XTBA 10i/RDM VIEW

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Unit 2 The Old Curatage
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XTBA 10i/RDM VIEW

The XTBA 10i/RDM VIEW is a 2U 19" rack single input, ten output data splitter with loop through, isolation and buffer amplifiers designed for use with lighting/moving light controls using USITT DMX512 (1990/1986) protocol and DMX RDM.

For RDM functionality please read the attached RDM section at the end of this part of the manual.

The 10i/RDM View has and on-board local control unit and is fitted with a 2 line 20 character LCD which allows the user to view channel levels, view DMX parameters, transmit DMX and alter the splitters options menu.

The unit is controlled via five buttons as follows:

Function:	Next main menu or if in a sub menu will always take you back to the top of the main menu.
Menu / Left:	Sub menus or left scroll in receive and transmit
Yes / Right:	Enter selected menu or right scroll in receive and transmit
Up:	Level/value up
Down:	Level/value down

DISPLAYS
The Smart Splitter View will display the following.
Red Power Led – On if power connected and micro controllers running, will flash on power up if an output overload detected or during RDM messages.

Green Data Led – On when valid DMX data being received or flashing if in transmit, or flashing if in Parameters and an error is detected.
Yellow RDM Led – Lit when RDM messages are being received.
Yellow Clean Port Led, next to clean port XLR – Lit if the clean port is active, set from RDM personalities.

Control Module Main Function Key Loop
Receive ➔Transmit ➔Parameters ➔User Options ➔ Smart Fix/Retime ➔

Receive – with DMX connected pressing ➔ will take you to:

C	**H**	**:**		**1**	**2**	**3**	**4**
R	**X**	**:**	**%**	**0**	**0**	**0**	**0**

In receive mode data can be viewed by using the left ← and → right keys. The screen displays channel numbers on the top line and channel levels on the lower line. On the lower left side of the display the View's mode is displayed in this case RX (for receive) followed by % or D to show percent or decimal display. If hold last frame is selected 'h' will appear following CH: on the upper line. If an RDM message is received the RX in the lower left will change to RDM.

Pushing the ← button in receive mode sends the display counting to the left. Pushing the ← key once will give one channel movement to the left. Holding it down will cause the screen to scroll until the button is released. Unsurprisingly the Right does the same but in the other direction.

The channel numbers will wrap around in either direction from 1 to 512 going left and 512 to 1 going right. Pushing both ← and → keys simultaneously will set the display back to channel one.

Transmit DMX

Pressing the → key when transmit DMX is displayed will prompt 'ARE YOU SURE' on the display. Pressing FUNCTION will loop back to receive, pressing the → key again will enter the transmit submenu.
When in transmit the splitters DMX input is disconnected and the splitters outputs (including the loop through) are controlled from the local control unit. Any RDM messages will be ignored. When in transmit the green data led will flash.

Transmit Single:

```
CHANNEL 001 TO 50%
<  >  up/down fun=esc
```

The ← and → keys will change the channel to be transmitted the up and down keys the transmitted level. Pressing both the ← and → keys will go to 001 and pressing the up/down keys will set the level to 50%

Transmit Multiple

```
CH:    1    2    3    4
TX: % 50 37 23 FF
```

TX will be displayed in the lower left of the screen. All 512 channels can be controlled using transmit. The first channel on the left of the screen can be selected by using the ← and → keys and this channel will be controlled. The up/down keys will alter the level. Pressing both the ← and → keys will go to 001 and pressing the up/down keys will set the level to 50%

Parameters Functions

In Parameters Mode the display is changed to display DMX timings and values. The top line of the display shows what is being measured the figure below is the value, as follows:

```
 BRK  MAB  SCD  CHN  SYS
  92   10   000  512   OK
```

BRK	DMX Break Time in micro seconds (us)
MAB	Mark after break time in micro seconds (us)
SCD	Start code in decimal

CHN	Number of channels
SYS	This will display OK all of the above are within the limits of DMX. If the View receives data that is outside the DMX512 specification the display will change to ERR.

When the SYS parameter shows ERR by pressing the → key, ERR will be displayed below the parameter with the error. If an error is detected when in the parameters display the green data led will fast flash.
Note DMX512 that is outside the specification will still be passed through the 10I View as the data is unaltered by the splitter.

If an RDM packet is detected the SCD display will change from 000 to RDM.

User Options
Pressing the → key when User Options is displayed enters the User Options display.

DISPLAY IN PERCENT – pressing the → button will toggle between percent and decimal (0 to 255) in both receive and transmit

Pressing the ← button will go to:
HOLD LAST FRAME – pressing the → button will set hold last frame on or off. If set - In the event of incoming data loss, hold the last correctly received DMX pass and continue to output. If this function is set then ‘h’ will appear following the CH: in the receive screen.

Pressing the function button will save the settings and go back to the receive menu.

Smart Fix/Retime DMX
Pressing the → key in the Smart Fix menu will enter the Smart Fix sub menu. Pressing the ← key will cycle through the Smart Fix options. Pressing the → key will enter the function. The Smart Fix facility is to allow some incompatible DMX systems to hopefully talk to one another. The incoming DMX (however rough or odd it may be) is stored into memory and a new DMX frame transmitted with different timings. To escape from Smart Fix press the Function key.

Transmitted parameters as follows:

Send Fast DMX - Break = 100us, Mab = 10us, IBT = 9us, updates = 42 p/s
Send Lazy DMX - Break = 122us, Mab = 34us, IBT = 30us, updates = 30 p/s
Send Slow DMX - Break = 122us, Mab = 44us, IBT = 48us, updates = 24 p/s

Hopefully one of the three types of DMX will allow the systems to communicate. In Smart Fix all RDM messages are ignored and hold last frame (if selected) temporally turned off

NOTE
If the Smart Splitter View is turned off when in Smart Fix mode, on power up the unit will automatically return to the Smart Fix mode it was last in. This allows the unit to continuously translate 'duff' DMX without user input.

XTBA 10i/RDM View - RDM Functions

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 View 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 View 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.

DISPLAYS
In normal operation following power up the View 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 or will flash in transmit mode.
Yellow Led – RDM traffic. Shows when the unit is receiving valid RDM data.
Yellow Led – next to clean port XLR, lit when clean port active.

Flashing RDM Yellow led – RDM Identify

Smart Splitter 10i/RDM View 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 splitter 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 the ‘clean port’ output 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 transformers 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 View 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 inc. front handles x 430mm x 82mm 2U
Weight	4.5 Kg
Power	100/130V or 190/250V AC Internal switch 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.

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

CE

XTBA

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