Broadcast Devices, Inc.

GPMRC Remote Control Panel

***For use with the GPM-300 General Purpose* Matrix Audio Switcher**

TECHNICAL REFERENCE MANUAL

Broadcast Devices, Inc.

www.broadcast-devices.com

Tel. (914) 737-5032

REV: E 03/26

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Regulatory and Safety Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

I. Introduction

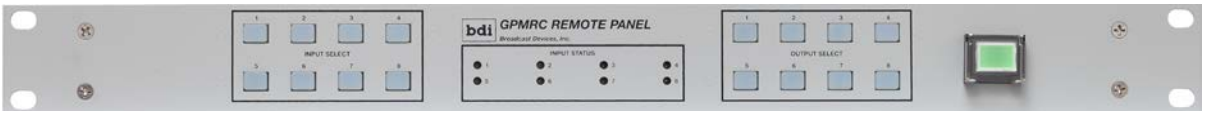
The GPMRC Remote Control Panel is designed to be used in conjunction with the Broadcast Devices, Inc. GPM-300 General Purpose Matrix Audio Switcher series. The GPMRC is single rack unit panel designed to be connected via RS-485 communications cable intra facility to the GPM-300 series switcher. Up to 6–GPMRC panels can control a single GPM-300 switcher using RS-485 communications protocol.

A. Unpacking and Inspection

Carefully unpack the unit after receipt and inspect for damage that may have occurred during shipping. If damage is noted, contact the shipper immediately and file a damage claim. The contents of the package have been insured to cover total replacement cost.

B. General Description

The GPMRC has two sets of 8 buttons and 8 status indicators. On the left side of the panel 8 control inputs and on the right 8 select outputs. 8 audio presence status indicators are located in the center of the panel. The audio presence status LED indicators remain lit as long as audio on the designated channel is present and above threshold for a least 5 seconds. To the far right of the panel there is a protected “arming” button which when depressed allows the panel to send commands to the GPM-300.



Input Select Activity Status Output Select Arming Switch

II. Specifications

Number of Push Buttons:	2 Sets of 8
Input Connectors:	RJ45 Socket – RS485 for use with CAT 5 shielded cable supplied
Status:	LED for each button / 8 Audio Presence
Power Requirements:	12 VDC Power Pack supplied 100-240 VAC 50/60HZ

III. Installation

A. Initial Installation Consideration

Install up to six GPMRC panels as desired. Connection from the GPM-300 switcher is via the RS-485 serial connector on the rear panel of the unit. Use the supplied DB9 to RJ45 adapter for use with shielded CAT 5 cable. 25 foot lengths are supplied with each panel but longer lengths can be used if needed. Communication between the GPM-300 switcher and GPMRC panels is through a two wire connection and shield utilizing RS-485 serial data. See RS485 wiring configuration figure on page 10 for typical connection between the GPM-300 and remote panels. Up to a maximum of six panels can be interconnected using the wiring configuration shown. BDI supplies the needed cables and adapters at time of order configuration dependent.

Troubleshooting tips

If once all of the GPMRC panels are connected there is a communications error signified by the Channel Audio status LED array blinking follow these steps to correct the problem.

1. Check wiring to make sure it conforms to the schematic diagram entitled **“**Typical RS-485 Wiring Configuration – GPM-300 to GPMRC Remote Control Panels” on page 10.
2. To determine a wiring issue between panels, remove all but the first connection to the first GPMRC panel. If the GPM-300 audio switcher and the first panel is correct then connect the next panel

B. GPMRC Operation and Configuration

The GPMRC Remote Panel allows operation of the GPM-300 as an 8x8 matrix switcher.

Up to 6 GPMRC Remote Panels may be connected to each GPM-300 simultaneously for operation from multiple locations. The currently selected source for each output channel and the audio presence status of each input are indicated on the panel. Sources may be selected for each output. The panel may be programmed to allow or disallow any source for each output.

Normal Operation

To activate the GPMRC panel for operation the protected green arming button to the extreme right of the panel must be pushed and the button will illuminate signifying that the panel is active and will accept commands. In normal operation pushing one of the output select buttons will cause the input select button for the currently selected source to illuminate. The input status LED's will illuminate when audio is present on the corresponding GPM-300 input channel.

