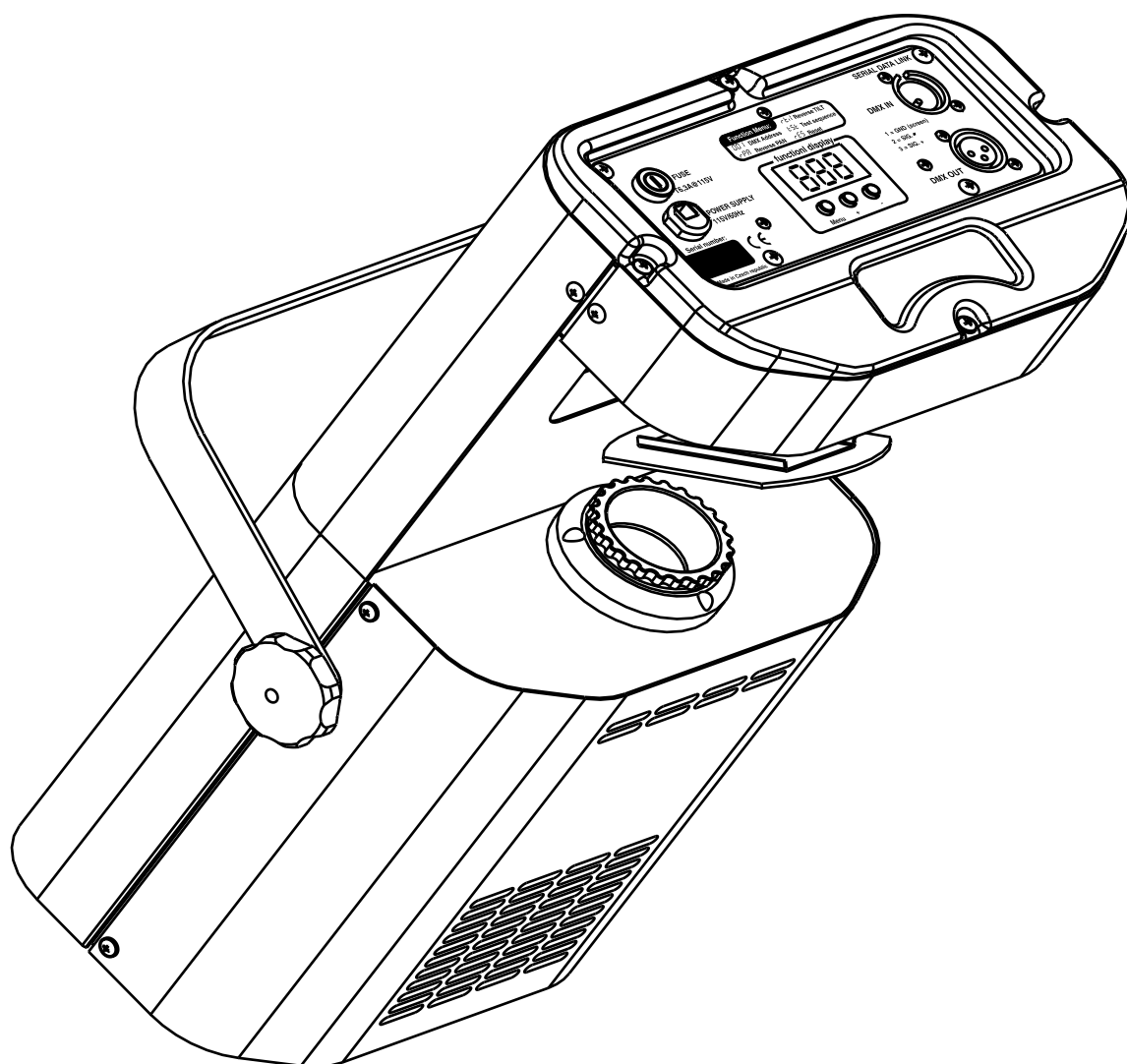


ULTRA SCAN 250

User manual

American DJ®



ULTRA SCAN

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CAUTION!
Keep this device away from rain and moisture!
Unplug mains lead before opening the housing!

**FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY
BEFORE YOU INITIAL START - UP!**

1. Safety instructions

Every person involved with installation and maintenance of this device have to:

- be qualified
- follow the instructions of this manual

CAUTION!
***Be careful with your operations. With a high voltage you can suffer
a dangerous electric shock when touching the wires!***

This device has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

Important:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

Please consider that damages caused by manual modifications to the device are not subject to warranty.

Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution!

Always plug in the power plug least. The power-plug has to be accessible after installing the device.

Make sure that the power-cord is never crimped or damaged by sharp edges. Check the device and the power-cord from time to time.

