GPM-300 Matrix Audio Switcher

General Purpose Digital/Analog Audio Switcher

GPM-300 General Purpose Matrix Digital/Analog Audio Switcher with Silence Sensors, front panel.

GPM-300 General Purpose Matrix Digital/Analog Audio Switcher with silence sensors, rear panel.

Summary of Basic Switcher Functionality

The **GPM-300 General Purpose Matrix Switcher** system provides up to 8 inputs, which can be selected to any of 8 outputs. Cross-point router operation is separate from the A/B channel selection function, which provides a versatile **"Switcher within a Switcher"** functionality described below. Because the GPM-300 is a versatile switcher, it can be used in applications requiring different functionality. The switcher has models that accept AES3 I/O, analog L/R I/O, composite baseband I/O, and hybrid versions. It also **provides format conversion in addition to switching functions**. The GPM-300 series audio switchers **include web access and SNMP v2** support. SNMPv2 support is provided via an MIB for use with compatible remote control systems and third-party software.

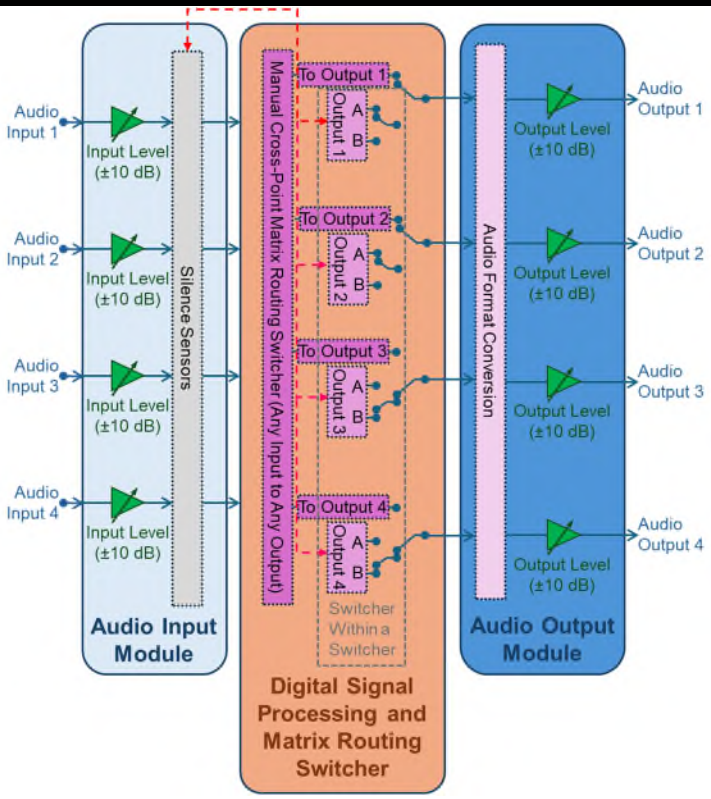
GPM-300 Manual Mode

Manual mode enables routing and A/B switching via the front panel, a **free** Windows Audio Toolbox App, a GPIO interface, via Ethernet SNMPv2 interface, or the optional GPMRC Remote Control Panel, all of which support full 4x4 or 8x8 input and output routing for all channels. The GPIO interface allows selection of pre-programmed A/B inputs for each output. Serial control is also available for integration with Sage ENDEC and DASDEC™ EAS encoders, automation systems, and satellite receivers.

GPM-300 Auto Mode with Auto Return Option

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. The GPM-300's silence sensor automatically switches to a backup channel during audio loss and, in Auto Return mode, restores the primary channel once audio returns for a user-defined interval. Silence sense is user adjustable for length from 10 to 600 seconds and thresholds of -30 to -55 dBFS. If Auto Return is not desirable or required, it may be disabled.

4 x 4 Switcher Functional Block Diagram



Switcher Within a Switcher

The GPM-300 offers advanced flexibility by allowing users to assign A/B input pairs to each output, enabling the configuration of 4 or 8 independent A/B switchers alongside full crosspoint routing. This capability is ideal for applications that require shared sources across multiple outputs, such as EAS generators/receivers or network feed distribution, and consolidates multiple A/B switchers into a single, compact unit. The crosspoint routing and A/B channel selection functions operate independently, ensuring the GPM-300 can adapt to a wide range of specialized audio switching requirements.

GPM-300 Matrix Audio Switcher

Significant GPM-300 Features:

The GPM-300 has an **audible alarm** feature that can be programmed from the front panel. The Audible alarm will sound after a silence detection sequence has occurred. A sonalert within the unit will sound until the unit is reset either remotely or from the front panel. This feature can be turned on or off.

