XTBA SMART FIX D

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Software V number

Unit 2 The Old Curatage
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XTBA DMX SMART FIX D

The XTBA DMX SMART FIX is a single input, single output DMX controller housed in a D rail enclosure. Designed for use with lighting/moving light controls using DMX512 (1990/1986) protocol. In addition the Smart Fix is fully RDM compatible so it can be used in line with a DMX/RDM system – see the RDM section at the end of the document.

The Smart Fix can be used to retime the outgoing DMX to allow receivers that lack the basic ability to receive standard DMX without falling over – a surprising number of fixtures, given that DMX has been around for over 30 years.

The DMX Break, Mark After Break (MAB) and Interbyte Time (IBT) timings may all be controlled in 10us steps. The EOP time is the delay at the end of a packet e.g. channel 512 to the next break, controlled in 50us steps.

In addition the Smart Fix can shift DMX channels left or right and limit the number of channels transmitted.

Input power

The unit is powered from 230V AC and is internally fused. A 9V 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.

DMX LOOP THROUGH

DMX in and DMX through on the Limit are the same connections. So simply parallel wire the in and through cables.

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Programing
There are four option switches for setting the DMX timing. These switches are also used to control the unit in normal operation.
Four switch LEDs will display the switch positions in either programing mode or in normal operation.

9** Programing mode – DMX Retime
Setting the hundred's address switch to 9 the Smart Fix will enter programing mode at any time and the four switch LEDs will sequence.

In order to enter programing mode all four switches must be set to off, if any switches are set the data and power LEDs will toggle until the switch is cleared.

The tens and units address switches are then used to set the value to be added to the base time.

In programing mode the switches are used as follows:
Switch 1 – Increase the break time in 10us increments – base value 100us
Switch 2 – Increase the MAB time in 10us increments – base value 10us
Switch 3 – Increase the IBT in 10us increments – base value 10us
Switch 4 – Increase the EOP time in 50us increments – base value 1200us

When the switch is opened the value selected by the tens and units address switch is added to the unit's base time and all four switch LEDs will flash to show the value is stored.

For example: Setting the tens and units address switches to 5 and closing and then opening switch 1 will add 50us to the break time making a total break of 150us. Setting any value to 00 will set the unit back to its original value for that timing parameter.

In programing mode the Smart Fix will output the time changes in real time as the value is changed. So by a combination of all four switches it should be possible to get the receiver to understand the retimed DMX data. All the switches can be used at the same time or in combination. Any closed switch will have the time added to its base time and stored when any of the switches is set to off.

When not in programing mode switch 1 must be set to use the retimed values.

Normal operation
In normal operation the four switches work as follows:
Switch 1 – Enables retime values to be used – if open DMX is not retimed.
Switch 2 – Enables DMX left shift
Switch 3 – Enables DMX right shift
Switch 4 – Enables DMX channel sent limit

Switch 2 - Left Shift e.g. Input channel 100 becomes output channel 1
If switch 2 is closed the three address switches are used to select which input channel is selected to be the first output channel. So for example setting the switches to 100 incoming DMX channel 100 will output at DMX channel 1, channel 101 will be output channel 2 etc.

Switch 3 - Right Shift e.g. Input channel 1 becomes output channel 100
If switch 3 is closed the three address switches are used to select where DMX input channel 1 will be set to in the output. So for example setting the switches to 100 incoming DMX channel 1 will output at DMX channel 100, incoming channel 2 will be output channel 101 etc.

Both left or right shifts may be useful to get around the addressing limitations of certain DMX receivers.

If left or right shift is not use the address switches in normal operation have no function.

Switch 4 – Channel Limit – can be set in power up options, below.
If switch 4 is closed the number of DMX channels transmitted will be the number set in power up options. If the channel limit number has not be changed in power up options it will use the 512 channel default. e.g. the switch doesn't do anything.

Installation power up options – hold last frame, always transmit,
The Smart Fix has four options that can be set only on power up.
With the unit turned off set the option and then power up the unit. If the setting is correct the power and data leds will toggle to show the setting is stored and the unit will enter normal operation.

702 – Set hold last fame on data loss ON
703 – Set hold last fame on data loss OFF

705 – Set always transmit ON
706 – Set always transmit OFF

This function will turn on or off DMX transmission from the unit if no DMX data is being received. If set to OFF it may be useful as if the lighting control is turned off, down stream devices will no longer be receiving DMX data from the unit so their data LEDs will be off – so now you know the desk is off.

000 – Reset to factory default.
With the unit turned off set all 4 switches to ON and set 000 on the address switches, then power up the unit. The power and data LEDs will toggle 4 times and the defaults will be loaded and stored. The unit will then enter normal operation.

The unit's factory default is: hold last frame OFF, always transmit set OFF.

Break - 100us, MAB – 10us, IBT – 10us, EOP – 1200us, 512 channels.

Power up option 810 – Set the channel length limit
Setting 810 and powering up the unit will enter channel limit programing mode. Switch 4 must be set to off. If switch 4 is set to on the unit will not enter programing mode and will start the unit as normal.

Once in length programing mode the power and data LEDs will fast toggle until the address switches are in range (1 to 512). When in range the switch 4 led will flash. Once the desired length is set close switch 4 and the length value will be stored and the power and data LEDs will toggle 4 times and the unit will enter normal operation.

Note -The minimum number of DMX channels in the DMX standard at full speed is 24 or 1196us minimum. However you might wish to send less than 24 channels and increase the IBT or EOP time.

If using channel limit with left or right shift the shifted channel may end up beyond the DMX channel limit.

RDM OPERATION
The Smart Fix is fully DMX/RDM compatible. Any RDM devices on its output may be discovered and configured from the input. The Smart Fix will pass through RDM requests and responses interleaved with DMX level data at the same time, so it can be used in real time during set up and focusing sessions. The Smart Fix itself can also be discovered and information viewed from controller.

Technical Specifications

Protocol	DMX512 1990 / DMX512 1986
DMX Out	Break 100us, MAB 10us user adjustable

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

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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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