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## MDR-DIN DINrail-Mount DMX/RDM Splitter

### Quick Start Guide

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## 1.1 DMX/RDM SPLITTER

MDR-DIN is a DINrail-mounted DMX/RDM data splitter.

Two models are available:

- DMX INPUT and 4 DMX outputs via push-fit terminals
- 2 DMX IN/THRU RJ45 sockets and 4 DMX output RJ45 sockets

MDR-DIN supports RDM (Remote Device Management), see section 1.10.

MDR-DIN is powered from an external power source (9-24V DC, 5W).

## 1.2 INSTALLATION

1. Mount the unit on the DINrail.
2. Connect a suitable power source to the 9-24V DC push-fit terminals observing the correct polarity. A minimum of 5W of power is required.
3. Connect the DMX512 cables...

RJ45 Models	Push-Fit Terminal Models
Plug the DMX source cable into either DMX IN/THRU connector.	Connect the DMX source cable into the DMX INPUT terminals.
If this MDR-DIN splitter is the last device at the end of the DMX512 input cable, connect a 120-ohm resistor to the other DMX IN/THRU connector. See section 1.7 for the pin-outs. If the MDR splitter is not the last device on the line, the other DMX IN/THRU connector can be used to connect the DMX to other equipment.	If this MDR-DIN splitter is the last device at the end of the DMX512 input cable, connect a 120-ohm resistor across the DMX INPUT terminals. If the MDR splitter is not the last device on the line, the same DMX INPUT terminals can be used to connect the DMX to other equipment in parallel.
Connect the DMX512 output cable(s) to the DMX512 output connector(s).	Connect the DMX512 output cable(s) to the DMX512 output terminals.

**Note:** When multiple splitters are in circuit, use the THRU connector or a parallel of the input (rather than an output of a splitter) to feed the input of the next splitter. This ensures that the RDM timing specification is not exceeded.

## 1.3 RDM ENABLE

Some older DMX-controlled equipment is not compatible with RDM data and could flash or flicker when RDM data is present. To overcome this problem, each individual output port can have the RDM data turned off via the front-panel switches.

## 1.4 OPERATION

- The **DMX512 data LED** flashes when DMX data is present
- The **RDM data LED** flashes when RDM data is present
- The **Power LED** is lit when power is present and flashes when an RDM Identify request is received

## 1.5 DMX CABLES

Only use specific DMX data cable. The data cable must conform to the EIA485 cable requirements by providing the following specifications:

- Low capacitance
- One or more twisted pairs
- Foil and braid shielded
- Impedance of 85-150 ohms, nominally 120-ohms
- 22AWG gauge for continuous lengths over 300 metres

If you want to make your own cables LSC recommends using Beldon 9842 (or equivalent). Never use audio cable.

The end of the DMX line must be terminated (120 Ω) to prevent the signal reflecting back up the line and causing possible errors.

## 1.6 PUSH-FIT TERMINALS

The following cables are suitable for use with the push-fit terminals:

- 2.5mm<sup>2</sup> stranded wire
- 4.0mm<sup>2</sup> solid wire

Stripping length is 8mm.

Insert a small screwdriver into the slot adjacent to the cable hole. This releases the spring inside the connector. Insert the cable into the round hole then remove the screwdriver. Solid wires or wires fitted with ferrules can often be pushed directly into the connector without the use of the screwdriver. When connecting multiple cables to a single terminal the wires must be twisted together to ensure a good connection to both legs. Non-insulated bootlace ferrules can also be used for stranded cables. Ferrules are not recommended for solid cables. Insulated bootlace ferrules can also be used allowing stranded cables to be easily inserted without the need of a tool to actuate the spring release. The maximum ferrule outer diameter is 4mm.

## 1.7 RJ45 DMX CONNECTOR PIN-OUTS

RJ45 8-Pin Connector	Function
Pin 1	DMX +ve
Pin 2	DMX -ve
Pin 3	Not Connected
Pin 4	Not Connected
Pin 5	Not Connected
Pin 6	Not Connected
Pin 7	Common
Pin 8	Common

## 1.8 MDR-DIN SPECIFICATIONS

<b>Power Requirements</b>	9-24V DC, 5W
<b>Power Input Connector</b>	Quick Connect Terminals
<b>Reverse Polarity Protected</b>	Yes
<b>Input and Thru Connectors</b>	RJ45 or Quick Connect Terminals
<b>Output Connectors</b>	RJ45 or Quick Connect Terminals
<b>Number of Buffered Outputs</b>	4
<b>DMX Protocol</b>	ANSI DMX512A Standard E1.11:2008 (R2013)
<b>RDM Protocol</b>	ANSI RDM Standard E1.20:2010
<b>RDM</b>	Can be individually disabled on each output
<b>All Inputs and all Outputs Isolated</b>	Yes
<b>Galvanic Isolation Barrier</b>	1500V
<b>Short Circuit Protected</b>	Yes
<b>DMX512 Data LED</b>	Yes (Flashes when DMX data is present)
<b>RDM Data LED</b>	Yes (Flashes when RDM data is present)
<b>Power LED</b>	Yes (Flashes when RDM Identify is received)
<b>Conformity</b>	CE, RCM

**Note:** All outputs are individually isolated from each other as well as the input. Isolation is for both data and common connections and provides a galvanic barrier to 1500V. Outputs are EMI-filtered and current-limited to protect against short circuits.

## 1.9 DMX EXPLAINED

DMX512-A is the industry standard for the transmission of digital control signals between lighting equipment. It utilises just a single pair of wires on which is transmitted the level information for the control of up to 512 DMX slots (addresses or channels).

The information for each slot is sent sequentially. The level of slot 1 is transmitted, then the level of slot 2, then 3, etc., up to a maximum of 512 slots. This stream of data containing the levels for all 512 DMX slots is repeated a minimum (generally) of 44 times per second. This provides sufficient updates of channel information for smooth fade transitions.

DMX allows a controller to communicate with a device. It does not allow the device to communicate with the controller.

## 1.10 RDM EXPLAINED

RDM allows RDM-based controllers and devices to communicate with each other in bidirectional mode over the DMX cable, interleaved with the DMX512-A signal.

