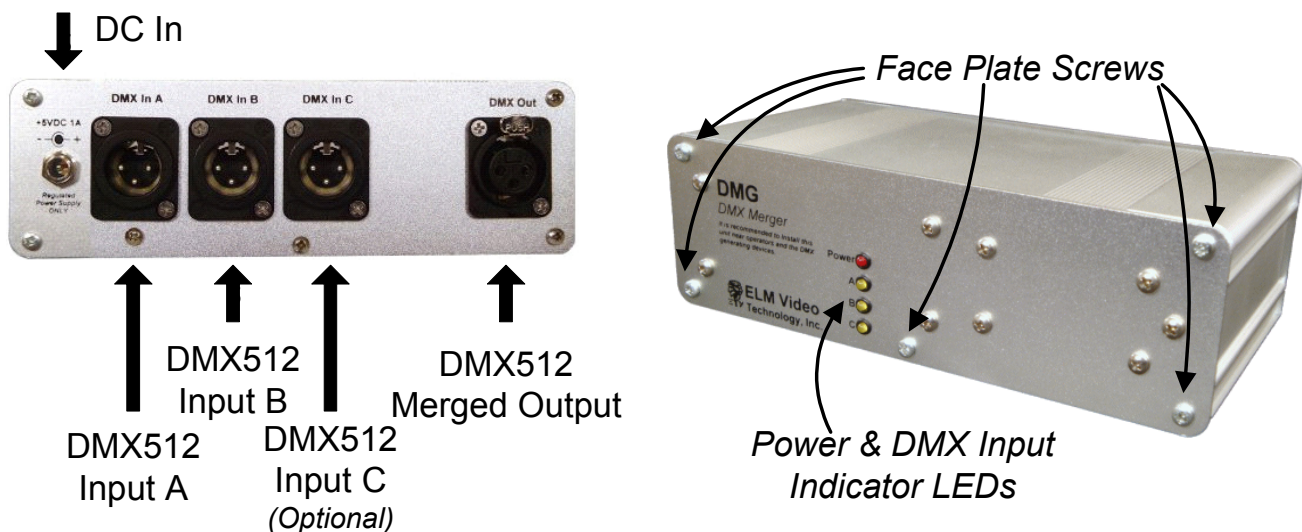


DMG OVERVIEW

The DMG is a 1~3 input 1 output DMX merger with versatile uses. Combines two or more DMX signals or universes into one universe, by a selected mode type; HTP (Highest Takes Precedence), Append, Backup, LTP (Latest Take Precedence by Universe), LTPC (Latest Take Precedence by Channel), or LoTP (Lowest Take Precedence). An additional DMG-PCB can be installed/added to add a third input, or multiple DMG's can be combined to merge more than two universes or provide multiple functions. By configuring several DMG's in different mode types, each can perform a specific task. For example - multiple DMG's could be configured to merge two or more universes into one universe, the combined output could be appended to another universe, and then the final output could operate in parallel with a backup DMX source with auto switch over.

CONNECTION

Connect a DMX source into the input connectors (5 or 3 pin) and insure the data LED is illuminated (showing data is present). The DMG will work with one or more signals (A and/or B) connected. The inputs are internally terminated and the inputs should NOT be looped to other devices. The DMX Output connector will source up to 32 DMX devices (*depending on the devices and configuration*). As with any DMX daisy chain, each output must be terminated at the end of each daisy chain.

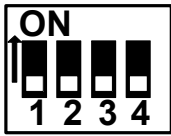


Before connecting the A, B or C inputs it is recommended that the output and/or power be disconnected to prevent false data transmission that could blink or trigger the receiving DMX system.

NOTE - ALWAYS KEEP THE DMG ACCESSIBLE ! - INSTALL THE DMG NEAR OPERATORS AND THE GENERATING DEVICES. IT IS NOT RECOMMENDED TO INSTALL ON A TRUSS OR HARD TO REACH AREA. Because the DMG is a DMX SIGNAL GENERATING DEVICE, keeping the unit accessible is essential, in the event of a cable failure or unit malfunction the output may send false data which could cause erratic behavior with the receiving DMX system, could be dangerous to the public, and to the receiving equipment and lights.

MODES

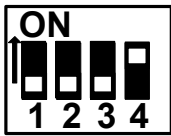
If the DCD Display and Programming unit is installed see the page(s) that describe its connection and operation.