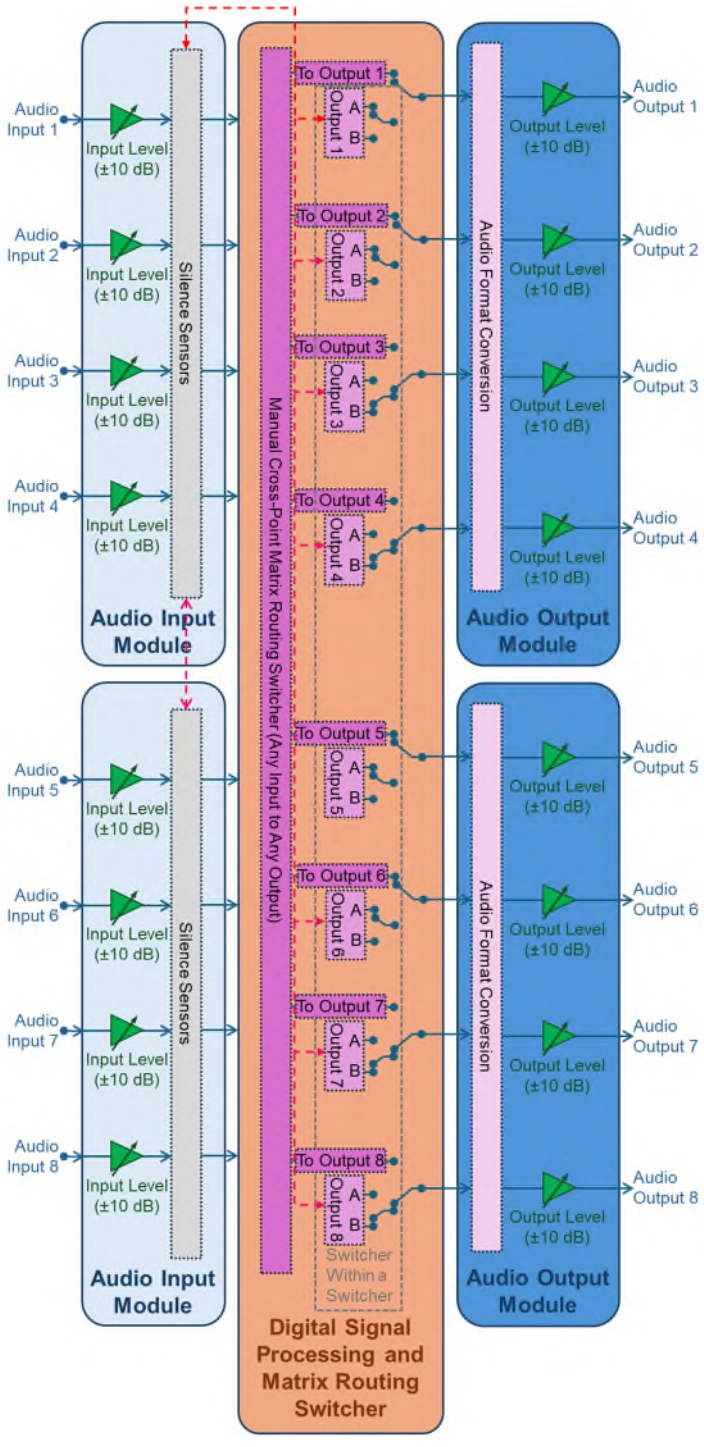
GPM-300 **Auxiliary Alarm Relay Function and Remote Enable** consists of two sets of form C contact relays available on the remote control. One relay (K1) is a maintained-closure relay, and the second (K2) can be programmed to be maintained or momentary. Both relays are activated by a silent alarm detection sequence. K1 is normally connected to a status input on a remote-control system to indicate a fault has occurred. K2 can be used for this function in the maintained mode, can also be used as a remote start for an auxiliary audio source in case of failure of the remote link audio. For example, a CD/DVD player or remote server can act as an auxiliary audio source, and a K2 programmed for momentary closure can be used to start such a source connected to a GPM-300 input.

Adjustable Input and Output Gain Controls are provided and allow the user to adjust gain in 1 dB increments/- 10 dB with a factory default of 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 -20 dB nominal below the full scale of the AES3 input or +4dBm analog balanced output. Analog L/R inputs are designed to accept a +4 dBm nominal input, producing +4 dBm at the analog output and -20 dBfs at the AES3 output.

The GPM-300 supports **active frame rate conversion** on all AES3 digital inputs. The unit can accept sample rates from 8 KHz to 96 KHz. The frame rate converter then up- or down-converts the sample rate to the selected sample rate. The GPM-300 can output 32, 44.1 or 48 KHz sample rates. The factory-default sample rate is 44.1 kHz.

The GPM-300 **input pairs 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 for both AES and analog inputs. Use mono left and mono right to fill in a missing channel. For example, choosing mono left will take the signal from the left channel and apply it to both channels at the unit's output. Use L+R to create a monaural input from a stereo source.

