



DOVE SYSTEMS

MTX-HTL

**8-Channel, 0-10V Theatrical to Architectural Converter
User Manual**



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Receiving Your Unit

As soon as you have received your equipment, open the boxes and examine the contents. If the equipment in the carton does not match with your order or the packing slip, contact the factory immediately and we will be happy to help you. If any damage is noted, contact the carrier immediately to file a claim for damages. You can be sure that when the equipment left the factory it was in capable condition, thoroughly tested, and properly packed.

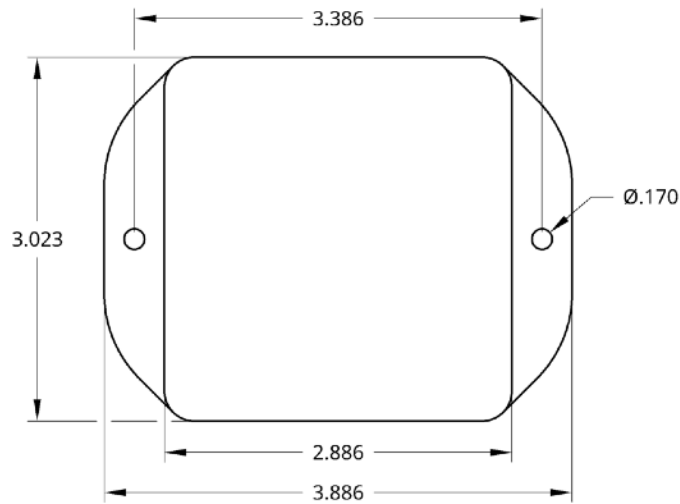
Features

This manual covers Dove Lighting Systems, Inc.'s MTX-HTL 8-Channel, 0-10V Signal Converter.

The main advantages of using 0-10V Analog signals over DMX for many light fixtures on a single channel are cost (architectural fixtures with 0-10V control tend to benefit from higher production volumes than DMX fixtures) and wiring simplicity. The simple parallel control connection works with any arbitrary topology, just like the electrical power connections to the fixtures but with low-cost twisted-pair cabling. This allows for easier installation than the strict daisy-chain requirement of DMX which requires specialized devices to implement branching topologies.

The MTX-HTL converts between two 0-10V lighting control standards that are not as compatible as their identical names imply. While both standards use the same voltage range to convey the same brightness information, the flow of current between inputs and outputs is reversed. In the theatrical standard (ESTA E1.3, Entertainment Technology - Lighting Control system - 0 to 10V Analog Control Protocol), controllers source current to the devices. This can allow simply wiring multiple outputs together resulting in a highest-takes-precedence function. However, the IEC Standard 60929 Annex E typically used in architectural lighting is common in most LED drivers and fixtures. This standard has the controls sink current from the devices to control brightness which would result in a lowest-takes-precedence situation if multiple controllers were wired together.

Since theatrical controls have very limited or no current sinking capability, they will not be able to adequately pull down the 0-10V signal especially in cases where multiple lights are controlled in parallel. Our "Highest-takes-precedence To Lowest-takes-precedence" (HTL) converter with powerful output drivers can be used to drive many architectural devices in parallel from multiple theatrical standards based controllers.



Mounting Footprint Diagram

Installation

Mechanical Installation

The signal converter has mounting flanges with screw holes accommodating #4 to #8 screws for easy wall mounting. The unit is 2.9 x 3.1 x 0.8 inches. See the drawing below for detailed dimensions, flanges, and hole locations.

Power Connections

Power must be supplied to the unit by either the +12V and Comm screw terminals or the 2.1mm center positive power jack. Less than 100mA of 12VDC (11.5 to 24) power is consumed by the converter. In some applications, it may be convenient to supply power from a standard wall adaptor using the power jack and then use the screw terminals to power the control unit(s), legacy Dove House Light Controls for example. The power LED next to the power jack will illuminate when power is present.

Signal Connections

All of the MTX-HTL's screw terminals accept 12 to 24 AWG wire.

The HTL's eight inputs and their associated commons should be connected to one or more theatrical, sourcing-output controllers.