Pushing an input select button will route the corresponding source to the currently selected output. The button will then illuminate to indicate that the selected source is now routed to the output.

Panel Enable

To enable remote operation from the GPMRC either Dip Switch 1-1 must be ON or the optional ENABLE switch must be ON. These switches are connected in parallel so closing either switch will prevent the other from disabling operation of the panel. Note that the when the panel is disabled it will still display Audio Status and the currently selected source for each output channel.

RS-485 Configuration

The RS-485 address of the GPMRC must be set using DIP switches 1-2 through 1-4.

The factory default address is 1.

Address	DIP SW 1-2	DIP SW 1-3	DIP SW 1-4
1	ON	ON	ON
2	OFF	ON	ON
3	ON	OFF	ON
4	OFF	OFF	ON
5	ON	ON	OFF
6	OFF	ON	OFF

The RS-485 address switches must be configured BEFORE power is applied to the panel. If the address is changed the panel must be power cycled to accept the new address.

Warning: Duplicate addresses on the same RS-485 bus will cause erratic operation.

If communications is lost with the GPM-300 all Audio Status LED's will blink simultaneously.

When the programming DIP switch (SW2-1) is in then normal operation position.

Programming Source Selection Permissions

Each source selection may be allowed or disallowed on a per output basis. The factory default programming will allow any source (input) to be selected for all outputs. To change this, enter the programming mode by turning OFF DIP Switch 2-1.

In programming mode the currently selected output button will flash to indicate programming mode. In addition the RS-485 address will be displayed by the Audio Status LED's. The input selection buttons will display the “allow” or “disallow” status of each source for the selected output. A source select button which is illuminated is allowed for the selected output. Pushing a source select button will toggle the allow/disallow status of the corresponding source ONLY for the currently selected output.

Once the “allow” / “disallow” permissions for each output channel have been selected, move DIP Switch 2-1 to the ON position to exit the programming mode.

RS-232 Output

The GPMRC has an additional RS232 port labeled on the PC board. Use the supplied DB9 to IDC interface cable to connect the panel to a 9 pin RS232 connection to a laptop computer.

The RS-232 output provides self-test information as well as the status of the GPMRC remote control panel. Serial data is at 38.4K baud, 8 bits, no parity with 1 stop bit.

