XTBA
SMART SPLITTER
5iD and 10iD

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XTBA

Unit 2 The Old Curatage
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XTBA SMART SPLITTER 5iD and 10iD

The XTBA SMART SPLITTER 5iD/10iD is a single input five output (ten output if the 10iD) data distribution isolation amplifier housed in a D rail enclosure. Designed for use with lighting/moving light controls using USITT DMX512 (1990/1986) protocol. Both units are functionally identical.

The outputs are fully opto isolated from each other and the input.
In addition to the ten or five buffered and fully isolated outputs the unit also has a data loop through so in the event of power failure data will still pass through the unit.

5iD and 10iD main features:
• Hold the last frame on data loss.
• Fade to blackout in 5 seconds on data loss if backup or hold last not set.
• Clean up and slow up DMX data.
• Record and play back two backup memories.
• A remote switch input to allow for backup memory playback, with led.
• Remote backup disable – temporally turn off the backup to turn the desk off.
• Loop through output can be switched between input or backup/retransmit.

Input power
The unit is powered from 100 to 250V AC using an autorange PSU. A 9 to 48V DC version is available. The power input requirements are on the front label.

System Operation
Displays
POWER ON via the red led. Shows that the on board power supply is active and the microcontroller is running. DATA active via the green LED. The data led will only be lit if the input is correctly formatted DMX. If the data led is flashing quickly there are multiple DMX receiver errors – probably pins 2 and 3 on the input are crossed over or a missing connection.

In normal operation the splitter will only transmit if it receives DMX (units default setting) unless hold last frame is set or ‘always transmit’ is set in installation options.
By only transmitting on reception you can tell if the desk is connected. Otherwise the data leds on receivers would always be on irrespective of the control desk.

DATA OUTPUTS
Each of the outputs is fully isolated from the input and the other outputs. The outputs are a retransmitted copy of the input retimed to correct any DMX errors.

5iD/10iD Options
There are four option switches for simple setting and three installation options to control more advanced settings.

Switch Options – switch set down.
Switch 1 – Hold and retransmit the last valid data received.
Switch 2 – Retime DMX. The received DMX will be retransmitted at half speed to allow for receivers with badly implemented input routines to understand.
Switch 3 – Backup - Playback memory one in the event of data loss.
Switch 4 – Record incoming DMX as memory one or two.

Backup Functions
The 5iD/10iD is equipped with two internal memories. Memory one is used by the splitter if the input DMX is lost. Memory two is used if the input switch is selected. The unit is supplied with channel one in memory one and channel two in memory two set to full all others at zero for testing.

Memory Playback
If switch 3 is selected in the event of DMX failure the splitter will hold the last frame received and continue checking the data input. If after 3 seconds there is no valid data the splitter will seamlessly cross fade to memory one in 5 seconds. The green data led will slowly flash to indicate the unit is running the backup playback.

If data returns the unit will check the data for 3 seconds and if correct will seamlessly cross fade back to the DMX input in 5 seconds.

Note - 'No DMX no backup'
The unit will only go to the backup memory one if the unit has seen valid DMX and then lost it. The splitter needs to see 3 seconds of correct DMX before the backup system is enabled. So if the splitter is turned on before the control desk is connected nothing will happen – see installation options to disable this function.

Memory Playback Lockout
If backup (switch 3) is selected normally the splitter will run the backup memory on data loss - see above. However this can be overridden from the lighting control desk. If channel 512 is set to full and all other channels are set to zero the unit will check this state and then temporally disable the backup. When data returns the backup system is re-enabled.

Why?
This allows the desk to be turned off without entering the splitters backup or turning off the power to the splitter. So you can go and have your dinner or go home without the splitter entering the backup mode. When you turn the desk

back on lightly refreshed from a good sleep or a good dinner on backup is re-enabled.

Recording
With the state to be recorded on the control desk on the input to the splitter the memory to be recorded is selected with the Backup switch 3. If set up the unit will record the state to memory one (the backup memory) and if set down it will record to memory two (the switch memory).