MERGE HTP The HTP mode will merge 2 universes into one universe using Highest Takes Precedence processing of the level of each channel. In this mode 2 lighting boards (or any two DMX generating devices) can control the same devices.

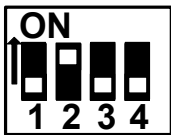
If only one input is connected, the input data (channels, levels, packet size, and start code) are transmitted as received. By adding a DMX signal to other input the 2 sources will be merged with HTP - the highest level will be the transmitted on a specific channel. The packet size will be largest of the three. Input A has start code priority - Input A's start code will always be transmitted, unless there isn't a signal in input A then input B's start code will be transmitted. This mode is useful for controlling the same DMX equipment and devices with two DMX generating devices in one universe. For example a lighting board and a computer controlled DMX controller.

HTP Examples: If the A input has a level of 25 on channel 10 and input B has a level of 200 on channel 10 the output will be 200 on channel 10. If A has a level of 5 on channel 100 and B has a level of 12 on channel 100 the output will be 12 on channel 100. If both in puts are 0 the output will be 0 on the respective channel etc.

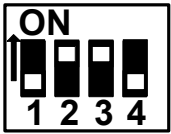


BACKUP The Backup mode will transmit input A continuously, ignoring input B as long as input A is a *valid DMX signal. If input A's signal is not *valid input B will be transmitted.

This mode is useful if a backup lighting board (or any DMX generating device) is always on standby to switch over in the case of a failure, the DMG in the backup mode would AUTOMATICALLY switch over, preventing the user from physically having to switch the connectors. The DMG will switch over in one second of a lost signal.



LTP The LTP (Latest Takes Precedence) will re send input A or B to the output depending on the input that had the latest level change of +/- 1. If you have two lighting boards respectively connected to input A and B, the last lighting board that made any change would take precedence and would control the output until the other lighting board made a change and then it would take control. Please note that the input sources would need to be digitally controlled, otherwise unwanted switching may occur.

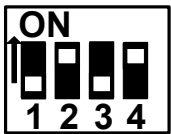


APPEND The Append mode will append input B after input A, input A is the 1st part of the DMX packet and the B input is the 2nd part of the output. In this mode two lighting boards (or any two DMX generating devices) can be combined, each controlling different equipment but on one cable (or universe).

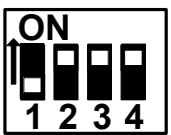
In the Append mode the start code transmitted will be zero until a *valid signal is received on input A and that start code is then transmitted until the unit is reset or re powered (even if input A is lost). The packet size or channel block size, (e.g. 48 channel lighting board) is loaded from the processor permanent memory each time the unit is powered or reset, and will not be changed by the input. **See the Append Packet Size Setup section for instructions on setting transmit packet size (or channel block size).**

This mode is useful for controlling different DMX equipment or devices with two DMX generating devices in one universe. For Example: If a packet or block size is stored as 32 and input A input has a level of 25 on channel 10 and input B has a level of 200 on channel 10, the output of channel 10 will be 25, the output of channel 42 will be 200, (B input Ch 10 now has an offset of 32).

NOTE - By APPENDING or changing the DMX channels, each receiving device will need to be set to the new DMX channel. Plan any changes carefully and test each device after any configuration changes.



LTPC The LTPC mode (Latest Takes Precedence by channel) will change an individual channels output to the latest level change (+/- 1) on a channel on A or B's input. For example, if the current level on input A channel 10 is 128 and input B channel 10 changes from 100 to 101 the output on channel 10 will now be 101, and all other channels are unchanged. Please note that the input sources would need to be stable or digitally controlled, otherwise unwanted switching may occur as any change of +/- 1 would initiate a switch.



LoTP The LoTP (Lowest Takes Precedence) responds the same way as the HTP mode described above, except the lowest of the two inputs per channel is sent to the output.

*A valid DMX signal - an active signal present with consistent start code, consistent packet size, and meets the DMX standard. An invalid DMX signal - if a signal is not present for more than 1 second, or if the start code or packet size change. (If this happens and four continuous packets are received with the same start code within 1 second of the change the signal is still considered valid.)

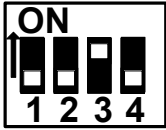
3rd INPUT OPTION If the 3rd or "C" input is installed, the merged output of A and B inputs are connected to the 'A' input of a 2nd merger DMG-PCB (Printed Circuit Board). The 2nd merger PCB can have a different mode type (listed below) than the 1st merger PCB. All of the A and B rules listed below for each mode type apply accordingly.)