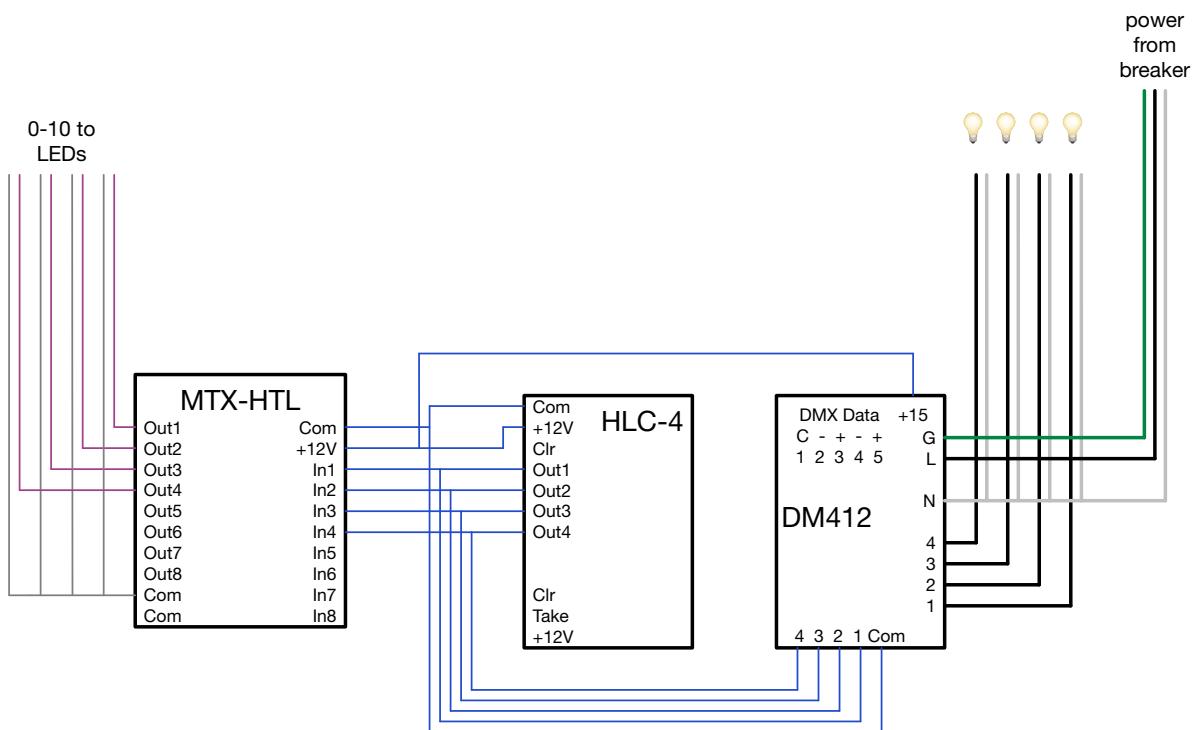
The eight sinking outputs connect to the architectural lighting 0-10V inputs. Many common fixtures and LED drivers use purple for the positive terminal that connects to the HTL's output and grey for negative to the Comm terminals.

Avoid connecting a 12V supply directly to the outputs as it is possible to permanently damage the outputs in this condition.

General Analog 0-10V Wiring Notes:

Do not run signal wires in the same conduit with AC power. Also, avoid bundling signal cables with power cables. Ideally when in close proximity, signals would cross power at right angles.

These are very low current control signals, so small wires are acceptable including Ethernet cables. Since these signals are DC they also do not require low capacitance cables like DMX. Shielded cable is preferred to minimize noise on long runs. In this case, the shield should be connected to common at the decoder, but not at the fixtures; while the negative signal is connected to common at both ends of the run. Heavier gauges can improve reliability of mechanical connections at the screw terminals. Individual 0-10V analog signals can be carried on just about any 2 conductor twisted pair cable, solid or stranded.



Example Wiring Diagram, Adding MTX-HTL & LEDs to Existing HLC System with Incandescents or Phase Controlled LEDs

In Case of Trouble

Troubleshooting

A review of the following paragraphs may save you the cost of a service visit or of shipping and repair. Even if something is still wrong, this process will help you explain the malfunction to the service technician.

First, read the operating instructions carefully. Be sure you know how to operate the equipment. Do not expect this equipment to operate exactly like others. Many apparent failures result from not being familiar with the unit's operating characteristics.

Checking if architectural lights are responding to their control input is straight forward. With the device powered, the light should be full-on when the control input is open circuit and at minimum brightness when the input is shorted. If the light or driver is powered but not on with the input open, it can be useful to check the input's voltage with a voltmeter. The powered, open-circuit input should be in the 10 to 13 volt range. If it's not in that range with nothing but the meter connected to the input, there is something wrong with the device.

Without a load connected, one may use a voltmeter to check that the outputs are within 200mV of their associated inputs when there is no load connected.

A handy trick to remember is using a 9V battery to apply a signal to one of the converter's inputs to see if the 9V is correctly passed to the output.

Obtaining Service

We are always happy to help you troubleshoot. Emailing photos of the situation to Dove@DoveSystems.com will provide a helpful point of reference for a phone call, 805-541-8292.

Service technicians are generally available between the hours of 8am to 3pm (Pacific Time) Monday through Friday. It is helpful to have a complete description of the problem and to be in the theatre or otherwise have access to the equipment when placing the call.

It is recommended that all equipment be repaired at the factory. If the unit is under warranty, it MUST be repaired at the factory. Replacement parts are available, but because the DimmerMaster packs are microcontroller based product running proprietary software, schematics CAN NOT be released.

To obtain service, please visit the Repairs page of our website, <http://www.DoveSystems.com/repairs>, download the Repair Form, and follow the instructions. We will get your Shoebox operating like new and return it quickly.

WARRANTY INFORMATION

The manufacturer agrees that the DimmerMaster shall be free from defects in material or workmanship from date of shipment over a period of one year. Said warranty will not apply if equipment is used under conditions of service for which it is not specifically intended. The manufacturer is not responsible for damage to its apparatus through improper installation, physical damage, or poor operating practice. If any device is found unsatisfactory under the warranty, the buyer should notify the manufacturer, and after receipt of shipping advice, buyer may return it directly to Dove Systems, San Luis Obispo, CA, shipping prepaid. Such equipment will be replaced or put in proper operating condition, free of all charges except transportation. The correction of any defects by repair or replacement by the manufacturer shall constitute fulfillment of all obligations to the purchaser. Manufacturer does not assume responsibility for unauthorized repairs to its apparatus, even though defective.

Manufacturer shall not be liable for any consequential damage in case of any failure to meet the conditions of any warranty of shipping schedule, nor will claims for labor, loss of profits, repairs, or other expenses incidental to replacement be allowed. No other representations, guarantees or warranties, expressed or implied, are made by the manufacturer in connection with the manufacture and sale of its equipment. This warranty is non-transferable and applies to the original buyer only.

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