DX10V User Guide
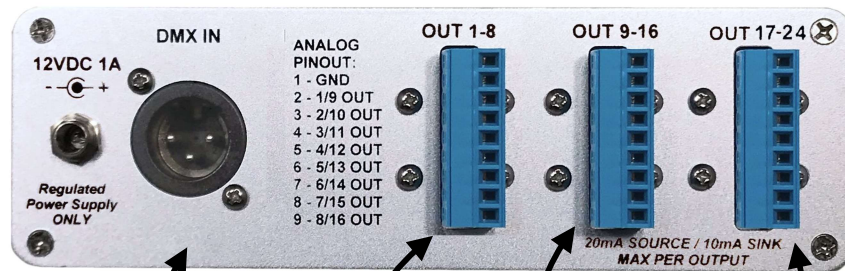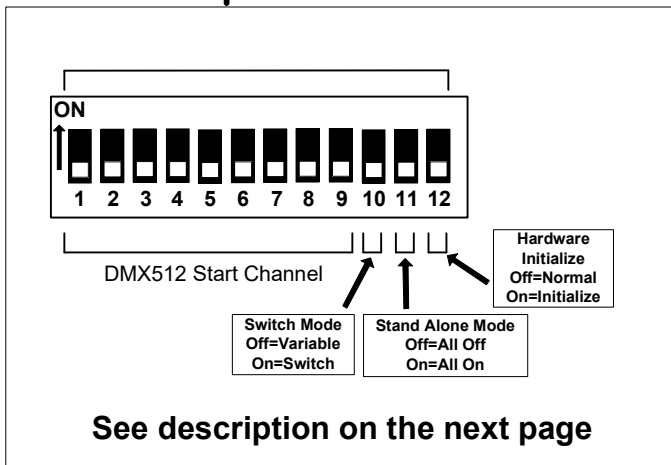## DMX to 0 ~ 10 Volt Converter
RDM E1.20 Compliant

ELM Video Technology, Inc.
"Innovative DMX and MIDI Products"

In God We Trust!

Hardware Revision 8.x, Software Revision 8.2x

ON

1 2 3 4 5 6 7 8 9 10 11 12

DMX512 Start Channel

Switch Mode
Off=Variable
On=Switch

Stand Alone Mode
Off=All Off
On=All On

Hardware Initialize
Off=Normal
On=Initialize

See description on the next page

ANALOG PINOUT:
1 - GND
2 - 1/9 OUT
3 - 2/10 OUT
4 - 3/11 OUT
5 - 4/12 OUT
6 - 5/13 OUT
7 - 6/14 OUT
8 - 7/15 OUT
9 - 8/16 OUT

20mA SOURCE / 10mA SINK
MAX PER OUTPUT

Outputs 1-8 (As equipped)	Outputs 9-16 (As equipped)	Outputs 17-24 (As equipped)
PIN OUT:	**PIN OUT:**	**PIN OUT:**
Pin 1 – Ground	Pin 1 – Ground	Pin 1 – Ground
Pin 2 - Out 1	Pin 2 - Out 9	Pin 2 - Out 17
Pin 3 - Out 2	Pin 3 - Out 10	Pin 3 - Out 18
Pin 4 - Out 3	Pin 4 - Out 11	Pin 4 - Out 19
Pin 5 - Out 4	Pin 5 - Out 12	Pin 5 - Out 20
Pin 6 - Out 5	Pin 6 - Out 13	Pin 6 - Out 21
Pin 7 - Out 6	Pin 7 - Out 14	Pin 7 - Out 22
Pin 8 - Out 7	Pin 8 - Out 15	Pin 8 - Out 23
Pin 9 - Out 8	Pin 9 - Out 16	Pin 9 - Out 24

The DMX10V is a DMX to 10 Volt Converter / Switch / Solid State Relay Driver. Control any 0-10 volt analog equipment with a DMX source such as a DMX lighting board or any device that generates a DMX (or DMX512) signal. If solid state relays are being controlled then the "switch mode" can be used for switching the outputs.

