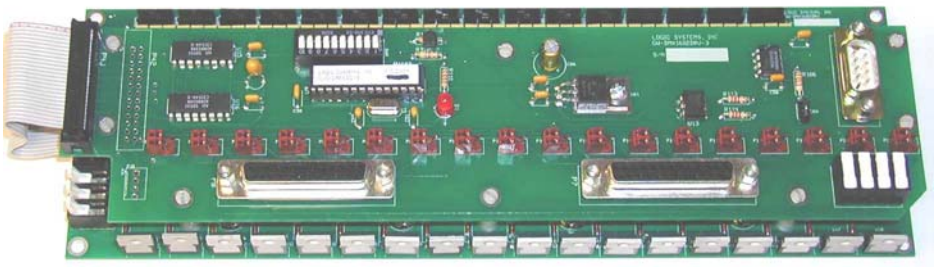
DMX1602DRV/DMX1602DRV-3 HIGH CURRENT ANALOG LASER ACCESSORY DRIVER/DECODER from Logic Systems, Inc.



The **DMX1602DRV/DMX1602DRV-3** was designed specifically for the professional laser lightshow industry. By using the industry standard DMX-512 control protocol, you have analog control of beam actuators, small motors, shutters or virtually any load up to .5 amps per channel.

Using current control for your beam actuators and "fade out" shutters is more accurate, more reliable, and more repeatable. That is why we use this technology for our first six channels. The last two channels give you the choice of either Pulse Width Modulated (PWM) or 0-10vdc controlled outputs. They are designed for controlling Lumia and special effect motors, standard shutters, or any other device requiring this type of analog control.

Specifications:

Addressing: Can be addressed to start anywhere within 512 channels.
Multiple cards can be used without channel overlap.

Outputs: 16 current controlled analog outputs with individually adjustable gain, offset and damping pots. For DMX1602DRV-3 Revision 2 cards, the channel one output is jumper selectable for DMX analog control or from an external digital signal.
Two voltage controlled analog outputs individually jumper selectable for either PWM or DC operation with individual gain control pots.
All outputs good for up to 500mA each up to a maximum voltage of 2 volts below the applied power supply voltage. (with proper heat sinking and power supply)

Power Supply: ±15 to ±24VDC @ 9 amps maximum. Can be used with a single ended supply.

Interlock: Outputs can be shut down using an auxiliary digital input signal; open collector driver or hardwire switch, allowing for interlock shutdown should your projector require it.

All channels are thermal overload and short circuit protected

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DMX1602DRV/DMX1602DRV-3 DMX 512 DECODER

The LOGIC SYSTEMS **DMX1602DRV-3** decoder card decodes a standard DMX512 signal into 18 channels and designed to be used with the **DMX1602DRV-3** card. The card channels 1-16 are high current analog outputs with adjustable gain, offset and damping. The card channels 17 and 18 are selectable PWM. A jumper selects filtered for high current DC output or high current PWM. Channels 17 and 18 have gain adjustments only. The card can be used anywhere within the DMX 512 controller channel group. The decoder card starting address is set using dip switches. The DMX start code for the decoder card is zero. Multiple cards can be used with no overlapping of channels. In the event of a DMX512 signal loss the outputs will remain at their last state for not less than one second then drop to off. An LED indicates a valid DMX signal. The **DMX1602DRV-3** card has an auxiliary input, which can be used to shut down the cards outputs regardless of the DMX channel status or channel 1 configuration. The **DMX1602DRV-3 Revision 2** cards has channel one selectable for DMX analog control or from an external digital signal. The maximum current for any channel is 500mA and the maximum voltage is 2 volts below the applied power supply positive voltage.

ADDRESSING

The decoder card uses base-zero addressing. When dip switches 1 through 9 are OFF the first card channel will be DMX controller channel 1.

Example:

To set the starting address to 342 set dip switches as follows.
Set DIPSWITCH SW1 switches to the following:

SW9	SW8	SW7	SW6	SW5	SW4	SW3	SW2	SW1
256	128	64	32	16	8	4	2	1
on	-	on	-	on	-	on	-	on
-	off	-	off	-	off	-	off	-

To get the starting address, add up the values of the switches that are on. We have base-zero addressing so add one more. Our starting address is 256+64+16+4+1+1=342. The card will use DMX-512 channels 342 through 359

POWER SUPPLY

The driver/decoder card combo requires a ±15 VDC to ±24 VDC power supply. Connect to P6. See Figure 1 for pin-out. The card can require 9 amps if all outputs are used at maximum capability. The card can be operated with a single +15 VDC to +24 VDC power supply if desired.