Plan all DMX changes carefully, understand how each mode will react, and thoroughly test each device after any configuration changes.

APPEND PACKET SIZE SETUP

The packet (or channel block) size is set by one of two ways:

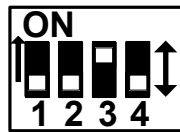
- **AUTO DETECT:** The packet size of a *valid DMX signal on the A will auto detect and set the size
- **MANUAL BLOCK:** Manually program the packet size in 16 channel block increments



APPEND SETUP AUTO DETECT

1. Set the dip switches to the APPEND SETUP mode shown above
2. Connect a DMX generating device into input A (e.g. lighting board) with a known DMX packet size (output channel count) known or preset.
3. Reset the power - The unit will auto detect the packet size
4. If a *valid DMX signal is connected to input A, the packet size is stored in permanent memory. LED's A and B will alternately blink indicating completion.

5. Set the dip switches to the APPEND mode shown above
6. Reset the power
7. Test for accuracy



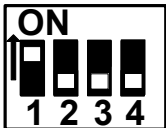
APPEND BLOCK SETUP

1. Insure there is NOT a DMX signal on input A
2. Select the APPEND SETUP by placing switches as shown
3. Reset the power - The unit enters the setup mode, indicated by LED A blinking
4. Slide switch 4 on and off for each block to be added and assigned (see table below). Input A LED will turn on and off with each on/off cycle indicating each block of 16 additional channels.
5. Set the dip switches to the APPEND mode (off | on | on | off) as shown above

6. Reset the power
7. Test for accuracy

Channel Block Size Table

# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size	# of Taps	Block Size
1	16	5	80	9	144	13	208	17	272	21	336	25	400	29	464
2	32	6	96	10	160	14	224	18	288	22	352	26	416	30	480
3	48	7	112	11	176	15	240	19	304	23	368	27	432	31	496
4	64	8	128	12	192	16	256	20	320	24	384	28	448	32	512



PROGRAMMING AND DISPLAY UNIT

If the Programming and Display Unit is installed the dip switches must be set as shown. Otherwise the dip switch setting will override and the mode will set to the respective setting.

If the optional 3 digit display and programming unit is installed, the merge modes can be setup and changed without repowering and various parameter status's of the merge modes can be viewed. **To activate the programming and display unit, dip switch 1 should be in the ON position and 2-4 should be in the OFF position.**

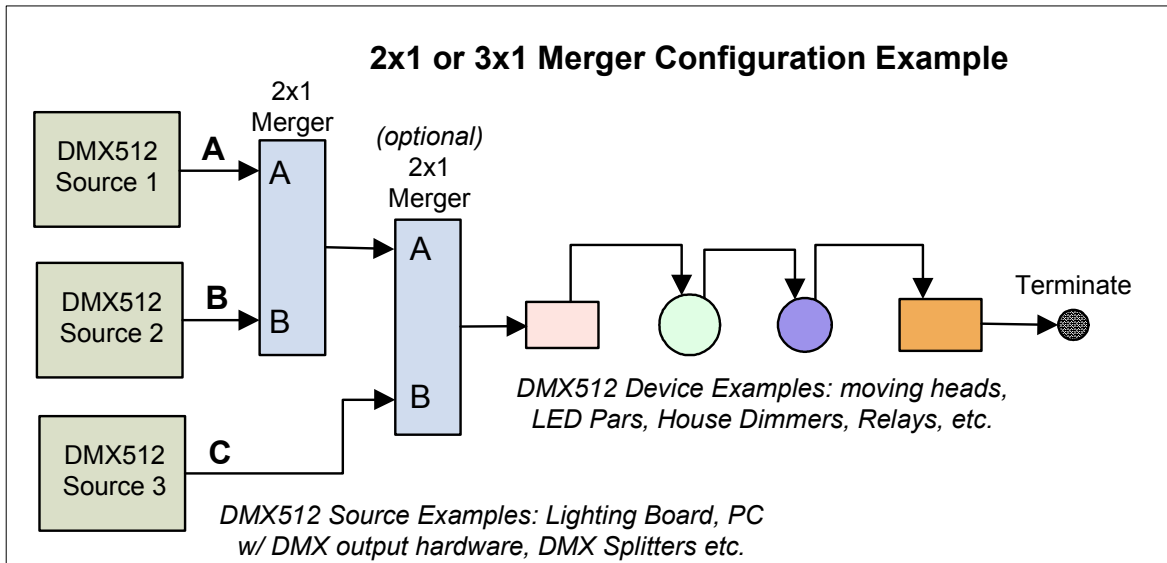
- HTP [Display: HtP]
- Append - (additional set / view option) Input B's start channel [Display: APd]
- Backup - (additional view option) the current input (A or B) that's being sent [Display: bAc]
- LoTP [Display: LOt]
- LTP - (additional view option) the current input (A or B) that's being sent [Display: LtP]
- LTPC [Display: LtC]
- Bri - Adjust the display's brightness setting (10 steps) [Display: bri]

