iPAM400
Intelligent 400 W PA Amplifier Mainframe with Loudspeaker Line Monitoring

iPAM400 fitted with
2 x MX200 Amplifier Modules

- Modular amplifier units allow flexible output power configuration
- Loudspeaker line monitoring
- Two microphone/analogue audio inputs
- 230 V AC and/or 24 V battery power supplies
- IP connectivity
- Built-in VoIP (Voice over Internet Protocol)
- Built-in PC/DVA functions
- Ideal for VoIP LLPA (Long Line Public Address)
- NTP (Network Timing Protocol) synchronisation

The iPAM400 Public Address Amplifier Mainframe is a 2U rack mount unit which combines amplification, routing, and Ethernet connectivity and includes loudspeaker line monitoring. The mainframe is designed to operate with dual power supplies: 230 V AC mains supply and/or a 24 V DC battery supply. Amplification is provided by high efficiency and low quiescent current modular amplifiers using ASL proprietary Adaptive Class D technology, whilst Voice over IP and Digital Voice announcement are provided by an embedded controller supporting the ASL VIPA software suite.

The iPAM400 can be fitted with the ASL MX series 100 V PA/VA amplifier modules in any of the following combinations: 4x100 W, 2x200 W, 1x400 W, or 1x200 W + 2x100 W. Each amplifier feeds 4 outputs (A, B, C, and D circuits) enabling multi-circuit applications. Loudspeaker line monitoring can be provided for A or/and B circuits using AC line surveillance* with the AEL01/AEL02 Active End of Line Device.

Two multifunction audio input and serial I/O ports enable the connection of any of ASL's general paging microphones, the ASL BMB01 Remote I/O Unit, or other audio sources. The BMB01 unit in turn enables the connection of ASL Ambient Noise Sensors and remote control units, and also provides flexible general purpose analogue and digital I/O connectivity. Microphones connected to these ports can be configured for paging and DVA routing locally at the host iPAM400, or elsewhere over the network.

The iPAM400 can be controlled from an ASL or third party workstation in the IP network or can have a directly connected monitor, mouse and keyboard, or touchscreen.

iPAM400s can be configured to run as stand-alone units or in a network. They support full peer-to-peer IP communications for both voice and control. This provides an IP enabled distributed operating platform for ASL software and other applications, with connectivity, control, and monitoring functions. ASL's Voice over IP solution allows the iPAM400s audio outputs to be synchronised across the network, and allows the use of both high and low bandwidth codecs as appropriate to the application. The base iPAM400 VIPA software** set includes: Operating System, Voice over IP, PC/DVA back end, interfaces to ASL microphones, and IP interfaces for control and fault reporting.

For further details, and for information on other products, please visit www.asl-control.co.uk.

* DC line surveillance: future option.

** iPAM400 uses Acapela speech technologies licensed from the Acapela Group, Acapela® text-to-speech processing software can optionally be installed in order to provide text-to speech broadcasts.

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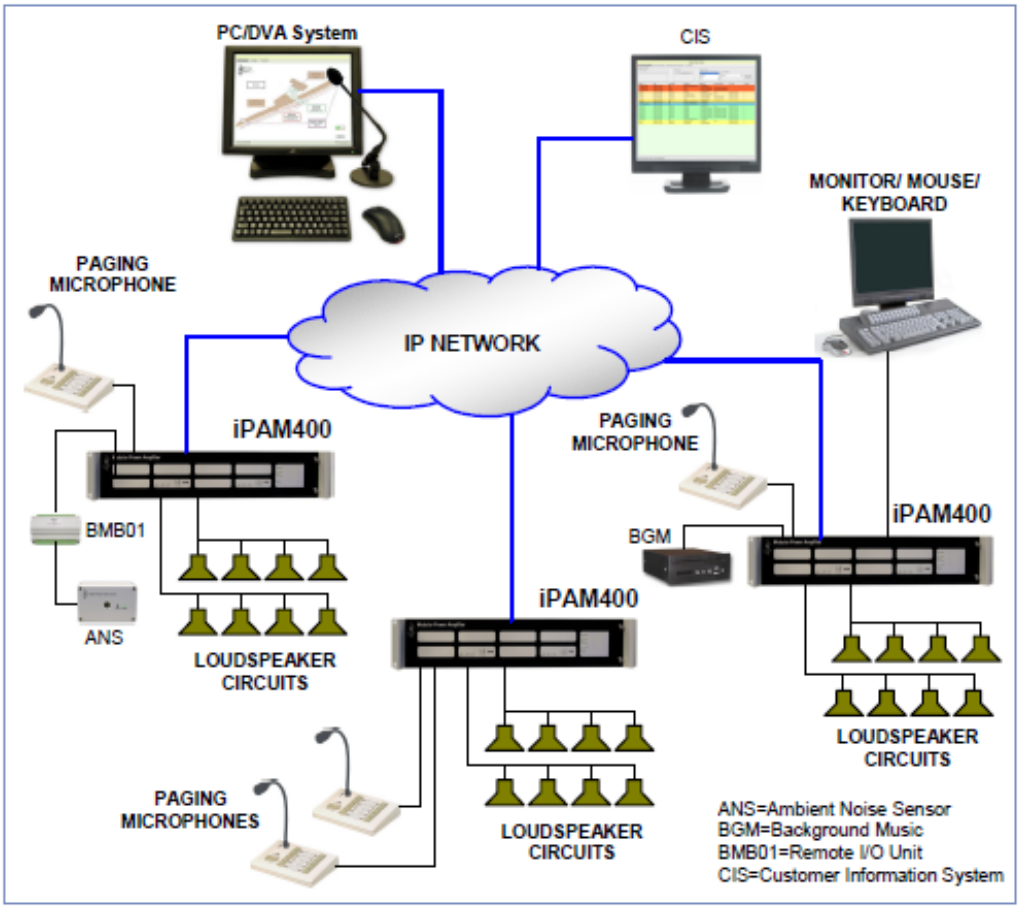
Application Diagram