Always disconnect from the mains, when the device is not in use or before cleaning it. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.

This device falls under protection class I. Therefore it is essential to connect the yellow/green conductor to earth.

The electric connection, repairs and servicing must be carried out by a qualified employee.
Do not connect this device to a dimmer pack.

Do not switch the fixture on and off in short intervals as this would reduce the lamp's life.

During the initial start-up some smoke or smell may arise. This is a normal process and does not necessarily mean that the device is defective.

Do not touch the device's housing bare hands during its operation (housing becomes hot)!
For replacement use lamps and fuses of same type and rating only.

CAUTION ! EYEDAMAGES !
***Avoid looking directly into the light source
(meant especially for epileptics) !2. Operating determinations***

2. Operating determinations

This device was designed for indoor use only.


If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.

When taking the device into operation, please make sure that the housing is closed firmly with all the necessary screws tightened up.

Never run the device without lamp!

Do not shake the device. Avoid brute force when installing or operating the device.

When choosing the installation-spot, please make sure that the device is not exposed to extreme heat, moisture or dust. There should not be any cables lying around. You endanger your own and the safety of others!

The symbol  determines the minimum distance from lighted objects. The minimum distance between light-output and the illuminated surface must be more than 0.8 meters.

Make sure that the area below the installation place is blocked when rigging, derigging or servicing the fixture.

Always fix the fixture with an appropriate safety-rope. Fix the safety-rope at the correct holes only.

Only operate the fixture after having checked that the housing is firmly closed and all screws are tightly fastened.

The lamp must never be ignited if the objective-lens or any housing-cover is open, as discharge lamps may explode and emit a high ultraviolet radiation, which may cause burns.

The maximum ambient temperature $t_a = 45^\circ \text{C}$ must never be exceeded. Otherwise, the lamp is switched off and the fixture is out of operation for 5 minutes.

CAUTION!

The lens has to be replaced when it is obviously damaged, so that its function is impaired, e. g. due to cracks or deep scratches!

Operate the device only after having familiarized with its functions. Do not permit operation by persons not qualified for operating the device. Most damages are the result of unprofessional operation!

CAUTION!

The lamp has to be replaced when it is damaged or deformed due to the heat!

