediately. Its only bus connects the centrals, bedroom terminals and remote controls. Its free topology installation system allows a free distribution and layout of the components.

The communications bus of the system allows the multiple connections of the rooms to only one cable that can be freely extended and ramified along the installation.

The connection between centrals is also easy by means of external controllers that regenerate the data, switch the audio channels and isolate electrically the different sections of the installation.

It is possible to supervise the operation of the SMC from a computer through a control software and link it to other systems already existing in the installation.

The data transmission and reception protocols allow for the developing of tailor-made applications, adding control modules if required, in order to integrate the SMC with other systems:

DECT telephone systems, CCTV, alarms, etc.



MICROPROCESS NURSE CALL SYSTEM

Introduction

Microprocess communication system for hospitals, clinics, nursing homes and old people's homes, the SMC allows the following most relevant functions:

Calls management between patients and medical staff:

- Normal call
- Bathroom call
- Emergency call
- Doctor emergency call
- Nurse emergency call
- Nurse presence activation
- Doctor presence activation

Calls and presences signalisation:

- In the room
- In the corridor
- In the room stations with activated presence
- In the control central
- In the control P.C.
- In DECT wireless telephone sets

Audio communication:

- Between central and rooms
- Between rooms (with room stations TH-02F and TH-03F)
- With DECT wireless telephone sets

Private mode in the room (with room stations TH-02F and TH-03F)

Paging from the central (additional UR unit).

Control transfer between centrals (maximum 4), with possibility of simultaneous control.

Flexibility in the elements combination to match each installation requirements:

- Simple rooms
- Various beds rooms
- Rooms with bathroom
- Old people bathrooms
- Waiting rooms or common areas
- Medical staff resting rooms

External devices (gongs, lights...) activation in the staff resting areas to signal the calls.

PC programming by means of MB-RS-232 data adapter and management software.

Compatibility with telephone system by means of the MAT module and control software for DECT.

Compatibility with other systems (security, CCTV...) by means of the integration software.

Free and expandable bus installation topology:

Up to 3 km Data bus (2,5 mm² cable section)

Up to 2 km Audio bus (2,5 mm² cable section)

Possibility of adding, substituting or removing devices without affecting the rest of the installation.

MICROPROCESS NURSE CALL SYSTEM



MICROPROCESS NURSE CALL SYSTEM

Introduction



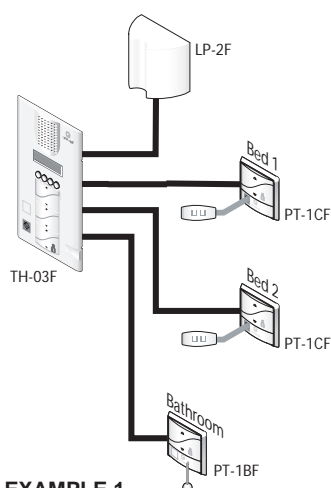
Each medical centre is different and requires a particular kind of installation to meet their specific communication needs.

Patients and medical staff need a quick and flexible system easy to use, as well as easy to install.

The SMC meets these conditions. Its easy system of installation allows coordinating the elements to solve the needs of the centre. There are a great number of possibilities: from the smallest old people's home with few rooms and only one control terminal to the biggest hospital with hundreds of rooms, control terminals with transfers between them, centralization, PC management, multi-function substations, special devices and so on.

SEVERAL POSSIBILITIES

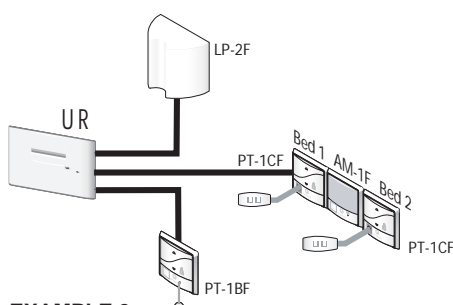
The components of the SMC allow to easily meet the needs of each room, bathroom, infirmary, etc.



EXAMPLE 1

Double room with bathroom.

The substation allows the communication with the central. It has a built-in display and a keyboard to enable the medical staff supervising the rest of calls and, if necessary, to communicate with other rooms.

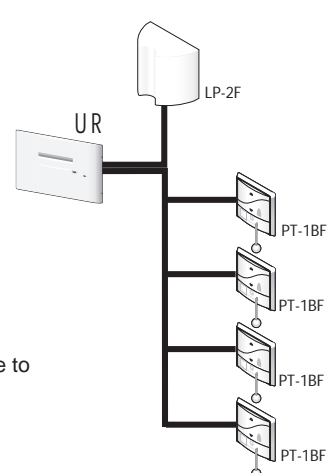


EXAMPLE 2

Double room with bathroom.

The substation has a speaker and a microphone to talk to the central.

The installation can be done by a set of three components between the two beds of the room.



EXAMPLE 3

Nursing homes. The call is indicated in the central and in the corridor.

The medical staff must obligatorily cancel the call from the same device.

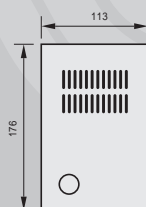
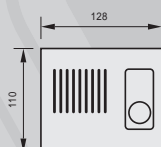


SMC INDUSTRIAL INTERCOM SYSTEM

SAM-M / EP-305



SAM-M



EP-305

Totally compatible with the SMC Microprocessor Control System, the SAM-M and EP-305 are Microprocess substation, especially designed for industrial security intercom systems.

The **SAM-M** model includes a high sensitivity microphone, a 4W mylar speaker with protection metal grill, a front cover and push-button finished in stainless steel, security allen type screw, led indicator of call in process and selectable private function. Provided with adjustable audio transmission and reception levels, a remote communication unit with the central and direct connection to data and audio bus.

