



**GLENSOUND**  
**ELECTRONICS LTD**

**GS-PAS001**

**PUBLIC ADDRESS SYSTEM**

**MANUAL**

Issue 1

# GLENSOUND ELECTRONICS LTD

## GS-PAS001 Public Address System

DATE 15/04/09

ISSUE No. 1

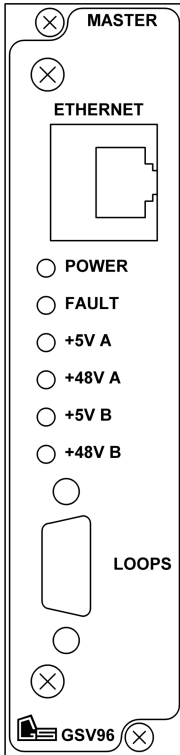
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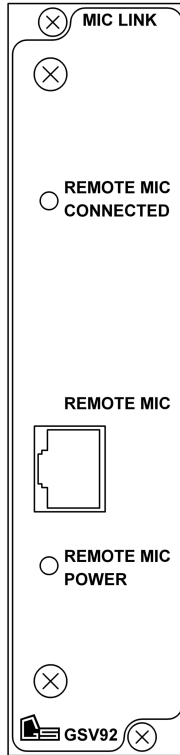


# PANEL DRAWINGS

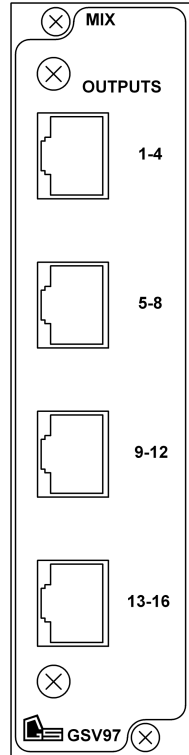
## BASESTATION MODULES



Master Control card

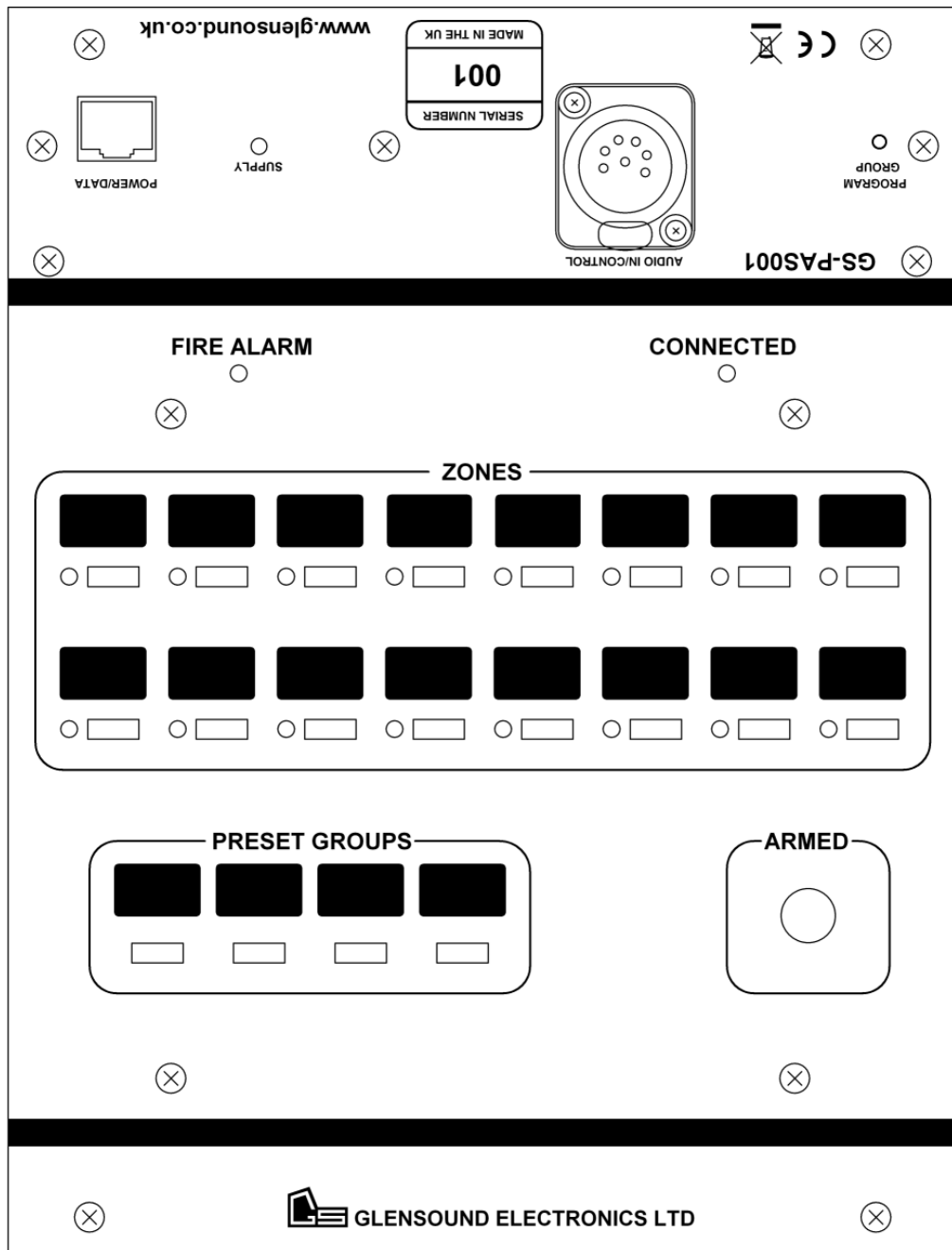


Remote Mic card

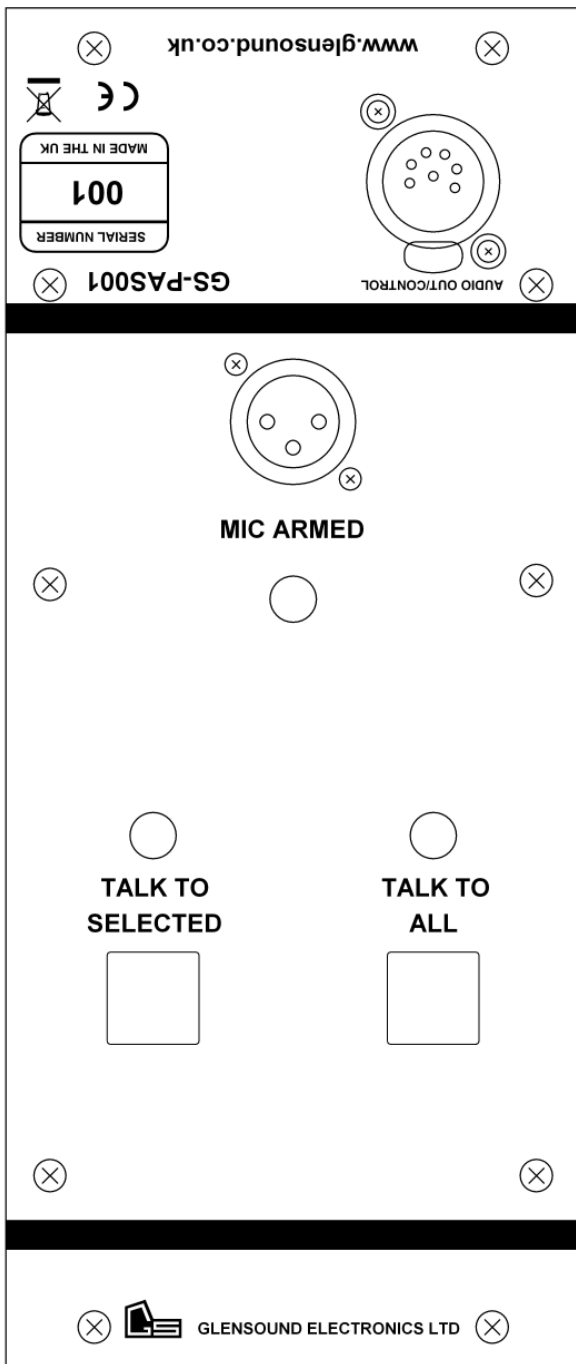


Mix card

# ZONE SELECTION CONSOLE



MICROPHONE CONSOLE



## **PRINCIPLE OF OPERATION**

The GS-PAS001 Glensound Public Address System is a three-part system, consisting of a 3U 19" subrack-mounted basestation, a Zone Selection Console (one per channel), and a Microphone Console (one per channel). The system can support up to 12 microphone channels.

The system allows multiple operators to speak to one or more "zones" at a time, up to a maximum of 16 zones. "Zone status" indication is provided for each zone, to warn operators when another operator is currently talking to that zone.

The system is fitted with two independent power supply units for backup purposes. Both power supplies provide +5V and +48V. Should one supply fail, the other will continue to power the unit without interruption. An alarm condition will occur if a power supply fails.

### **BASESTATION**

The GS-PAS001 basestation is a modular unit. The following three types of modules can be fitted: Master Control card, Mic Link card (one per channel), Mix card. These modules can be seen in the Panel Drawings chapter, above. A detailed description of each of these modules is provided below.

#### *Master Control card*

The Master Control card is responsible for the Alarms, the DC Loops, and for maintaining the Zone Status LEDs on the Zone Selection Console of each channel. Only one of these modules should be fitted in the basestation. If this module is not fitted, the afore-mentioned features will not be available, but the system will continue to operate without them.

