

XTBA SMART SPLITTER 10i DMX / RDM

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XTBA

Unit 2 The Old Curatage
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Introduction:

XTBA SMART SPLITTER 10i DMX / RDM

The XTBA SMART SPLITTER 10i/RDM is a single input, ten output data splitter with full isolation in a 1U 19" mount case. Designed for use with lighting/moving light controls using USITT DMX512 (1990/1986) protocol and DMX Remote Data Management (RDM). The ten outputs are fully buffered and individually opto isolated so each of the ten 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 10i will look after all this traffic from the controller and responders.

The 10i monitors all messages and will block any responses from wrongly formatted requests.

The Smart Splitter 10i/RDM 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.

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 unlimited multiple isolated and buffered outputs via the DMX THROUGH.

Up to six splitters may be daisy chained if connected from the previous splitters isolated outputs (1 through 10) when using RDM. This limit is due to RDM turnaround time.

Output Monitoring

The 10i/RDM 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 before and after the splitter preventing discovery of all devices.

If during a RDM request the 10i/RDM detects an overload on any output the red power led will flash and the splitter will isolate that output preventing the problem crashing all RDM traffic.

SYSTEM OPERATION

Power Up Display

On power up the splitter will check the ten 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 10i/RDM will display the personality of the splitter as follows:

If the 10i/RDM is in standard splitter mode (and there is no line problem) the red power led will be lit directly after power on.

If the 10i/RDM is set to an alternative personality the yellow RDM led will flash to indicate which personality it is set to.

- Flash x 2 - Hold Last Frame
- Flash x 3 - Clean Up All
- Flash x 4 - Clean Up All + Hold Last Frame
- Flash x 5 - Clean Port On
- Flash x 6 - Clean Port On + Hold Last Frame,

DISPLAYS

In normal operation following power up the Smart Splitter 10i/RDM will display the following:

POWER

- Red Led - Unit power. Shows that microcontroller and supply are 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.
- Yellow Led – above output 10, clean port active.
- Alternating Green/Yellow – RDM Identify

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

Smart Splitter 10i/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 10i has six RDM settable personalities: The current personality can be seen by using GET PERSONALITY DESCRIPTION or following power up via the RDM led.

Personality 1 : Normal RDM Splitter

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

Personality 2 : Hold Last Frame

The splitter will retransmit the last valid frame in the event of data loss on the input. RDM requests and responses will still be passed through.

Personality 3 : Clean Up All

The splitter will strip out any RDM data from the input data and only pass DMX level information.

Personality 4 : Clean Up All + Hold Last Frame

As above but will hold the last valid frame on the input.

Personality 5 : Clean Port On

In this personality output 10 (next to the input) will allow DMX level messages to pass through but RDM requests are blocked from this output only. The other nine outputs will operate 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 10 the units will not receive RDM data.

Personality 6 : Clean Port + Hold Last Frame

As above but will hold the last valid frame on the input.

Splitter Personality Lock

Mounted on each of the two PCBs are two option switches – as marked internally. The switches allow the 10i to be locked as a standard RDM splitter or once changed its personality can be locked. So once installed attempts to change the splitters personality can be prevented.

Unlocked / Splitter Normal Lock

The 10i is supplied with the personalities unlocked (default is personality 1 – normal RDM Splitter).

Available / Personality Locked + Locking as a standard RDM Splitter.

If both of the option switches are moved to 'splitter normal lock' and 'personality locked' on the PCBs the 10i will simply be a RDM splitter (personality 1) and the setting can not be changed using RDM commands. If a SET PERSONALITY command is received it will be ignored and the GET PERSONALITY DESCRIPTION will display LOCK.

Locking with a changed personality.

Once a personality has been changed via RDM the available / personality locked switched is changed to 'personality locked position' the current personality is locked and can not be altered via RDM. A GET PERSONALITY command will display LOCK in the current personality.

If the Unlocked / Splitter Normal Lock switch is set to Splitter Normal and the Personality is set to available the personality can be changed but on next power up the unit will default back to personality 1 – Standard Splitter

POWER SUPPLY

The mains input to the transformers is via a 2A a/s fuse and the transformer may be switched to 120 volt operation via the internal PCB mounted selection switches. A spare fuse is provided in the input connector block on the rack unit.

19" RACK MOUNTING

The XTBA Smart Splitter 10i/RDM is provided with a pair of 'ears' for fitting into a 19" rack frame. The ears are fitted to the unit by removing the two screws on either side at the front of the unit. The stick on rubber feet (used when the unit is free standing) will need to be removed from the underside of the unit.

Technical Specifications 19" Rack Front or Rear connectors

Dimensions	230/270mm including front handles x 430mm x 40mm
Weight	4.5 Kg
Power	190/250V AC Nominal 2A 240V AC
Data	DMX512 1986/1990 + DMX RDM
Pin Configuration	Pin 1 Common, Pin 2 minus data, Pin 3 plus data. Pins 4 and 5 are not connected on any connectors.

General Information

This product may only be used for controlling dimmers and moving lights. It must not be used in DMX512 applications for stage machinery or pyrotechnics. Using the product out of these specifications will remove all responsibility from the supplier.

CE Declaration of conformity

XTBA declares that the following equipment meets the requirements of the EMC Directive 89/366/EEC. WEE/FC2753ZS



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