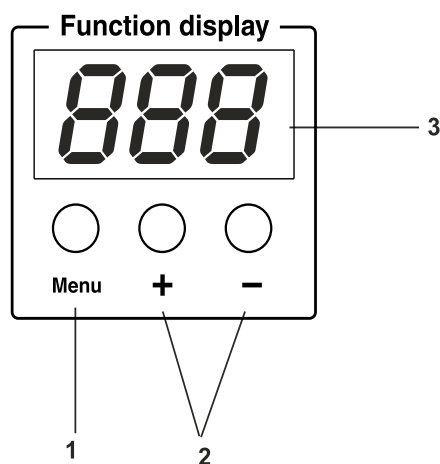
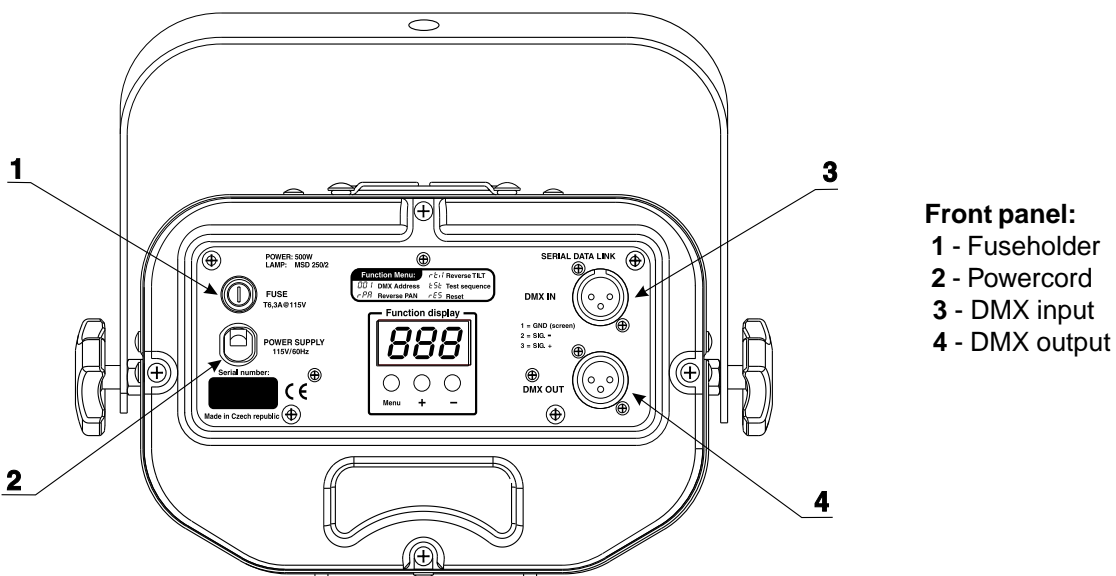
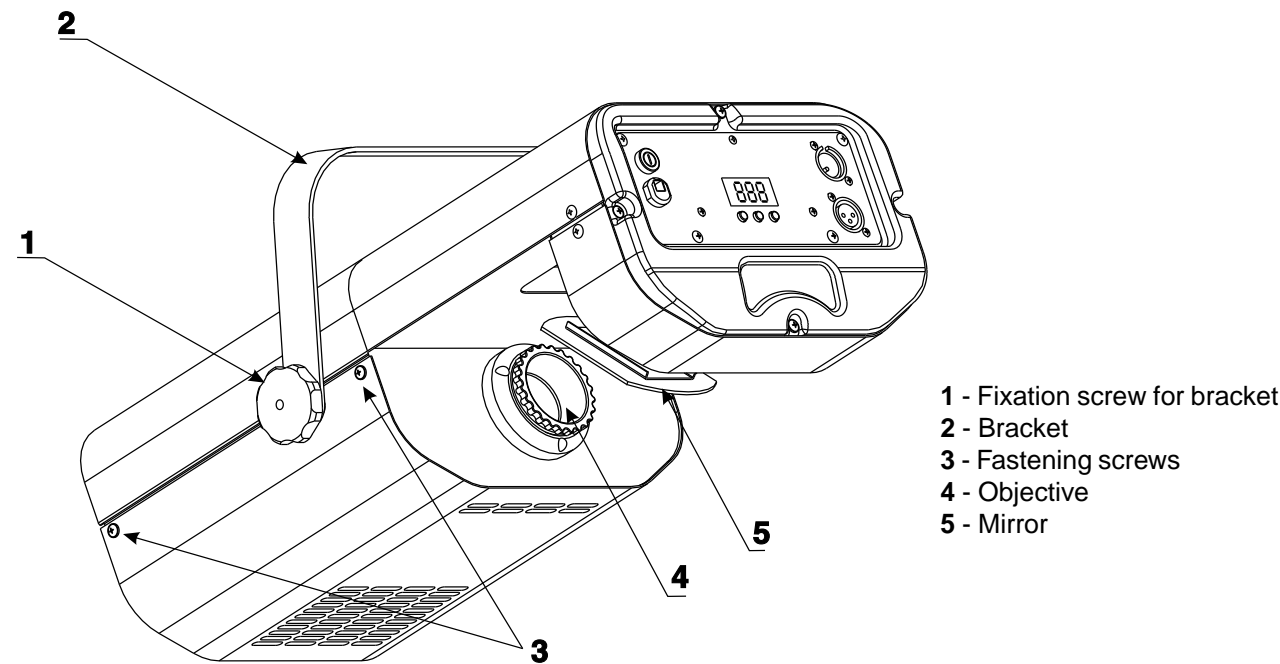
Wait at least 15 minutes before removing the lamp.

Please use the original packaging if the device is to be transported.

Please consider that unauthorized modifications on the device are forbidden due to safety reasons!

If this device will be operated in any way different to the one described in this manual, the product may suffer damages and the guarantee becomes void. Furthermore, any other operation may lead to dangers like short-circuit, burns, electric shock, burns due to ultraviolet radiation, lamp explosion, crash etc.