The Master Control card has an Ethernet network port, which should be connected to the local network if alarm functionality is required. An embedded web server is provided through the Ethernet port to facilitate alarm setup. Detailed information about the use of the web interface is provided later in the manual.

LEDs are provided to indicate the status of the power supplies, as well as a "FAULT" LED which will be lit if an alarm condition (other than a power supply fault) occurs.

#### *Mic Link card*

Each Mic Link card is responsible for interfacing an individual microphone channel with the basestation. A separate Mic Link card is required for each channel. The RJ-45 socket on the front of the module connects to the Zone Selection Console, passing bi-directional data, and uni-directional digital audio from the console to the basestation module.

The link also provides the console with power, using a technology similar to Power Over Ethernet (POE). This means that power will only be provided when a compatible unit is detected, thus protecting any incorrectly connected device.

A red LED on the front of the module indicates that POE is active, and a green LED indicates that the data connection between the module and the console is operational. The system will generate an alarm if a Mic Link card is inserted but its link to the Zone Selection Console is unplugged. An alarm event will also be generated when a Mic Link card is removed, or detected as faulty.

### Mix card

The Mix card is responsible for mixing the audio from each microphone channel into the 16 output zones, as required. Only one of these modules should be fitted in the basestation. The balanced audio outputs are provided on four RJ-45 sockets, with four balanced outputs per socket. The pinout of these sockets is provided later in the manual.

## **ZONE SELECTION CONSOLE**

The Zone Selection Console is used by the operator to select the zones that the operator wishes to speak to. When pressed, the zone selection keys will light up green to indicate that they are latched. To actually talk to the selected zones, the operator must press the ARMED key to latch it on, then press one of the TALK keys on the Microphone Console. When latched, the ARMED key will light up amber. A red LED beside each zone selection key warns that another operator is currently talking to that zone.

Four zone presets can be defined, and assigned to preset keys on the console. When one of these preset keys is pressed, the zone selection will change. A zone preset can be set by selecting the desired zones, then holding down the “PROGRAM GROUP” key on the rear of the console and pressing the desired preset key.

The RJ-45 socket on the rear of the console connects the console to the Mic Link card in the basestation, providing power, data and an audio return path. The system will generate an alarm if this connection is unplugged. A red LED on the rear of the console indicates that the console is powered, and a green LED on the front of the console indicates that the data connection between the console and the basestation is operational.

The Zone Selection Console connects to the Microphone Console via a 7-pin XLR socket on the rear of the console. The pinout of this socket is provided later in the manual. The system will generate an alarm if this connection is unplugged.

If the fire alarm in the building sounds, the red “Fire Alarm” LED on the front of the panel will light, and the audio will be muted (provided the DC Loops on the Master Control card are connected correctly).

## **MICROPHONE CONSOLE**

The Microphone Console has a 3-pin XLR socket into which the microphone is plugged. The system will generate an alarm if the microphone is unplugged. An amber LED indicates whether the microphone is “armed” or not. The microphone can be armed and disarmed using the Zone Selection Console. To speak into the microphone, the operator must first arm the microphone, then press one of the TALK keys on the console (either “TALK TO SELECTED” or “TALK TO ALL”). These TALK keys have a “Lazy Talkback” action. This means that when a TALK key is pressed then released quickly, it will latch on/off. But when a TALK key is held down, it will have a momentary action, and will turn off when the key is released.

The microphone socket provides 12V phantom power.

The Microphone Console connects to the Zone Selection Console via a 7-pin XLR socket on the rear of the console. Power is provided to the Microphone Panel through this socket. The pinout of this socket is provided later in the manual. The system will generate an alarm if this connection is unplugged.

## **ALARMS**

The GS-PAS001 system will generate an alarm if one of the following events occur:

- Power supply unit A fails,
- Power supply unit B fails,
- A Mic Link card fails or is removed,
- The RJ-45 link between a Mic Link card and a Zone Selection Console is unplugged,
- The 7-pin XLR link between a Zone Selection Console and a Microphone Console is unplugged,
- A microphone is unplugged.

The system administrator will be notified of an alarm state in the following ways:

- The LEDs on the Master Control card,
- DC Loop outputs (see later in the manual for details),
- E-mail message (if configured through the web interface),
- SNMP trap (if configured through the web interface).

In the case of the E-mail messages and SNMP traps, a message will be sent every time an alarm event occurs, and a separate message will be sent when all of the alarms of a particular type have been cleared.



