

## DSP AUDIO ROUTER



- EN54-16 COMPLIANT
- 12 ANALOGUE AUDIO INPUTS
- 12 ANALOGUE AUDIO OUTPUTS
- 24 BIT 48 kHz AUDIO PROCESSING
- DANTE ENABLED
- 12 GPIO INPUTS & 12 OUTPUTS
- UP TO 48X48 ROUTING MATRIX
- IP ENABLED DIGITAL NETWORKING

### OVERVIEW

ASL's VIPEDIA-12 provides routing between 12 analogue inputs, and 12 analogue outputs. The device also includes provision for 64 internally stored DVA (digital voice announcement) messages.

Using Digital Back Bone (DBB), up to four VIPEDIA-12 routers can be locally linked within a rack location to provide routing from any or all of their inputs to their outputs in a single logical 48 by 48 matrix. The VIPEDIA-12 also integrates seamlessly with ASL's V400, X400 and V2000 amplifier mainframes to provide full system status monitoring and fault reporting as required in EN54-16. This includes the monitoring and control of up to 64 (V400 / X400) or 32 (V2000) amplifier mainframes and their associated amplifier and loudspeaker lines.

With the optional VIPEDIA-NET module installed, up to 32 VIPEDIA-12 routers can be networked over standard Ethernet. A virtually unlimited number of 32 VIPEDIA-12 groups can then be linked to provide paging and music distribution. IP Audio transmission is made using ASL's PMC (Portable Media Carrier) format for compatibility with any of ASL's IP enabled microphones (MPS-IP), iVENCs control systems and other VIPEDIA routers. Each VIPEDIA-12 then can send and receive 6 concurrent audio broadcasts.

Microphone inputs are connected via RJ45 connections using 0dBu balanced analogue audio and an RS485 serial link. To provide maximum security of operation, two audio inputs, normally assigned to Fireman's microphones can implement router hardware bypass to ensure continued all-call microphone operation even if the matrix DSP or CPU have failed.

A full range of audio processing is available within the VIPEDIA-12. DSP based 24 bit / 48kHz audio functions include input dynamics processing, individually adjustable digital output delay of up to 5 seconds and parametric equalisation.

In addition to audio interconnections, the unit includes 12 GPIO inputs (configurable as analogue or digital), 12 digital outputs and two relay outputs. These can be used for fire interfaces, fault input and output information or to select functions within the VIPEDIA-12.

## INPUTS

### Analogue Audio Inputs

Microphones interface using 0dB balanced analogue audio and RS485 control. Each of the 12 analogue audio inputs support:

- MPS & EMS microphones
- DMS / FMS / SMC / SAP legacy microphones
- Mic Level Audio
- Line Level Audio (e.g. CD Player, Radio...)
- IP Microphone Inputs

Up to 12 MPS-IP / EMS-IP microphones can also be connected to each VIPEDIA-12 over Ethernet. Each IP microphone requires configuration against an analogue audio input.

### Chimes

One, two and three tone chimes are available as standard and can be played before live and DVA message broadcasts. Custom chimes can be downloaded onto the VIPEDIA main board DVA storage as WAV files and played before live announcements only.

### DVA Messages

Up to 64 monitored DVAs can be stored internally with a total duration of up to 40 minutes (@ 12kHz sample rate), 20 minutes (@ 24kHz sample rate) or 10 minutes (@ 48kHz sample rate). DVA messages sample rates can vary between different messages and use standard 16-bit, mono WAV file format. Up to eight messages can be played simultaneously from each VIPEDIA-12. Messages can be triggered from MPS or EMS microphones, or from the GPIO on-board / BMB01 input contacts, typically under the control of a fire alarm system.

## OUTPUTS

### ASL Amplifiers

VIPEDIA-12 analogue audio outputs interface directly with ASL's V400, X400 and V2000 amplifier ranges, which provide fully monitored Voice Alarm compliant audio amplification. Audio outputs are provided as nominal 0dB balanced analogue audio. Control & monitoring data is made using either CAN (V400 / X400) or Ethernet (V2000)

### Active Speakers

In large or complex acoustic environments, active intelligent loudspeakers often used to optimise intelligibility. In order to support such loudspeakers without additional 3rd party hardware, VIPEDIA-12 outputs can drive at levels up to 20dBu and simultaneously superimpose the 24kHz tone used by to monitor the cable link between the VIPEDIA-12 and loudspeakers.