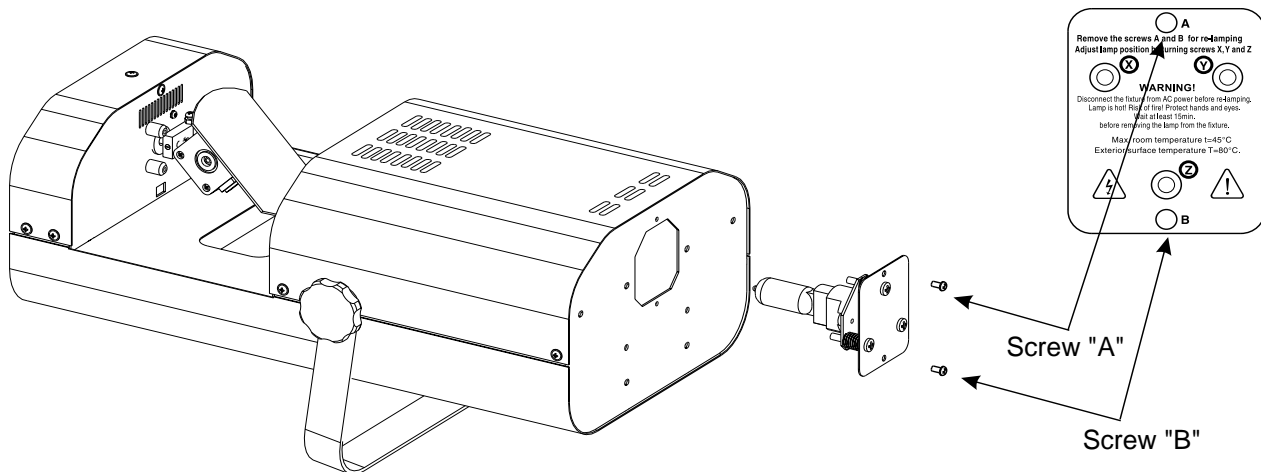
3. Description of the device



4. Installation

4.1 Fitting/Exchanging the lamp

DANGER !
Install the lamps with the device switched off only.
Unplug from mains before !



To insert the lamp (MSD/HSD 250 or MSD 250/2) open the small cover at the rear panel (see the drawing) by loosening the 2 Phillips screws „A” and „B” on the cover.

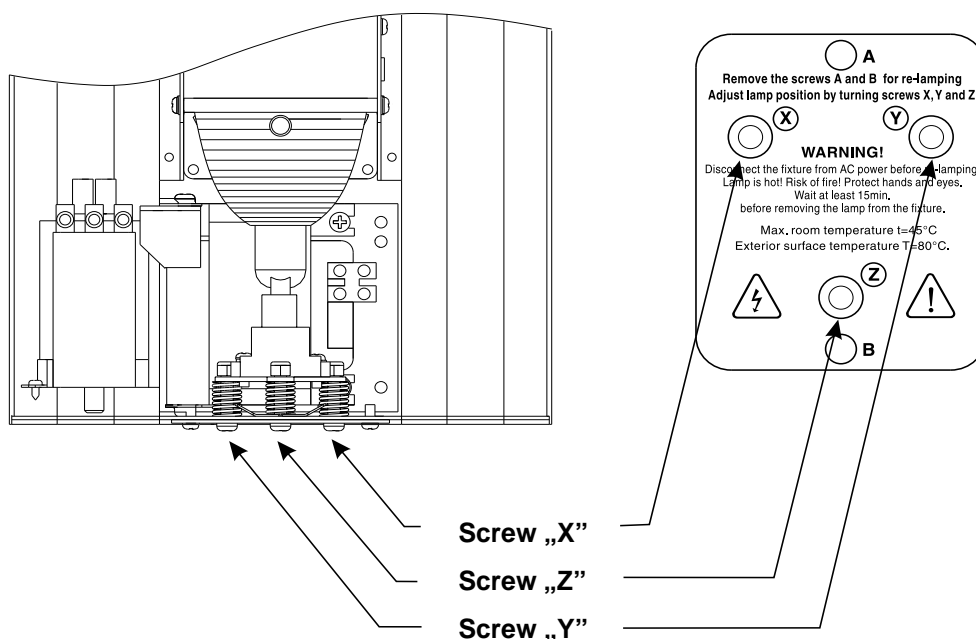
Gently pull out the lamp assembly.

If changing the lamp, remove the old lamp from the socket. Insert the lamp to the socket.

Do not install a lamp with a higher wattage! A lamp like this generates temperatures the device is not designed for. Damages caused by non-observance are not subject to warranty. Please follow the lamp manufacturer's notes! Do not touch the glass-bulb bare hands during the installation! Make sure that the lamp is installed tightly into the lampholder system.

Reinsert the lamp assembly and tighten the 2 screws again.

Do not operate this fixture with opened housing-cover!



Lamp adjustment

The lampholder is aligned at the factory. Due to differences between lamps, fine adjustment may improve light performance.

Strike the lamp and focus the light on a flat surface (wall). Center the hot-spot (the brightest part of the beam) using the 3 adjustment screws „X, Y, Z”. Turn one screw at a time to drag the hot-spot diagonally across the projected image. If you cannot detect a hot-spot, adjust the lamp until the light is even.

To reduce a hot-spot, pull the lamp in by turning all three screws „X,Y,Z” clockwise ¼-turn at a time until the light is evenly distributed.