## **WEB INTERFACE**

The purpose of the web interface is to facilitate the configuration of the E-mail and SNMP trap alarms. The web interface can be accessed by pointing a web browser at the IP address of the basestation, then typing in the following username and password:

Username:        admin  
Password:        admin

Once logged in, the alarm settings can be accessed by clicking on the *Alarms* link under *Configuration*. From here, the administrator can configure the IP address of the outgoing SMTP server and the “*From:*” E-mail address. Note that authenticated SMTP servers (SMTP-AUTH) are not supported. The subject line and E-mail recipients can be configured for each alarm. If the administrator wishes to enable SNMP traps, this must be done for each alarm. Additionally, the administrator must set the SNMP trap destination by clicking on the *System* link under *Configuration*, then selecting *Simple Network Management Protocol (SNMP) Settings*.

As well as the alarm settings, the web interface can also be used to set the IP address and DHCP settings, the network host name, and the description, location and contact details of the unit.

## INSTALLATION & CONFIGURATION

When following the installation guides in this chapter, refer to the Installation Diagram later in the manual.

### INSTALLATION OF BASESTATION UNIT

1. The GS-PAS001 unit should be mounted in a 19” rack. It will occupy 3U of rack space. If a 19” rack is not available, the unit can be placed on a flat surface. If mounted in a rack, ensure that the front of the unit is securely fastened to the rack.
2. Ensure that adequate ventilation is provided.
3. If not already installed, insert a Master Control card into one of the card slots (any empty slot can be used). Make sure that the card plugs into the motherboard connector correctly, and screw the card into place.
4. If not already installed, insert the appropriate number of Mic Link cards (one for each microphone channel) into the card slots (any empty slot can be used). Make sure that the cards plug into the motherboard connector correctly, and screw the cards into place.
5. If not already installed, insert a Mix card into one of the card slots (any empty slot can be used). Make sure that the card plugs into the motherboard connector correctly, and screw the card into place.
6. Connect an RJ-45 (CAT-5) cable to the “*REMOTE MIC*” port on each Mic Link card. These cables should be appropriately routed to separate Zone Selection Consoles.
7. Connect RJ-45 (CAT-5), or suitable adaptor cables to the “*OUTPUT*” ports on the Mix card. Each of the twisted pairs should be appropriately routed to their correct zones.
8. If DC Loop operation is required, connect an appropriate cable (9-pin male D-type) to the “*LOOPS*” port on the Master Control card.
9. If E-mail or SNMP trap alarms (or any other web interface features) are to be used, connect the “*ETHERNET*” port on the Master Control card to an appropriate Ethernet router. It may be necessary to configure the IP address of the basestation, as detailed below.
10. Connect **both** of the mains power ports on the rear of the basestation to a mains power supply. Check that the “*POWER*” LED, as well as the LEDs indicating individual power supply operation on the Master Control card, light up. Note that the “*FAULT*” LED will also light if the console units are not yet connected up.

## **INSTALLATION OF CONSOLE UNITS**

1. Position the Zone Selection Console and the Microphone Console in appropriate places on the operator's desk.
2. Connect an appropriate phantom powered microphone into the 3-pin XLR port on the Microphone Console.
3. Use the supplied 7-pin XLR cable to connect the Microphone Console to the Zone Selection Console.
4. Connect the RJ-45 (CAT-5) cable routed from the Mic Link card in the basestation to the “*POWER/DATA*” port on the rear of the Zone Selection Console. Note that if the basestation is currently powered up, the Zone Selection Console will power up when the cable is connected.

## **CONFIGURATION OF IP ADDRESS**

If the network has a DHCP server, then there is no need to configure the IP address of the GS-PAS001, however it may be necessary to determine the IP address assigned by the DHCP server. If there is no DHCP server present, then the following procedure should be followed to set a static IP address:

1. Use a crossover cable to connect the “*ETHERNET*” port on the Mic Link card directly to a laptop computer. The laptop must be configured to use the following static IP settings (Control Panel > Network Connections > Properties > TCP/IP Properties):  

IP address:           169.254.0.2  
Subnet mask:       255.255.0.0  
Default gateway: 169.254.0.1
2. Run the supplied GS Device Discovery software. A device identified as GS-PAS001 will appear in the list. Note that the Ethernet port in the basestation will become active approximately 30 seconds after power-up. Click on “Refresh view” if necessary.
3. Select the device and click on “Configure network settings”. In the dialog box that appears, select “Manually configure network settings” and enter the desired IP settings. When done, click “Save”. GS Device Discovery will now prompt you to restart the device.
4. Remove the crossover cable from the “*ETHERNET*” port on the Mic Link card and connect the basestation to the local network.