On start up the current mode is displayed. If the current mode is "append", press the SELECT button to toggle between displaying the mode or B's appended start channel. If the current mode is "backup", press the SELECT button to toggle between the mode type and the current input selected (i.e. input A or B). To adjust the brightness select the "bri" selection and press and hold GO. Press the GO or SELECT buttons to increase or decrease the brightness. The unit will resume with the new setting after a few seconds.

To change the mode press and hold the SELECT button until the display blinks then press the select button to scroll through the options. To execute the new mode, press and hold the GO button. The new mode is immediate and will be recalled on start up or power up. For the Append mode a second display will appear allowing you to set input B's start channel. Once the channel is set press and hold the GO button to execute the change.

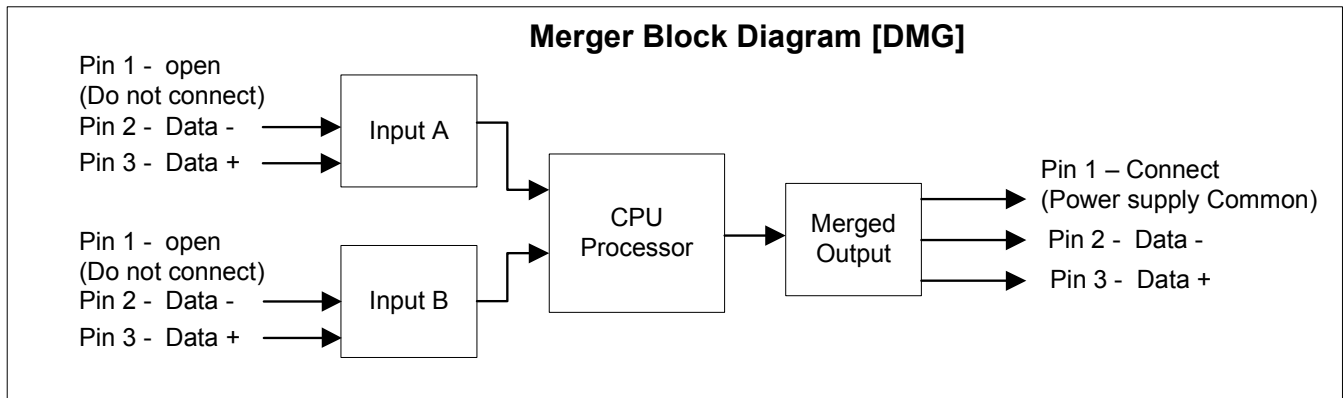


CONFIGURATION EXAMPLE



PCB BLOCK DIAGRAM

INPUT: The inputs (pins 2 and 3) connect to a 75176 data input IC's, and send to the processor. **OUTPUT:** The processor sends merged data to the output that supplies data to the output connectors. Pin 1 is connected to the power supply common.



SPECIFICATIONS

Chassis:	Anodized Aluminum .093" thick RoHS compliant.
External Power Supply:	+5VDC wall mount
Voltage Input:	100 ~ 132 (or 240) VAC
Current Output:	1 Amps (typical)
Power:	5 Watts (typical)
Polarization:	Positive Center
Output Connector:	Barrel Plug, 2.5mm I.D. x 5.5mm O.D. x 9.5mm
Internal FUSE:	500mA Thru hole PCB Mount
Power Consumption:	Apx 160mA (output full source with 1 PCB installed) Apx 320mA (output full source with 3rd input (2) PCB installed)
Data Type:	DMX (250Khz)
Data Input:	DMX - 5 (or 3) pin male XLR, <i>Pin 1 - (Shield) Not connected, Pin 2 Data - , Pin 3 Data +</i>
Data Output:	DMX outputs - 5 (or 3) pin female XLR's, <i>Pin 1 - Power supply common, Pin 2 Data -, Pin 3 Data +</i>
Dimensions:	3.7 x 6.7 x 2.1 inches
Weight:	1.5 pounds