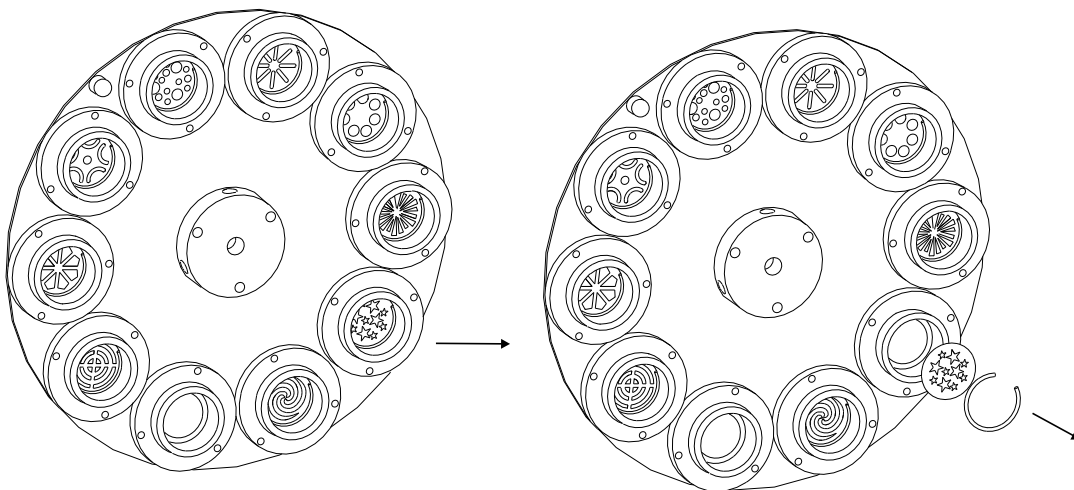
If the light is brighter around the edge than it is in the center, or if light output is low, the lamp is too far back in the reflector. „Push” the lamp out by turning the screws „X,Y,Z” counterclockwise ¼-turn at a time the light is bright and evenly distributed.

4.2 Inserting/Exchanging rotating gobos

DANGER!
Instal the gobos with the device switched off only.
Unplug from mains before!

If you wish to use other forms and patterns as the standard-gobos, or if gobos are to be exchanged, please follow the instructions below:

Remove the fixation-ring with an appropriate tool. Remove the gobo and insert the new gobo. Press the fixation-ring together and insert it in front of the gobo.



CAUTION!
Never unscrew the screws of the rotating gobo
as the ball bearing will otherwise be opened!

4.3 Rigging the fixture

The installation of the projector has to be built and constructed in a way that it can hold 10 times the weight for 1 hour without any harming deformation.

The installation must always be secured with a secondary safety attachment, e.g. an appropriate catch net. This secondary safety attachment must be constructed in a way that no part of the installation can fall down if the main attachment fails.

When rigging, derigging or servicing the fixture staying in the area below the installation place, on bridges, under high working places and other endangered areas is forbidden.

The operator has to make sure that safety-relating and machine-technical installations are approved by an expert before taking into operation for the first time and after changes before taking into operation another time.

The operator has to make sure that safety-relating and machine-technical installations are approved by an expert after every four year in the course of an acceptance test.

The operator has to make sure that safety-relating and machine-technical installations are approved by a skilled person once a year.

The projector should be installed outside areas where persons may walk by or be seated.

Important! Overhead rigging requires extensive experience, including (but not limited to) calculating working load limits, installation material being used, and periodic safety inspection of all installation material and the projector. If you lack these qualifications, do not attempt the installation yourself, but instead use a professional structural rigger. Improper installation can result in bodily injury and/or damage to property.

The projector has to be installed out of the reach of people.

If the projector shall be lowered from the ceiling or high joists, professional trussing systems have to be used.

The projector must never be fixed swinging freely in the room.

Caution: Projectors may cause severe injuries when crashing down! If you have doubts concerning the safety of a possible installation, do not install the projector!

Before rigging make sure that the installation area can hold a minimum point load of 10 times the projector's weight.

Danger of fire !
When installing the device, make sure there is no highly-inflammable material (decoration articles, etc.) within a distance of min. 0,5 m.

Mount the projector with the mounting-bracket to your trussing system using an appropriate clamp. The hole in the mounting bracket has a diameter of 10 mm.

For overhead use, always install a safety-rope that can hold at least 10 times the weight of the fixture. You must only use safety-ropes with screw-on carabines. Pull the safety-rope through the hole in the mounting-bracket and over the trussing system etc. Insert the end in the carabine and tighten the fixation screw.

Adjust the desired inclination-angle via the mounting-bracket and fix the bracket-screws tightly.


Connect the fixture to the mains with the power-plug.

4.4 Connection to the mains

The earth has to be connected!