## CONFIGURATION OF ALARMS

1. Enter the IP address of the basestation into a web browser.
2. Log into the web interface using the username `admin` and the password `admin`.
3. From the menu on the left-hand side, click on the *Alarms* link under *Configuration*.
4. Enter the IP address of the outgoing SMTP server and the E-mail address that the alarm messages should be sent from, then click *Apply*.
5. For each alarm:
  - a. Click on the blue link in the *Alarms* column of the *Alarm Conditions* table to edit the settings of the alarm.
  - b. Edit the destination E-mail addresses, and optionally the priority and subject lines. **Do not change the alarm trigger settings.**
  - c. If desired, tick the check box to send an SNMP trap.
  - d. Click on *Apply*.
  - e. If the check box for this alarm under the *Enable* column is not ticked, then tick it and click on the *Apply* button at the bottom of the page.
6. If SNMP traps are being used, the destination IP address must be set:
  - a. From the menu on the left-hand side, click on the *System* link under *Configuration*.
  - b. At the bottom of the page, click on  
*Simple Network Management Protocol (SNMP) Settings*.
  - c. Tick the check box to enable SNMP traps, and enter the destination IP address.
  - d. Click on *Apply*.

Note that if settings are inadvertently changed in such a way that the system no longer works, the system can be reset to factory defaults using the *Factory Default Settings* link under *Administration* in the left-hand menu.

## USAGE INSTRUCTIONS

### TALKING TO ALL ZONES

1. Ensure that the green “*CONNECTED*” LED is lit on the Zone Selection Console. If it is not, then contact the administrator for assistance.
2. Note that if any of the red LEDs next to the “*ZONE*” keys on the Zone Selection Console are lit, another operator is already talking to those zones.
3. Press the “*ARMED*” key on the Zone Selection Console to arm the microphone. The Armed key will light up amber when the microphone is armed.
4. Press and hold the “*TALK TO ALL*” key on the Microphone Console to make a brief announcement, or press and quickly release the key to latch it on. The red LED above the key will light when the microphone is on-air.
5. Speak into the microphone.
6. Release the “*TALK TO ALL*” key, or press and quickly release it again to delatch it. The red LED above the key will go out.
7. Optionally, disarm the microphone by pressing the “*ARMED*” key again.

## **TALKING TO SELECTED ZONES**

1. Ensure that the green “*CONNECTED*” LED is lit on the Zone Selection Console. If it is not, then contact the administrator for assistance.
2. Press the “*ZONE*” keys on the Zone Selection Console to select the desired zones, or press one of the “*PRESET GROUPS*” keys to use a preset zone selection.
3. Note that if any of the red LEDs next to the “*ZONE*” keys on the Zone Selection Console are lit, another operator is already talking to those zones.
4. Press the “*ARMED*” key on the Zone Selection Console to arm the microphone. The Armed key will light up amber when the microphone is armed.
5. Press and hold the “*TALK TO SELECTED*” key on the Microphone Console to make a brief announcement, or press and quickly release the key to latch it on. The red LED above the key will light when the microphone is on-air.
6. Speak into the microphone.
7. Release the “*TALK TO SELECTED*” key, or press and quickly release it again to delatch it. The red LED above the key will go out.
8. Optionally, disarm the microphone by pressing the “*ARMED*” key again.

## ADDITIONAL INFORMATION

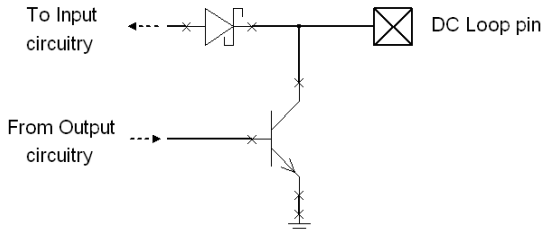
### WIRING INFORMATION

#### DC Loops

Note that the DC Loops port on the Master Control card is female.

Pin	Net	Direction	Purpose
1	DC Loop 1	Input	Fire Alarm 1
2	DC Loop 2	Input	Fire Alarm 2
3	DC Loop 3	Output	PSU alarm active
4	DC Loop 4	Output	Other alarm active
5	NC		
6	GND		
7	GND		
8	GND		
9	GND		

The following is a schematic of a DC Loop pin:



An external pull-up resistor must be fitted on a DC Loop output if it is used. Care must be taken to ensure that the voltage on each pin does not exceed 12V, and that the current driven through each pin does not exceed 100mA. Each DC Loop is considered to be “on” when it is pulled-down to 0V, and “off” when it is not pulled-down.

7-Pin XLR

Very flexible 3-pair individually screened cable should be used.

<b>Pin</b>	
1	Pair 1 screen
2	Pair 1 A
3	Pair 1 B
4	Pair 2 A & B
5	Pair 2 screen & Pair 3 screen
6	Pair 3 A
7	Pair 3 B

RJ-45 (CAT-5)

<b>Pin</b>	
1	Pair 2 A
2	Pair 2 B
3	Pair 3 A
4	Pair 1 A
5	Pair 1 B
6	Pair 3 B
7	Pair 4 A
8	Pair 4 B



## **TROUBLESHOOTING GUIDE**

**Problem:** The “FAULT” LED is on.

**Possible causes:**

- A microphone is unplugged from its Microphone Console,
- A Microphone Console is unplugged from its Zone Selection Box,
- A Zone Selection Box is unplugged from its Mic Link card.