The **EP-305** model includes a high sensitivity microphone, a 4W mylar speaker with protection metal grill, a 1,5 mm. thickness front cover and push-button finished in stainless steel, tamper-proof security screws, led indicator of call in progress and selectable private function. Provided with adjustable audio transmission and reception levels, remote communication unit with central and direct connection to data

SPECIFICATIONS

	SAM-M	EP-305
Power supply	24 V.d.c. from central	24 V.d.c. from central
Consumption	25 mA	25 mA
Quiescent	230 mA (maximum)	230 mA (maximum)
Reception		
Loudspeaker	2,5" mylar, 8 Ω, 4 W	2,5" mylar, 8 Ω, 4 W
Impedance	8 Ω and 100 V	8 Ω and 100 V
Finishing	Stainless steel	Stainless steel
Embedding box	CAJ-24206	CAJ-EI
Surface box	CAJ-SAM	CAJ-EP30
Connections	2 power supply, 1 + audio shield, 1 + data shield	2 power supply, 1 + audio display, 1 + data display
Dimensions (mm)	128 x 110 x 45	113 x 176 x 45

SAM-M



Embedding box
CAJ-24206



Surface box
CAJ-SAM
CAJ-SV(w/ cover)

SAM-M2: Electronic device of SAM-M for client's self designs



lower view



upper view

Electronics device for audio and data control. Microphone loudspeaker cables for push-button. Industrial finishing

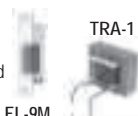
SAM-M / EP-305



Independent keyboard for door opening
KVI



Relay for remote door opening
RY-PA5



Electric lock and power supply transformer
EL-9M

EP-305



Embedding box
CAJ-EI



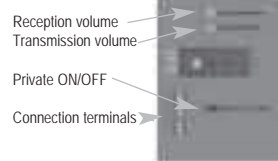
Surface box
CAJ-EP

EP-305V



Same model as EP-305 with rain cover

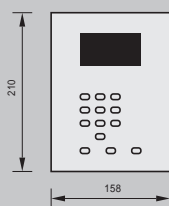
Rear cover EP-305



Reception volume
Transmission volume
Private ON/OFF
Connection terminals

MICROPROCESS NURSE CALL SYSTEM

CC-118F Control Central



Floor or area control unit.

It allows the reception of the system incidences (local or general), as well as their control.

Features and main functions:

LCD Display, with 4 lines and 20 characters.

Calls volume control.

Control and programming keyboard.

Call type led indicators.

Status led indicators.

RS-232 connection for PC programming.

SPECIFICATIONS

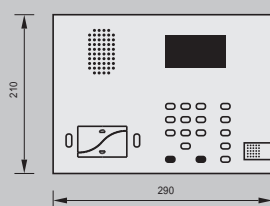
CC-118F

Power supply	24 V.d.c.
Consumption	200 mA
Quiescent	
Maximum	260 mA
Dimensions (mm)	210 x 158 x 85
Operating temperature	-20°C to +50°C
Finishing	Metal, grey colour



MICROPROCESS NURSE CALL SYSTEM

CC-122F Control Central



Floor or area control unit.

It allows the reception of the system incidences (local or general), as well as the control and communication with the rooms.

Features and main functions:

LCD display, with 4 lines and 20 characters.

Microphone and loudspeaker with volume control.

Connector for headphones (optional).

Calls volume control.

Control and programming keyboard.

Call type led indicators.

Status led indicators.

RS-232 connection for PC programming.

SPECIFICATIONS

CC-122F

Power supply	24 V.d.c.
Consumption	Quiescent Maximum
	200 mA 320 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	290 x 210 x 90
Finishing	Metal, ivory colour
Connections	Power supply 2 wires to TH-03F, TH-02F or UR
	Data 1 wire + copper shielding to TH-03F, TH-02F or UR
	Audio

MICROPROCESS NURSE CALL SYSTEM

CC-132F Control and concentration central



The CC-132F is a Microprocessor Control Central based on a complete PC, including a 15" flat TFT screen, keyboard, mouse, loudspeakers, micro etc...

It is used exclusively as a call concentration central in installations with various CC-122F centrals.

The computer is equipped with the M-SOFT Management software, which allows the reception of the system incidences (local or general) as well as the control, communication with the rooms and historicals management. The M-SOFT software shows the information on display in a permanent way and manages the presences and calls historic list.

The PC also includes 2 MB-RS232 interfaces, allowing wireless DECT* telephone system management.

The MAT audio-telephone module transmits the audio signals between the DECT and the SMC systems.

Features and main functions:

Microphone and loudspeaker with volume control.

Reception and calls volume control.

Control and programming keyboard.

Call type led indicators.

Status led indicator.

2 x MB-RS232 interfaces

Historical management program and DECT telephone system software.

(*) - Compatible with the DECT-Z 1500 and DECT-Z500 KIRK series

SPECIFICATIONS

CC-132F

Power supply	230 V.a.c.
Consumption	Quiescent 25 mA
	Maximum 300 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	230 x 140 x 10
Finishing	White ABS



MICROPROCESS NURSE CALL SYSTEM

MSOFT-C and MSOFT-DR Softwares

MSOFT-C AND MSOFT-DR MANAGEMENT SOFTWARES FOR PERSONAL COMPUTERS.

These softwares have been designed to complement the CC-122F Control Centrals functions, from standard P.Cs, and allow to edit historic calls lists as well as connection with DECT telephone system.

The MSOFT-C program allows for historicals and DECT telephone system signalisation in the PC, with one MB-RS232 interface and the MSOFT-DR program allows, moreover, to answer DECT telephone system calls, with 2 MB-RS232 interfaces. The MSOFT-DR software will require to install also a MAT audio-telephone module.



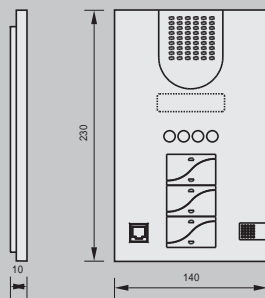
MSOFT-C



MSOFT-DR

MICROPROCESS NURSE CALL SYSTEM

TH-03F Room Station



Embedding room station, with emergency and patient calls, and nurse/doctor presence functions.

It has also a private call function, led indicators for the current call and presence, and a connector for the bed remote control unit.

With presence activated, it can receive calls from other rooms; the nurse can identify the same in the display, and have an audio communication with the calling room.

Features:

- Call push-button
- Nurse presence: F1 + A Presence
- Doctor presence: F1 + B Presence
- Emergency Call (presence + call)
- Private push-button
- Display
- Microphone
- Loudspeaker
- ON / OFF connection push-button (C)
- Talk / Listen push-button (T)
- Reassurance LED
- Presence LED
- Privacy LED
- Connector for the bed remote control unit.

