



Broadcast Devices, Inc.

GPM-300 General Purpose Audio Matrix
****Digital/Analog Audio Switcher***

Operations Quick Start Guide

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***Option Dependent**

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I. 1Basic Description

The GPM-300 - can be ordered for four or eight inputs. The inputs can be AES3 digital and/or analog depending on model. Please refer to the model designation chart below.

GPM-300-1, 4 - AES I/O

GPM-300- 2, 8 – AES I/O

GPM-300- 3, 4 - AES I/O, 4 Analog Input

GPM-300- 4, 4 – AES I/O, 4 Analog I/O

The GPM-300 General Purpose Matrix Switcher system provides up to 8 inputs which can be selected to any of 8 outputs. Each input has an A and B input designation that can be programmed from the front panel described below. Individual remote control of input selection to each output is also possible. The GPM-300 allows for the switching between analog and digital signals in one complete package. The GPM-300 also incorporates an automatic mode with silence sensor if desired or can be used in the manual mode for general purpose switching applications.

II. GPM-300 - Operational Description

Configuring the “A” and “B” channels to be selected by remote inputs:

To enter the A/B CONFIG MENU push the F2/F6 key.

Pushing the <> Keys selects the OUPUT for which the user would like to view or change the A/B channel selections.

Pushing the F2/F6 Key will alternately select the A IN or B IN for modification. The currently selected field will blink to indicate which field is to be modified.

Pushing the ^ v keys will allow the user to alter which channel will be selected by the A and B levels of the channel select input pin for that respective output.

Note: Settings are immediately stored in non-volatile memory. Be sure that settings are correct before exiting the A/B CONFIG Menu or moving to another output channel.

To exit the A/B CONFIG Menu push the F1/F4 Key.

III. REMOTE CONTROLLED OPERATION

The GPM-300 provides remote control to select between inputs for each output and to enable/disable remote operation. Open collector status outputs are provided to indicate the currently selected input channel for each output channel. These outputs are capable of sinking up to 100ma and are rated at a maximum of 30v DC.

Remote Channel Selection:

The GPM-300 provides 8 channel selection inputs and 8 channel status outputs on a pair of remote control DB-25 connectors. Each output channel (1-8) is controlled via its respective channel select pin (GPI 0-7) and provides a status output (GPO 0-7) which reflects whether the A or B input channel for that output is currently selected. Each of the 8 outputs has a pair of status indicators to indicate whether that channel's respective "A" or "B" channel is selected. The status outputs of the GPM-300 are pulled up to 5 VDC and go low to indicate the status is active. Refer to section VI. Remote Control connections for further connection information.

Note: A common use of the GPM-300 is as a master A/B switcher for multiple inputs. This is particularly useful for AES audio applications as a maximum of two sets of 4 AES3 inputs can be selected to their respective outputs. This application provides one button control of all inputs by simply setting the input mode selections as follows:

<u>(A)AES 1-4</u>	<u>(B) AES 5-8</u>	<u>Output</u>
1	5	1
2	6	2
3	7	3
4	8	4
1	5	5
2	6	6
3	7	7
4	8	8

Programming the unit using the above chart allows all inputs to the AES 1-4 inputs to be "A" inputs and all inputs to the AES 5-8 inputs to be "B" inputs. To have one button control of all "A" and "B" inputs strap all A input select command lines and all B input select command lines together. Momentary connection to common of these lines will cause all A inputs to be selected together and all B inputs to be selected together.

IV. Input Mode Selection Menu Operation

The GPM-300 inputs can be configured for mode of operation on an individual basis. Stereo, Mono Left, Mono Right, L+R and Stereo Swap can be configured from the front panel. Use mono left and mono right to fill in a missing channel. For example; choosing mono left will take a signal only input on the left channel and apply it to both channels at the output of the unit. Use L+R to create a monaural input from a stereo source.

To select the input mode push F4 once. The display will indicate that you are in the INPUT MODE SELECTION menu. Select the input channel pair (1-8) using the up and down arrow keys. The left and right arrow keys are then used to select between the following modes:

Press F4 once: Input Mode Selection

Pushing the up arrow/down allows you to select the input channel to be changed:
Pushing the left/right arrow buttons allows selection of the following input modes:

OFF

Stereo - Factory Default

LR Swap - L/R Channels Swapped

Mono L - L input fed to both L & R outputs

Mono R - R input fed to both L & R outputs

L + R - L & R inputs are summed and fed to both L & R outputs.

The input mode is automatically saved when selected. To exit this menu press the F1 key to return to the main menu.

