



LSC CONTROL SYSTEMS V1.5 Mdr Dmx Rdm Splitter User Manual

[Home](#) » [LSC CONTROL SYSTEMS](#) » LSC CONTROL SYSTEMS V1.5 Mdr Dmx Rdm Splitter User Manual 

LSC CONTROL SYSTEMS V1.5 Mdr Dmx Rdm
Splitter User Manual



MDR

DMX / RDM Data Splitter

User Manual

LSC Control Systems ©
+61 3 9702 8000
info@lsccontrol.com.au
www.lsccontrol.com.au



Version 1.5
March 2024

info@lsccontrol.com.au
www.lsccontrol.com.au

Disclaimer

LSC Control Systems Pty Ltd has a corporate policy of continuous improvement, covering areas such as product design and documentation. To achieve this goal, we undertake to release software updates for all products on a regular basis. In light of this policy, some detail contained in this manual may not match the exact operation of your product. Information contained in this manual is subject to change without notice.

In any event, LSC Control Systems Pty Ltd cannot be held liable for any direct, indirect, special, incidental, or consequential damages or loss whatsoever (including, without limitation, damages for loss of profits, business interruption, or other pecuniary loss) arising out the use or the inability to use this product for its intended purpose as expressed by the manufacturer and in conjunction with this manual.

Servicing of this product is recommended to be carried out by LSC Control Systems Pty Ltd or its authorized service agents. No liability will be accepted whatsoever for any loss or damage caused by service, maintenance or repair by unauthorized personnel. In addition, servicing by unauthorized personnel may void your warranty.

LSC Control Systems products must only be used for the purpose for which they were intended.

Whilst every care is taken in the preparation of this manual, LSC Control Systems takes no responsibility for any errors or omissions.

Copyright Notices

“LSC Control Systems” is a registered trademark.

The contents of this manual are copyright of LSC Control Systems Pty. Ltd. © 2020.

All Trademarks referred to in this manual are the registered names of their respective owners.

lsccontrol.com.au is owned and operated by LSC Control Systems Pty Ltd.

All rights reserved.

Contact Details LSC Control Systems Pty. Ltd.

ABN 21 090 801 675

65-67 Discovery Road Dandenong South, Victoria 3175 Australia

Tel: +61 3 9702 8000

email: info@lsccontrol.com.au

web: www.lsccontrol.com.au

Contents

1 1 INTRODUCTION

1.1 1.1 Overview

1.2 1.2 Models

1.3 1.3 Options

1.3.1 1.3.1 RDM

1.3.2 1.3.2 MDRR 10 Outputs

2 2 Mounting and Connections

2.1 2.1 Rack Mount

2.2 2.2 Truss Mount

2.3 2.3 Front Panel

2.4 2.4 DMX Connections

2.4.1 2.4.1 Connecting Multiple Splitters

2.5 2.5 Power Connection

2.6 2.6 RDM Operation

3 3 DMX Information

3.1 3.1 DMX512 Cables

3.2 3.2 DMX Pin Outs

3.3 3.3 DMX512 Explained

3.4 3.4 RDM Explained

4 4 Wireless DMX512 Operation

5 5 Models

6 6 Specifications

7 7 Compliance Statements

8 Documents / Resources

8.1 References

1 INTRODUCTION

1.1 Overview

The comprehensive range of MDR professional DMX512/RDM data splitters deliver industry best protection, providing correct DMX512 earth isolation and data integrity. What else would you expect from the company who helped write the DMX512 specification in 1986 and has been releasing world-first DMX512-based products ever since.

1.2 Models

The MDR range encompasses 19" rackmount models with either 10 or 5 DMX outputs and a portable 5 DMX output version that can be either truss mounted or free standing. A choice of DMX and power connectors are available as listed below and detailed in section 5.

Models	Input/Output connectors	Features
MDRX 	5-pin XLR or 3-pin XLR	10 Outputs Rack Mount
MDRJ 	RJ45 Ethercon	10 Outputs Rack Mount
MDRR 	5-pin XLR or 3-pin XLR	5 Outputs (upgradeable to 10) Rack Mount
MDRT 	5-pin XLR or 3-pin XLR	5 Outputs Truss Mount or Freestanding

1.3 Options

1.3.1 RDM

RDM capability is an option for MDR splitters. Units can be ordered with the RDM option fitted or it can be purchased separately and retro fitted in the field. Contact your LSC agent for details on how to purchase and install the RDM option. See section 3.4 for more details on RDM.