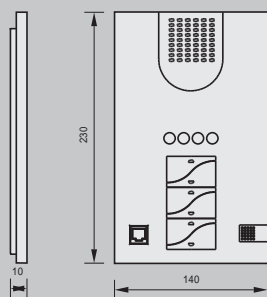
SPECIFICATIONS

		TH-03F
Power supply		24 V.d.c.
Consumption	Stand-by	45 mA
	Presence	60 mA
	Transmission	200 mA
	Reception	300 mA
Loudspeaker		8 Ω
Loudspeaker power		4 W
Dimensions (mm)		230 x 140 x 10
Finishing		White ABS
Embedding box		C-2010
Connections	Power supply	2 wires to CC-122F, TH-02F,UR
	Data	1 wire+ copper shielding to CC-122F, TH-02F or UR
	Audio	



MICROPROCESS NURSE CALL SYSTEM

TH-02F Room Station



Embedding room station with patient and emergency call, and nurse/doctor presence functions.

It has a private function, led indicators for current call and presence, and a connector for the ML-F bed remote control unit.

With presence activated, it can receive calls from other rooms and have an audio communication with the same.

Features:

- Call push-button
- Nurse presence : F1 + A Presence
- Doctor presence: F1 + B Presence
- Emergency Call (presence + call)
- Private push-button
- Microphone
- Loudspeaker
- ON / OFF connection push-button (C)
- Talk / Listen push-button (T)
- Reassurance LED
- Presence LED
- Privacy LED
- Connector for the bed remote control unit.

SPECIFICATIONS

TH-02F

Power supply	24 V.d.c.
Consumption	Stand-by
	110 mA
	Presence
	125 mA
	Transmission
	250 mA
	Reception
	350 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	230 x 140 x 10
Finishing	White ABS
Embedding box	C-2010
Connections	Power supply
	2 wires to CC-122F, TH-03F, UR
	Data
	Audio _____ 1 wire+copper shielding to CC-122F, TH-03F or UR

MICROPROCESS NURSE CALL SYSTEM

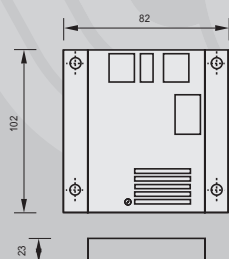
UC-S / UC-4S Zone Signalling Unit



Electronic control module for the data signalling between the elements of one room and the control central.

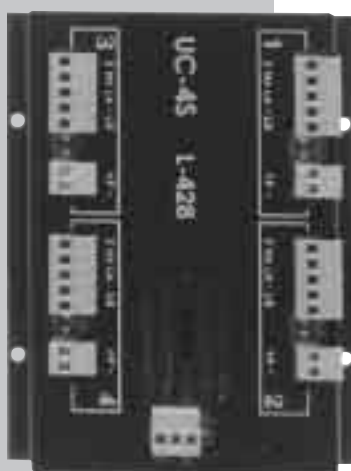
It allows the connection of the Presence and Call modules (PT series) and corridor signal lights.

It is bound to be surface mounted



UC-S

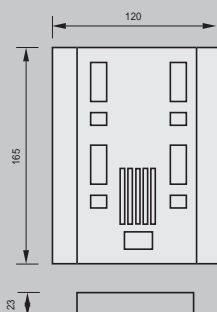
Power supply	24 V.d.c.
Consumption	25 mA
Stand-by	200 mA maximum
Communication	1 module combination
Capacity	1 module combination
Dimensions (mm)	102 x 102 x 23
Operating temperature	-20°C to +50°C
Finishing	Black Metal



Electronic control module for the data signalling between the elements of 4 rooms maximum and the control central.

It allows the connection of the Presence and Call modules (PT series) and corridor signal lights.

It is bound to be surface mounted



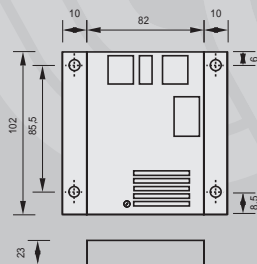
UC-4S

Power supply	24 V.d.c.
Consumption	45 mA
Stand-by	200 mA maximum
Communication	4 modules combinations
Capacity	4 modules combinations
Dimensions (mm)	165 x 120 x 23
Operating temperature	-20°C to +50°C
Finishing	Black Metal



MICROPROCESS NURSE CALL SYSTEM

UR / UR-4 Zone Communication Unit



Electronic control module for the data communication with the control central.

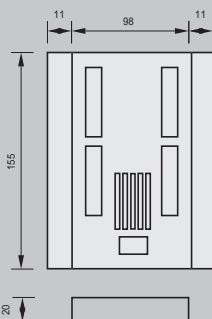
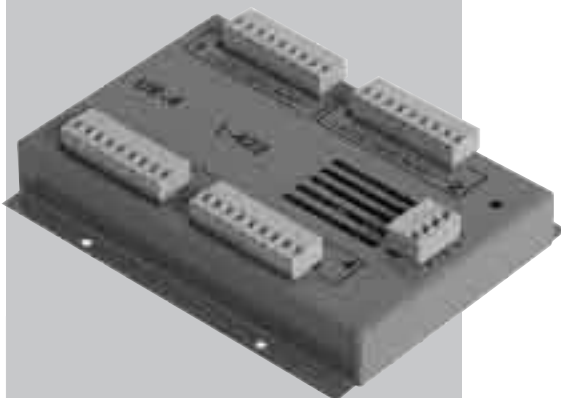
It allows the connection of the one-room modules (PT-1F, PT-1CF, PT-1BF...), the AM-1F intercommunication module, and the corridor signal lights.

Features:

- Data Bus
- Leds indicators control terminals
- Push-buttons input terminals
- Audio amplifier with level adjustment.