iPAM400[1]

General

Supply Voltage ..... 230 V +/–10% RMS 50Hz AC / IEC320 inlet
European standard
Inrush Current (worst case) ..... 24.2 A
Maximum AC Power Consumption ..... 745 VA
(iPAM400 fully configured and all amplifier modules delivering
100 V 1 kHz sinewave into rated resistive loads)
DC Supply Voltage ..... 21 to 27.6 V (7W2 mixed signal D connector)
(from nominal 24 V lead acid battery pack)
Quiescent DC Current (no amplifiers, @ 24 V supply)..... 450 mA
Maximum DC Current Consumption ..... 6.25 A per 1 x MX100
12.5 A per 1 x MX200
25 A per 1 x MX400
(21 V supply, modules delivering 100 V 1 kHz sinewave
into rated resistive loads)
Standard Configurations[2] ..... 1 x MX400 400 W Amplifier Module
2 x MX200 200 W Amplifier Module
4 x MX100 100 W Amplifier Module
1 x 200 W + 2 x 1200 W Amplifier Modules
(No standby amplifier provision)
Format ..... 2U 19-inch rack mounting metal frame
Colour ..... black front panel with silver annotation
Loudspeaker Line Surveillance..... AC line surveillance[3, 4]
Temperature Range (storage and operating) .....–5 °C to +50 °C
Humidity Range ..... 0% to 93% non-condensing
Ingress Protection..... IP20
Vibration / Impact..... EN60068-2-6/EN60068-2-75
Dimensions (H x W x D) (mm) . 86 x 439 x 425 (excluding handles)
Weight ..... 12 kg (iPAM400 frame only) / 18.4 kg (max)

External Interfaces[5]

Audio Output..... up to four 100 V RMS outputs
4-way pluggable cage clamp terminal block
Microphone/Audio/Data Port[6] ..... 2 x ports
Audio Input .....balanced 0 dBu/10 kΩ/-20 dBu max. sensitivity
Auxiliary DC Supply Output ..... 18-36 V (500 mA max)[7]
Serial Interface ..... EIA RS485
19200 baud (microphone) / 9600 baud (BMB01)
Connection ..... 8-way pluggable cage clamp terminal block
Compatible with ASL paging microphones and BMB01 unit[8]
Audio I/O Expansion Module (optional)[9]
Audio Inputs .....2 x balanced 0 dBu / 14 kΩ impedance[10]
Audio Outputs..... 4 x 0 dBu low level outputs
Auxiliary DC Supply Output .....21 V to 38 V[7]
2-way pluggable cage clamp terminal block

Audio-CAN/RS485 Port[11] .....standard dual 9-way D connector
Serial Port ..... 1 x RS232 (9-way standard D connector)[12]
Ethernet Port..... 1 x 100BASE-T Ethernet (RJ45 socket)
USB Port ..... 2 x USB 2.0 (USB type A socket)
VGA Port..... 1 x standard VGA port (15-way HD D connector)