**Notes:** If configured correctly, the alarm E-mail messages will give more detail on faults when they occur.

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**Problem:** Microphone cannot be armed.

**Possible causes:** Same as above

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**Problem:** “TALK” buttons do not work.

**Possible causes:** Microphone is not armed.

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**Problem:** One or more of the LEDs indicating the status of the power supplies is unlit.

**Possible causes:**

- One of the power supplies has failed or is not plugged in,
- The Master Control card has been unplugged,
- One or more of the power rails has been shorted to ground.

**Notes:** Each of the power supply units produces +5V and +48V. The +5V rails will both have been preset to +5.2V in the factory.

## **TECHNICAL SPECIFICATION**

<b>Power Supply</b>		100 – 240V a.c. 50 Hz
<b>Inputs</b>	<i>Dynamic range</i>	+98 dB
<b>Outputs</b>	<i>Nominal line-up level</i>	0 dBu
	<i>Maximum output</i>	+18 dBu

## **TECHNICAL SUPPORT**

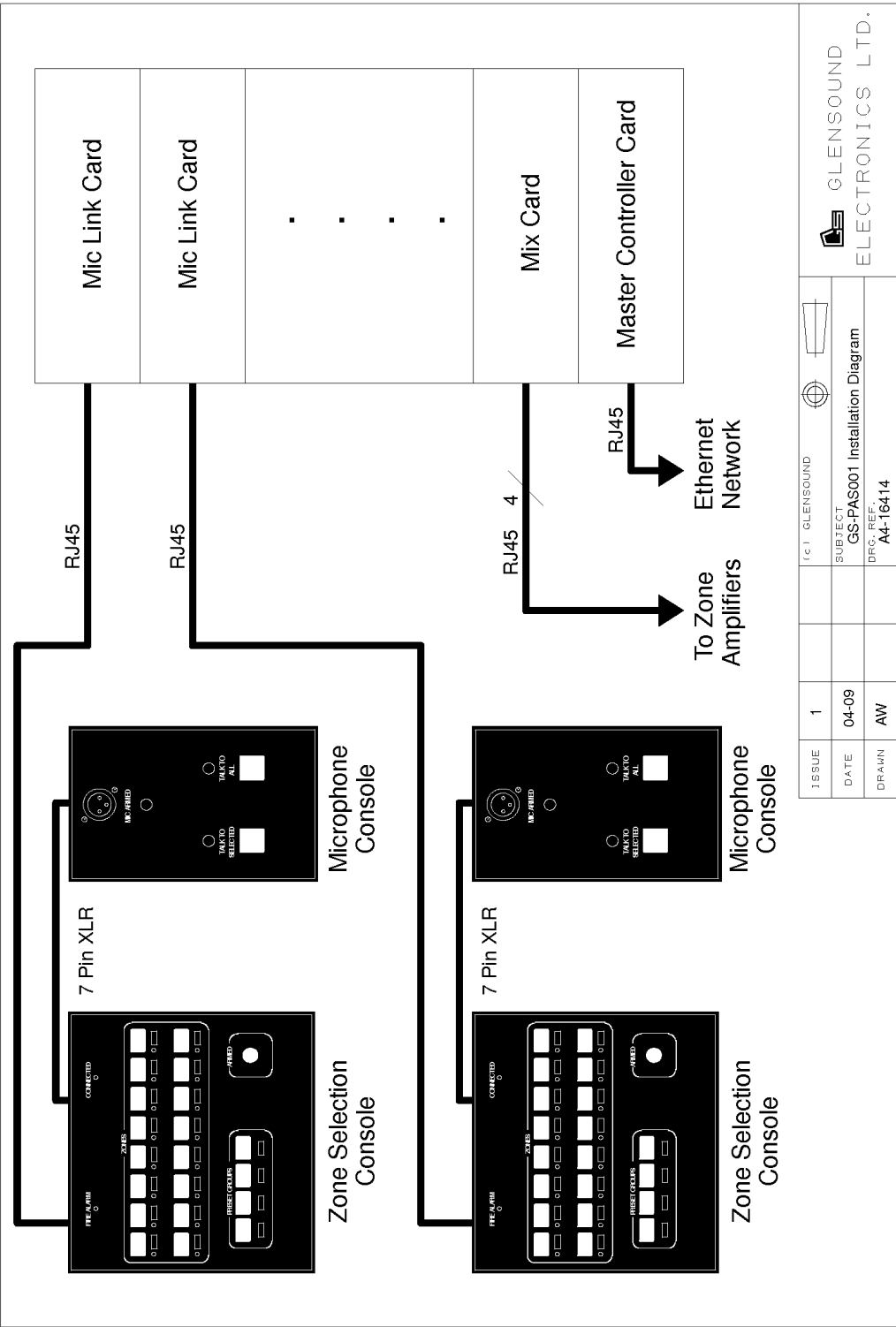
Technical support from GlenSound Electronics Ltd. is available for this product.