8 x 8 Switcher Functional Block Diagram



The GPM-300 allows the user to **invert the phase** (Tip/Ring Inversion) of any channel to correct for inadvertent phase inversion. Note: Phase inversion is left or right, but not both simultaneously. Input Invert Control modes are dynamically saved when selected. In short, the GPM-300 is a **versatile audio switching and format-conversion platform** that accepts analog, AES3 digital, and composite baseband inputs. The unit automatically converts between formats—**analog to AES3, AES3 to analog, composite baseband to AES3, and more**—while providing reliable, seamless source selection and broadcast-grade source switching.

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Model Chart

Model	Configuration (Inputs X Outputs)	Number of Inputs			Number of Outputs		
		AES3 Digital Stereo	Analog Stereo	Composite Baseband	AES3 Digital Stereo	Analog Stereo	Composite Baseband
GPM-300-1	4 X 4	Four (4)	-	-	Four (4)	-	-
GPM-300-2	8 X 4	Four (4)	Four (4)	-	Four (4)	-	-
GPM-300-3	4 X 8	Four (4)	-	-	Four (4)	Four (4)	-
GPM-300-4	4 X 4	-	Four (4)	-	-	Four (4)	-
GPM-300-5	8 X 8	Four (4)	Four (4)	-	Four (4)	Four (4)	-
GPM-300-6	8 X 8	Eight (8)	-	-	Eight (8)	-	-
GPM-300-7	8 X 4	-	Eight (8)	-	-	Four (4)	-
GPM-300-8	8 X 8	-	Eight (8)	-	-	Eight (8)	-
GPM-300-9*	8 X 8	Four (4)	-	Four (4)	Four (4)	-	Four (4)
GPM-300-10*	8 X 8	-	Four (4)	Four (4)	-	Four (4)	Four (4)

*Note GPM-300-9 and GPM-300-10 models can be configured to convert composite baseband to AES3 stereo outputs.

Technical Specifications	GPM-300
Input and Output Types Available:	AES3 8 to 96 KHz, Analog balanced +4 dBm, Composite FM Stereo Baseband
Number of Inputs and Outputs:	Four (4) or Eight (8) by Configuration. See Model Chart below.
Input and Output Connectors:	DSUB25F - TASCAM Standard
Input and Output Level Adjustment Range:	All inputs and outputs include audio level adjustment with a range capability of ±10 dB
AES3 Input Sample Rates:	8 to 96 KHz
AES3 Output Sample Rates:	32, 44.1, or 48 KHz—User Definable
Analog Inputs:	+4 dBm Balanced L/R +24 dBm Maximum input level
Analog Outputs:	+4 dBm Balanced L/R +18 dBm Max output level
Frequency Response:	±0.25 dB from 20 Hz to 20 KHz
Total Harmonic Distortion:	Less than 0.05% at headroom level
Dynamic Range:	90 dB or greater
Baseband FM Stereo Input and Output Level:	3.5 V Peak to Peak for 100% FM Modulation
Baseband FM Stereo Frequency Response:	±0.05 dBm 10 Hz to 53 KHz
Remote Control:	Up to eight (8) Parallel GPIO, RS232/485 Serial, Ethernet, SNMPv2, and a free Windows-based BDI App software supplied. An optional GPMRC Remote Control Panel is also available.
GPIO Remote Connectors:	DSUB25F
Remote Control Local Command:	Momentary to Common
Status Local:	Open Collector +5 VDC pull-up available on the connector
RS232 Serial Connector:	DSUB25F
RS485 Serial Connector:	DSUB9F
Ethernet LAN SNMPv2 Connector:	RJ45
Power Requirements:	100 to 240 VAC, 50/60 Hz, 0.5 amps
Operating Ambient Temperature:	32 to 122 degrees, F (0 to 50 degrees, C)
Humidity:	95%, Non-condensing
Mechanical Dimensions:	19 in W x 10 in D x 1.75 in H (483 mm W x 254 mm D x 44 mm H) Standard One EIA Rack Unit Enclosure
Shipping Dimensions:	22 in W x 14 in D x 7 in H (559 mm W x 356 mm D x 178 mm H)
Shipping Weight:	15 lbs. (7 kg)