1.3.2 MDRR 10 Outputs

The 5-output rackmount MDRR models are field upgradeable to 10-outputs with the addition of a plug-in 5 output expansion module. Contact your LSC agent for details on how to purchase and install the extra outputs option.

2 Mounting and Connections

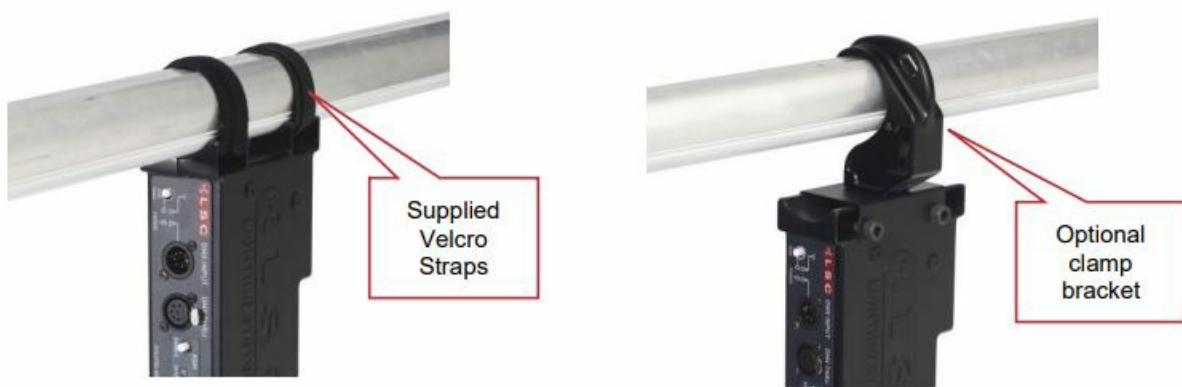
2.1 Rack Mount

MDRX, MDRR and MDRJ model splitters can be mounted in a standard 19 inch rack. They can also be placed on any flat surface.

2.2 Truss Mount

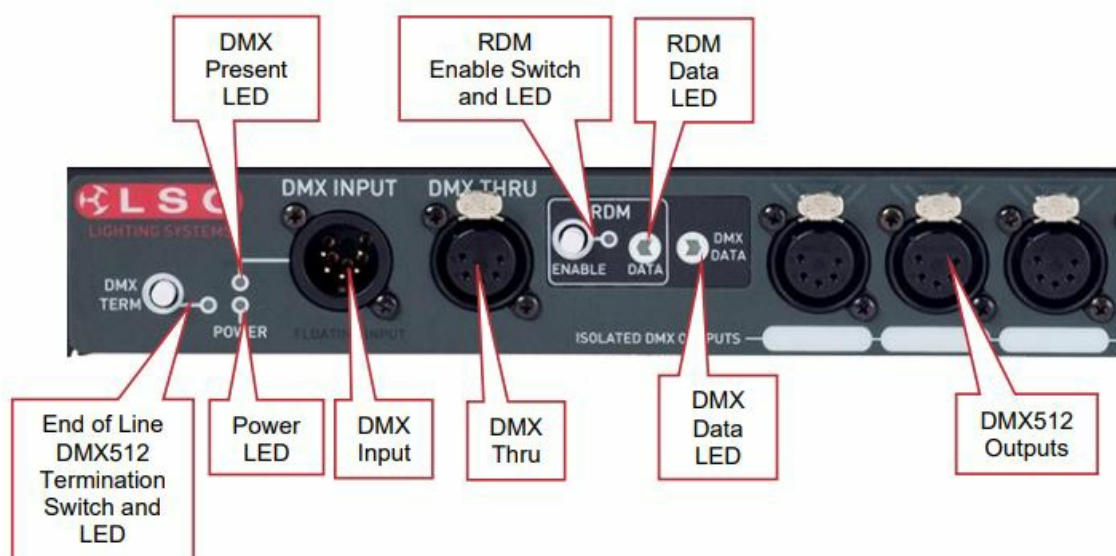
MDRT model splitters can be placed on any flat surface or can be mounted to a truss, handrails and pipes using either of two methods.