UR

Power supply	24 V.d.c.
Consumption	Stand-by 25 mA
	Reception 230 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	102 x 102 x 23
Finishing	Grey Metal
Connections	Power supply 2 wires to CC-122F, TH-02, TH-03F
	Data 1 wire + copper shielding to CC-122F, TH-03F or TH-02F
	Audio



Electronic control module for the data and audio communication between the control central or a TH-03F room station and one out of 4 elements. The 4 elements can be either 4 separate rooms (with bathroom or not), if the calling unit identification in the central is not required, or 4 beds in one same room, signalling in this case the calling unit in the central.

It allows the connection of the one-room modules (PT-1F, PT-1CF, PT-1BF...), the AM-1F intercommunication module, and the LP-2F corridor signal lights.

Features:

- Data Bus
- Leds indicators control terminals
- Push-buttons input terminals
- Audio amplifier with level adjustment
- Audio adjustment in common reception for the 4 zones.

UR-4

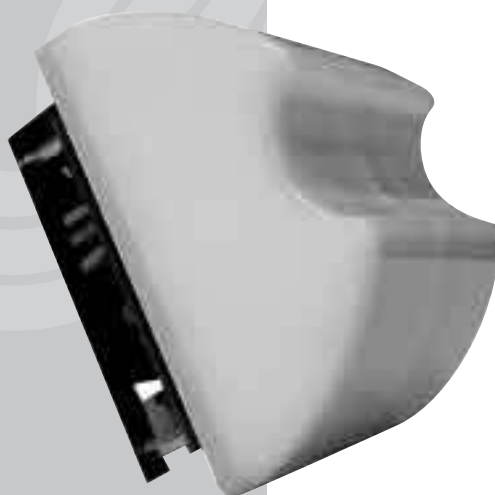
Power supply	24 V.d.c.
Consumption	Stand-by 25 mA
	Reception 230 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	165 x 120 x 23
Finishing	Grey Metal
Connections	Power supply 2 x 0,50 mm ² to TH-02, TH-03F or UR
	Data 1 wire + copper shielding to CC-122F, TH-03F or TH-02F
	Audio

MICROPROCESS NURSE CALL SYSTEM

UR-LP Zone Communication unit with build-in corridor lamp

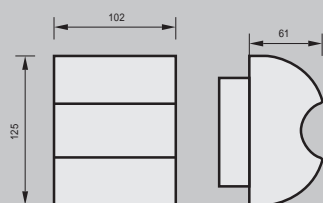
Electronic control module for the data communication with the control central.

It allows the connection of the call and presence mechanisms (PT series) and the AM-1F intercommunication module. It includes a corridor signal lamp.



Features:

- Data Bus
- Leds indicators control terminals
- Push-buttons input terminals
- Audio amplifier
- Audio adjustment in reception.



SPECIFICATIONS

UR-LP

Power supply	24 V.d.c.
Consumption	Stand-by
	Reception
	25 mA
	330 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	102 x 125 x 61
Finishing	White ABS (lamp)
Embedding box	CAJ-24206
Connections	Power supply
	2 wires to CC-122F and active elements
	Data
	1 wire + copper shielding to CC-122F and active elements
	Audio



MICROPROCESS NURSE CALL SYSTEM

PT-1BIP Call Module



Embedded mounting room module with bathroom type call pull cord, which has priority over normal calls.

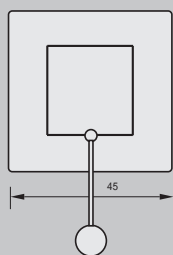
It has a led indicator for current call.

Features:

Emergency call pull cord

Emergency call (presence + call)

Reassurance led.



SPECIFICATIONS

PT-1B1P

Power supply	24 V.d.c.
Consumption	25 mA
Dimensions (mm)	45 x 45 x 46
Finishing	White ABS
Embedding box	L170E or any universal box
Connection Push-buttons	2 x 0,25mm2 to TH-03F, TH-02F, UR or UR-04
LEDs	2 x 0,25mm2 to TH-03F, TH-02F, UR or UR-04
Remarks	IP-41 Protection degree

MICROPROCESS NURSE CALL SYSTEM

PT-1F Presence and Call Module



Embedded mounting room module with patients call, nurse presence and emergency call functions.

It has led indicators for the current call and presence.

Features:

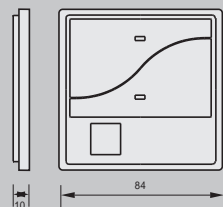
Call push-button

Presence push-button

Emergency call (presence + call)

Reassurance LED

Presence LED.



SPECIFICATIONS

PT-1F

Power supply	24 V.d.c.
Consumption	24 mA
Dimensions (mm)	84 x 84 x 10
Finishing	White ABS
Embedding box	L-170E
Surface box	C-171S
Connection	Push-buttons
LEDs	

2 x 0,25 mm² to TH-03F, TH-02F, UR
3 x 0,25 mm² to TH-03F, TH-02F, UR



MICROPROCESS NURSE CALL SYSTEM

PT-1CF Call Module

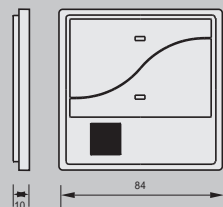


Embedded mounting room module with patient call, nurse presence and emergency call push-buttons.

It has led indicators for the current call and presence, as well as a connector for the ML-F bed remote control unit.

Features:

- Call push-button
- Presence push-button
- Emergency call (presence + call)
- Reassurance LED
- Presence LED
- Connector for the bed remote control unit.



SPECIFICATIONS

PT-1CF

Power supply	24 V.d.c.
Consumption	24 mA
Dimensions (mm)	84 x 84 x 10
Finishing	White ABS
Embedding box	L-170E
Surface box	C-171S
Connection	Push-buttons
LEDs	

2 x 0,25 mm² to TH-03F, TH-02F, UR
3 x 0,25 mm² to TH-03F, TH-02F, UR

MICROPROCESS NURSE CALL SYSTEM



MICROPROCESS NURSE CALL SYSTEM

PT-1BF Call Module



Embedded mounting bathroom call module (with activation by pull cord or push-button), with priority call, nurse presence, and emergency call.

It has led indicators for current call and presence.

Features:

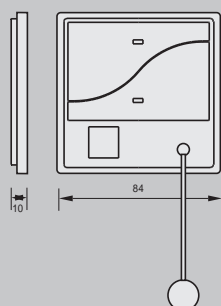
Emergency call push-button

Presence push-button

Emergency call (presence + call)

Reassurance LED

Presence LED.