Tel: +44 (0)1622 753662

E-mail: [techinfo@glenSound.co.uk](mailto:techinfo@glenSound.co.uk)

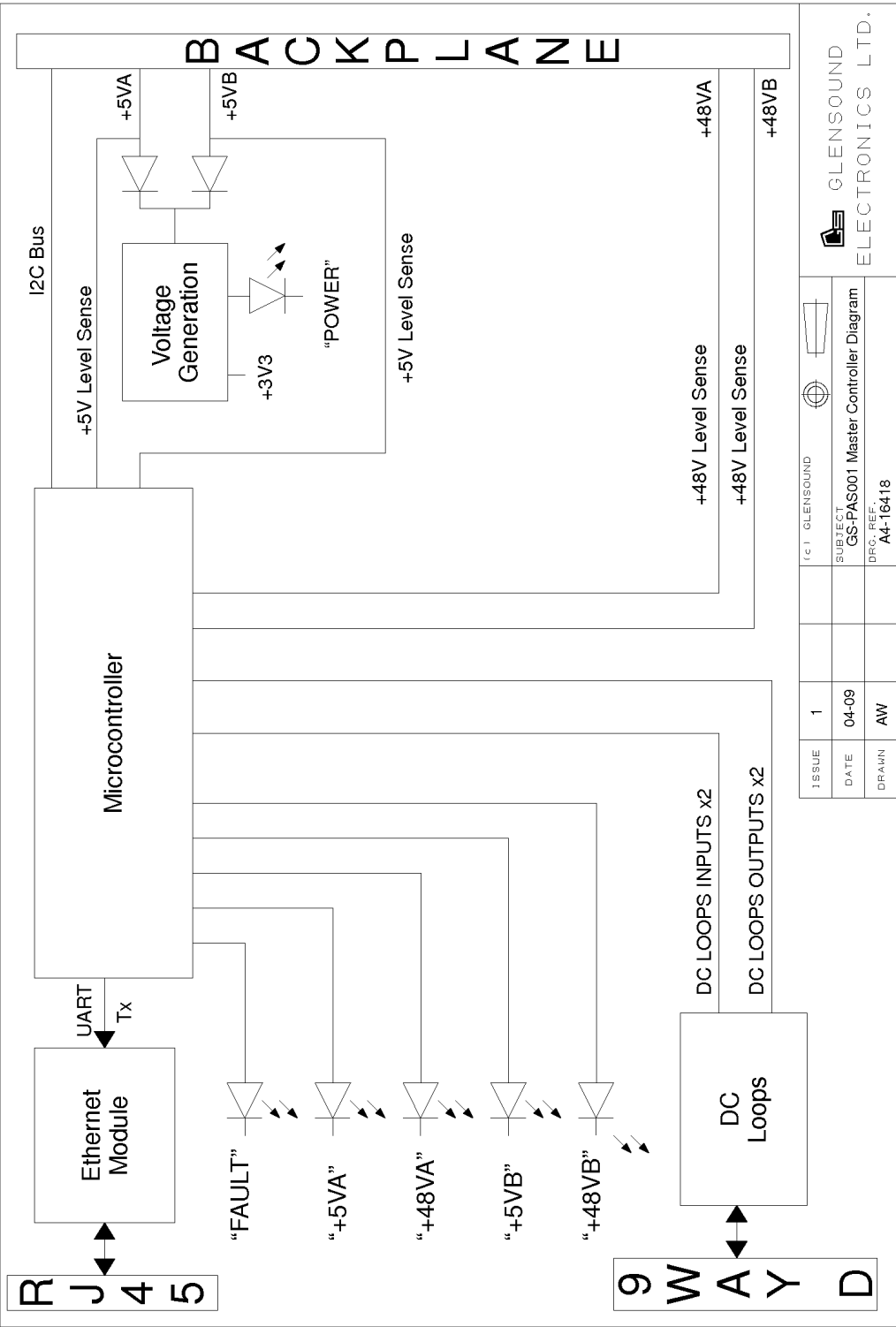
## **WARRANTY**

For a period of one year after the goods have been despatched GlenSound Electronics Ltd. will guarantee the goods against any defect developing after proper use providing such defects arise solely from faulty materials or workmanship and that the Customer shall return the goods to the Company's works.