## MICROPHONES

### Features

MPS and EMS microphones in VIPEDIA-12 systems support the following features:

#### Paging

- Live Broadcasts
- Store and Forward Broadcasts

#### Routing & Control

- DVA Message Routing
- Music / Line Input Routing
- Volume Control
- Listen In Control

#### EN54

- VA Silence
- EN54-16 VACIE Mandatory Indications

### Store and Forward

As standard, MPS and EMS microphones are configured to broadcast 'live' immediately after the press-to-talk button is activated and an audio route is made. They can also be configured to store a broadcast as it is made and then forward the audio when the microphone's press-to-talk switch is released. This is particularly useful to prevent acoustic feedback in situations where the microphone is not isolated from the broadcast, such as airport gates or offices with open spaces.

### Listen-In

An MPS microphone can be used to monitor announcements in any zone in the system. The zones to be monitored are pre-selected using MPS zone select buttons. When the Listen In button on the MPS is pressed, the broadcasts being made to the selected outputs are routed to a loudspeaker in the MPS microphone. If simultaneous broadcasts are being made to different outputs simultaneously, the audio is automatically mixed. Up to 16 different broadcasts can be monitored simultaneously.

### Dual Interface Microphones

To provide additional redundancy in safety applications, MPS and EMS microphones include dual router interface connections. Each interface can be connected to any 2 VIPEDIA-12 units in the system including those linked in AB, DBB and ASL Secure Loop architectures.

### Switched Mode

The MPS microphone includes a key switch which must be activated to trigger emergency messages from the microphones buttons. The key switch can also be configured to:

- Raise the microphone's priority
- Disable ambient noise sensing (ANS)
- Disable / change preannouncement chime
- Disable night time volume control

Inputs 1 and 2 of VIPEDIA-12 support All Call Hardware Bypass Operation. The operation of microphones on these inputs continues in an all-call-only mode in the event of VIPEDIA-12 processor failure or if there is a fault in the DBB connection between units. Hardware bypass operation is only supported in standalone, DBB and AB system architectures - it does not operate over ASL Secure Loop.

## AUTOMATIC GAIN ADJUSTMENT

### Night Volume Control Gain Reduction

VIPEDIA-12's Night Time Volume Control facility automatically limits the volume of announcements at configurable times. If an announcement is controlled by NVC, then either the nominal output gain or the configured maximum gain for NVC is used, whichever is lower. The nominal output gain for an output is the configured output gain minus any ANS attenuation and volume control attenuation.

### Ambient Noise Sensing

ASL's ANS and DANS (Dynamic Ambient Noise Sensor) devices ensure that if background noise is high, broadcasts remain audible and if background noise is low environmental noise is minimised. ANS are most useful in areas which experience a high variability in background noise levels. Train platforms, building entrances and shopping centres are typical examples.

ASL's ANS sensors connect directly via analogue contact inputs. For more advanced control of noise levels during announcements, dynamic DANS noise sensors can be used interfacing via analogue audio inputs. Each DANS processor can manage up to 4 sensors (DANS). Sensors can be shared between multiple DANS outputs. Each sensor will use one local audio input.

## GPIO

VIPEDIA-12 includes 12 on-board contact inputs and 12 on-board contact outputs. Contacts are typically used to interface VIPEDIA-12 to fire alarm systems and external third party legacy systems. GPIO functions include:

- DVA Message Routing
- Music / Line Input Routing
- External System Fault Input
- VA Silence
- Cancel Route
- Route Busy Indication
- General Fault Indication
- VA Indication

The on-board GPIO capability can be expanded using ASL's BMB01 if required. Each VIPEDIA-12 supports up to 9 BMB01 devices, each providing an additional 24 contact inputs and 12 contact outputs.

## FAULT REPORTING

### **VIPEDIA-12 Fault Reporting**

VIPEDIA-12 and its connected peripherals including amplifiers, microphones, BMB01 IO expansion units and battery charging systems are fully monitored. Latching fault reports are presented on the VIPEDIA-12 front panel and on any suitably configured MPS/EMS microphone. When fitted with the optional VIPEDIA-NET module, fault reports can also be monitored via systems which have been integrated using the VIPA-SIL or VIPA-SDK

### **Internal Fault Log**

The VIPEDIA-12 unit maintains a time-stamped 500 event fault log in non-volatile memory. This includes fault acceptance and clearance, and user logging in and out times.