SPECIFICATIONS

PT-1BF

Power supply	24 V.d.c.
Consumption	24 mA
Dimensions (mm)	84 x 84 x 10
Finishing	White ABS
Embedding box	L-170E
Surface box	C-171S
Connection	Push-buttons
	LEDs
	2 x 0,25 mm ² to TH-03F, TH-02F, UR
	3 x 0,25 mm ² to TH-03F, TH-02F, UR



MICROPROCESS NURSE CALL SYSTEM

AM-1F Audio Module

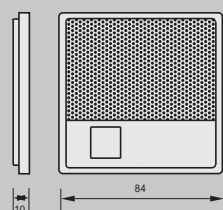


Embedded mounting room module, which allows the audio communication with the CC-122F control central or with the TH-02F and TH-03 room terminals.

Features:

8 ohms loudspeaker

Preamplifier



SPECIFICATIONS

AM-1F

Power supply	24 V.d.c.
Consumption	110 mA
Loudspeaker	8 Ω
Loudspeaker power	4 W
Dimensions (mm)	84 x 84 x 10
Finishing	white ABS
Embedding box	L-170E
Surface box	C-171S
Connection	Loudspeaker 2 x 0,50 mm ² + copper shielding to UR
	Power supply 2 x 0,50 mm ² to UR

MICROPROCESS NURSE CALL SYSTEM

ML-F / ML-P Remote control call units

These models are patient remote control call units, with call push-button.

The ML-F model includes moreover call and reassurance led functions, and two knobs for the activation of lights (by tele - switches).

Both include a 190 cm cable and a RJ45 connector as well as being compatible with the PT-1CF modules, TH-02F and TH-03F sub-stations.

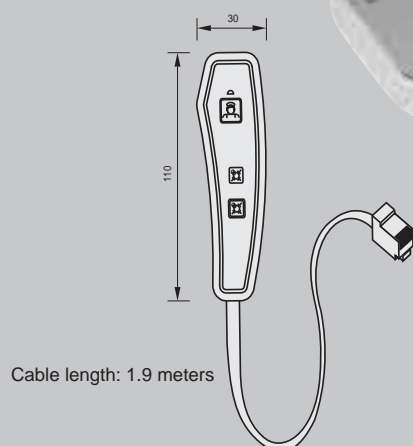
Features:

Call push-button

Reassurance LED (ML-F)

RJ45 connector (ML-F)

Tele - switches for lights activation (ML-F)



SPECIFICATIONS

ML-F / ML-P	
Power supply	24 V.d.c.
Consumption	12 mA
Dimensions (mm)	110 x 30 x 15
Finishing	White ABS
Cable length	1.9 meters
Connectors	RJ45



MICROPROCESS NURSE CALL SYSTEM

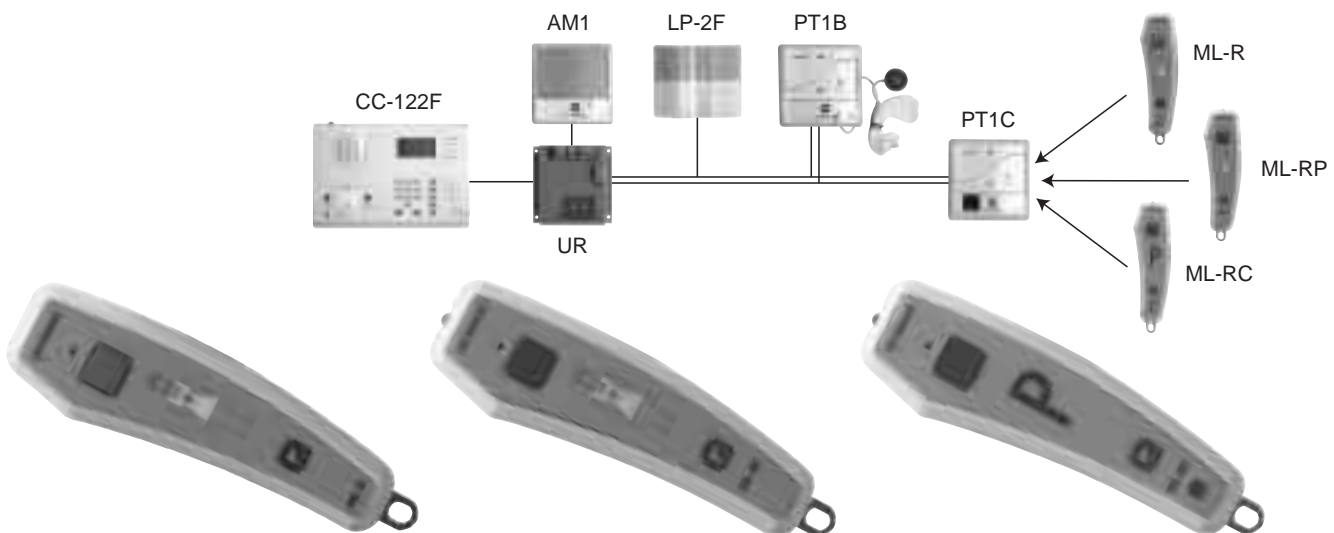
ML-R / ML-RP / ML-RC Radio and infra-red remote control units

These models are remote control units for patients and nurses calls, with transmission by radio or infra-red.

The patients calls unit functions via radio and allows for room, bathroom and even corridor calls thanks to its operating range. Each unit is programmed to be associated to one receiver, being also possible to use several units with a single receiver, in the case of rooms with several beds for example or to program one unit to be associated to several receivers, in the case of common rooms for instance.

These units are battery power supplied and low battery information is shown with all the corresponding RL-1 receiver LEDs lit on.

The nurses calls unit functions via infra-red, operating only in the proximity of the receiver. It is universal and does not require to be programmed so that the nurse only has to press the button when attending a call.



This model is a patient remote control call unit, with call push-button and reassurance led.

Features:

Call push-button
Reassurance LED
Maximum 10 m range

This model is a remote control unit for the nurses staff, with presence push-button and reassurance led.