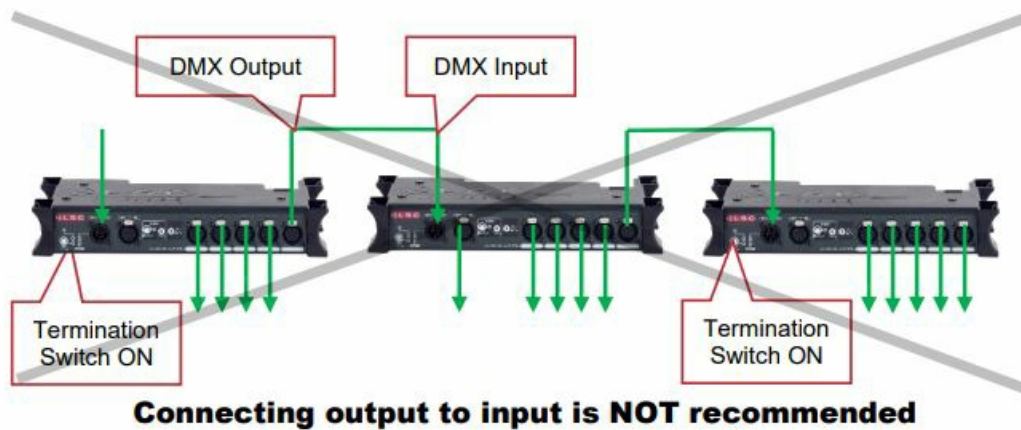
1. Two Velcro straps (supplied) can be looped through the end cavities of the plastic housing and wrapped around the truss or pipe.
2. A factory supplied option consisting of a metal bracket and fixing bolts that allows the splitter to have a coupler or hook clamp attached.



Note: All truss mounted or suspended splitters should also use a secondary form of attachment. It is recommended to feed a suitably rated safety wire or chain through the end cavities of the splitter and fasten around the pipe/truss/handrail.

2.3 Front Panel





2.5 Power Connection

All MDR splitters have a built-in switch mode universal power supply (100-240V AC) with autofrequency sensing (47-63Hz). The power input is either an IEC or powerCON connector.



The MDR is not fitted with a power switch and uses the plug as the power disconnect device. Therefore, when the MDR is in use, the power plug must be easily accessible to enable disconnection.

2.6 RDM Operation

RDM is an option for MDR splitters. See section 1.3.1.

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. To enable the MDR splitter operate in RDM mode, press the "RDM Enable" switch.

If RDM data overflows, the RDM enable LED will begin flashing and the RDM function will be disabled automatically. If an RDM device causes the RDM data stream to overflow you must isolate the offending device from the network and reset the RDM module in the MDR splitter by switching the RDM enable switch OFF, then back ON. 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 the RDM data can be turned off using the "RDM Enable" switch. Note: The MDR splitter is a 'transparent' device. It passes RDM data in both directions but is not an RDM responder itself. Therefore, it cannot be discovered by an RDM controller.

3 DMX Information

3.1 DMX512 Cables

When good quality data cables are used, DMX512 cable runs may be up to 1,000m in length. When several DMX streams are required (to feed different locations), DMX512 splitters must be used. These provide multiple isolated DMX512 output streams of the same input stream.

Note: Do not use unscreened microphone or low-speed data cables for DMX. This can cause problems in the DMX network. Make sure the cable conforms 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 ohm, nominally 120 ohm
- 22AWG gauge for continuous lengths over 300m

Cat 5 UTP (Unshielded Twisted Pair) and STP (Shielded Twisted Pair) cable is acceptable. If you want to make your own cables, LSC recommends using Beldon 9842 (or equivalent).

