

DX10V-PRL PCB Connection and User Guide

DMX to 0 ~ 10 Volt Converter with POWER Relay Control

SRev 1.00

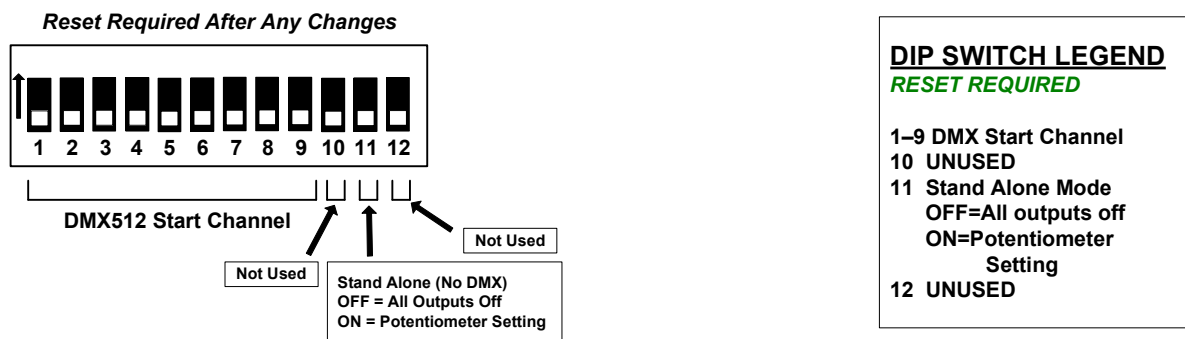


DESCRIPTION

The DX10V-PRL is a DMX to 10 volt converter with simultaneous power relay switching control. This functionality provides a 0~10 volt variable control signal and then at the low end of the variation provides the capability to shut off the power to the respective driver or device. For example, some LED drivers only dim from 100% down to 10%, the DX10V-PRL provides the power supply connectivity to turn on and off the power below the 10% range. The DX10V-PRL has [8] 0~10 variable outputs and [8] relay switching control outputs. That is, output 1 has a 0~10 volt output and a relay control output, both set to respond to the same DMX channel. For example, if the DMX start channel is set to 100, then output 1 of the 0~10 volt variable control and output 1 of the relay will respond to DMX channel 100. The relays have voltage and current limitations, for increased power switching, multiple relays or off-board alternate relay's may be required. See the specifications for the power switching capabilities.

The DX10V-PRL is equipped with dip switches for various setup controls, a potentiometer for setting the Stand Alone (no DMX) 0~10 volt outputs (and relay control if set below 10%), a test/setup button, and a 120 ohm DMX input termination switch. And LED indicators, red 12V power input, yellow DMX and status, and 8 green for relay status.

SETTINGS



NOTE – A RESET / RE-POWER IS REQUIRED FOR ANY DIP SWITCH SETTING CHANGES

DIP Switch's 1~9: sets the DMX512 start channel (see the DMX512 CHANNEL ASSIGNMENT TABLE document). The 1st 10 volt output and relay is controlled by the assigned DMX channel, the remaining channels respond to consecutive channels.

DIP Switch 10: UNUSED

DIP Switch 11: In the Stand Alone Mode (i.e. no DMX is present on the input terminal)

OFF (down position) = all of the outputs will be OFF and all of the relay's will be OPEN.

ON (up position) = all of the outputs will respond to the onboard pot (potentiometer) setting. If turned to the full on (counter-clockwise) position the 0~10 volt outputs will be at 10 volts and the relay's closed. As the pot is rotated the 0~10 volt output will begin to lower, once it drops below 1 volt all relay's will open. (**NOTE: Take care not to leave the pot position near the on/off threshold of the relay's, as the relay outputs may intermittently turn on and off.**)

DIP Switch 12: UNUSED

DX10V-PRL PCB Connection and User Guide

DMX to 0 ~ 10 Volt Converter with POWER Relay Control

SRev 1.00



ELM Video
Technology, Inc.

