

XTBA DMX GRAND MASTER D

ISSUE A 26/01/19
Software V number

XTBA

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Product # 11001 July 2019

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XTBA GRAND MASTER D

The **XTBA Grand Master** is a single input, single output proportional limit/boost and Grand Master controller housed in a D rail enclosure. Designed for use with lighting/moving light controls using DMX512 (1990/1986) protocol. In addition the Grand Master 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.



Large lighting controls have the ability to simply alter a single channel through multiple memories. Smaller controllers or fixed installation controls normally lack this facility. So if a fixture is changed, refocused or colour altered a level can be reduced or increased without having to reprogram the entire system.

The unit has numerous options, not all of which will be applicable to every situation, but between them all you should find what you need.

Proportional Limit

The unit is designed to allow individual channels or sequential channels to have their maximum level set proportionally to the incoming DMX by a percentage value. Any or all of the incoming DMX channel levels can be set to a maximum level. As the level changes the unit will recalculate the channels value by a percentage of the maximum value set for that channel.

Proportional Boost

The unit can also proportionally boost individual channels or sequential channel's outputs by a percentage value. Any or all incoming DMX channels will be recalculated by a percentage value and added to the incoming value to the maximum of 100%.

Block

The unit can block channels or sequential channels so the DMX output on selected channels is always zero.

Grand Master – See installation options

The output of the unit can be proportionally controlled by the front panel address switches. This has two modes:

Master ALL – all channels including boost and limit are proportionally controlled.

Master Unchanged – all channels that have not been proportionally limited or boosted have their master level controlled from the front panel address switches.

All four functions can be switched on or off from the front panel switches in normal operation.

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. If the green data led flashes incorrect data is being received, if it pulses twice DMX pins 2 and 3 are likely to be crossed over.

DMX LOOP THROUGH

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

Programing

There are four option switches for setting the proportional limits or boost values. These switches are also used to control the unit in normal operation.

Four LEDs will follow the switch positions in either programing mode or in normal operation.

999 Programing mode – Proportional Limit

Setting the address switches to **999** will enter proportional limit programing mode.

888 Programing mode – Boost Levels

Setting the address switches to **888** will enter boost programing mode.

Both limit or boost work in the same way in programing

In order to enter programing mode all four switches must be set to off, if any switches are set all four switch leds will flash until the switches are cleared. 777 will exit either programing mode at any time.

On entering programing mode in either limit or boost the DMX input is turned off and the power led will flash to show you are in 999 or 888 programing mode.

As each of the four switches is closed its led will be lit.

The switches are best used in left to right order but you can set the value before or after the switch is closed as it is only stored on the switch being opened. Programming values are retained unless overwritten unless the power is turned off so for example you need to set numerous channels at 70% you need only enter the maximum level once.

Range Errors

If the value selected is out of range its switch LED will flash. For example setting the proportional level to 110 switch one led will flash until the level is between 000 and 100.

If the end address is less than the start address switch LEDs two and three will flash until the end address is equal or greater than the start address.

If the Grand Master (Switch 4) is selected and the level is greater than 100 the switch four led will flash.

In programming mode the switches are used as follows:

Switch 1 – Set the proportional maximum level or boost level.

Range 0 to 100%.

Switch 2 – Set the start address of the proportional or boost level.

Range 1 to 512.

Switch 3 – Set the end address of the proportional or boost level.

Range 1 to 512.

Switch 4 – Calculate and store into memory.

When switches one to three are opened the LEDs will sequence left to right to show the value is set. When switch four is opened the LEDs will sequence right to left to show the values have been written into memory.

Example using 999 proportional limit setting

Close switch 1 and set the proportional value to be set – e.g. 050%

If the value is in range switch one's LED will be lit, if out of range switch one's LED will flash. If there is an error adjust the maximum level to be in range and to the value required.

Open the switch – the switch LEDs will sequence left to right to show the value has been stored.

Close switch 2 and set the start address, if in range the switch two's led will be lit, if out of range it will flash. When the value has been set open the switch, the switch LEDs will sequence left to right to show the value has been stored.

Close switch 3 and set the end address. The switch three's led will be lit. If the value is out of range the switch three led will flash slowly.

NOTE if the end address is less than the start address the switch three and four LEDs will flash quickly. If in range and not less than the start address, open the

switch, the switch LEDs will sequence left to right to show the value has been stored.

Now close and then open switch 4 to calculate and store the values. The value tables are stored in non-volatile memory and are loaded on power up. The switch LEDs will sequence right to left to show the values have been stored.

Once the settings are stored the process can be repeated to add more sequential or single limits. For example:

Proportional limit set for 50%, start address 001, end address 010.

Now add and store:

Proportional limit set for 90%, start address 100, end address 120.

Adding single channel limit/boost: 999 and 888 programming modes

Set the maximum level and then set the start address and end address to be the same value. e.g. Maximum level 50%, start address 005, end address 005. This will give a single channel at 005 to be proportionally limited to 50% or if in boost programming boost the level by 50%.

Later additions will over write existing data so sequential channels can be set and single channels or sequential channels can be added e.g.

Channels 010 to 020 are set for 90%

Now add and store

Channel 15 at 50%

Channel Blocking in proportional mode

Any channel level set to 00% will block that channel's output and send out 00%.

Programming mode exit

Exit either programming mode by setting the address switches to 777.

Remember to set the switches re enable the modes you require.

Normal operation

The three rotary address switches are only used in conjunction to set the Grand Master level with the Grand Master switch set.

They are not used to set a start address as the unit is always set to 001 and transmits 512 channels. The unit will not transmit DMX unless it is receiving DMX or set to hold last frame mode – see installation options below.

Switch 1 – Enables proportional limit on set channels.

Switch 2 – Enables block limit on set channels.

Switch 3 – Enables proportional boost on set channels

Switch 4 – Enables grand mastering via the rotary address switches

However for installation testing you might wish to turn off the proportional limit, unblock blocked channels or remove the boost function.

Installation power up options – hold last frame, always transmit and Grand Master.

The unit has three options that can be altered only on power up. With the power to the unit turned off set the address switches as follows to set the options below:

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

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, downstream 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.

708 – Grand Master ALL ON

709 – Grand Master set to UNALTERED

If set to ALL the Grand Master (if the Grand Master switch is selected) will control all channels including proportional and boost. If set to UNALTERED only channels not limited or boosted – e.g. only channels not in use (not affected) by the unit.

The power and data LEDs will toggle to show the settings are stored and the unit will enter into normal operation.

Unit default – Proportional Limit

The unit's proportional limits can be reset by setting maximum level to 100% and start address to 001 and end address to 512 and storing. The will also remove any blocked channels.

Unit default - Boost

The unit's boost values can be reset by setting maximum level to 00% and start address to 001 and end address to 512 and storing.

OR

Setting the address to 000 and set all four switches to on. Then turn off and on the unit, or if off on (if you see what I mean).

In this mode the power and data LEDs will toggle until all four switches are set to off. All proportional limits will be set to 100%, boost levels set to 00% and stored.

RDM OPERATION

DMX/RDM is fully compatible with standard DMX512.

If the control desk is not RDM it will not send a RDM request so the unit can't respond. By using RDM the address and personality can be remotely changed, product information, software version and system status found.

Any RDM devices on its output may be discovered and configured from the input. The unit 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 unit itself can also be discovered and information viewed from controller.

Technical Specifications

Protocol	DMX512 1990 / DMX512 1986 / DMX RDM
DMX Out	Break 102us, MAB 15us

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

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

CE



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