Features:

Presence push-button
Reassurance LED
Maximum 5 m range in straight line

This model is a remote control unit for programming the receivers, with programming and programs cancelling push-buttons.

The transmission is by infra-red to the receiver(s) to be programmed.

Features:

Programming push-button
Programs cancelling push-button
Control instructions transmission LED
Maximum 5 m range in straight line

	ML-R	ML-RP	ML-RC
Power supply	12 V.d.c. alkaline battery (Models Duracell MN21, Varta V23GA, Energizer A23 and compatible models)		
Consumption			
Stand-by		0 mA	
Transmission	1,5 mA	4 mA	4 mA
Dimensions (mm)	110 x 30 x 15		
Finishing	White ABS		

MICROPROCESS NURSE CALL SYSTEM



MICROPROCESS NURSE CALL SYSTEM

RL-1 Radio and infra-red receiver

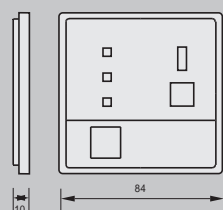


Embedded mounting room module which allows patient calls by push-button or by radio, nurse presence by infra-red and emergency call in combination with presence and call.

It has led indicators for current call and active presence.

Features:

- Call push-button
- Emergency call (presence + call)
- Reassurance LED
- Presence LED



SPECIFICATIONS

RL-1

Consumption	24 mA
Dimensions (mm)	84 x 84 x 10
Finishing	White ABS
Embedding box	L170E
Surface box	C-171S
Connections	Push-buttons LEDs
	2 x 0,25mm ² to TH-03F, TH-02F, UR or UR-04
	3 x 0,25mm ² to TH-03F, TH-02F, UR or UR-04



MICROPROCESS NURSE CALL SYSTEM

LP-2F / LP-4F Corridor lamps



LP-2F



LP-4F



Calls and room presences signal lights for use in the corridors of hospitals, clinics, old people's homes, etc.

They indicate the normal calls, emergency calls, presences, etc. by different combinations of light fields and flashings.

LP-2F has two fields and can be used for one room or two geriatric bathrooms, for example and LP-4F has four fields and can be used for two rooms or four geriatric bathrooms for example.



Set of 10 bulbs
(not included)

22LR: Red

22LW: White

22LG: Green

22LY: Yellow

SPECIFICATIONS

LP-2F / LP-4F

Power supply	24 V.d.c.
Consumption	100 mA
Dimensions (mm)	102 x 125 x 61
Finishing	White ABS
Embedding box	L-170E
Surface box	C-171S
Connections	3 x 0,25 mm ² to TH-03F, TH-02F or UR

MICROPROCESS NURSE CALL SYSTEM



MICROPROCESS NURSE CALL SYSTEM

SC-BUS Bus divider & Electric insulator unit



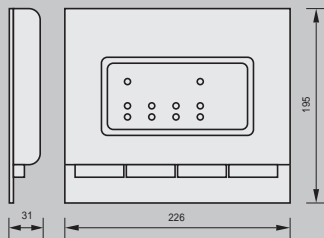
This model is an electronic control unit for dividing the communication bus and electrically insulate its sections.

In installations with different connection sections, the SC-BUS avoids errors and fails to propagate from one section the others. It also isolates data and audio from each section, renovates the data and provides independent power supply.

It has 4 connection zones (data, audio, power supply and remote control opening) and can be configured in order that when power supply is cut for one of them, the rest of the buses are deactivated, for maintenance or commissioning operations.

Features:

- Data input and output
- Audio input and output
- Bus power supply (24 V)
- Doors opening control input and output
- Independent power supply connection
- Power supply LED
- Data transmission LED
- Doors opening LED
- Local power supply general control



SPECIFICATIONS

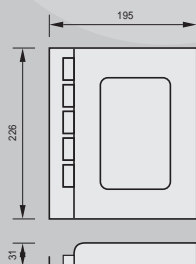
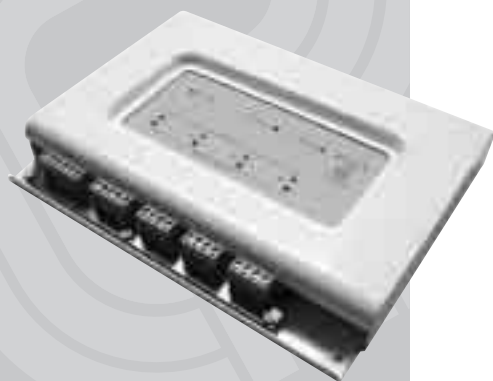
SC-BUS

Power supply	24 V.d.c.
Consumption Bus 1	70 mA
Rest of buses	45 mA each one
Dimensions (mm)	226 x 195 x 31
Finishing	White metal



MICROPROCESS NURSE CALL SYSTEM

MT-DA/B / MR-D



Transfer Interface: Electronic control unit for the control transfers between the centrals and the data regeneration.

In installations with more than one control centre, the MT-DA/B module is installed between them to electrically isolate the installation bus sections, to regenerate and balance the data signal and to process the control transfer of the rooms from one centre to another.

Features:

Data input and output.

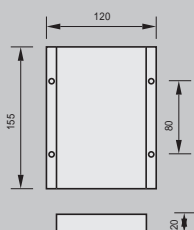
Audio input and output.

Doors opening control input and output.

Operation and transmission control LEDs.

MT-DA/B

Power supply	24 V.d.c.
Consumption	75 mA
Dimensions (mm)	226 x 195 x 31
Finishing	White metal



Data Renew & Electric Insulator: Electronic control unit with two functions: regeneration of the data signal increasing the transmission distance, and electric insulation of bus sections allowing independent supplies (for example, for 2 CC-122F centrals).

Features:

Data input and output

Operation and transmission LEDs indicators

Gain adjustment potentiometers.

MR-D

Power supply	24 V.d.c.
Consumption	50 mA
Dimensions (mm)	155 x 120 x 20
Finishing	Grey metal
Connection	3 wires + copper shielding

MICROPROCESS NURSE CALL SYSTEM



MICROPROCESS NURSE CALL SYSTEM

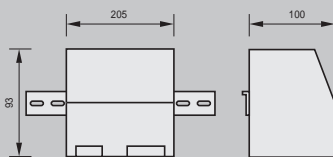
FA Series power units



FA-10 / FA-2 : power supply units of 24 V.d.c. and respectively 10 A and 2 A, for the SMC system, with protection against over-loading and over voltages.

