DD8

DMX Isolator/Distribution Unit

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DD8 Output Skew Adjustment

It has been found that some DMX-controlled fixtures are not tolerant of DMX signal skew. Fixtures with unbuffered opto-isolator inputs are particularly susceptible, since the input opto-isolators induce skew at the fixtures' receiver. Unbuffered opto inputs may also induce skew directly on the DMX signal.

Signal skew is defined as the **difference** between low-to-high and high-to-low propagation delay through a device.

DMX signals passing through late-model DD8s (serial numbers D98xxx and higher) pick up very little skew - typically less than 100 nanoseconds. Signals through unmodified early DD8s (serial numbers lower than D98xxx) may be imparted with up to 450 ns skew. A good DMX receiver should tolerate up to 750 ns skew.

The early DD8s used 6N135 opto-couplers with 1500 ohm pullup resistors. This gave low-to-high propagation times of around 150 ns, and high-to-low times of around 550 ns - a total skew of typically 400 ns. The majority of DMX-controlled fixtures will exhibit no problems.

Late model DD8s use 6N137 opto-couplers (which are much faster) and exhibit very low signal skew.

Early model DD8s may be returned to the factory for modification, which involves trimming the value of the eight pullup resistors (R9 thru R16) to give equal low-high and high-low propagation delays.

The trimming procedure is performed by feeding the DD8's input with a 250 kHz square-wave (3V p-p) and observing the input and output signals on an oscilloscope (20 MHz minimum required bandwidth). The eight resistors are adjusted in turn for equal L-H and H-L delay. Resistor values may be from 1500 ohms to 3900 ohms. The Jands factory uses a purpose-built test assembly to simplify this procedure.

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