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

3.2 DMX Pin Outs

RJ45	
Pin Number	Function
1	+ Data
2	- Data
3	Not Used
4	Not Used
5	Not Used
6	Not Used
7	Ground
8	Ground

5 pin XLR	
Pin Number	Function
1	Ground
2	- Data
3	+ Data
4	Not Used
5	Not Used

3 Pin XLR	
Pin Number	Function
1	Ground
2	- Data
3	+ Data

3.3 DMX512 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 slot 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.

As the DMX512-A signal contains the level information for all slots, each piece of equipment needs to be able to read the level(s) of the slots(s) that apply only to that piece of equipment.

3.4 RDM Explained

RDM is an acronym for Remote Device Management, which is a protocol that overlays on the existing DMX512-A cable network using the same 3-pins of the XLR connector. The protocol has been released under the standard ANSI-E1.20-2006. Equipment connected to the DMX512-A network wishing to use the advantages of RDM, must be RDM-compatible.

Unlike DMX512-A, RDM is bidirectional. This means that outgoing messages can be responded to and reported back to the originator. This can allow RDM controllers to interrogate, control and report on any RDM-enabled devices on the network. RDM can be used to:

- Change DMX start addresses
- Report faults
- Change fixture mode settings
- Request a list of fade curves available from a dimmer rack
- Report on lamp hours usage per fixture

- Report on the temperature of dimmers and other connected devices

RDM allows a lighting console to discover all the devices connected to its outputs and even how many DMX slots each item requires. This information could then be used to auto-patch the entire rig. The user settings of all the devices could be saved as part of the show file, so that when the show is reloaded into the console, the system could ensure that all devices are still connected and working, then check that the Pan invert settings and custom dimmer curves on certain devices have not changed. In the case of a faulty moving light, a new light could be connected and the user settings (for example, DMX address, mode, tilt invert) automatically uploaded to the new unit.

RDM is backwards compatible with existing DMX512 equipment, allowing non-RDM devices to be connected to the same cable as RDM devices. The non-RDM units, if fully conforming to the DMX512-A standard, will simply ignore all the RDM data. The only exception to the rule is DMX512-A data splitters. Non-RDM units will simply block (stop) all RDM data from any devices connected downstream of the DMX512-A splitter. Therefore, any lighting system using RDM must use RDM-enabled DMX512-A data splitters.

4 Wireless DMX512 Operation

Note: This option is no longer supported or supplied by LSC. This information is only supplied for earlier MDR splitters that were fitted with this option.

For full wireless DMX512-A operation, please refer the manufacturer's websites:

Wireless Solutions (W-DMX) www.wirelessdmx.com

City Theatrical (SHOW DMX) www.citytheatrical.com

The wireless DMX512 modules supplied by LSC for the MDR range of splitters are modified receiver boards from the manufacturers listed above.

LSC do not supply wireless DMX512 transmitters. Please contact the above manufacturers for the appropriate transmitter to work with the MDR splitter.

The wireless DMX512 module can work as a sole DMX512-A input source for the splitter or as a backup source to the cable input, thus providing full redundancy for the DMX512-A cable input. If both wireless DMX512 and cable DMX512 are receiving data, the cable DMX512 input has priority. However, if there is a failure on the cable DMX512 input, the MDR splitter has an auto-switching feature that seamlessly switches the input priority to the Wireless input. When the failure on the cable DMX512 input has been rectified, the MDR splitter will automatically switch back to the cable DMX512 input.

1. Connect Power, input (if required), thru (if required) and outputs as per the DMX512 section above.
2. For Wireless Solutions W-DMX models, press and release the Function button to synchronise the receiver to the transmitter device. This process may take up to 10 seconds to synchronise. Once synchronised the Status indicator will illuminate.
3. To unlink the receiver from the transmitter, press and hold the Function button until the Status indicator goes off. The receiver is now not linked to the transmitter.
4. For City Theatrical SHOW DMX models, there are two buttons, a display and a Status indicator. The display shows four menu choices, various settings, and unit information.
The display will timeout after 10 seconds if no button activity is detected. The left and right buttons are used to move through the menus and to adjust and select settings. The Status indicator blinks red to indicate operation and No Transmitter Detected and blinks green to indicate operation and Transmitter Detected.
5. To set the receiver to respond to the SHOW DMX transmitter, you must select one of 64 different SHOW IDs that corresponds to what the transmitter is set to. Press the Menu button to activate the display. The display will show the current ID: IDxx. Press the Select button to scroll to the required ID number. The Status indicator will

blink green to indicate the receiver has synchronised to the transmitter.