With memory one or two selected, set the record switch down.
The data led will turn off and the power led will flash. The output of the splitter will be maintained showing the state of the recorded memory. Set the record switch up and the splitter will exit record mode. You now need to put the backup switch to where you need it to be.

Switch Input
The 5iD/10iD is equipped with a normally open switch input to allow the unit to fade to memory two if DMX is not being received, or the backup system has been temporally turned off. This function allows the splitter to be independent of the main lighting control at times when the desk is not needed e.g. cleaning lights or house lights. When the switch input backup is running the red and green leds will alternate.

Example of use – If the console is turned off (and the backup locked out if set – see above) the splitter will mind its own business until the switch input is set. It will then fade to memory two allowing a maintenance lighting state for cleaning or maintenance with out the need for the main control. When the switch is pushed again the unit will fade to blackout.

If memory one backup is running pressing the switch will fade between memory one and the switch memory two. The switch now has control so when pressed again the output will fade to zero and lock out memory one until data is again seen on the DMX input.

Note – again
This function is only available if the splitter is not receiving DMX. This prevents the switch being used during the show as it is locked out.

The switch input has also a facility for a led display to be added to the switch line – see below.

Loop through and termination
The data through output is a retransmitted and buffered copy of the DMX input. The DMX input is terminated when the unit is powered. In the event of power failure the termination and re-buffering system is disconnected and data is passed directly from DMX in to DMX through.

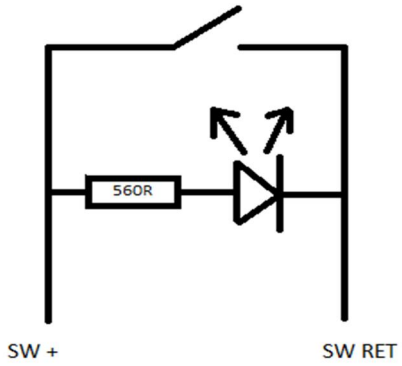
Loop through select

Inside the splitter there is a PCB mounted switch. This switch allows the data through to be either taken directly from the input, thus not being part of the retransmit/backup system or from the data sent to the outputs.

So if the switch is set to pass through, clean up mode, backup or switch mode will not be sent out to the through output. So the splitter can be used to create local zones of backup. If set to processed the data will be the same as the outputs.

Switch Input Led

If the external switch option is being used an additional led can be added across the switch to provide a display of when the switch backup is in use. A 560R resistor in series with the led is required. The anode of the led (+) needs to be connected to the switch + line and the cathode (-) to the switch return.



Installation Options

Beyond the front panel options the 5iD/10iD had three installation options. Probably you may never need them – but they are there if you do.

Setting the installation options

With the power to the unit turned off set the record switch to the down position. Set the switches below down to select the option required and then power up the unit. The power and data leds will alternate quickly to show the settings have been recorded. Turn off the unit and set the four switches to where they need to be for normal operation.

These options are only available on power up.

Switch 1 – Disable the switch input led

Setting this option will turn of the led multiplexing on the switch line so splitters can be slaved together with a single switch.

Switch 2 – ‘No DMX no backup’

Setting switch two down will permanently turn off the ‘no DMX no backup’ function. With this function turned off when the splitter is turned on with backup select switch set the unit will play back memory one if DMX is not being received. This might be handy to give a basic lighting state before the console is turned on.

Switch 3 – Always transmit
The splitters default is to only transmit once it sees valid DMX on the input. This can be turned off so the splitter will always transmit. If hold last frame is not set, on loss of data the internal memory will be cleared and the splitter will send out all levels to zero.

Defaulting the unit
By setting all the four switches down and then powering up the splitter the factory defaults are restored as follows:

Switch input led enabled – if fitted
No DMX no backup.
Always transmit off.

Technical Specifications

Protocol	DMX512 1990 / DMX512 1986
DMX Out – Normal	Break 97us, MAB 16us, 42 updates per second
DMX Out – Retime Mode	Break 192us, MAB 28us, 22 updates per second

120/230V AC auto select (or low voltage if indicated) 1A max. 2A internally fused.

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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