### **Microphone Fault Reporting**

MPS and EMS microphones connected to VIPEDIA-12 provide the same list of faults (detailed or summary) as the VIPEDIA-12 to which they are connected. Clearing and accepting faults from the microphone will have the same effect as pressing the front panel fault clear and accept buttons.

When configured as a fault master, fault clear and fault accept key presses on a VIPEDIA-12 will clear or accept faults on all VIPEDIA-12 units in the same fault group. A fault master will also show summary faults from VIPEDIA-12 in the same fault group.

## IMPLEMENTATION OPTION—STANDALONE

### OVERVIEW

This example shows as a single VIPEDIA-12 with a range of accessories. It uses standard analogue audio outputs to enable integration of the VIPEDIA-12 with ASL's V2000, V400 or X400 Amplifier Mainframes, or with any other analogue audio equipment including low impedance amplification.

Please refer to ASL System Design Guidelines for detailed information.

### INPUTS

- Up to 12 analogue microphones, IP microphones or music sources in any combination
- 2 hardware bypass microphone inputs (serially connected MPS or EMS) on inputs 1 and 2 only

### OUTPUTS/ZONES

- 12 analogue outputs/zones
- Up to 32 V2000 frames with up to 196 amplifiers.
- Up to 64 V400/X400 frames with up to 196 amplifiers.
- 2 Listen-in outputs for zone monitoring via MPS microphones.

### DVA

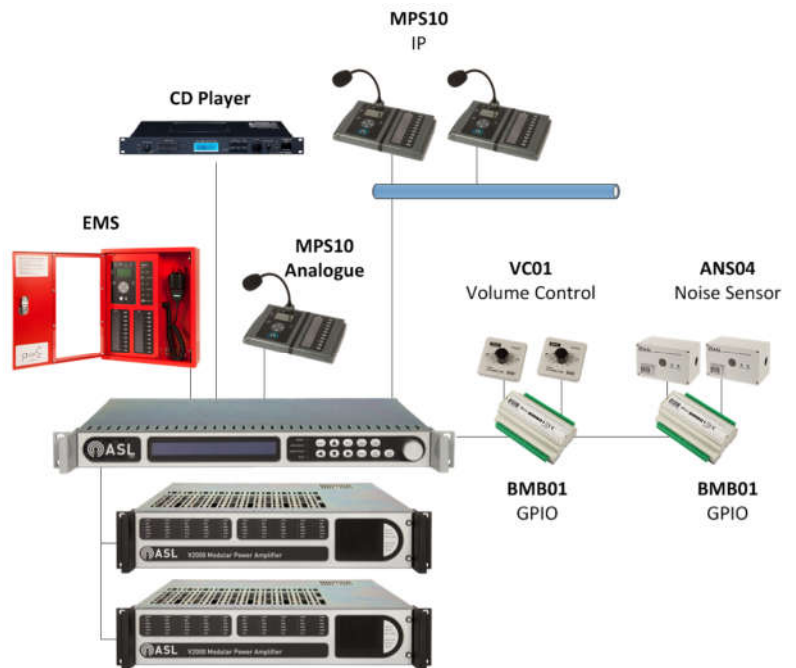
- Up to 64 files
- Up to 40 minutes (12kHz), 20 minutes (24kHz), 10 minutes (48kHz)
- Up to 8 simultaneous DVA playback

### GPIO

- 12 On-board analogue/digital inputs & 12 digital outputs
- 2 output relays
- Up to 9 additional BMB01 IO expansion units

### AMBIENT NOISE

- Up to 12 ANS connected to directly to the VIPEDIA
- Up to 48 ANS connected via BMB01 units.
- Up to 4 DANS processed outputs with up to 16 DANS sensors (4 per zone)



## IMPLEMENTATION OPTION—DBB

### OVERVIEW

The built-in DBB (Digital Back Bone) high speed digital audio bus and Ethernet ports link two, three, or four VIPEDIA-12 Audio Routers together. The resulting systems are referred to as VIPEDIA-24, VIPEDIA-36 and VIPEDIA-48. DBB seamlessly integrates multiple units into a single larger routing matrix. All analogue audio inputs, ANS sensors and other signals which are connected to any one of the VIPEDIA-12 units are available to the whole combined routing system.