- The SHOW DMX also allows you to change the Power setting. You will not need to change the setting as this will be set by LSC prior to the unit leaving the factory.

5 Models

Model	Mount	Quantity of DMX Outputs	Type of DMX Connector	Type of Power Connector
<u>MDRR/R</u>	Rack	5	5-pin XLR	IEC
<u>MDRX/R</u>	Rack	10	5-pin XLR	IEC
<u>MDRJ/R</u>	Rack	10	RJ45 Ethercon	IEC
<u>MDRR/R5N</u>	Rack	5	3-pin XLR	IEC
<u>MDRX/R5N</u>	Rack	10	3-pin XLR	IEC
<u>MDRR/RP</u>	Rack	5	5-pin XLR	powerCON
<u>MDRX/RP</u>	Rack	10	5-pin XLR	powerCON
<u>MDRJ/RP</u>	Rack	10	RJ45 Ethercon	powerCON
<u>MDRT/R</u>	Table/Truss	5	5-pin XLR	IEC
<u>MDRT/R5N</u>	Table/Truss	5	3-pin XLR	IEC
<u>MDRT/RP</u>	Table/Truss	5	5-pin XLR	powerCON

6 Specifications

DMX512-A Compatible	✓
RDM-Enabled (option)	✓
Integrated Termination Switch	✓
Galvanic Isolation Barrier (Volts)	1500
Short-Circuit Protected	✓
EMI-Filtered Outputs	✓
Universal Input Power Supply (V AC)	100-240
Auto Frequency Input Selection (Hz)	47-63
Power Supply On LED	✓
Dimensions MDRR(X/J)	480mm (w) x 44mm (h) x 110mm (d)
Dimensions MDRT	320mm (w) x 50mm (h) x 125mm (d)
Weight MDRR(X)	packed (volumetric) 2kgs
Weight MDRT	packed (volumetric) 2kgs
Construction MDRR(X/J)	All variants made from corrosion-resistant steel finished in black powder coat with rear screened polycarbonate labels
Construction MDRT	Moulded housing made from tough ABS plastic rated to UL94-V0 with rear screened polycarbonate labels
Conforms to CE Regulations	✓
RCM (Australian) approved	✓

7 Compliance Statements

The MDR DMX Splitter range from LSC Control Systems Pty Ltd meets all required CE (European) and RCM (Australian) standards.

CENELEC (European Committee for Electrotechnical Standardization).



Australian RCM (Regulatory Compliance Mark).



WEEE (*Waste Electrical and Electronic Equipment*).



The WEEE symbol indicates that the product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.



For more information about how to recycle your LSC product, contact the dealer where you purchased the product or contact LSC via email at info@lsccontrol.com.au

You can also take any old electrical equipment to participating civic amenity sites (often known as 'household waste recycling centres') run by local councils. You can locate your closest participating recycling centre using the following links.

- AUSTRALIA <http://www.dropzone.org.au>.
- NEW ZEALAND <http://ewaste.org.nz/welcome/main>
- NORTH AMERICA <http://1800recycling.com>
- UK www.recycle-more.co.uk.







– END –

Documents / Resources

	<p>LSC CONTROL SYSTEMS V1.5 Mdr Dmx Rdm Splitter [pdf] User Manual V1.5 Mdr Dmx Rdm Splitter, V1.5, Mdr Dmx Rdm Splitter, Dmx Rdm Splitter, Rdm Splitter, Splitter</p>
--	--

References

- [Search. Find. Recycle - RecycleNation](#)
- [Search. Find. Recycle - RecycleNation](#)
- [LSC](#)
- [City Theatrical Homepage](#)

-  [City Theatrical Homepage](#)
-  [LSC](#)
-  [LSC](#)
-  [Everything you need to know to Recycle More](#)
-  [Home - Wireless Solution](#)
-  [Home - Wireless Solution](#)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.