Press F4 twice: Input Invert Control – Phase Inversion

Pushing the up arrow/down allows you to select the input channel to be changed:
Pushing the left/right arrow buttons allows selection of the following input modes:

Normal

Invert Left

Invert Right

Note: Phase inversion is Left or right but not both simultaneously.

Input Invert Control modes are automatically saved when selected. To exit this menu press the F1 key to return to the main menu.

Press F4 three times to enter Input Gain Control menu

Pushing the up arrow/down allows you to select the input channel to be changed:

Pushing the left/right arrow buttons allows you to adjust gain in one dB increments +/- 10 dB

Press F4 four times and the display will indicate Output Gain Control

Pushing the up arrow/down allows you to select the output channel to be changed:
Pushing the left/right arrow buttons allows you to adjust gain in one dB increments +/- 10 dB

Factory default for input and output gain controls is 0 dB. When factory default gains are used AES3 I/O is unity. When AES3 inputs are output to an analog channel the analog output will correspond to -10 dB below full scale AES3 input when AES3 input is nominal - 10 dB below full scale.

V. Silence Interval Programming

The GPM-300 has the ability to detect and switch upon silence from the active A or B input of each output.

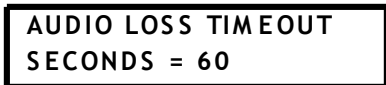


Figure 1 - GPM-300 Silence Interval Program Mode Display

Pressing the F3/F6 Key will allow programming the silence interval. Select the desired interval using the UP and DOWN arrow keys. The interval can be set to any time between 30 and 600 seconds (Default = 60 seconds) using the UP and DOWN arrow keys. Pushing the ENTER key will put this setting into non-volatile memory. Pushing the red X key will return to the original value before it was changed. NOTE: the ENTER key MUST be pushed to retain this setting after power is cycled. This allows the user to test a setting before committing it to memory.

C. Silence Threshold Programming



Figure 2 - GPM-300 Silence Threshold Programming Mode Display

Pressing the F3/F6 Key again will allow programming of the silence detect level. The

upper line of the LCD indicates the level of the currently selected input for comparison purposes. The lower line indicates the current threshold below which a channel will be considered INACTIVE. The relative level can be set to any time between 1 and 100 (Default = 5 = - 40 dB below nominal input) using the UP and DOWN arrow keys. Pushing the ENTER key will put this setting into non-volatile memory. Pushing the red X key will return to the original value before it was changed. NOTE: the ENTER key MUST be pushed to retain this setting after power is cycled. This allows the user to test a setting before committing it to memory.

Manual operation is also available using the rear panel remote connections. See “Remote Operation” for details

GPM-300 Auto Mode

Pushing the F1/F4 key will alternate between the manual and auto modes. In auto mode the display will indicate Outputs 1-8 on the top line and the currently selected channel for each of the eight outputs and its activity status. If audio is active on the selected channel the number will appear normally. If the channel goes silent the number selected will invert to a black background indicating silence on the channel.

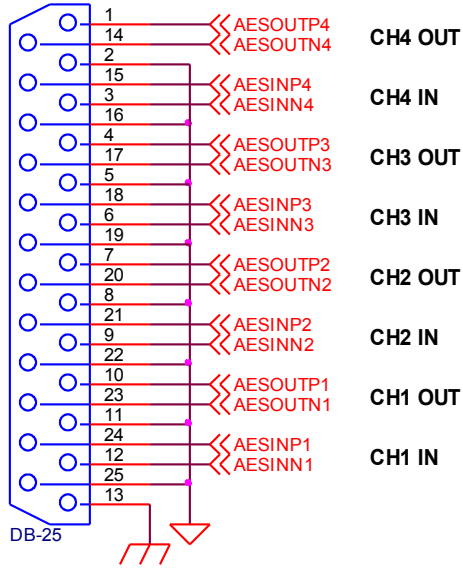
GPM-300 Factory Default Recovery

As with any programmable device, it is possible that the user would like to quickly return to the “factory default” settings. To return the GPM-300 to its factory configuration remove AC power to the unit. While holding the red “X” key, restore AC power until the display indicates “FACTORY DEFAULT”. The default condition is such that “A” and “B” inputs are 1,2,3,4, respectively.

