Automatic Amplifier Switch
Model AS12

Installation and Operation
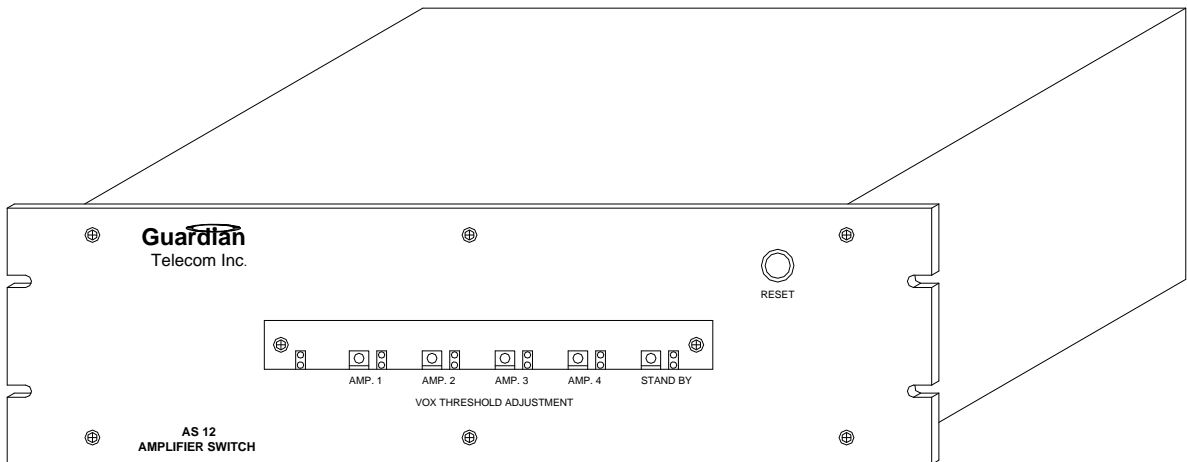
Guardian Telecom Inc.

RESET

AMP. 1   AMP. 2   AMP. 3   AMP. 4   STAND BY

VOX THRESHOLD ADJUSTMENT

AS 12 AMPLIFIER SWITCH

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ISO 9001 CERTIFIED

Table of Contents

Table of Figures

Package Contents

Model P8300 AS12 Amplifier Switch
One Installation and Operation Manual

Associated Equipment

Model P8200 DA388 Distribution Amplifier

Model P5970 AG17 Alarm Tone Generator

Overview

Automatic Amplifier Switch

The AS12 Automatic Amplifier Switch continuously monitors the outputs of paging amplifiers to detect failures. If it detects a problem it will switch the defective amplifier out of the circuit and activate the standby amplifier. The appliance is capable of simultaneously monitoring four amplifiers plus a standby, and provides visual indication of amplifier status.

As part of an integrated industrial emergency/communications system, the AS12 ensures uninterrupted communication in the event of an amplifier failure.

The AS12 Automatic Amplifier Switch is one component in Guardian Telecom's full line of paging system products, which also includes alarm tone generators and distribution amplifiers.

Features

- Simultaneously monitors up to four paging amplifiers and one standby amplifier

- Instantly detects and indicates amplifier failure

- Automatically transfers output from a failed amplifier to the standby amplifier