OUTPUTS

Connector P7 and P8 output the channels 1 through 16 high current drivers. Each driver can provide a maximum of 500 mADC. The output drivers are current controlled. The maximum current, offset, and damping can be adjusted through the gain, offset, and damping multi-turn trim pots respectively, located on the **DMX1602DRV** board. Channels 1 through 16 have a test/signal selector switch located on the **DMX1602DRV** card. The ”TEST” position applies a FULL ON control signal to allow easy adjustment without having the DMX controller connected. The “SIGNAL” position applies the signal from the DMX decoder. See Figure 1 for the channels 1 through 16 pin-out, trimpot and switch information. Connector P31 outputs channels 17 and 18 DC/PWM high current analog drivers and are also capable of a maximum of 500 mADC. The analog output can be used as a high current PWM output by removing a jumper on

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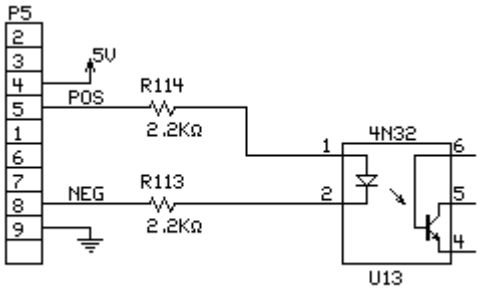
the **DMX1602DRV** board. Jumper J2 and J3 for analog 17 and analog 18 respectively. See Figure 1 for channel 17 and 18 pin-out and jumper information.

DMX512 SIGNAL INPUT

Connector P5 accepts a USITT/1986 or USITT/1990 standard DMX512 signal input. See Figure 1 for connector pin-out. Any other signal will give unknown results. Jumper J1 connects the terminating resistor and is used when the card is the last one on the cable run. The LED indicates a valid DMX signal.

SHUTDOWN

All drivers can be shutdown with a single control signal. This signal can be TTL, open collector transistor, or a relay contact closure. The control voltage is 5VDC. Connector P5 accepts the shutdown signal and is configured for your method of control by the appropriate connections on P5. See the accompanying diagram of shutdown circuit input. The shutdown is effective in all signal source modes. Shutdown occurs on an active signal. Outputs are enabled is the default configuration when the card is shipped.



CAUTION

1. The tabs on the op amps are at the V- potential. **YOU MUST ISOLATE THEM** when mounting to the heatsink. You can individually isolate them on the heatsink or mount them direct to the heatsink and isolate the heatsink from the enclosure.
2. The channel outputs will output maximum voltage when there is no load connected. The opamp will heat up and will be hot to the touch. Use caution when handling.
3. The cards are shipped with offset at zero and current set below 200mADC with dual supplies.
4. If single supply operation is used, the outputs will not operate with the factory settings. Offset must be adjusted counter-clockwise to allow operation.

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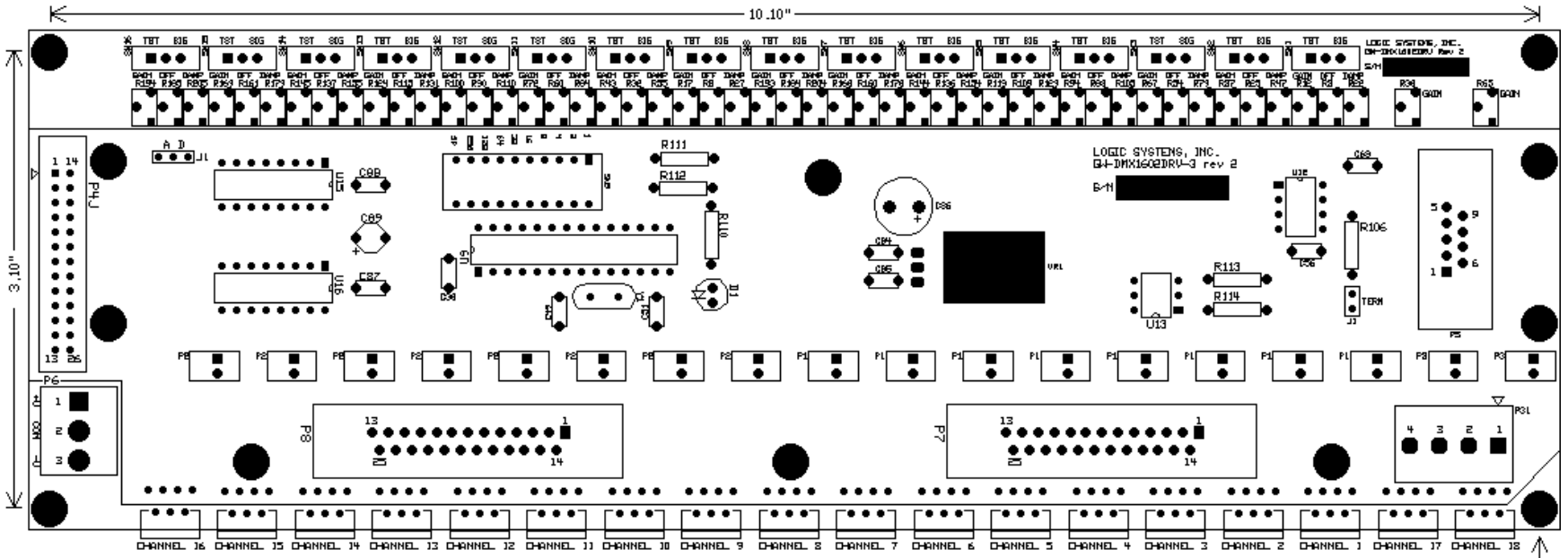