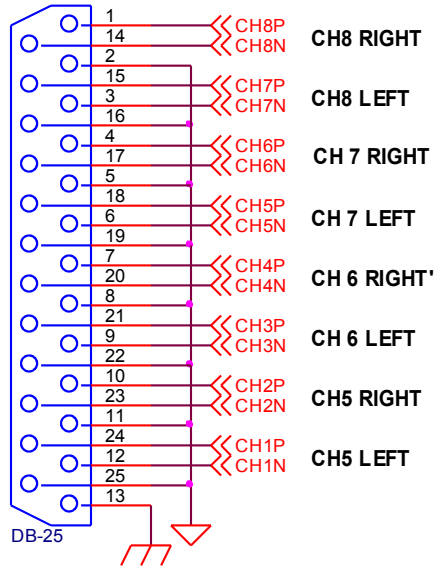
VI. Audio I/O Connections

ATB-300 Audio Connections

DIGITAL AUDIO I/O



ANALOG AUDIO - INPUT & OUTPUT PINOUTS ARE IDENTICAL



GPM-300 AUDIO INPUT MAPPING DUAL DIGITAL VERSION

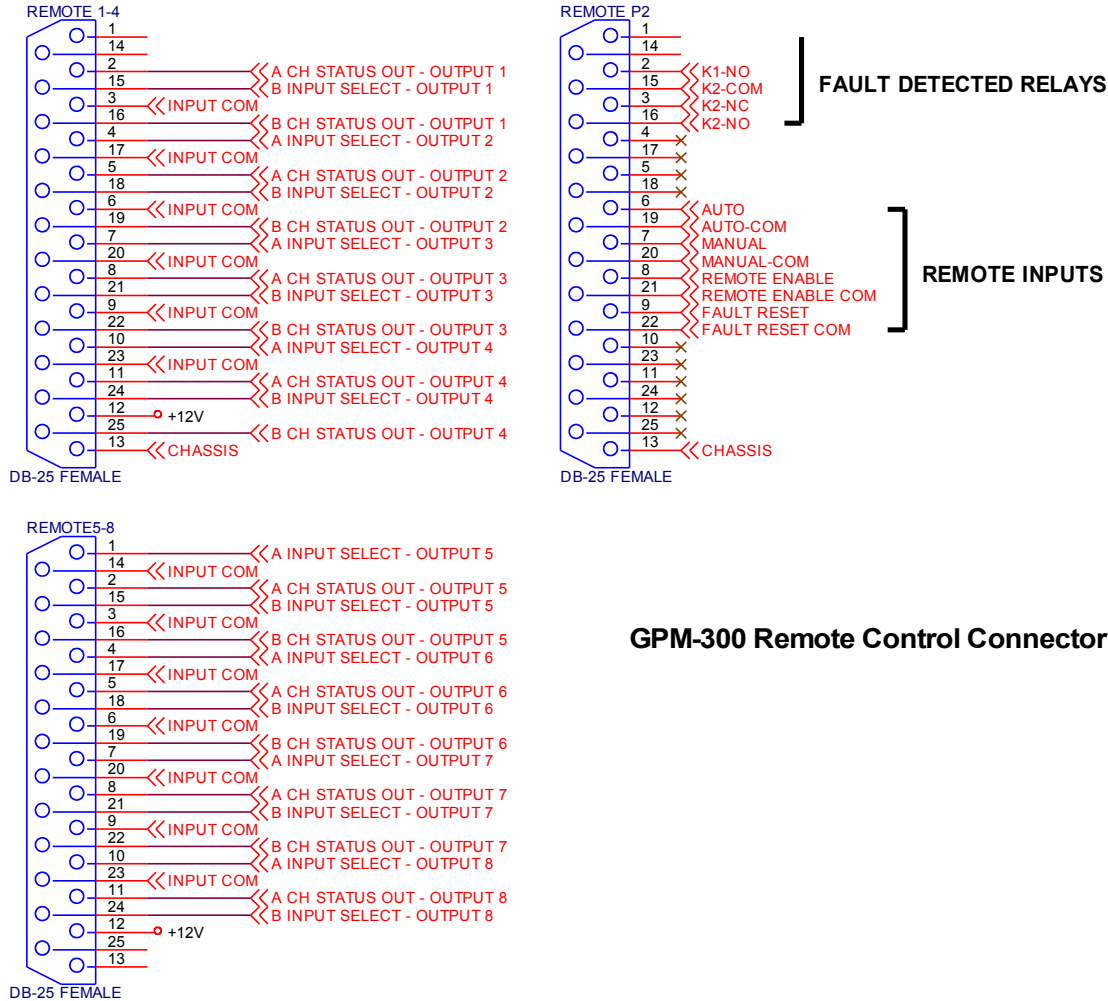
INPUT CHANNEL	TYPE	LOCATION
1	DIGITAL	AES 1
2	DIGITAL	AES 2
3	DIGITAL	AES 3
4	DIGITAL	AES 4
5	DIGITAL	AES 5
6	DIGITAL	AES 6
7	DIGITAL	AES 7
8	DIGITAL	AES 8