Please refer to ASL System Design Guidelines for detailed information.

### INPUTS (VIPEDIA-48)

- Up to 48 analogue microphones, IP microphones or music sources in any combination
- Up to 8 hardware bypass microphone inputs (serially connected MPS or EMS) on inputs 1 and 2 only

### OUTPUTS/ZONES (VIPEDIA-48)

- Up to 48 analogue outputs/zones
- Up to 32 V2000 frames with up to 320 amplifiers.
- Up to 64 V400/X400 frames with up to 256 amplifiers.
- Up to 8 listen-in outputs for zone monitoring via MPS microphones.

### DVA

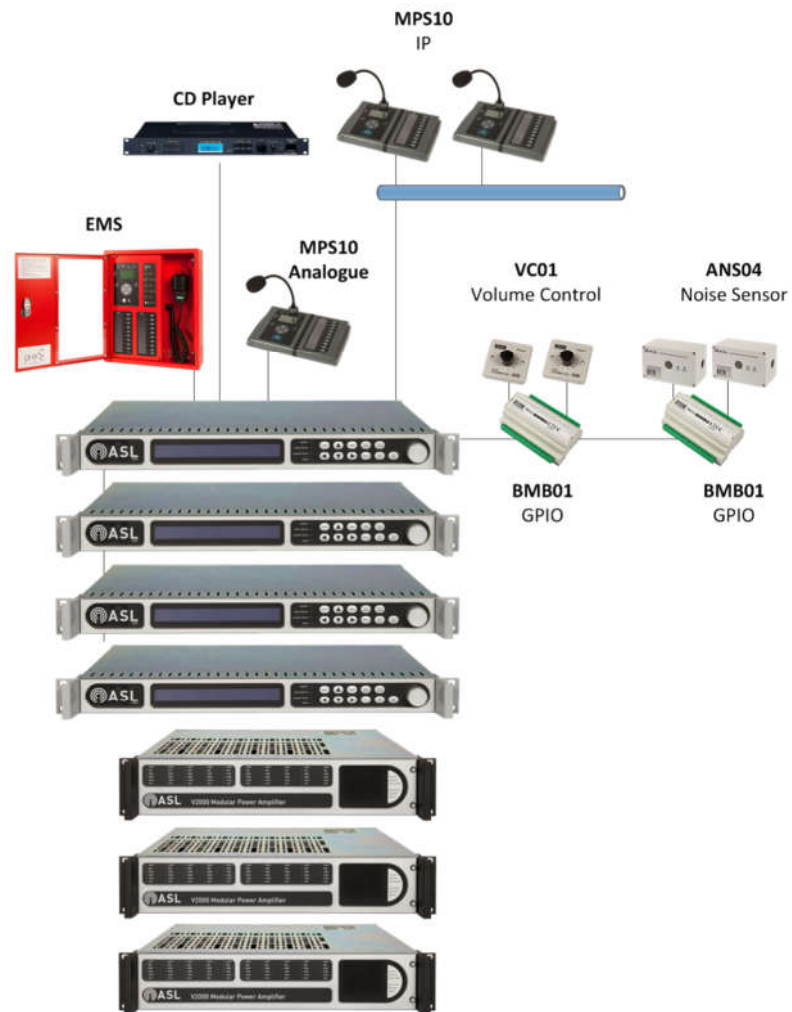
- Up to 256 files
- Up to 160 minutes (12kHz), 80 minutes (24kHz), 40 minutes (48kHz)
- Up to 32 simultaneous DVA playback

### GPIO (VIPEDIA-48)

- 48 on-board analogue/digital inputs & 48 digital outputs
- 8 output relays
- Up to 36 additional BMB01 IO expansion units

### AMBIENT NOISE (VIPEDIA-48)

- Up to 48 ANS connected to directly to the VIPEDIA
- Up to 192 ANS connected via BMB01 units.
- Up to 16 DANS processed zones with up to 64 DANS sensors (4 per zone)