In the **VARIABLE MODE** the output voltage will vary from 0 to 10V in respect to the corresponding DMX level. For example if the DMX start channel is assigned to 10, and the level on channel 10 is 127, then the 1st output will be +5 volts, 0 = 0 volts, 255 = 10 volts etc. Each output will source 20mA (sinks 10mA). Useful for several applications including converting 10V dimmers (insure your dimmers work within these specifications).

In the **SWITCH MODE** the output voltage will either be full ON or full OFF (0V or 10V) in respect to the corresponding DMX level. Useful for non varying control voltages or driving Solid State Relays (SSR) for example. The Switch output function has a threshold of 50% that will cause the outputs to either be fully on or off. To eliminate unwanted changes at the 50% level, a padded value has been implemented. To turn ON the respective output, the DMX level must be 131 or above, to turn OFF, the level must drop to 125 or below.

<u>DMX512 Input</u> connects to the pins shown above from the DMX512 input XLR connector pins 2 and 3 respectively. The input is self terminating unless a loop through connection is provided. If so, terminate the loop through connection is this output is not used. For DX10V PCB's use the terminating switch or jumper to set.

<u>Stand Alone Mode</u> – If a DMX signal is not present the Stand Alone Mode is active. The outputs can be set to be OFF or full ON.
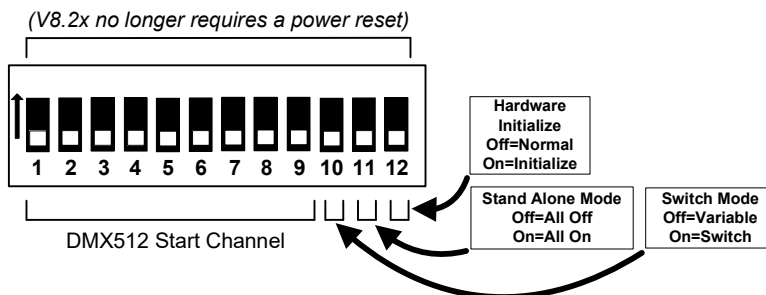
<u>Dip Switches</u> *NOTE – V8.2x no longer requires a power reset for dip switch setting changes*
Dip Switch's 1~9: *(Must be in the range of 1-511 to respond to the DMX input)* sets the DMX512 start channel *(see the DMX512 Channel Assignment Document).* The 1st 10 volt output is controlled by the assigned DMX channel, the 2nd output is controlled by the assigned DMX channel +1 (consecutively) and so on.
Dip Switch 10: sets the output mode for all outputs - OFF (down position) = VARIABLE MODE – the outputs vary with the respective DMX levels, ON (up position) = SWITCH MODE - outputs either ON or OFF set by the threshold values mentioned above.
DIP Switch 11: OFF (down position) = In the Stand Alone Mode (no DMX is present on the input terminal) all of the outputs will be OFF, ON (up position) = In the Stand Alone Mode all of the outputs will turn ON.
DIP Switch 12: OFF (down position) = Normal Operation, ON (up position) = Hardware Initialization Mode. This is factory set and not needed unless installing or uninstalling a sub module, the hardware initialize dip switch requires toggling on/off indicated with a rapid yellow LED flash. This will activate or deactivate the specific modules. This sets the internal software settings for the attached hardware.

(V8.2x no longer requires a power reset)

1 2 3 4 5 6 7 8 9 10 11 12

Hardware Initialize Off=Normal On=Initialize

Stand Alone Mode Off=All Off On=All On

Switch Mode Off=Variable On=Switch

DMX512 Start Channel

LED Indicators – POWER LED: Indicates 12VDC is connected.
DATA LED: ON = indicates DMX data is being received.
            OFF = indicates no DMX data is being received and the unit is in Stand Alone Mode
            SLOW PULSE = DMX receive error – [overrun error] (reset clears)
            RAPID PULSES = RDM Activity for this unit, indications show the DMX line is reversed in response to a request or discovery response
            FAST BLINK = Communications error(s) with the output circuits (reset clears). If this error persists reinitialize the hardware with the instructions above.