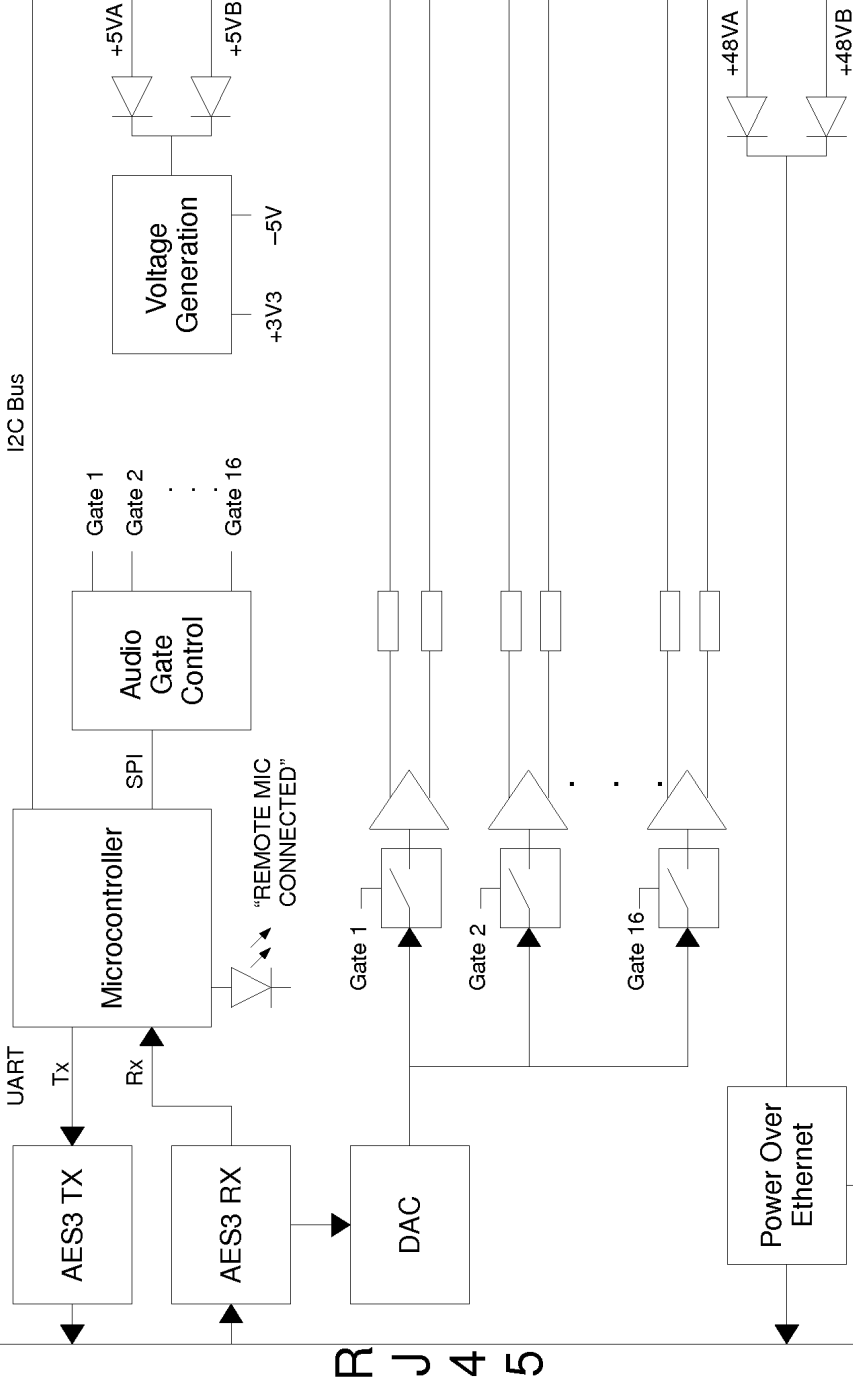
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# BACKPLANE



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DRAWN	AW	DRG. REF.	A4-16418

# BACKPLANE



ISSUE	1	REV. 1	DATE	04-09	DRAWN	AW
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DRG. REF.		A4-16416				

R J 4 5

"OUTPUTS  
1-4"

R J 4 5

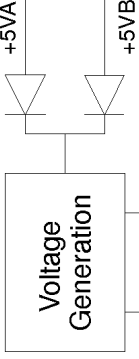
"OUTPUTS  
5-8"

R J 4 5

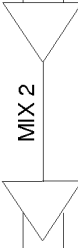
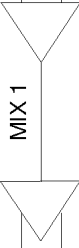
"OUTPUTS  
9-12"

R J 4 5

"OUTPUTS  
9-16"



# BACKPLANE



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