"Innovative DMX and MIDI Products"

www.elmvideotechnology.com

CONNECTIONS

POWER: Connect a +12VDC regulated to the +12V screw terminal input noting polarity (reversed or over voltage may damage the unit), the red LED will illuminate.

WARNING! *Damage may result if REVERSE VOLTAGE or OVER VOLTAGE is applied to the input voltage terminals. Take great care that the +12V and ground connections are connected as marked on the PCB.*

RELAY'S: To connect to the relay's, crimp /solder .25" wire terminals to appropriate gauge wire for the current rating of the installation, 10-12 AWG recommended. Insert the LINE IN voltage connection to the relay COM terminal by firmly pressing the wire connector until it is seated all the way down. *Caution, insure the PCB is properly mounted with all standoffs flush and while inserted add a slight side to side motion rather than straight downward force to prevent damage to the PCB.* Insert the LINE OUT voltage connection to the relay N.O. terminal - insure it's seated all the way down. *CAUTION: The N.C. terminal will have line voltage connected if the relay is off. If the N.C. terminal is not needed the LINE IN and OUT connections can be reversed to prevent voltage at this terminal.* When activate, the relay's will generate a small amount of heat without a load, insure the PCB and relay's don't exceed the maximum heat specs under full load and environmental conditions. *See the specification page for more information.*

NOTE: *A QUALIFIED ELECTRICIAN is required to interface the connections and all local electrical codes must be followed. See the specifications page of the DX10V-PRL for the proper voltage and current rating of the relays and connections to insure they are within range. The user is responsible for all uses and connections of the DX10V-PRL.*

VARIABLE 0~10 OUTPUTS: Connect the 0~10 volt outputs to the respective controllable input of devices. *See the connection diagram in this document for an example of connecting 0~10 volt LED driver(s).* The 'C' is the common connection and the 'O' is the variable 0~10 volt output. ***NOTE: The 0~10 volt outputs are low current control voltages only.***

DMX512 INPUT: Connect a DMX512 signal to the screw terminals, pins 2 and 3 respectively. Set the terminating switch to "ON" if the DMX signal ends at the DMX input terminal. If the DMX input terminal is looped to another DMX device (limit 32) then set the terminating switch to "OFF".

DX10V-PRL PCB Connection and User Guide

DMX to 0 ~ 10 Volt Converter with POWER Relay Control

SRev 1.00



OPERATION

WITH VALID DMX: The DX10V-PRL 0~10 volt outputs will vary the voltage linearly in respect to the DMX level and the corresponding relay will turn on when the DMX level is equal to or greater than 7% and will turn off when when equal to or less than 3%.

WITHOUT DMX: With DIP switch 11 in the OFF position all of the 0~10 volt outputs will be set to zero, and all of the relays will be in the open position. With DIP switch 11 in the ON, all of the 0~10 volt outputs and the relays will be set in respect to the pot (potentiometer) setting. To setup the variable output, (without DMX - indicated by the yellow LED off), rotate the pot until the desired output level is set. *Please note: Take care not to set the pot position near the on/off threshold of the relay's below 1 volt, as the relay outputs may intermittently turn on and off.* If the desired setting is below 1 volt then it is recommended to use the full off setting by placing DIP switch 11 in the OFF position.

TEST MODE: CAUTION: The Test Mode can be initiated WITH or WITHOUT valid DMX and will override the current settings and status of the unit, and will be *held indefinitely* until the Test Mode is exited or the power is reset. The Test Mode is used to FORCE ON each output, i.e. the 0~10 volt will be set to 10 volts and the corresponding relay will be in the closed position. To initiate the Test Mode, press and hold the TEST/SETUP SWITCH for 2 seconds, the yellow LED will blink rapidly, output 1 will TURN ON full and outputs 2-8 will TURN OFF. Tap the TEST/SETUP SWITCH again to advance to output 2, turning off output 1. Tap again to advance to output 3 etc. To exit at anytime, press and hold the TEST/SETUP SWITCH for 2 seconds and the unit will exit the Test Mode and resume to the appropriate status.