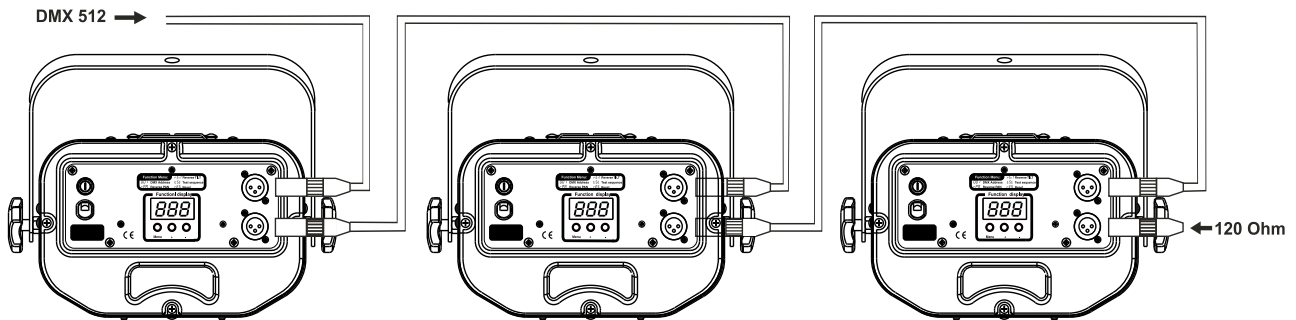
Connect the fixture to the mains with the enclosed power-plug.

The occupation of the connection-cables is as follows:

Cable	Pin	International
Brown	Live	L
Blue	Neutral	N
Yellow/Green	Earth	

DANGER TO LIFE!
**Before taking into operation for the first time,
the installation has to be approved by an expert!**

4.5 DMX-512 connection/connection between fixtures



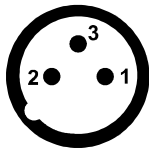
The wires must not come into contact with each other, otherwise the fixtures will not work at all, or will not work properly.

Only use a stereo shielded cable and 3-pin XLR-plugs and connectors in order to connect the controller with the fixture or one fixture with another.

Occupation of the XLR-connection:

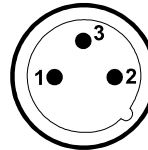
1 - Ground
2 - Signal (-)
3 - Signal (+)

DMX - output
XLR mounting-socket:



1 - Ground
2 - Signal (-)
3 - Signal (+)

DMX-input
XLR mounting-plug:



If you are using standard controllers, you can connect the DMX-output of the controller directly with the DMX-input of the first fixture in the DMX-chain. If you wish to connect DMX-controllers with other XLR-outputs, you need to use adapter-cables.

Building a serial DMX-chain:

Connect the DMX-output of the first fixture in the DMX-chain with the DMX-input of the next fixture. Always connect one output with the input of the next fixture until all fixtures are connected.

Caution: At the last fixture, the DMX-cable has to be terminated with a terminator. Solder a 120 Ohm resistor between Signal (-) and Signal (+) into a 3-pin XLR-plug and plug it in the DMX-output of the last fixture.

5. DMX PROTOCOL

Channel	Value	Function	Type of control
1	0-255	Pan Control of the pan movement	proportional
2	0-255	Tilt Control of the tilt movement	proportional
3	0 - 7 8 - 15 16 - 23 24 - 31 32 - 39 40 - 47 48 - 55 56 - 63 64 - 71 72 - 79 80 - 87 88 - 95 96 - 103 104 - 111 112 - 119 120 - 127 128 - 190 191 - 192 193 - 255	Colours Open/white Red Blue Green Yellow Amber Light green Turquoise Dark blue Cyan Pink Purple UV Red/blue Yellow/Green Blue/purple Forwards rainbow effect from fast to slow No rotation Backwards rainbow effect from slow to fast	proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional proportional step proportional
4	0 - 23 24 - 47 48 - 79 80 - 103 104 - 127 128 - 151 152 - 175 176 - 207 208 - 231 232 - 255	Rotating gobos Open/hole Rot. gobo 1 Rot. gobo 2 Rot. gobo 3 Rot. gobo 4 Rot.gobo 5 Rot.gobo 6 Rot. gobo 7 Rot.gobo 8 Rot.gobo 9	step step step step step step step step step step
5	0 - 127 128 - 190 191 - 192 193 - 255	Rotating gobo index, rotating gobo rotation Gobo indexing Forwards gobo rotation from fast to slow No rotation Backwards gobo rotation from slow to fast	proportional proportional step proportional
6	0 1 - 63 64 - 95 96 - 127 128 - 139 140 - 159 160 - 175 176 - 191 192 - 223 224 - 255	Shutter, strobe Shutter closed Gradual adjustment of the light intensity from 0 to 100% Shutter open Strobe-effect from slow to fast (max. 8 flashes/second) Reset Shutter closed Pulse-effect in sequences with increasing speed Pulse-effect in sequences with decreasing speed Random strobe-effect from slow to fast Shutter open	step proportional step proportional step step proportional proportional proportional step

6. Addressing

The control board on the top side of the ULTRA SCAN allows you to assign the DMX fixture address, which is defined as the first channel from which the ULTRA SCAN will respond to the controller.