- Visually indicates amplifier status

- Maintains historical visual indicators

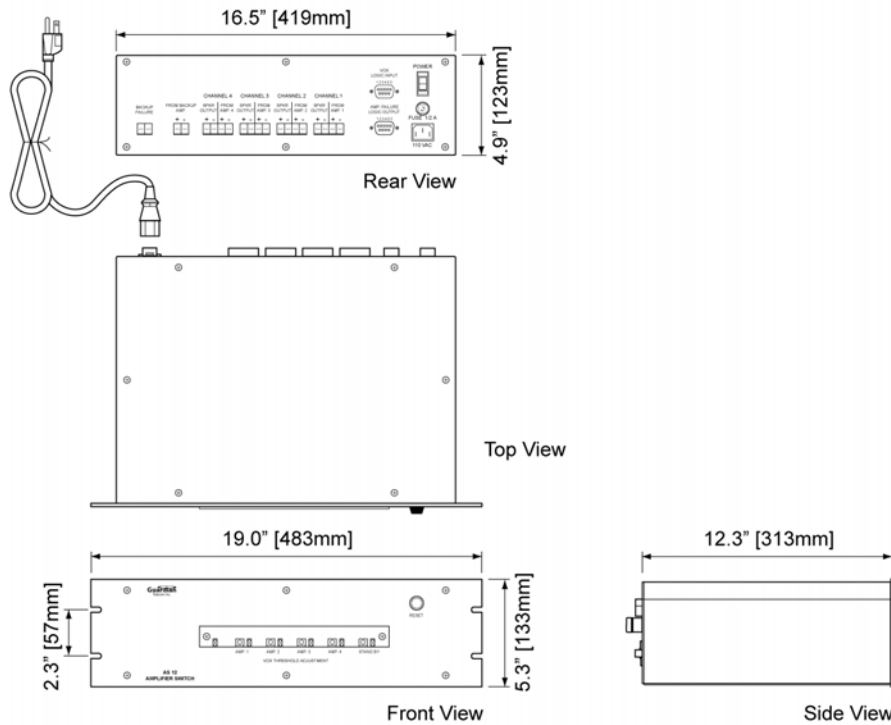- Automatically resets amplifiers to normal when a fault is corrected
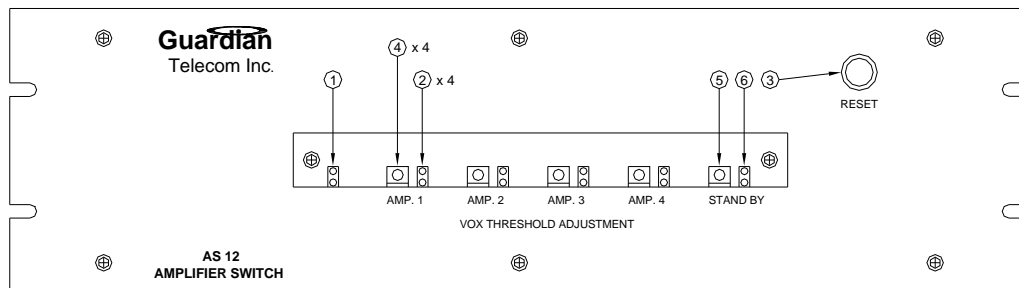
Figure 1 - Dimensions

Figure 2 - Front Panel

1. Main Power LED

2. Amplifier Status Indicator LED (See below)

3. Fault History Reset Button

4. VOX Threshold Adjustments

5. Backup Threshold Adjustment

6. Backup Amplifier Status Indicator LED (See below)

There are two Status Indicators. The top one indicates an amplifier that has had a detected fault and is a history indication of that fault. The lower LED illuminates when the fault occurs and extinguishes automatically once either the audio is no longer applied to that channel or the amplifier has been repaired.