FA-10

Input voltage	88 / 132 V.c.a. – 176 / 264 V.c.a. auto changeable
Input frequency	47 - 63 Hz
Output	24 V, 10 A, +/- 1%, R&N 180 mV
Overloading protection	105 / 135% current cutting
Overvoltage protection	115 / 150% output voltage
Isolation	I/P - O/P: 3KV, I/P-FG: 1,5 KV, one minute
Weight	1.1 Kg
Dimensions (mm)	205 x 93 x 65



FA-10DIN



FA-5DIN



FA-2DIN

FA-10DIN / FA-5DIN / FA-2DIN: Power supply units for installation on DIN rail. They provide the 24 V.d.c. required for the operation of the SMC units. Maximum respective current of 10 A, 5 A and 2 A. Duplicated output bases for easy installation.

FA-10DIN

FA-5DIN

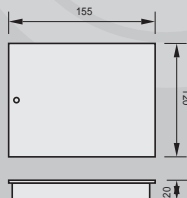
FA-2DIN

Input voltage	85 / 264 V.a.c.	88 / 132 V.a.c.	88 / 132 V.a.c.
Attack current	50 A at 230 V.a.c.	176 / 264 V.a.c. manual switching 20 A at 115 V.a.c. / 40 A at 230 V.a.c.	176 / 264 V.a.c. autochangeable 27 A at 115 V.a.c. / 36 A at 230 V.a.c.
Output	24 / 28 V.d.c.	24 V.d.c.	24 V.d.c.
Overloading protection	105 % / 150 %, due to current limit		105% / 135% due to current limit
Isolation		I/P-O/P: 3 KV, I/P-FG: 1.5 KV, one minute	
Safety standards	UL508, UL60950-1, TUV EN60950-1	-	-
EMC standards	EN55022 class B, ENV50204, EN61000-3-2-3, EN61000-6-2, EN61000-4-2, 3, 4, 5, 6, 8, 11,	-	-
Weight	1.2 kg	0.79 kg	0.3 kg
Dimensions (mm)	125.5 x 125.2 x 100	65.5 x 125.2 x 100	78 x 93 x 56



MICROPROCESS NURSE CALL SYSTEM

MAT Telephone interface



Device for the audio signal transmission from the SMC bus towards an analogical telephone central extension (SMC extension). This way, any of the central telephone sets can start a communication with the room that has initiated a call.

Combined with the MD Management program and DECT telephone system (see page 158), it allows the SMC system to receive calls and identify them in the wireless telephone sets as well as starting the communication with the rooms.

MAT

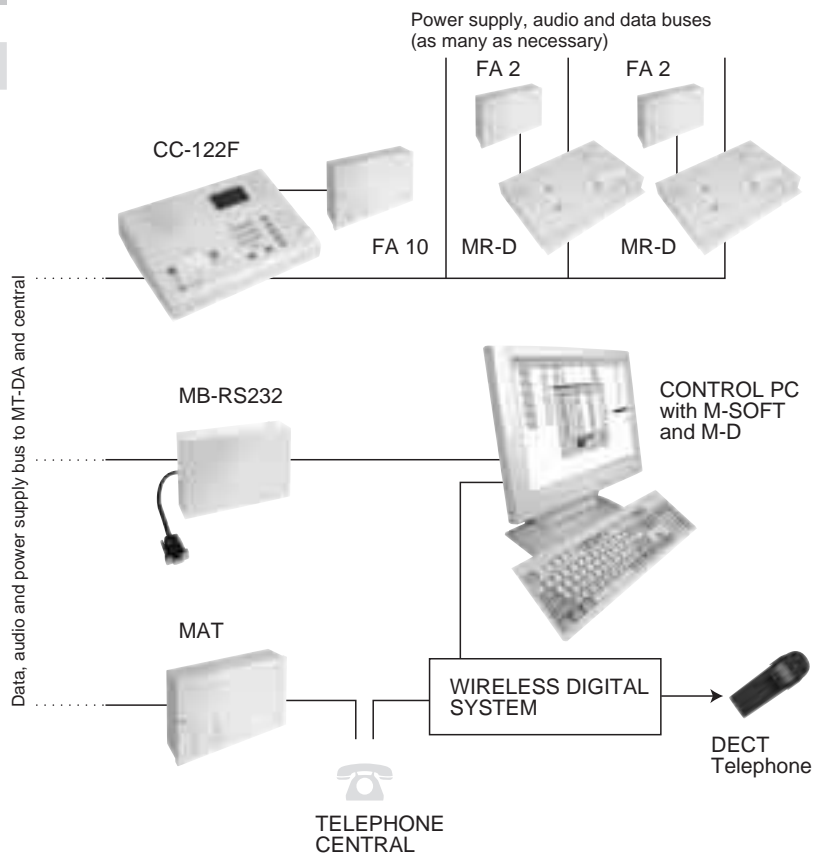
Power supply	24 V.d.c.
Consumption	50 mA
Dimensions (mm)	155 x 120 x 20
Finishing	Metallic, grey colour
Connections	2 wires
Power supply Data	1 shielded wire
Audio	1 shielded wire

BLOCK DIAGRAM

This example shows an installation with 5 CC-122F centrals in total, amongst which 4 are transferred to the concentration one. There is PC control and calls transfer to DECT telephones.

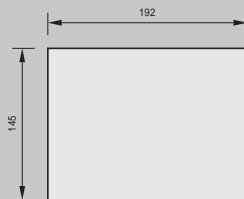
Concentration central. According to the elements (UR, UR-4, TH-02f and TH-03F) quantity depending directly upon the central, MR-D data renew modules will have to be added. Each new data bus will be electrically insulated from the rest.

The control PC, equipped with the MSOFT and MD programs, allows all the installation incidences control, parameters programming, historicals management, and communication with the wireless DECT telephone system...



MICROPROCESS NURSE CALL SYSTEM

MB-RS232 PC Interface



Electronic control unit for the data transmission bus and reception between the central and the MP-C.