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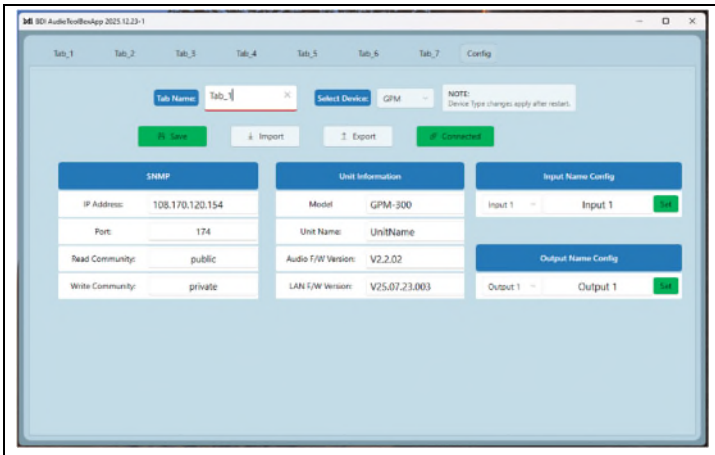
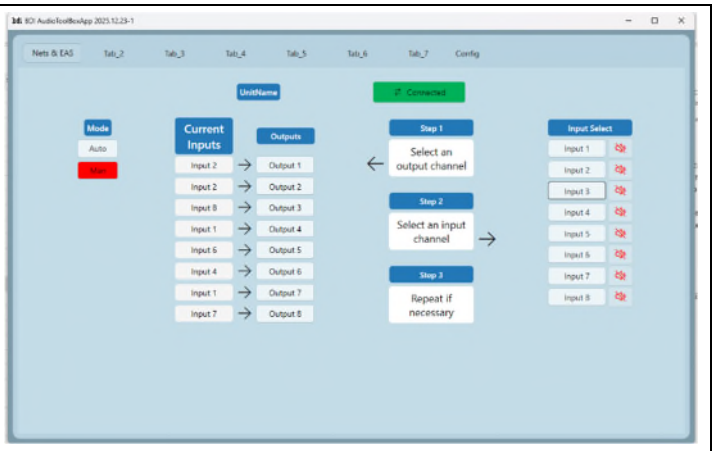
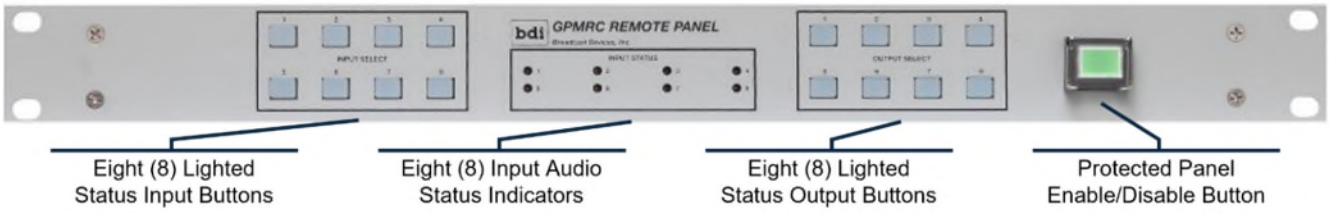


Audio Toolbox Windows App GPM-300 Configuration Screen



Audio Toolbox Windows App GPM-300 Control Screen

Optional GPMRC Remote Control Panel



GPMRC Remote Control Panel for the GPM-300 and ATB-300 Audio Toolbox Audio Switchers.

Broadcast Devices Inc. provides the next level of control for its popular ATB-300 and GPM-300 audio toolbox switcher series. The GPMRC Remote Control Panel provides a serial connection to up to six (6) locations for intra-facility operation. The GPMRC panel provides complete control of each output. Simply select an output to control by pressing a button on the right of the panel. Next, select the input for that output, and the system will switch to the desired channel and update the other panels to the current channel configuration. We also provided a channel activity status indicator for each input. The GPMRC remote control panel supports short- or long-distance RS-485 serial connections up to 1000 feet (305 meters). The GPMRC uses standard CAT5 shielded cable for interconnection. Each unit includes a 25-foot (8-meter) cable with an RJ45 male connector at each end. The GPMRC Remote Control Panels are easy to install in your facility because they use a simple three-wire serial connection via CAT5 cable. Simply connect from the ATB-300 or GPM-300 Series switcher to the first GPMRC remote control panel and from that panel to the next, up to six panels. The only additional requirement necessary is a local 120 VAC power for the supplied power pack.

Optional Audio Interface Panels

AIP-100 Eight (8) XLR Female Input and Eight (8) XLR Male Output Connectors for Analog or AES3 Digital to TASCAM DSUB25F Standard, Front View

The AIP/DIP Series Audio Interface Panels from BDI are the perfect solution for cleaning up wiring and reducing reliance on traditional snake cables, providing a neat, fast interface to modern audio equipment. These high-quality panels feature gold-contact XLR and DB25 connectors with standard lock/release tabs. Configurations with BNC connectors can be ground lifted. All interface panels include shielded cables, making them suitable for use with AES digital audio signals. All versions support the connectors with a rugged steel rack panel with four (4) mounting holes. Each panel is supplied with the appropriate three (3)- foot (one-meter) DB25 Male/Male interface cable.

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