On power-up the GPMRC self test results will be sent to the RS-232 port. A successful self test will result in the following display:

```
GPMRC V1.0.3
FRONT PANEL PASS 0
FRONT PANEL PASS 1
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During operation the state of the panel is displayed in a table which provides the firmware revision, RS-485 address, state of the enable/disable switch, programming of the individual source routing allow/disallow programming and the currently selected source for each output.

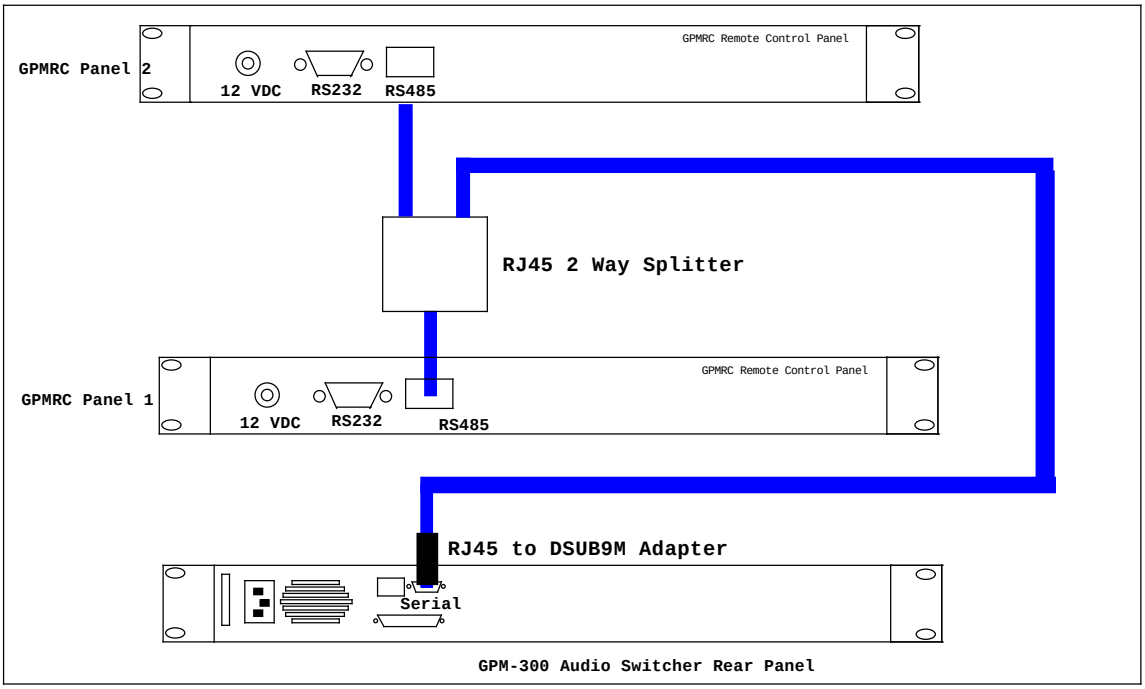
BROADCAST DEVICES INC. VER: GPMRC V1.0.3

RS-485 ADDR: 1
PANEL ENABLE: ENABLED

INPUT:	1	2	3	4	5	6	7	8	C
OUTPUT 1	Y	Y	Y	Y	Y	Y	Y	Y	5
OUTPUT 2	Y	Y	Y	Y	Y	Y	Y	Y	4
OUTPUT 3	Y	Y	Y	Y	Y	Y	Y	Y	T
OUTPUT 4	Y	Y	Y	Y	Y	Y	Y	Y	2
OUTPUT 5	Y	Y	Y	Y	Y	Y	Y	Y	5
OUTPUT 6	Y	Y	Y	Y	Y	Y	Y	Y	5
OUTPUT 7	Y	Y	Y	Y	Y	Y	Y	Y	5
OUTPUT 8	Y	Y	Y	Y	Y	Y	Y	Y	1

IV. Diagrams

Typical RS-485 Cable Configuration – GPM-300 to GPMRC Remote Control Panels



Note: Additional GPMRC panels up to 6 can be daisy chained as shown. Use additional RJ45 splitters between each GPMRC. For simplicity pictured above is interconnection using supplied or user supplied CAT5 cables.

First connect the supplied RJ45 adapter to the DSUB9F connector on the rear of the supplied GPM-300 audio switcher. Next connect a CAT5 cable to the adapter and connect and the other end of that cable to one of the RJ45 sockets on the adapter. Plug the next GPMRC to the other RJ45 socket on the adapter and connect the input side of the CAT5 splitter to the first GPMRC. Additional GPMRC panels can be added to the system by adding additional splitters and cables interconnecting each as shown in the above example.

V. Warranty

Broadcast Devices, Inc. Limited Product Warranty

Broadcast Devices, Inc. (“BDI”) products are warranted against failure due to faulty materials or workmanship for a period of one (1) 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 a Returned Material Authorization (RMA) number affixed to the outside of the container, obtained from the factory. The above warranty is void if the unit has been modified by the user outside any factory recommendations or if the unit has been abused or operated outside its electrical or environmental specifications. If customer conducted field tests suggest that the unit may be faulty, whether the unit is in warranty, a full report of the difficulty should be sent to the Broadcast Devices, Inc. factory. The factory may suggest further tests or authorize a return for factory evaluation.

Units sent to the factory should be well-packed and shipped to Broadcast Devices, Inc. The current shipping address can be found by visiting our main web page: www.broadcast-devices.com. Remember to affix the RMA number to the outside of the carton. Any packages received without such an RMA 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 that fall outside the standard warranty. Units returned for in-warranty repairs that 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 a replacement part, contact any authorized reseller of Broadcast Devices, Inc. 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.

BDI. is not responsible for any other manufacturer’s warranty on original equipment. Nor are we responsible for any failure, damage, or loss of property resulting from the installation or operation of our equipment outside the recommended specifications.

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

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Broadcast Devices, Inc.
Westchester Industrial Complex
3199 Albany Post Road. Suite 122
Buchanan, New York 10511 USA

Phone: +1 (914) 737-5032
Email: customer.service@broadcast-devices.com
Web: https://broadcast-devices.com