# IMPLEMENTATION OPTION—ASL SECURE LOOP

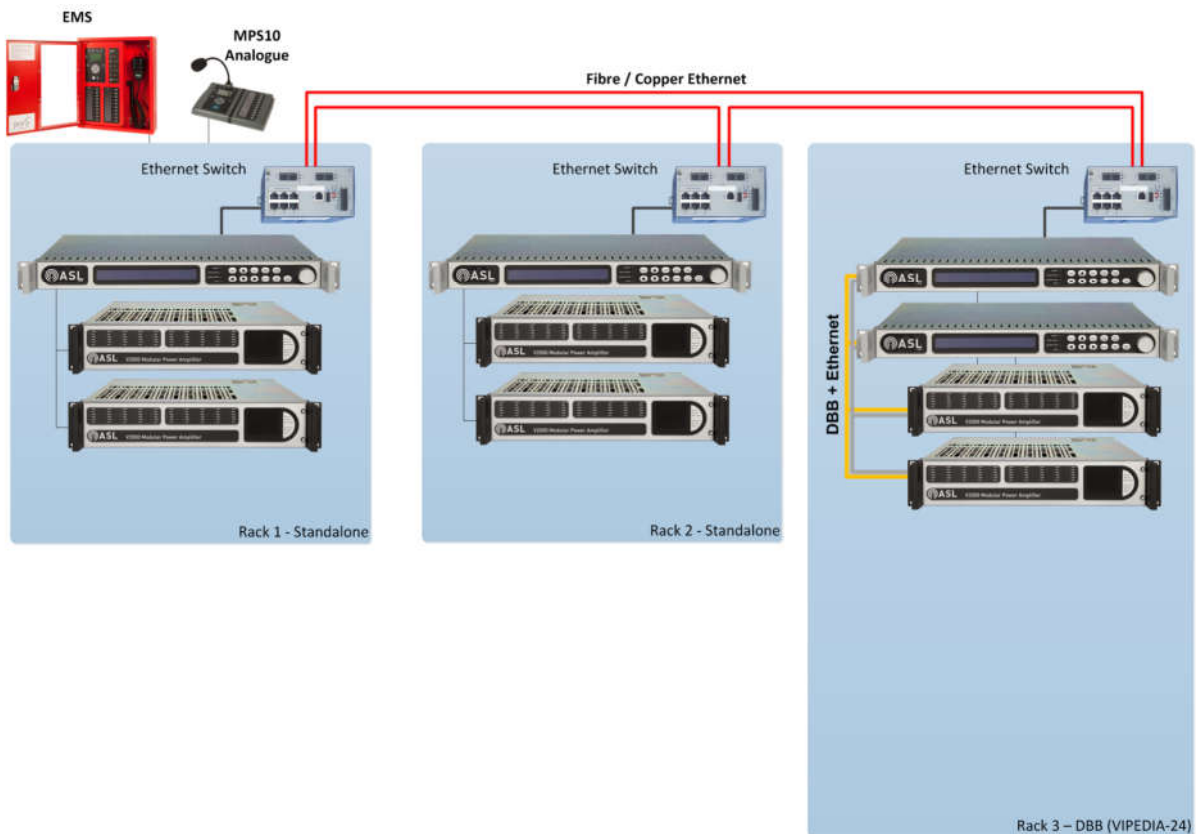
## OVERVIEW

ASL Secure Loop can be used to link multiple VIPEDIA-12 external Ethernet switches to provide a fully EN54-16 compliant distributed VA system. Links between locations can be made over Cat5, multi and single mode fibre depending on the choice of Ethernet switch.

### ASL Secure Loop + VIPEDIA-NET

When fitted with the optional VIPEDIA-NET, VIPEDIA-12 supports:

- Any source (mic, music, DVA) can be broadcast to any zone
- Up to 32 VIPEDIA-12 in each group
- No limit on number of VIPEDIA-12 groups for paging and music applications
- Up to 384 zones
- Each VIPEDIA-12 can concurrently make/receive:
  - Up to 6 audio channels using ASL Secure Loop
  - Up to 32 audio channels using Dante
- Audio channels are dynamically assigned according to route priority
- Concurrent broadcasts on the network are limited only by underlying network bandwidth



### Power Supply

Input Voltage.....	18—40 V DC
Current Consumption (maximum).....	490 mA
Current Consumption (nominal).....	445 mA

