

DMX512 In-line Optical Isolator

model: DMXOPTO

technical data sheet



The DMX512 optical isolator is designed to plug directly into the back of most DMX lighting consoles. Its primary purpose is to protect the console from hazardous voltages, which may appear on the control cable. Some causes of hazardous voltages include dimmer failures, electrical storms, and cross wiring non-DMX equipment (foggers, intercoms, arc welders) into lighting control outlets. The isolator also eliminates ground loops and provides high drive current for long control runs. The isolator was designed to be economical while providing thousands of volts of protection. The isolator consists of two integrated circuits (a 2500 volt optical coupler and a 60 mA line driver) mounted on two circuit boards (not even the circuit board connects the input to the output). The circuit is enclosed in a metal Switchcraft barrel connector

with 5 pin connectors for input and output (a three pin version is also available). The isolated driver is powered by a UL listed wall mount power supply. A signal present indicator is visible through a hole in the barrel to assist in troubleshooting.

The input circuit of the In-line Optical Isolator does not meet the DMX512 specification with regard to sensitivity or loading of the line. It requires a strong signal (3 volts) and places a heavy load on the line. A true DMX512 circuit requires only 0.5 volts to receive a reliable signal and up to 32 receivers can be placed on one DMX512 output. The In-line Optical Isolator should be the only device the console drives and it should be used within a few feet of the console. The In-line Optical Isolator's input circuit will not work at all if driven by a "slew-rate-limited" output circuit. These newer circuits are not currently used by many manufacturers but may become more common in the future.

Doug Fleenor Design manufactures a DMX512 Isolation Amplifier (model 121) with a fully DMX512 compatible input and output.

SPECIFICATIONS: The input circuit does not meet DMX512 specifications.
The output circuit meets or exceeds DMX512 requirements.

Input circuit:	A 6N137 Optical Coupler with series 560 Ohm resistor between pins 2 and 3. Pin 1 is not connected.
Input signal:	3 volts minimum, 12 volts maximum
Output circuit:	EIA-485 driver
Connectors:	Switchcraft 5 pin "XLR" style (3 pin optional)
Isolation:	2500 volt optical coupler
Power input:	100 - 240volts, 50/60 hertz, 5 watts
Color:	Silver connector shell with white plastic label
Weight:	0.8 pounds

DMX512 In-line Optical Isolator -- Selected Features

The following information is provided to assist you in determining if the DMX512 In-line Optical Isolator would be of benefit in your installation. If you have any questions, please feel free to call, write, or FAX us.

<u>FEATURE</u>	<u>BENEFIT</u>
Input is electrically isolated from output.	Console is protected from failed dimmers, lightning damage, and any other cause of high voltage on the control cable.
No users adjustments or controls.	Easy, fool proof installation.
DMX Pinouts are printed on isolator.	Assists in proper control wiring.
UL listed power supply.	Safety.
Metal housing.	Durability.
Utilizes Switchcraft 5 pin connectors.	Assures connectability.
Uses a 2,500 volt optical coupler.	Easily isolates line voltage failures.
Forty times faster than DMX data rate.	Reliable, high speed data throughput.
"Broken circuit board" design.	Prevents arcing across circuit board.
60 mA drive current.	Reliably drives long control cables.
In-line connector.	No additional cables are required.
Balanced, low input impedance.	Reduces "noise" induced flicker.
Input signal indicator.	Simplifies system trouble shooting.
1000 ohm equivalent input impedance.	Easily driven by DMX512 consoles.
Mr. Fleenor is active in ESTA, PLASA, and USITT	Products are designed to latest specs.
In the lighting industry since 1979.	We'll be here if you need us.
5 year warranty.	Peace of mind.

Isolation of the console from the dimmers is desirable because device failure in one of the dimmers can place damaging voltages on the control cable. Without an isolator between the dimmers and the console, this voltage can cause extensive damage to the console's microprocessor circuits. With an isolator in place, damage, if any, is restricted to the isolator. Electrical storms can also induce damaging voltages on control cables. Barring a direct strike to the system, Doug Fleenor Design Isolators effectively protect against storm damage.

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