GPM-300 AUDIO INPUT MAPPING HYBRID ANALOG/DIGITAL VERSION

INPUT CHANNEL	TYPE	LOCATION
1	DIGITAL	AES 1
2	DIGITAL	AES 2
3	DIGITAL	AES 3
4	DIGITAL	AES 4
5	ANALOG	ANALOG IN 1-2 (L/R)
6	ANALOG	ANALOG IN 3-4 (L/R)
7	ANALOG	ANALOG IN 5-6 (L/R)
8	ANALOG	ANALOG IN 7-8 (L/R)

VII. Remote Control Connections

GPM-300 Remote Connections

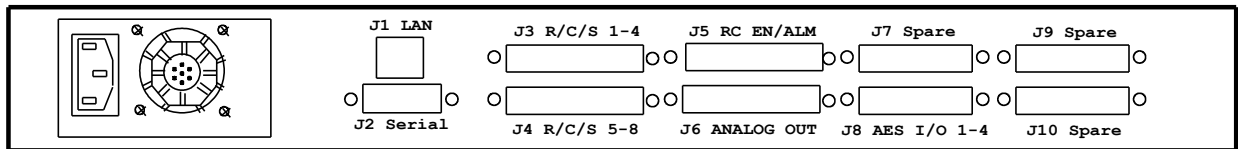
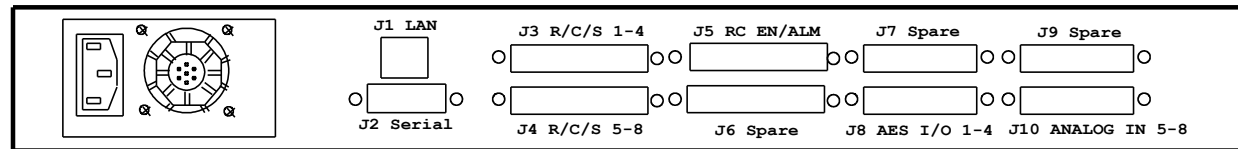
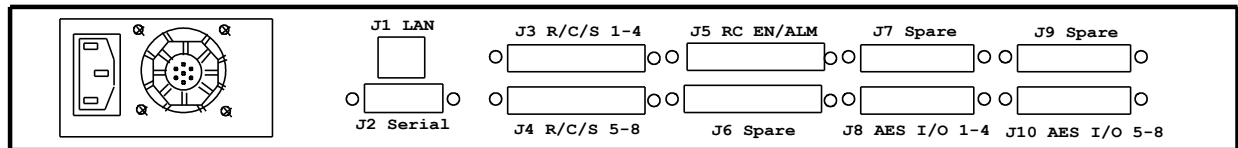
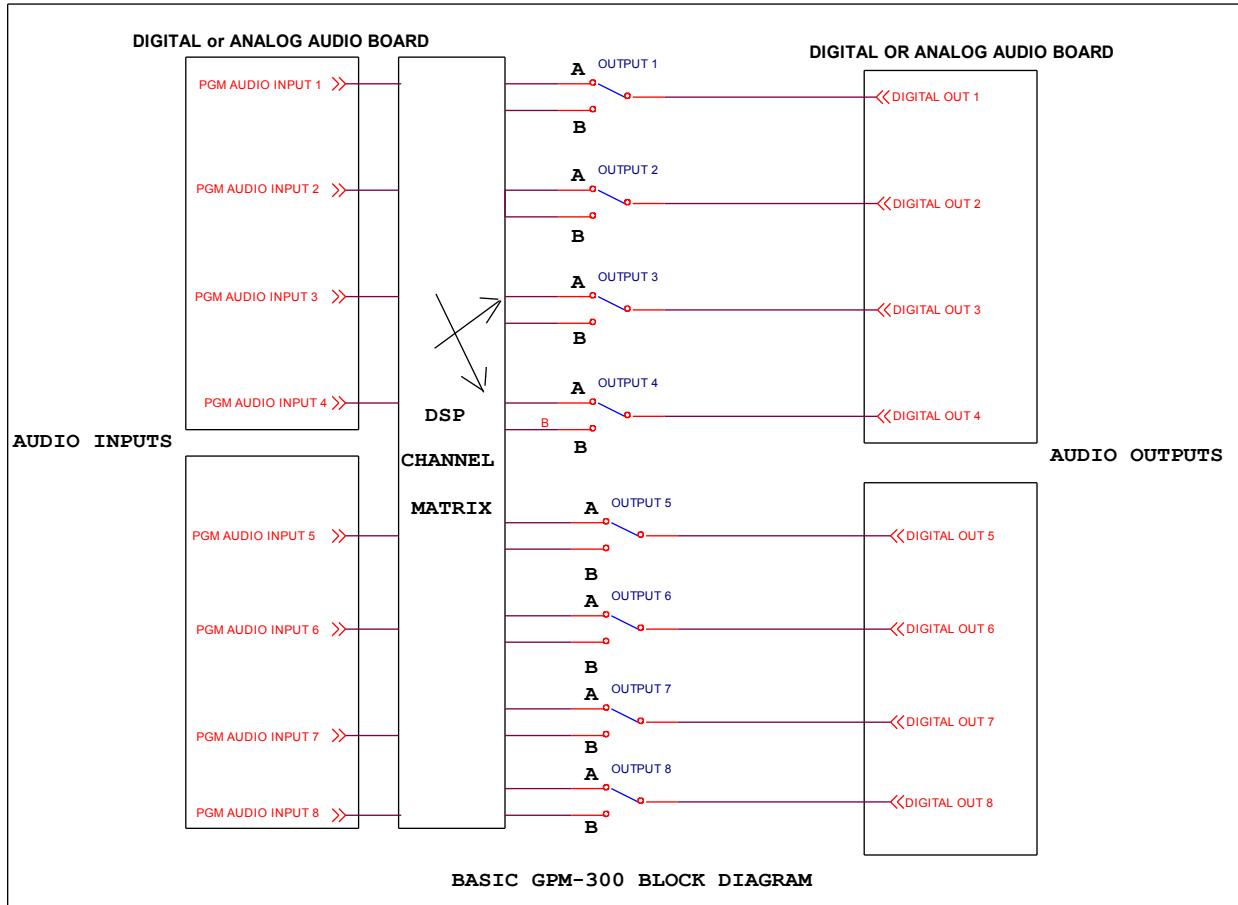