REINITIALIZE HARDWARE: This is factory performed and not needed unless a communications error persists. To initiate: turn off the power to the PCB, press and hold the tact switch, repower the PCB. The yellow LED will flash confirming the initialization. If the error persists contact technical support.

LED INDICATORS

RED POWER LED: +12DC is applied

YELLOW DATA/STATUS LED:

OFF = Indicates no DMX data is being received and the unit is in Stand Alone Mode

SOLID ON = Indicates DMX data is being received

SLOW BLINK = DMX communications or receive error has occurred (*reset clears, If error persists-reinitialize hardware*)

FAST BLINK = Unit is in the TEST / SETUP mode

GREEN RELAY STATUS LED's: Indicates the respective relay is closed

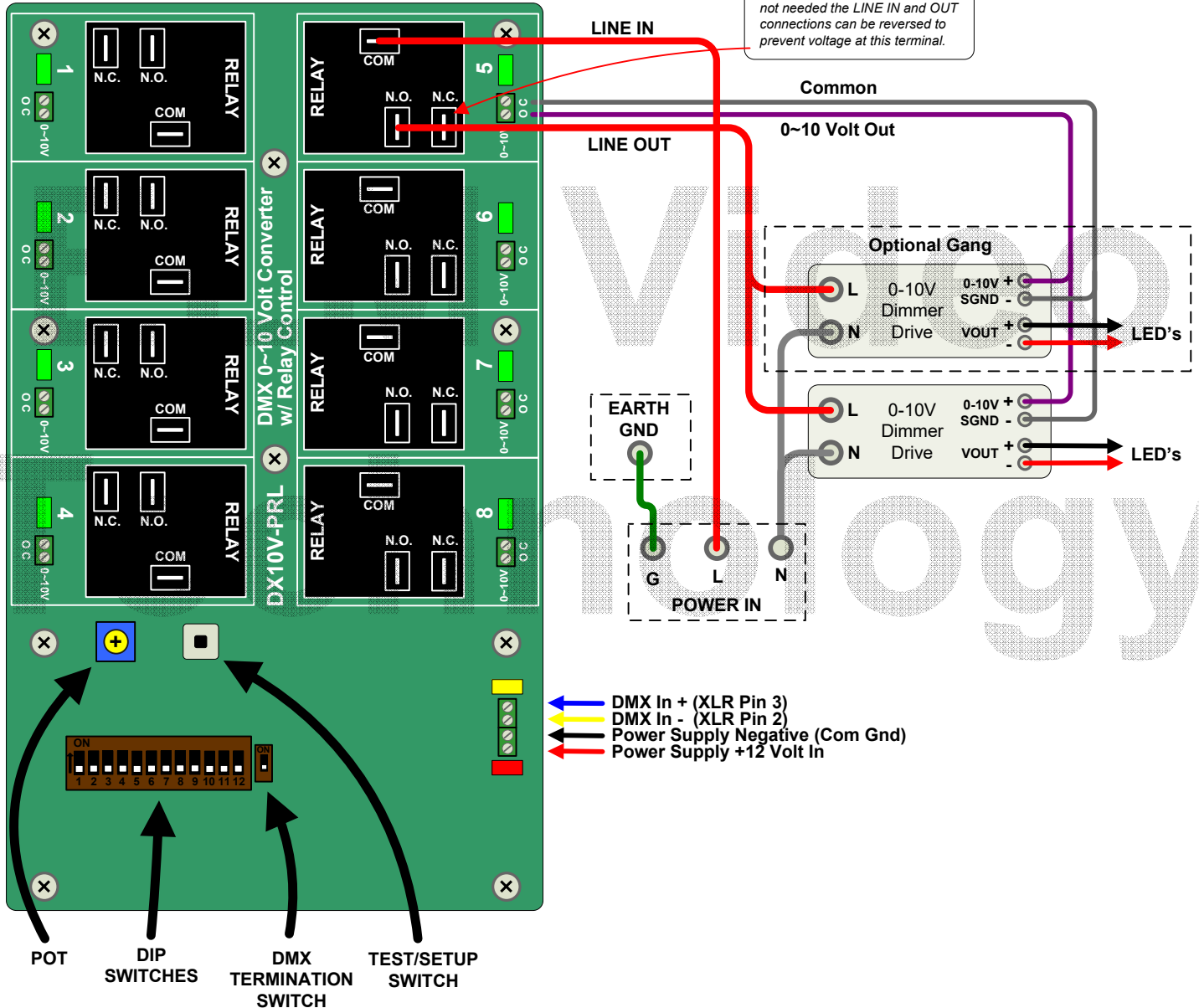
DX10V-PRL PCB Connection and User Guide

DMX to 0 ~ 10 Volt Converter with POWER Relay Control

SRev 1.00

EXAMPLE: 0-10V Converter with Relay Wiring Controlling 0-10V LED Driver(s)

CAUTION: The N.C. terminal will have line voltage connected if the relay is off. If the N.C. terminal is not needed the LINE IN and OUT connections can be reversed to prevent voltage at this terminal.



DX10V-PRL PCB Connection and User Guide

DMX to 0 ~ 10 Volt Converter with POWER Relay Control

SRev 1.00



ELM Video

Technology, Inc.

"Innovative DMX and MIDI Products"

www.elmvideotechnology.com

SPECIFICATIONS

DMX CONTROL WARNING: NEVER use DMX data devices where human safety must be maintained. NEVER use DMX data devices for pyrotechnics or similar controls.

MANUFACTURER: ELM Video Technology

PRODUCT NAME: DMX 0 to 10 Volt Analog Converter with Simultaneous Power Relays