If you set, for example, the address to channel 5, the ULTRA SCAN will use the channel 5 to 10 for control.

Please, be sure that you don't have any overlapping channels in order to control each ULTRA SCAN correctly and independently from any other fixture on the DMX data link.

If two, three or more ULTRA SCAN are addressed similarly, they will work similarly.

For address setting follow this procedure:

1. Switch On the ULTRA SCAN and wait until the fixture reset has finished ("rES" is flashing at the display).
2. Browse through the menu by pressing the [+] and [-] keys until the display shows current address "001".
Confirm by pressing [Menu] key and "001" will start to flash frequently.
3. Use the [+] and [-] keys to select the desired address.
4. Confirm by pressing [Menu] .

Controlling:

After having addressed all ULTRA SCAN, you may now start operating these via your lighting controller.

Note:

After switching on, the ULTRA SCAN will automatically detect whether DMX 512 data are received. If there are not received these data's at the DMX input, the display will start to flash slowly "001" with actually set address.

This situation can be occurred if:

there is not connected the 3 PIN XLR plug (cable with DMX signal from controller) in the input of the ULTRA SCAN

the controller is switch Off or is failed

the cable or connector is failed or the signal wires are swap in the input connector.

Note:

It's necessary to insert the XLR termination plug (with 120 Ohm) in the last lighting in the link in order to ensure proper transmission on the DMX data link.

7. Control Board

The control board situated on the top side of the ULTRA SCAN offers several features. You can simply set the lighting address, run test show, make a reset and also use special functions.

Browse through the menu by the pressing [+] and [-] keys - the display shows step by step these messages: "001, rPA, rtil, tSt, rES". Press [Menu] if you wish to select one of them. The functions provided are described in the following sections and the function hierarchy is shown below.

8. Main functions



DMX 512 Address settings

The "001" flashes. Use the [+] and [-] keys to select required address (001 - 507) and press [Menu] to confirm and return to the main menu.



Pan reverse

This function allows you to invert the pan movement. Use the [+] and [-] keys to select "On" if you wish this feature or "Off" if you don't wish this feature and press [Menu] to confirm and return to the main menu.



Tilt reverse

This function allows you to invert the tilt movement. Use the [+] and [-] keys to select "On" if you wish this feature or "Off" if you don't wish this feature and press [Menu] to confirm and return to the main menu.



Test program

This function allows you to run a special test program without an external controller, which show you some possibilities of using ULTRA SCAN. Press the [Menu] key to run the test program, the "tSt" will start to flash.



Reset Function

Press [Enter] key to run reset. This option enables the ULTRA SCAN to index all effects (functions) and return to their standard positions.

8.1 Special functions - calibration

Run a test program, "tSt" must flashing. Press [+] and [-] keys together and hold them until the display will show message "C08" meaning the calibration value of the colour wheel. Use [+] and [-] keys to adjust a new calibration value from range "C00 - C15", the wheel moves in microsteps, so you can easily center current colour.

Press [Menu], on the display will appear message "G08", meaning the calibration value of the gobo wheel. Use [+] and [-] keys to adjust a new calibration value from range "G00 - G15", the wheel also moves in microsteps, so you can easily center current gobo. Now press [Menu] in order to go back to colour calibration (display shows current colour calibration value) or press and hold [Menu] key until the display will show "tSt" in order to finish calibration procedure.

9. Technical specifications

Power supply:

- Voltage.....100/115/208/230 V AC, 50/60 Hz ~
- Fuse.....T 6,3 A@ 115V
- Power consumption.....500VA

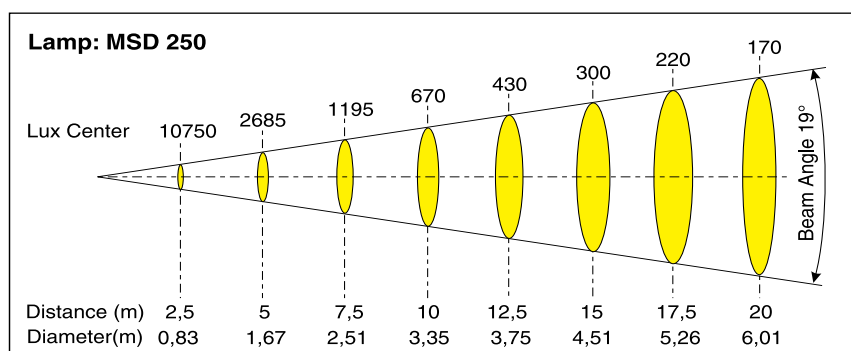
Lamp:

- MSD/HSD 250, MSD 250/2, GY-9.5

Optical System:

- High reflecting aluminium-coated parabolic reflector
- Manual focus
- Standard 19° focused beam angle

Beam path:



Colours:

- 11 dichroic-filters plus white
- UV-filter
- 3 dichroic semicolours filters
- Colour-wheel with variable rotation speed

Rotating gobos:

- 9 metal gobos plus open
- Gobo indexing
- The gobos have an outside diameter of 16 mm and an image diameter of 13 mm.