Figure 3 - Rear Panel
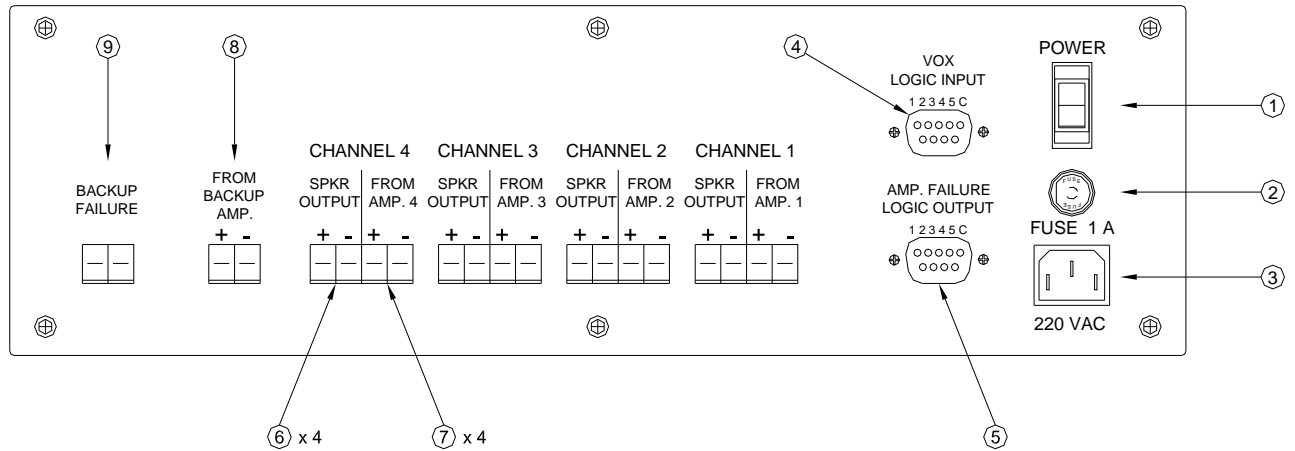
1. Power ON / OFF Switch.
2. Fuse, 1 Amp.
3. Power input for 120/230 VAC.
4. VOX Logic Input (from DA388).
5. Amplifier Failure Logic Output.
6. Audio Output to Speakers 1 – 4.
7. Audio Input from Amplifiers 1 – 4.
8. Audio Input from Backup Amplifier.
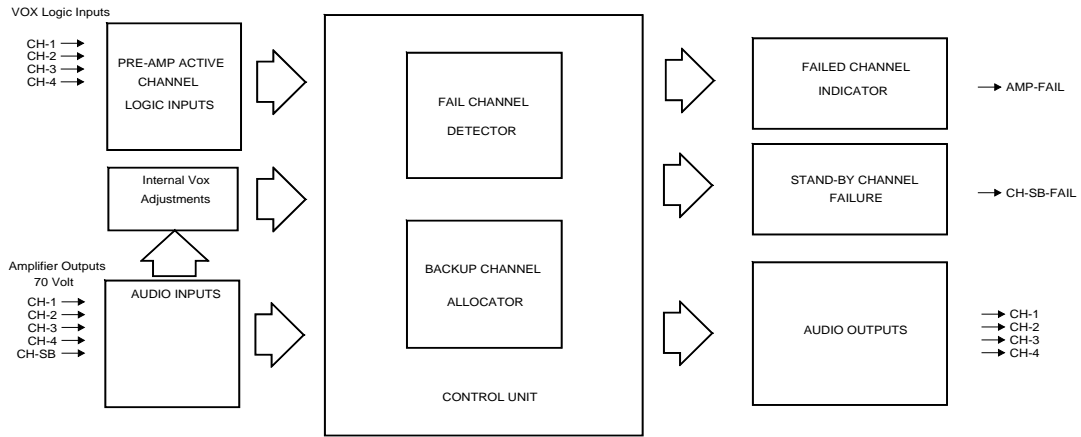9. Logic Output for Backup Amplifier Failure.
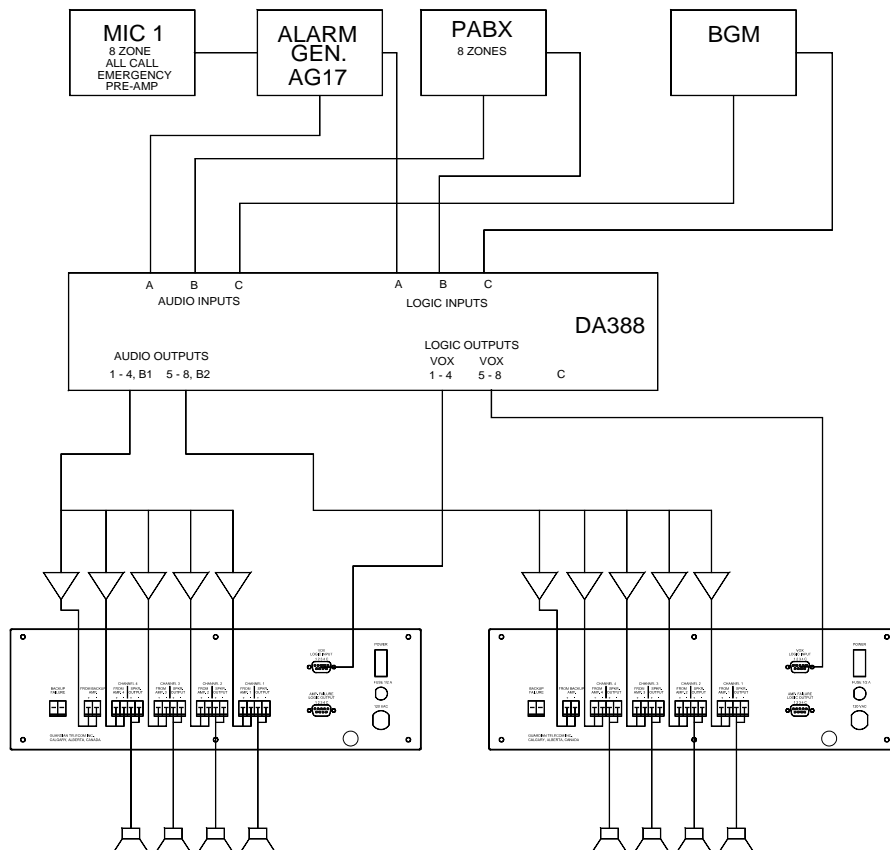
Figure 4 - Block Diagram

Figure 5 - Typical System Installation (with 2 AS12's)

Installing the AS12

- Inspect the product for shipping damage.