### Connectivity

VIPEDIA-12 Base Unit.....	2 x 100BASE-T Ethernet
VIPEDIA-NET (Optional).....	2 x 100BASE-T Ethernet

### Audio - General

Digital Format.....	48kHz / 24-bit PCM
THD.....	<0.01% at 1 kHz
Crosstalk.....	>70 dB at 1 kHz
Residual Noise.....	<90 dBu (A)
Frequency Response.....	20 Hz to 20 kHz ±0.5 dB

### Audio - Inputs

Analogue Input Channels.....	12
Input Sensitivity.....	-60 / - 40 / -20 / 0 dBu
Max Input Level.....	+20 dBu
Input Trim.....	-90 dB to +10 dB (1 dB steps)
Switchable HPF.....	20 to 500 Hz / Slope: 12 dB/oct
EQ.....	4 Band Parametric
Dynamics.....	Gate/Compressor/Limiter
Chime.....	Off / 1 note / 2 note / 3 note / Custom
Chime Level.....	-60 dB to +10 dB (1 dB steps)

### Audio - Outputs

Analogue Output Channels.....	12
Nominal Output Level.....	0 dBu
Maximum Output Level.....	20 dBu
Output Impedance.....	660 Ω
Master Level.....	+10 to - 90 dB (1 dB steps)
Delay (per output).....	1 ms to 5000 ms (1 ms steps)
EQ.....	10 Band Parametric
Dynamics.....	Limiter / Hard Clipper
Hardware Bypass Gain.....	-31.5 dB to 0 dB (1 dB steps)

### I/O Interfaces

Inputs.....	12 x combined digital and analogue contacts
Outputs.....	12 x open-collector contacts
V400 Amplifier.....	1 x Audio-CAN
General Fault Relay.....	1
Voice Alarm Indicator Relay.....	1
Legacy Serial Host Control Interface.....	1
BMB01 IO Expansion Interface.....	1
Local Expansion DBB Ports.....	2 (1 x DBB Interface)

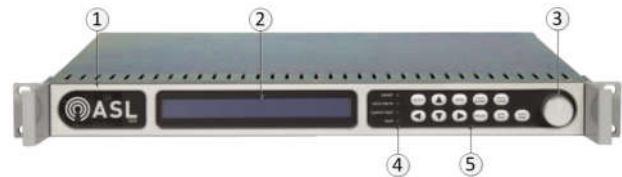
### Mechanical

Dimensions.....	41.8 mm x 436 mm x 260 mm
Mounting.....	19-inch rack mounting (1U)
Weight.....	3.75 kg

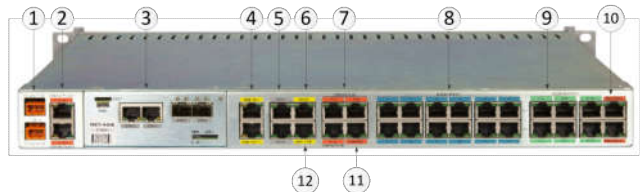
### Environmental

Temperature (storage).....	-20°C to +55°C
Temperature (operating).....	-10°C to +55°C
Humidity.....	0% to 95% non-condensing
IP Rating.....	IP20

### Front and Rear Panels



1. Fault Sounder and Audio Monitoring Loudspeaker
2. 2 x 40 backlit LCD Alphanumeric Display
3. Rotary Control for increment and decrement of menu items & volume control of monitor audio
4. Mandatory EN54 Indications
5. Menu Control Buttons



1. 18V -40V Dual DC Power Supply
2. Contact Outputs 1 to 12
3. Optional VIPEDIA-NET module
4. DBB Expansion Ports
5. Dual Ethernet Ports
6. RS232 Port
7. Contact Inputs 1 to 8
8. Microphone / Audio Inputs 1 to 12
9. Audio Outputs 1 to 12 (A&B)
10. Hardware Bypass Emergency Microphone and Listen-in Interfaces
11. Fault & Voice Alarm Relays and ASL BMB01 Serial Interface
12. Amplifier Control Interface (Audio-CAN)



This equipment is designed and manufactured to conform to the following EC standards:  
 EMC: EN55103-1/E1, EN55103-2/E5, EN50121-4, ENV50204  
 Safety: EN60065

Manufacturer

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