MX100

Output Power .....100 W @ 100 V RMS[1]
Output Voltage and Input Sensitivity ..... 100 V RMS
into 100 Ω load for 0 dBu 1 kHz input signal
Regulation ..... No load to full load, better than 1.5 dB
Efficiency..... 80%
Quiescent Current (@ 24 V supply)
No signal ..... 70 mA
With one or two AEL units connected ..... 110 mA (nominal)
With continuous surveillance signal ..... 140 mA (nominal)
Full Power Current (worst case 21 V battery supply) .....6.25 A
Frequency Response ..... 100 Hz – 18 kHz, ±3 dB
THD (@ 100 V RMS output, full load) ..... <0.5% @ 1 kHz
Residual Noise ..... Better than 80 dB (A-weighted) below full output
Dimensions (mm) (H x W x D)..... 79 x 79 x 273 (incl. connectors)
Weight..... 1.6 kg

MX200

Output Power .....200 W @ 100 V RMS[1]
Output Voltage and Input Sensitivity ..... 100 V RMS
into 50 Ω load for 0 dBu 1 kHz input signal
Regulation ..... No load to full load, better than 1.5 dB
Efficiency..... 80%
Quiescent Current (@ 24 V supply)
No signal ..... 70 mA
With one or two AEL units connected ..... 110 mA (nominal)
With continuous surveillance signal ..... 140 mA (nominal)
Full Power Current (worst case 21 V battery supply) .....12.5 A
Frequency Response ..... 100 Hz – 18 kHz, ±3 dB
THD (@ 100 V RMS output, full load) ..... <0.5% @ 1 kHz
Residual Noise ..... Better than 80 dB (A-weighted) below full output
Dimensions (mm) (H x W x D)..... 79 x 159 x 273 (incl. connectors)
Weight..... 2.7 kg

MX400

Output Power .....400 W @ 100 V RMS[1]
Output Voltage and Input Sensitivity ..... 100 V RMS
into 25 Ω load for 0 dBu 1 kHz input signal
Regulation ..... No load to full load, better than 1.5 dB
Efficiency..... 80%
Quiescent Current (@ 24 V supply)
No signal ..... 90 mA
With one or two AEL units connected ..... 125 mA (nominal)
With continuous surveillance signal ..... 150 mA (nominal)
Full Power Current (worst case 21 V battery supply) .....25 A
Frequency Response ..... 100 Hz – 18 kHz, ±3 dB
THD (@ 100 V RMS output, full load) ..... <0.5% @ 1 kHz
Residual Noise ..... Better than 80 dB (A-weighted) below full output
Dimensions (mm) (H x W x D)..... 79 x 316 x 273 (incl. connectors)
Weight..... 4.9 kg

1 ASL amplifiers on 230 V mains power can produce full output, with normal programme material, into loads 25% greater than those specified. In these conditions, a MX100 will deliver full output with 125 W of load connected, a MX200 will deliver full output with 250 W of load connected, and a MX400 will deliver full output with 500 W of load connected.
2 The mainframe is fully populated in the standard configurations. However the mainframe does not need to be fully populated with amplifiers, for example three MX100 amplifiers could be fitted, or a single MX200 amplifier.
3 AC line surveillance is BS EN5839 Part 8 compliant and requires one AEL01 or AEL02 Active End of Line Device used per loudspeaker circuit. Loudspeakers do not require to be fitted with DC blocking capacitors.
4 DC line surveillance is a future option compliant with BS EN5839 Part 8. It requires all loudspeakers to be fitted with DC blocking capacitors, and uses ASL EOL10K End of Line Resistors, with up to ten spurs per amplifier slot.
5 All located on the rear panel of the iPAM400M.
6 Each port can support either an ASL microphone, or a BMB01 unit, or another audio source, or a BMB01 unit and another audio source. Note that one port cannot support an ASL microphone and a BMB01 unit at the same time.
7 Depending on AC or DC supply, and battery conditions.
8 Up to nine BMB01 units can be configured on each port.
ANS sensors can be configured on different BMB01 units provided that the BMB01 units are connected to the same input port of the iPAM400. Up to twelve ANS sensors can be configured on each BMB01 unit. Any number of ANS sensors configured on the iPAM400 can be assigned for each amplifier.
9 Future options: Auxiliary Control Module providing either GSM-R (Global System for Mobile communications – Railway) interface, or DTMF (Dual-Tone Multi-Frequency) interface.
10 One of the audio inputs is not available when the Listen-in function is configured.
11 The Audio-CAN/RS485 port is for ASL use only.
12 The RS232 port is duplicated on the front of the iPAM400 behind the removable front panel.

CE

This equipment is designed and manufactured to conform to the following EC standards:

EMC: EN61000-6-4:2007, EN61000-6-2:2005, EN55103-1/E1:1997, EN55103-2/E5:1997, EN50121-4:2006, ENV50204:1996

Safety: EN 60065:2002

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