Controlled by the MSOFT software.

Features:

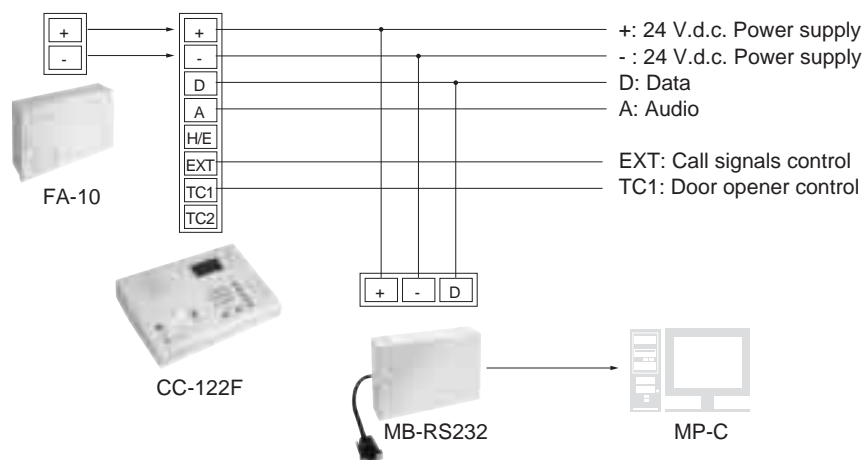
Data input and output.

Operation and transmission LEDs indicators.

MB-RS232

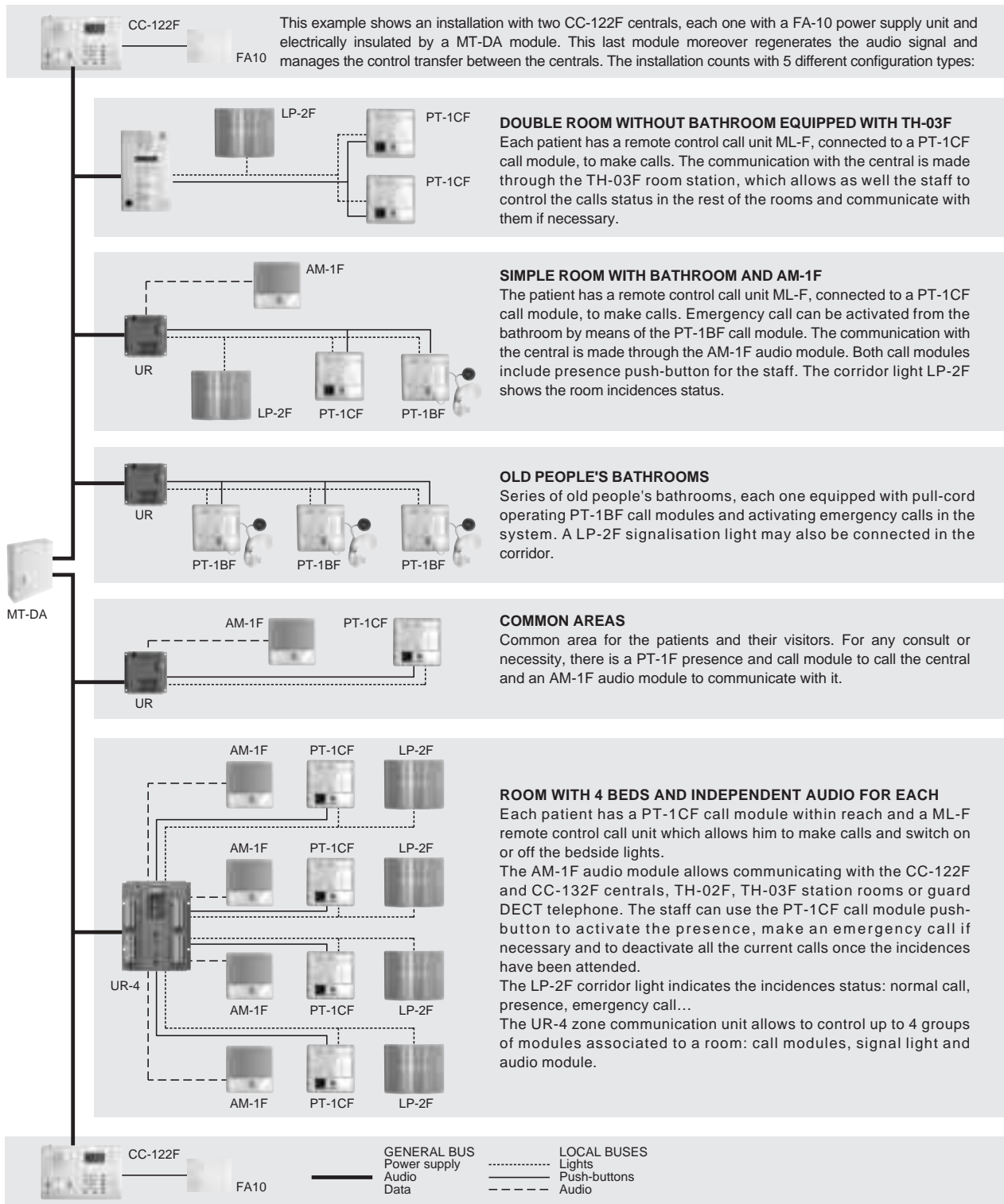
Power supply	24 V.d.c.
Consumption	50 mA
Dimensions (mm)	192 x 145 x 50
Cable Length	2 meters
Finishing	White metal
Connections	See diagram

BLOCK DIAGRAM



MICROPROCESS NURSE CALL SYSTEM

Example of application



MICROPROCESS NURSE CALL SYSTEM



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As of April 2008, the OPTIMUS P.A. products were being used in installations in 94 countries world-wide.

Being OPTIMUS, S.A. only manufacturers and exporters, it is up to third parties the task of selling, installing, testing and commissioning the installations.

Therefore, it is virtually impossible to keep track of all the places and countries where our products are installed. Making a modest estimate, however, we could say that the OPTIMUS products are present in some 100 countries.

A comprehensive World-wide Reference List of Installations is available on request.



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