DESCRIPTION: The DX10V-PRL converts a DMX-512 input to a variable 0 to 10 volt analog output with corresponding relays.

MPN: DX10V-PRL

MODEL: DX10V-PRL-8C20A120V

FUSE: PCB +12VDC - SMT 2A Slow

POWER INPUT: +12VDC at 930mA (each 0~10 volt output at 20mA)

0~10V SOURCE OUTPUT CURRENT: 20mA Max each (500 ohm minimum load)

0~10V SINK OUTPUT CURRENT: 10mA Max each

RELAY VOLTAGE MAX: 120VAC

RELAY CURRENT MAX: 20 Amps each (Do not exceed temperatures)

UL LISTINGS: +12VDC power supply and pre populated PCB are UL listed, (populated PCB: NO)

RELAY APPROVALS: UL E58304; CSA LR48471

RELAY CONTACT DATA: Contact arrangement: 1 form A (NO), 1 form B (NC), 1 form C (CO)

RELAY CONTACT MATERIAL: AgSnOInO, AgCdO

RELAY MIN RECOMMENDED CONTACT LOAD: 1A, 5VDC or 12VAC

RELAY FREQUENCY OF OPERATION: with/without load 360/3600hr

RELAY OPERATE/RELEASE TIME MAX, including bounce: 15/15ms

RELAY MECHANICAL ENDURANCE: 10x10⁶ operations

RELAY TERMINALS: .25" width, 10-12 AWG

DATA TYPE: DMX512 (250Khz) [*Pin 1 Not connected, Pin 2 Data -, Pin 3 Data +*]

PCB DIMENSIONS: 6.75" L x 3.68" W x 1.58" H (*excluding wire terminals*)

WEIGHT: 12oz

AMBIENT TEMPERATURE MAX: 32°F to 85°F

PCB AND RELAY OPERATING TEMPERATURE MAX: 32°F to 125°F (*Air cool if necessary*)

STORAGE TEMPERATURE: 32°F to 120°F

HUMIDITY: Non condensing

REFRESH RATE: 571 per second w 8 channels (*amount of times per second the outputs are updated*)

POWER SUPPLY: +12VDC wall mount (UL listed)

Voltage Input: 100 ~ 132 (or 240) VAC

Current Output (Min): 2 Amps

Power (Min): 24 Watts

Polarization: Positive Center

Output Connection: Wire Leads