GPM-300 Remote Control Connector Diagrams

Notes:

1. Status outputs are open collector Darlington transistors capable of sinking 100ma @ 30v DC.
2. Select and remote inputs are momentary closures with internal 4.7K pullup resistors to 5v DC.
3. For Remote Control Operation a connection between Remote Enable pin 8 and Remote Enable Common pin 21 must be made.

VIII. Basic Block Diagram of ATB-300-DAS



X. Warranty

Broadcast Devices, Inc. products are warranted against failure due to faulty materials or workmanship for a period of one year from the date of shipment to the ultimate user. The warranty covers repair or replacement of defective parts at the factory, provided the unit has been returned prepaid by the user. All shipments to the factory shall have affixed to the outside of the container a return authorization number obtained from the factory. The above warranty is void if the unit has been modified by the user outside of any recommendations from the factory or if the unit has been abused or operated outside of its electrical or environmental specifications. If customer conducted field tests suggest that the unit may be faulty, whether or not the unit is in warranty, a full report of the difficulty should be sent to Broadcast Devices, Inc. factory at Cortlandt Manor, New York. The office may suggest further tests or authorize return for factory evaluation.

Units sent to the factory should be well packed and shipped to Broadcast Devices, Inc. 2066 E. Main Street, Cortlandt Manor, NY 10567. Remember to affix the R.A. number to the outside of the carton. Any packages received without such R.A. number will be refused. Note: freight collect shipments will also be refused. When the unit has been received, inspected and tested, the customer will receive a report of the findings along with a quotation for recommended repairs, which are found falling outside of the standard warranty. Units returned for in-warranty repairs, which are found not to be defective will be subject to an evaluation and handling charge. In-warranty units will be repaired at no charge and returned via prepaid freight.

Out-of-warranty units needing repair require a purchase order and will be invoiced for parts, labor, and shipping charges.

When ordering replacement part, always specify A) Part Description, and Quantity; B) Date of Purchase, Where Purchased; C) Any Special Shipping Instructions. Always specify a street address, as shipping companies cannot deliver to a postal box.

Broadcast Devices, Inc. is not responsible for any other manufacturer's warranty on original equipment. Nor are we responsible for any failure, damage, or loss of property that may occur due to the installation or operation of our equipment outside of recommended specifications.

Broadcast Devices, Inc. reserves the right to change materials, specifications, and features from time to time.

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