

# RDM Splitters

## Models RDS4 and RDS8

### User Manual



**ENTTEC**  
[www.enttec.com](http://www.enttec.com)

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## **Package Contents**

Your RDS4 package should contain these items:

- RDS4 (Part No. 70037)
- IEC Power Cord (Australia only)
- This user manual

Your RDS8 package should contain these items:

- RDS8 (Part No. 70036)
- IEC Power Cord (Australia only)
- This user manual

If any item is missing or damaged, please contact your supplier immediately.

# RDS 4 and RDS 8 User Manual

Firmware V1.0

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## Warranty

ENTTEC warrants that the product that it manufactures will be free from defects in materials and workmanship for a period of one year from the date of shipment from an authorised ENTTEC wholesaler. If the device proves defective within the warranty period, ENTTEC will repair or replace at its sole discretion, the defective hardware. If the failure is due to an operator error, the user accepts the responsibility to pay any costs incurred in the diagnosis of the hardware, parts or shipping from our service facility.

**ENTTEC makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall ENTTEC be liable for indirect, special or consequential damages.**

**Opening the case of the unit voids the warranty as described above.**

## Contacting ENTTEC

Email: [contact@enttec.com](mailto:contact@enttec.com)  
Telephone: +61 3 9819 2433 GMT+10  
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PO Box 282  
Kew  
Vic 3101 Australia

## Getting Support

If you require support for the RDS4 or RDS8 please visit the Support area of our website at [www.enttec.com](http://www.enttec.com). There you can fill out a support request ticket for prompt assistance with your enquiry.

# Getting to know your RDS4 or RDS8

Thank you for purchasing the RDS4 or RDS8. At Enttec we are proud of our products and we hope you will enjoy using them as much as we enjoy designing and building them.

The RDS4 and the RDS8 are hubs/splitters which are built with Remote Device Management data in mind. They can be used as the backbone for creating a bidirectional DMX512 control network where a controller that is RDM-enabled, and a number of DMX512 fixtures or dimmers (with or without the RDM technology) can communicate with each other. The RDS4 and RDS8 comply with the newest industry standard DMX512-A and RDM protocols (American National Standard E1.20-2006) and will work seamlessly with other devices that comply with those standards as well.

## Features

The RDS4 (or RDS8) provides:

- A full 512 addresses of DMX (1 universe) can be transmitted from controller out to devices, and messages from those devices sent back.
- One input which is the Male 5-pin and 4 outputs (8 in RDS8) which are Female 5-pin style.
- Two buttons which allow user to select different features: RDM enabled, RDM filtered, and Bypass.

# Layout

The RDS4 case is 1.75” (44.45mm) in height, 11.82” (300mm) wide and 4.53” (115mm) deep. This makes it easy to put on a tabletop or shelf, and with an optional mounting bracket you can place it on a truss or pipe.



RDS4 front panel

The RDS8 case is made for rack mounting in a 1unit high slot. It is 17” (432mm) wide not including rack mount ears, 1.72” (43.6mm) high and 4.36” (111mm) deep.



RDS8 front panel



Close Up of Front Panel

## 1 Signal Flow Diagram

Shows how switching works for quick reference in the field.

## 2 LED Status Display

Indicates operational status.

- SYSTEM OK: LED flashes twice per second (2Hz) when unit is healthy and not bypassed.
- DMX: LED flashes at 8Hz each time a DMX packet is received, and not bypassed.
- RDM: LED flashes at 8Hz each time a RDM packet is

received and neither bypassed nor filtered.

- **BYPASS** Lights up in a constant fashion when Bypass mode is enabled. (See page 10 for details about this mode.)

### 3 **Bypass Button**

This button allows the splitter to work in a mode which is called “Bypass” because all RDM functionality is disabled; the microprocessor which handles such tasks is not in use, and you can think of the bypassed splitter as working the same way as any typical non-RDM splitter would. For more information on this mode, see page 10.

### 4 **RDM Filter Button**

This button chooses between a normal operation of the splitter, which is to facilitate the passing of RDM messages in both directions, and a filtration mode. That means any legacy fixtures which respond poorly to the presence of RDM signals can be protected from them, eliminating flicker or other unwelcome behavior.

### 5 **XLR 5pin Male**

DMX512 Input. Connects to your DMX512 controller. If a proper DMX signal is being received, the DMX LED will flash as described above.

### 6 **XLR 5pin Female** (not shown in closeup)

DMX512 Output. Connects up to 4 (RDS4) or 8 (RDS8) cables which in turn may connect to one or more (up to 32 standard) DMX512 devices. Additional RDS splitters may be used to connect to more devices or split into more cable runs for convenience of wiring.

## **Connecting the RDS4 or RDS8**

Installation of an RDS device is as simple as plugging in the mains power and connecting your controller to the male input and your fixtures or dimmers to the females. If you wish to make or break

connections while the device is powered on, there is nothing wrong with this from the RDS device's point of view. (Some manufacturers of fixtures may specify otherwise but the normal procedure would be that sequence of plugging shouldn't matter.)

## **Power supply**

The RDS4 and RDS8 have an autoswitching power supply so that the mains can be anything from 96 to 240 volts, with 50-60 Hz AC. Connection to power turns the unit on. There is no power switch to be toggled.