P4J - CONTROL SIGNAL INTERCONNECT

PIN 1 - CHANNEL 1
PIN 14 - CHANNEL 2
PIN 2 - CHANNEL 3
PIN 15 - CHANNEL 4
PIN 3 - CHANNEL 5
PIN 16 - CHANNEL 6
PIN 4 - CHANNEL 7
PIN 17 - CHANNEL 8
PIN 5 - CHANNEL 9
PIN 18 - CHANNEL 10
PIN 6 - CHANNEL 11
PIN 19 - CHANNEL 12
PIN 7 - CHANNEL 13
PIN 20 - CHANNEL 14
PIN 8 - CHANNEL 15
PIN 21 - CHANNEL 16
PIN 9 - DC/PWM CHANNEL 17
PIN 22 - DC/PWM CHANNEL 18
PIN 10 - DRIVER SHUTDOWN
PIN 11 - 5V REFERENCE
PIN 12 - V+
PIN 13 - V-
PINS 23,24,25,26 - COMMON

P8 - DRIVER OUTPUTS
CHANNELS 9 THROUGH 16

PIN 1 - CHANNEL 9 OUT -
PIN 14 - CHANNEL 9 OUT +
PIN 2 - CHANNEL 10 OUT -
PIN 15 - CHANNEL 10 OUT +
PIN 3 - CHANNEL 11 OUT -
PIN 16 - CHANNEL 11 OUT +
PIN 4 - CHANNEL 12 OUT -
PIN 17 - CHANNEL 12 OUT +
PIN 5 - CHANNEL 13 OUT -
PIN 18 - CHANNEL 13 OUT +
PIN 6 - CHANNEL 14 OUT -
PIN 19 - CHANNEL 14 OUT +
PIN 7 - CHANNEL 15 OUT -
PIN 20 - CHANNEL 15 OUT +
PIN 8 - CHANNEL 16 OUT -
PIN 21 - CHANNEL 16 OUT +

P7 - DRIVER OUTPUTS
CHANNELS 1 THROUGH 8

PIN 1 - CHANNEL 1 OUT -
PIN 14 - CHANNEL 1 OUT +
PIN 2 - CHANNEL 2 OUT -
PIN 15 - CHANNEL 2 OUT +
PIN 3 - CHANNEL 3 OUT -
PIN 16 - CHANNEL 3 OUT +
PIN 4 - CHANNEL 4 OUT -
PIN 17 - CHANNEL 4 OUT +
PIN 5 - CHANNEL 5 OUT -
PIN 18 - CHANNEL 5 OUT +
PIN 6 - CHANNEL 6 OUT -
PIN 19 - CHANNEL 6 OUT +
PIN 7 - CHANNEL 7 OUT -
PIN 20 - CHANNEL 7 OUT +
PIN 8 - CHANNEL 8 OUT -
PIN 21 - CHANNEL 8 OUT +

P31 - HIGH CURRENT ANALOG OUTPUTS
CHANNELS 17 AND 18

PIN 1 - DC/PWM 17 OUT -
PIN 2 - DC/PWM 17 OUT +
PIN 3 - DC/PWM 18 OUT -
PIN 4 - DC/PWM 18 OUT +

0.15" DIAMETER MOUNTING HOLE x4

P1,P2 - DRIVER OUTPUTS INTERCONNECTS
NO USER CONNECTION

P5 - DMX SIGNAL, DRIVER SHUTDOWN

PIN 1 - DMX SIGNAL NON-INVERTING
PIN 2 - DMX SIGNAL INVERTING
PIN 6 - DMX SIGNAL COMMON
PIN 4 - 5VDC OUT
PIN 3 - CHANNEL 1 DIGITAL INPUT
PIN 5 - SHUTDOWN POSITIVE INPUT
PIN 8 - SHUTDOWN NEGATIVE INPUT
PIN 9 - COMMON

P42 - COMPATIBLE WITH GW-DMX1602 CARD
DIGITAL SIGNALS
SEE GW-DMX1602 DOCUMENTATION

P10 - COMPATIBLE WITH GW-DMX1602 CARD
ANALOG SIGNALS
SEE GW-DMX1602 DOCUMENTATION

P6 - POWER SUPPLY
PIN 1 - V+ (+15 TO +24VDC)
PIN 2 - COMMON
PIN 3 - V- (-15 TO -24vdc)
FOR SINGLE SUPPLY OPERATION CONNECT TO COMMON

JUMPER J1-A POSITION FOR CHANNEL 1 DMX CONTROL
D POSITION FOR CHANNEL 1 DIGITAL CONTROL VIA P5 PIN 3

JUMPER TERM-ON INSERTS TERMINATING RESISTOR WHEN CARD IS AT THE CABLE END

FIGURE 1

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