Strobe:

- Strobe effect with variable speed (1 - 8 flashes per second)

Motor:

- 6 high quality stepping-motors controlled by microprocessors

Electronics:

- Intelligent control panel with 3-digit LED display allowing: addressing PAN and TILT reverse, effect calibration, reset of the unit and built-in test sequence running
- Digital serial input DMX-512
- 6 control-channels:
 - Channel 1: Horizontal mirror-movement (Pan)
 - Channel 2: Vertical mirror-movement (Tilt)
 - Channel 3: Colour-wheel
 - Channel 4: Rotating gobos
 - Channel 5: Rotating gobo index, rotating gobo rotation
 - Channel 6: Shutter, strobe

Housing:

- Easy access to lamp and main components thanks to large opening cover and the projector's modular construction.

Temperatures:

- Maximum ambient temperature t_a : 45° C
- Maximum housing temperature t_b (steady state): 80° C

Minimum distances:

- Min.distance from flammable surfaces: 0,5m
- Min.distance to lighted object: 0,8m

Dimensions and weight:

- L x W x H: 495 x 280 x 170 mm
- Weight: 13 kg

10. Maintenance and cleaning

The operator has to make sure that safety-relating and machine-technical installations are inspected by an expert after every four years in the course of an acceptance test.

The operator has to make sure that safety-relating and machine-technical installations are inspected by a skilled person once a year.

The following points have to be considered during the inspection:

- 1) All screws used for installing the devices or parts of the device have to be tightly connected and must not be corroded.
- 2) There must not be any deformations on housings, fixations and installation spots (ceiling, suspension, trussing).
- 3) Mechanically moved parts like axles, eyes and others must not show any traces of wearing (e.g. material abrading or damages) and must not rotate with unbalances.
- 4) The electric power supply cables must not show any damages, material fatigue (e.g. porous cables) or sediments. Further instructions depending on the installation spot and usage have to be adhered by a skilled installer and any safety problems have to be removed.

DANGER TO LIFE!
Disconnect from mains before starting maintenance operation!

It is absolutely essential that the fixture is kept clean and that dust, dirt and smoke-fluid residues must not build up on or within the fixture. Otherwise, the fixture's light-output will be significantly reduced. Regular cleaning will not only ensure the maximum light-output, but will also allow the fixture to function reliably throughout its life.

Please use a moist, lint-free cloth. Never use alcohol or solvents!

The front mirror objective lens will require weekly cleaning as smoke-fluid tends to building up residues, reducing the light-output very quickly. The cooling-fans should be cleaned monthly.

The gobos may be cleaned with a soft brush. The interior of the fixture should be cleaned at least annually using a vacuum-cleaner or an air-jet.

The dichroic colour-filters, the rotating gobo-wheel and the internal lenses should be cleaned monthly.

To ensure a proper function of the rotating gobo-wheel, we recommend lubrication in six month intervals. The quantity of oil must not be excessive in order to avoid that oil runs out when the gobo-wheel rotates.

There are no serviceable parts inside the device except for the lamp and the fuse. Maintenance and service operations are only to be carried out by authorized dealers.

Please refer to the instructions under „Fitting/Exchanging the lamp“.

Replacing the fuse

If the lamp burns out, the fine-wire fuse of the device might fuse, too. Only replace the fuse by a fuse of the same type and rating .

Before replacing the fuse, unplug mains lead.

Procedure:

Step 1: Unscrew the fuse holder on the front panel with a fitting screwdriver from the housing (anti-clockwise).

Step 2: Remove the old fuse from the fuseholder.

Step 3: Install the new fuse in the fuseholder.

Step 4: Replace the fuseholder in the housing and fix it.

Should you need any spare parts, please use genuine parts.

If the power supply cable of this device becomes damaged, it has to be replaced by authorized dealers only in order to avoid hazards.

Should you have further questions, please contact your dealer.

11. Appendix

We believe you will enjoy your ULTRA SCAN. We assure you will enjoy this product for years if you follow the instructions given in this manual.

If you have any questions and comments, please do not hesitate to contact us.

Please note: errors and omissions for every information given in this manual excepted. Every information is subject to change without prior notice. Any claim due to missing or wrong information in this manual is herewith excluded!