## **DMX Out**

The DMX Out sockets allow you to connect the devices you are controlling to RDS splitter. Please consult standard DMX512 wiring practice (based on RS485 serial protocol if that is more familiar to you) for advice on how to arrange a DMX512 network. A good example of this can be found at [wikipedia.org](http://wikipedia.org), by searching for “DMX512”.

## **DMX In**

The DMX In socket is for making a connection to your controller or to other RDS devices that are between the controller and the RDS device being installed.

## **Electrical Isolation**

The RDS4 and the RDS8 are constructed with state of the art isolation placed next to the inputs and all the outputs. That means you have 1500V worth of protection against harmful surges and transient spikes from output to output, as well as between any of the branches and the controller plugged to the input. Many RDM capable splitters do not go to these lengths to protect your equipment, but Enttec takes this issue very seriously and provides the most comprehensive strategy practical for safely isolating the DMX lines.



## Powering up the RDS4 or RDS8

As there is no power switch, when the RDS4 or RDS8 is plugged in, it should be powered on. You can confirm this by noticing that when first connecting it, the SYSTEM OK LED status indicator light should come on and then blink regularly.

## Using the RDS4 or RDS8

There are 3 modes the RDS can be in. Normal, Filtered, or Bypassed.

<b>Normal Mode</b>	<i>Button</i>	<i>Position</i>
	<i>BYPASS</i>	<i>IN</i>
	<i>RDM FILTER</i>	<i>IN</i>

When the RDM Filter Button is pressed in (and the unit is not in Bypass mode), that signifies Normal operation. In Normal mode of operation, messages containing RDM information will be passed bidirectionally between controller and RDM responder devices connected to the outputs. Each time this happens the RDM LED will blink.

*Because the normal mode is engaged when the button is pressed in, it is safe from accidentally being disengaged by a casual press. You have to really try to change the button's position to put it into Filtered mode, which reflects what we believe will be the less common way to use the device in real world applications.*

<b><i>Filtered Mode</i></b>	<i>Button</i>	<i>Position</i>
	<i>BYPASS</i>	<i>IN</i>
	<i>RDM FILTER</i>	<i>OUT</i>

When the RDM Filter Button is not depressed (it will stick out relative to the front panel more) then your RDS device is in the Filtered Mode. The RDM LED does not blink when in this mode because no messages will be passed.

### **When to use Filtered Mode:**

There will be times when legacy equipment of an unusual type is used, which is intolerant of RDM messages, and flickering or other irregular behavior may occur. The Filtered mode is designed to correct this problem, by forwarding the DMX instructions with the RDM messages stripped out.

*Helpful Tip: Use a wiring scheme that makes the most of this feature, by placing all the legacy fixtures which are RDM-phobic on one RDS splitter if possible.*

<b><i>Bypassed Mode</i></b>	<i>Button</i>	<i>Position</i>
	<i>BYPASS</i>	<i>OUT</i>
	<i>RDM FILTER</i>	<i>n/a</i>

When you select BYPASS, regardless of the position of the RDM Filter button, the internal microprocessor is completely bypassed. The Input signal is simply copied to each of the Output connectors, regardless of what the Input signal is (ie – if RDM signals are present on the input, then RDM will be passed through to the output). However as the processor is not in use in Bypass mode,

no RDM signals will be passed back from the fixtures to the controller.

The BYPASS LED will light up to indicate that you're in this state, but none of the other LEDs (System OK, DMX etc) will be illuminated, as the processor is no longer monitoring the status of the signal being received. The outputs are still fully electrically isolated from each other and from the input.

To prevent BYPASS Mode being accidentally engaged, the BYPASS switch is designed to be OFF when depressed, or sitting flush with the outer case of the RDS splitter. To enter BYPASS Mode, the user must press and release the button, so it protrudes from case. The BYPASS LED will illuminate immediately.

### **When to use the Bypass Mode:**

In Bypass Mode the RDS provides fully isolated outputs that are replicated from the input signal, so it is suitable for use with completely non-RDM networks (ie – both console and fixtures running standard DMX-512 only) or even non-DMX protocols, such as the High End, Martin or NSI protocols in use in some older equipment.

## Appendix 1 - Connector Pinouts

### ***DMX OUT***

Pin 1	Ground
Pin 2	Data -
Pin 3	Data +
Pin 4	NC
Pin 5	NC

### ***DMX IN***

Pin 1	Ground
Pin 2	Data -
Pin 3	Data +
Pin 4	NC
Pin 5	NC

## **Appendix 2 - FCC Declaration**

### ***Federal Communications Commission (FCC) Declaration of Conformity***

Responsible Party: ENTTEC Pty Ltd  
PO Box 282,  
Kew, Vic, 3101  
Australia

declares that the products RDS4 and RDS8 comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit

different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

\* In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and television reception.

## Appendix 3 - EEC Declaration

We

ENTTEC Pty Ltd  
PO Box 282,  
Kew, Vic, 3101  
Australia

declare under our sole responsibility that our products RDS4 and RDS8 conform to the requirements of Council Directives 89/336/EEC and 73/23/EEC and therefore complies with the requirements of Council Directive 73/23/EEC, (The Low Voltage Directive) on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits as amended by Article 13 of Council Directive 93/68/EEC

- EN 55103-1
- EN 50103-2
- EN 60065/AS 3650

Signed Nicolas Moreau

Date: 4/4/2007

Position: Technical Director