

Operational Philosophy

To ensure trouble free operation, DMX512 standards require that DMX devices be installed in a daisy chain, with no tees, wyes or stars in the DMX wiring. However, site conditions may make star wiring desirable or even mandatory. A Gray Interfaces DMXRepeater permits star wiring by making each branch of the star appear electrically as its own entity, unaffected by the other branches of the star. Additionally, opto-isolation circuitry isolates each branch to prevent ground loops or accidental damage from fault voltages on DMX lines.

Connections

Typically, Gray Interfaces DMXRepeaters are used in the following configuration:

- **DMX Input** is connected to the control console DMX output
- **DMX Outputs** (A,B,C,D,E, & F) are connected to the remote DMX devices or receptacles for the equipment receiving the console signal. These may be dimmers, scrollers or moving lights, for example.
- **DMX Thru** passes the console signal to additional DMXRepeaters or other similar devices, and would in turn be connected to DMX Input on the next unit in line. If talkback is used, you must connect any downstream equipment to an output connector.

Indicators

LED indicators are provided on the face of the DMXRepeater for diagnostic purposes. Each group of three Output LEDs corresponds to one of the DMX outputs from A to F. The single group to the left of the termination switch corresponds to the DMX input from the console.

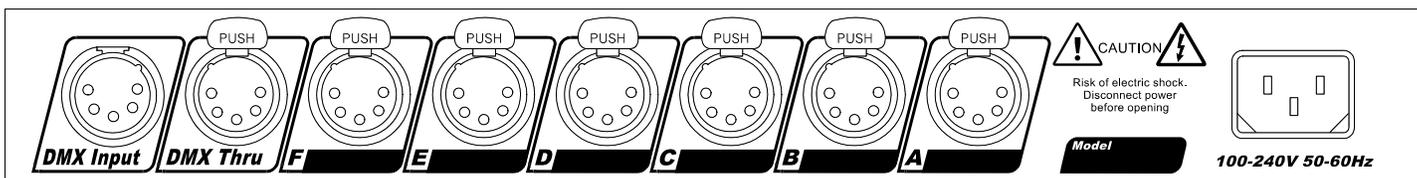
Red LEDs are provided for the main (Input) +5 volt power supply and the six isolated supplies (**Iso +5V**), green LEDs are provided for *Transmit* data and amber LEDs are provided for *Received* or *Talkback* data, if used.

In conventional operation, the following should be observed:

- All red LEDs should be illuminated whenever the unit is powered.
- The amber Input **Receive** LED and six green Output **Transmit** LEDs should illuminate once a functioning console is connected to DMX Input.

In addition, the following will be observed if devices using DMX Talkback are used:

- The amber **Talkback** LED will illuminate at the output section (A to F) with the functioning Talkback device connected.
- The green **Talkback** LED should illuminate at the input section.



DMX Basics

- All wiring must be in a continuous run, daisy-chained, no “Tees” are permitted
- “Stars” are permitted only in conjunction with a repeater
- Cable shield may be grounded at one end only, preferably at the control console
- Maximum cable length is 2,000 ft.
- Receiving devices have male connectors, transmitters have female
- 5 pin XLR type DMX connectors are standard:
 - Pin 1: *Common*
 - Pin 2: *Data (-)*
 - Pin 3: *Data (+)*
 - Pin 4: *Talkback Data (-) (Optional)*
 - Pin 5: *Talkback Data (+) (Optional)*
- 3 pin XLR type connectors are a non-standard alternative:
 - Pin 1: *Common*
 - Pin 2: *Data (-)*
 - Pin 3: *Data (+)*
- Wire must be Belden 9842 (120Ω), 9829, (100Ω) or equivalent
- A maximum of 32 DMX receiving devices can be present on a single DMX line
- The last DMX device on the line must be terminated with a termination switch or resistor with a value of 100 to 120 ohms between pins 2 and 3.

Rack Mounting

DMXRepeaters can be rack mounted by using an optional 8801 19" Rack Mount bracket kit. The kit consists of two rack mount ears that are attached to the DMXRepeater using the 6-32 screws included in the kit.

Power

DMXRepeaters are designed to work on voltages from 100-240 volts AC. It will automatically sense the incoming voltage and adjust accordingly. Be sure to use the correct power cord if your location requires something other than the 120V U-ground cord included with the unit.

DMX Termination

If only one DMXRepeater is used, and nothing is connected to the **DMX THRU** receptacle, the termination switch must be set in the direction of the arrow (ON) to terminate the incoming DMX signal from the console. If several DMXRepeaters are connected together using the **DMX Thru** connector on each unit, only the last DMXRepeater in the chain is terminated, all the others are not terminated (switch in the right position).

DMX receiving devices such as dimmers or scrollers are generally provided with a termination switch, termination jumper or other means of connecting the required termination resistance across the DMX line. Always make sure that the last receiving device connected to any output line is properly terminated.

To ensure that the incoming console DMX signal cannot be excessively terminated, the DMXRepeater's termination switch also disables the DMX Thru connection.

Screw Terminal Connections

On the 8867 model, auxiliary screw terminal connectors are supplied on the rear panel. The pinout of these connectors is the same of that of 5 pin XLR connectors. .

Model Description

8865	1 in - 6 out bi-directional DMXRepeater, 5 pin XLR
8863	1 in - 6 out DMXRepeater, 3 pin XLR
8863/5	1 in - 6 out DMXRepeater, 3-3pin & 3-5 pin XLR
8867	1 in - 6 out DMXRepeater, terminals
8869	1 in - 6 out DMXRepeater, RJ45

Specifications

Power Supply:	Universal input (100-240V, 50/60Hz)
Connections:	5 pin XLR, 3 pin XLR, terminals or RJ45
Isolation	2500V Opto-isolation on DMX lines 4000V Mains isolation
Size:	13.2 x 7.8 x 1.75" (335 x 198 x 44mm)
Protocols:	DMX512 or any RS422 or RS485 based