- Do not open or attempt to open the AS12 unit. There are no user serviceable parts inside the unit.

- Carefully plan input and output connections.

    o Identify input and output devices.

    o Prioritize amplifier inputs. Channel #1 is the highest priority. If more than one amplifier fails at the same time, the standby amplifier will only replace the highest priority, the lowest numbered amplifier.

- Choose a location on a standard 19" equipment rack with three rack units (3U) of available space.

- Do not apply power to the AS12 before connecting input and output devices.

- Ensure all devices that will be connected to the AS12 are turned off.

- Follow all appropriate electrical codes for the installation.

- Use the following sequence when wiring connections:

    o Audio Inputs

    o Control Logic Inputs

    o Remove quick disconnect connector (Phoenix Combi-Con).

    o Wire the connector.

    o Plug the connector back into the unit.

- Connect input power to a 120 volt AC power source.

- After all connections are complete, apply power to the AS12.

- Apply power to all input devices.

Connection Details

- Connect Audio Inputs and Outputs to the Combi-Con connector as follows:

    o Terminal #1 – 70V/100V Audio Out Hot Lead (to Speaker).

    o Terminal #2 – 70V/100V Audio Out Common (to Speaker).

    o Terminal #3 – 70V/100V Audio In Hot Lead (Amplifier Output).

    o Terminal #4 – 70V/100V Audio In Common Lead (Amplifier Output).

    o VOX Logic Input – Cable supplied with DA388

    o Amp Failure Logic Output – For remote indications of faults.

Tip: If the product is damaged, notify the carrier immediately.

Tip: Unauthorized modifications void the product warranty.

Tip: Familiarize yourself with unit capabilities and functions.

See: Block Diagram and Unit Operation details.

See: Specifications for overall dimensions.

See: Connection Details, below.

Tip: 240 volt AC input power is available as an option.

See: Connection Details and Unit Operation, below.

See: Block Diagram.

Tip: The maximum switching capacity of each circuit is 325 watts using a 70V paging line.

Tip: Terminal #1 is the left terminal viewed from the wire side.

Tip: DB9 connector

Unit Operation

Normal Operation

- The AS12 detects amplifier failure by comparing logic input through the absence of an output signal.

LED Indicators

- When an amplifier goes into a fault condition, the corresponding amplifier status indicator LED on the front of the AS12 illuminates.

  o the upper LED illuminates to show a history of amplifier failure and stays lit until the reset button is pressed.

  o the lower LED stays illuminated as long as the amplifier is in a fault condition.

- If the standby amplifier goes into a fault condition, the lower Standby LED illuminates and the upper LED will record the history.

Standby Failure

- If a problem is external to the amplifier when the primary amplifier fails the standby amplifier will also fail.

Multiple Amplifier Failure

- If more than one amplifier fails at the same time, the standby amplifier will only replace the highest priority (the lowest numbered) amplifier.

Reset LED History

- After identifying and correcting an amplifier fault, press the reset button to clear LED history indicators.

Setting VOX Threshold Adjustments

- The VOX threshold adjustment is used to compare with the Logic VOX input from a device such as DA388 or a TOA automatic Microphone Mixer VOX logic output to determine the presence of a valid audio output from the amplifier.

- With a variable signal input to the DA388, raise the level until the VOX logic signal is just activated.

- Turn the VOX Threshold adjustment to minimum and the event LED will be illuminated.

- Adjust the Threshold level until the event LED extinguishes.

- Repeat the process for all channels.

See: Front Panel drawing.

Tip: Certain problems external to an amplifier on the paging zone(s) may case the primary amplifier to fail.

