

# **XTBA SMART SPLITTER**

## **5D DMX/RDM**

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## XTBA XTBA SMART SPLITTER 5 D DMX RDM – Contents

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## **XTBA SMART SPLITTER 5 D DMX RDM**

The XTBA SMART SPLITTER 5D is a single input, five output data splitter with isolation in a DIN rail mount case. Designed for use with lighting/moving light controls using USITT DMX512 (1990/1986) protocol and DMX Remote Data Management (RDM). Opto isolation is provided between the input and the five outputs. The five outputs are fully buffered so each of the five outputs can drive the DMX standard number of unit loads - 32.

### **RDM Control**

Unlike standard DMX512, RDM messages are bidirectional. The controller requests information or sets a function and the responder will give an answer to the request or acknowledge the function change. The 5D will look after all this traffic from the controller and responders.

The 5D monitors all messages and will block any responses from wrongly formatted requests.

The Smart Splitter 5D will function as a RDM device so is discoverable and can have its personality set, labels changed, comms status checked and supply information about itself. This function can be turned off – see below.

### **Output Monitoring**

The 5D continuously monitors its outputs to look for any line overloads and shorted outputs. A shorted output with normal DMX means that branch won't function, so far so obvious. But with RDM a shorted output may disable some RDM functionally or in some cases disable all RDM response messages both after the splitter and before preventing discovery of all devices.

If the 5D detects an overload on any output the red power led will flash and the splitter will block RDM responses from its inputs preventing the problem crashing all RDM traffic.

### **Input Monitoring**

The 5D also monitors its input and checks the incoming data. If it detects a problem the green data led will flash. Most commonly input connections in the wrong order or other line problems.

### **Inputs and Outputs**

Any output can be linked to another splitter's input (along with another 31 units if the mood takes you) to provide multiple DMX outputs from a single input. With multiple splitters the DMX inputs can be linked together to provide multiple isolated and buffered outputs.

Up to six splitters may be daisy chained if connected from the previous splitters output when using RDM. This limit is due to RDM turn around time.

### **Input Loop Through**

As you can see there is a DMX IN but no DMX THROUGH terminals if you need more than one unit or need to connect beyond the splitter. If you need to loop to more DMX inputs simply parallel the splitter's DMX IN connections to the next splitter or fixture's DMX IN.

### **Power Input**

Dependant on type ordered the unit can either be mains powered 120 or 230V AC or for use with led DC power supplies can be powered 9 to 48 volts DC. The power requirements are on the front label.

## **SYSTEM OPERATION**

### **Power Up Display**

On power up the splitter will check the five outputs. If a problem is detected e.g. a short on the line the power led will flash for 30 seconds. After this time the 5D will display the personality of the splitter as follows:

Flashing green data led – Clean Port On

Flashing yellow led – Clean Up All

If the 5D is in standard splitter mode (and there is no line problem) the red power led will be lit directly after power on.

**Note:** If the 5D detects a problem with the outputs unaffected outputs will still transmit DMX but the splitter will be unable to pass back replies to RDM requests from its outputs. The splitter itself will still be able to communicate RDM messages.

### **DISPLAYS**

In normal operation following power up the Smart Splitter 5D will display the following:

Red Led - Unit power. Shows that the on board power supply is active.

Green Led - DMX In. Shows if valid DMX is being received.

Yellow Led – RDM traffic. Shows when the unit is receiving valid RDM data.

Alternating Green/Yellow – RDM Identify

### **Error displays**

Flashing red led - Output overload or short.

Flashing green led – Input problem.

The led displays can be turned off using the RDM command 'Display Level'. 0% is off and 100% is on.

## **Smart Splitter 5D RDM Supported Functions**

XTBA's UID = 2C2A (first two bytes)

### **Supported PIDs**

Product Detail ID, Device Model Description, Manufacturer Label, Device Label, Factory Defaults, DMX Personality, Personality Description, Reset Device, Comms Status, Display Level.

### **Personalities**

The 5D has three RDM settable personalities:

Personality 1 : Normal RDM Splitter

The splitter will pass through DMX levels and RDM requests and responses.

Personality 2 : Clean Port On

In this mode output 1 (other end to the input) will allow DMX level messages to pass through but RDM requests are blocked. The other four outputs will run as normal.

DMX level messages have a zero start code to identify them as levels. RDM messages have code 204 and in some older DMX receivers this code is not checked. So the receiver thinks that RDM data is level data with unexpected results. By connecting 'legacy' units to output 1 the units will not receive RDM data.

Personality 3 : Clean All

In this mode all five outputs will block RDM requests as in above.

### **Splitter Lock**

The 5D is discoverable as an RDM responder. By moving the PCB mounted switch away from the leds the 5D will no longer respond to RDM messages but will still pass through RDM requests and responses.

This may be useful as it reduces the number of RDM devices on the line or once the 5D has been set up via RDM its personality can be locked.

## **POWER SUPPLY – MAINS UNIT**

The mains input to the transformer is via a 2A a/s fuse mounted on the PCB  
An Earth terminal is provided as a loop through. The unit does not need its own earth.

## **POWER SUPPLY – LOW VOLTAGE DC UNIT**

Power to the unit can be derived from a led or other DC power supply between 9 to 48 volts. The splitters input DC voltage is not polarity sensitive so either can be plus volts or common.

The unit is internally fused at 2A. The centre connector on the DC input is not used and marked 'n/c'.

**Information:**

DMX INPUT using XLRs – Just in case you have forgotten

XLR Pin 1 DMX Common – normally attached to the data pair screen

XLR Pin 2 DMX minus

XLR Pin 3 DMX Plus

XLR Pin 4/ 5 not used

Dimensions 6 DIN MODULE, WIDTH = 105mm

Weight 175g

Power 120/230VAC or 9 to 48V DC dependant on unit type

Data DMX512 1986/1990 DMX/RDM