DMX10V User Guide
RDM

DX10V REVISION 8.2x

The DX10V Revision 8 release (August 2023) is now RDM E1.20 compliant. There are operational changes compared to prior revisions.

DIP SWITCHES
• The DMX start channel is now from the range of 1-511 and w/ all DMX start channel dip switches down = no response, dip 1 up =
start ch 1 etc. A DMX Calculator App can be used to determine the dip switch settings
• No re-power is required for any dip switch settings.
• The latest setting change of: DMX start channel, Variable/Switch Mode, and/or DMX Loss Directive from either the dip switches or
RDM sets will take precedence including a re-power. So dips switch settings may not show the actual setting if an RDM set
command made the change(s).

DATA LED:
• Data LED will pulse or flicker instead of flash if a DMX error occurred while still showing DMX Data present.
• Data LED will pulse anytime the respective circuit has reversed the DMX line in response to a request or discovery response

DMX VALID INDICATION:
• DMX is valid if received every 1.2 seconds (previously 1 second) per RDM standard

RDM ADDITIONS:
• RDM Type: Responder (E1.20 Compliant)
• DMX LOSS DIRECTIVE [get and set]: (since power up or reset), 00=all off, 01=all on, 010=hold
• LEVEL CAP [get and set]: 0-10V Output limits e.g. the 0-10V max of 90%
• VARIABLE/SWITCH MODE [get and set]: (via RDM and DIP)
• DMX LOSS COUNT [get and set]: up to 256 losses counted then holds at 256. Re-power and reset clears.
• Panic Switch Status [get]: – if equipped with a panic switch status is shown
• Factory Defaults [get and set]: Set level cap to 100%, Dip switches ignored, DMX start channel set to 1, DMX Loss Count cleared, DMX Loss Directive set to off, rename Device Label to ELM Video Technology, Inc.

DMX10V User Guide
Specifications

ELM Video Technology, Inc.
"Innovative DMX and MIDI Products"

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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
Name:	DMX 0 to 10 Volt Analog Converter
Description:	Converts a DMX-512 input to a variable 0 to 10 volt analog output
Model/MPN (base):	DX10V
UL Listings:	Power supply and PCB pre populated
CHASSIS:	Anodized Aluminum .093" thick RoHS compliant
Internal Fuse:	SMT 1A
Power Input:	+12VDC (apx)

           4 Channel: no load:64mA full load 145mA
           8 Channel: no load 70mA full load 230mA
           16 Channel: no load 82mA full load 402mA
           24 Channel: no load 94mA full load 574mA

Voltage Output:	0~10VDC, (500 ohm minimum load)
Source Output Current:	20mA Max each
Sink Output Current:	10mA Max each
DATA TYPE:	DMX (250Khz)
RDM:	YES – Responder - E1.20 Compliant [Software V8.20+]
Data Input:	5 (or 3) pin male XLR
	[Pin 1 Not connected, Pin 2 Data -, Pin 3 Data +]
Data Loop Output:	*(If equipped)* 5 (or 3) pin female XLR,
	[Pin 1 Looped from pin 1 of input XLR, Pin 2 Data -, Pin 3 Data +]
Dimensions:	3.7 x 6.7 x 2.1 inches
Weight:	1.5 pounds
Operating temperature:	32°F to 100°F
Storage temperature:	0°F to 120°F
Humidity:	Non condensing
Refresh Rate Per Second:	
Version 7:	4 Ch's = 3067, 8 Ch's = 1512, 12 Ch's = 1022, 16 Ch's = 746
Version 8:	8 Ch's = 1502, 16 Ch's = 739, 24 Ch's = 506
	(amount of times per second the outputs are updated)
Output Connections:	9 Pin terminal block
External Power Supply:	+12VDC wall mount
Voltage Input:	100 ~ 132 (or 240) VAC
Current Output:	1 Amps
Power:	12 Watts
Polarization:	Positive Center
Output Connector:	Locking Barrel Plug, 2.1mm I.D. x 5.5mm O.D. x 9.5mm