Engineering Specifications	
Electrical Requirements	
INPUT VOLTAGE	120 VAC (230 VAC AVAILABLE FROM FACTORY)
MAXIMUM CURRENT CONSUMPTION	12 VA
FUSE	1 AMP; 3AG
Audio Performance	
Audio Inputs (4 Page, 1 Backup Line)	
MAXIMUM VOLTAGE	115 V AUDIO (MAY USE 70V OR 100V AMPLIFIER)
MAXIMUM POWER	1200 WATTS @ 70 V / 1500 WATTS @ 100 V
Logic Performance	
Logic Inputs	5V TTL LEVEL
RECOMMENDED ACTIVATING DEVICES:	DRY CONTACT RELAY
MINIMUM OPEN COLLECTOR/OPEN DRAIN CURRENT CAPACITY	100mA
Logic Outputs (4 Logic, Open Drain Outputs)	
OUTPUT SWITCH CURRENT CAPACITY	40V DC, 30mA MAX.
Backup Failure Outputs)	
OUTPUT SWITCH CURRENT CAPACITY	125 VAC, 1A
Mechanical	
BODY CONSTRUCTION	18 GAUGE STEEL
FACEPLATE CONSTRUCTION	10 GAUGE STEEL
BODY DIMENSIONS	415 X 313 X 123 mm (16.3 X 12.3 X 4.9 IN.)
FACEPLATE DIMENSIONS	483 X 133 mm (19 X 5.3 IN.)
NET WEIGHT	6 LBS (2.7 KG)
MOUNTING	EIA RACK MOUNT - EIA STANDARD 3 RACK UNITS
CONNECTION FITTINGS	COMBI-CON AND DB9
PAINT	EPOXY POWDER COAT

Warranty

Guardian Telecom warrants your product to be free of defects in material and workmanship for a period of one year. Guardian Telecom will repair or replace any defective unit that is under warranty free of charge.

This warranty is null and void if any non-authorized modifications have been made to this product, or if it has been subjected to misuse, neglect, or accident. This warranty covers bench repairs only; such repairs must be made at Guardian Telecom or an authorized service depot. Guardian Telecom is not responsible for costs incurred for on-site service calls, freight, or brokerage.

A return authorization must be obtained prior to warranty claims or repairs.

Disclaimer

The products covered by this manual are designed for use in Industrial Environments and/or Hazardous Locations. Due to the range of possible applications for these instruments the manufacturer will not be responsible for damages or losses of any kind suffered as a result of the use of this product, including consequential damages.

Warning

This device has no user serviceable internal components; the only maintenance possible is the replacement of the fuse – which is available from the back panel.

Service Telephone Number

1-800-363-8010

Guardian Telecom provides a customer service telephone number which is toll-free within North America. If you need assistance when installing or operating this product, please call the toll-free telephone number between regular business hours (8:00AM-5:00PM), Mountain Standard Time. If you are calling outside of regular business hours, please leave a detailed message, and a member of Guardian Telecom's Service Department will return your call as soon as possible. If your product requires service, Guardian personnel will supply you with an RMA (return materials authorization) number over the telephone or through our web site product return page. This number must be included with your return address and the name of the person to contact.

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Feedback

Guardian Telecom continually strives to make reliable, durable, and easy to use products. If you, as an installer or user of our equipment, have any suggestions for improvements to this or any of our products or documents, including this manual, we would appreciate hearing from you.

Guardian Product Return
Guardian products have been quality tested and are in full working order when shipped from the factory, given the rugged nature of these products shipping is not expected to damage a unit. In the unlikely event of a malfunction, Guardian follows the three step procedure below.
Step I - On-Site Correction
• The most common source of difficulties with a new product is improper installation in one of two ways: incorrect wiring connections or connection to an incorrect power source.
• Product wiring needs to be properly connected to the on-site wiring. Correct wiring instructions are shown in the user manual included with the product.
Step II - Return Materials Authorization (RMA)
• When a product has been installed following user manual instructions, and the unit fails to operate, the user must contact Guardian Telecom to obtain authorization to return the product. This can be done by completing a RMA form online at www.guardiantelecom.com, or by calling the service telephone number given in this manual.
• After providing information on the product, the owner and the nature of the problem, Guardian will issue a RMA number, to be shown on documentation returned with the product.
• In addition to the RMA number, shipping documents should include name, address and telephone number of the owner along with contact information for the person responsible for the repair and/or the user who identified the malfunction.
• (Where a product is being returned for repair from outside of Canada, customs documentation must show the product's serial number, date of export [date of purchase], and a notation that the equipment is: ("Canadian goods returning").
Step III - Factory Authorized Service
• Once received, each product is carefully inspected and tested. If the product is under warranty, repairs are completed and the product returned to the owner, generally within five working days of receipt by the factory.
• A product that has been subjected to misuse, neglect or accident or is beyond the warranty period will be evaluated. The service department will provide the owner's representative with a repair cost estimate. Once approved, repairs are completed and the product returned, generally within five working days.

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