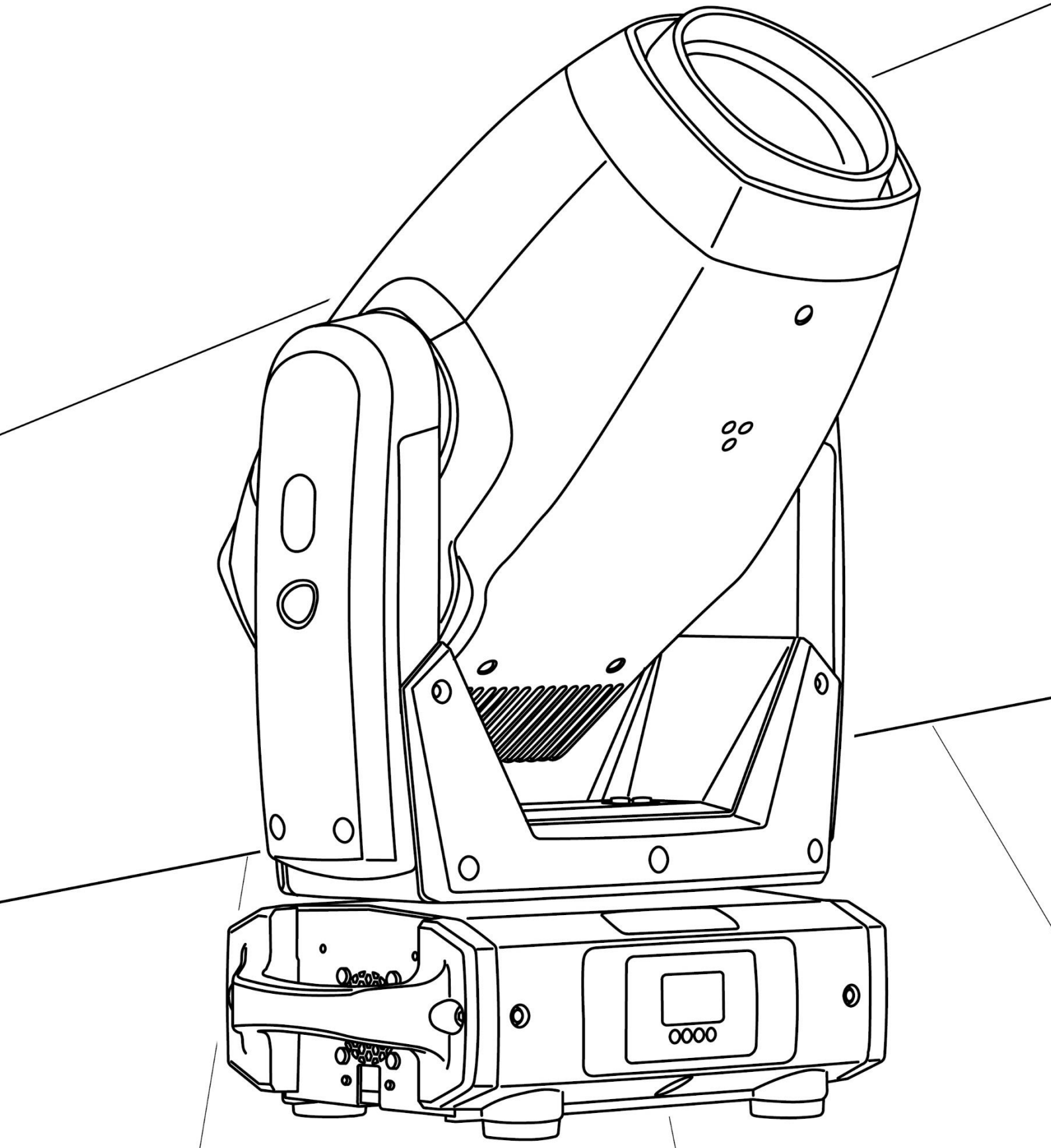
# SYNERGY 6 PROFILE

USER'S MANUAL



| | | | |
|---|---|---|---|
| **Release** | 1.00 | **Code: 0517I372** | **For more information** |
| **Language** | EN | | |

**ITA**



**ENG**



**FRA**



**ESP**

# *Table of Contents*

# 1 Symbols

| Symbol | Meaning |
|---|---|
|  | General risk. |
|  | Electric shock risk |
|  | Hot surface |
|  | Suitable for indoor use only. |
|   | Maximum operating ambient temperature. |
|   | Minimum distance from illuminated objects. |
|  | Do not stare at the operating light source. |
|   | Photobiological safety risk group2 |
|  | Never expose the front lens to sunlight or any strong artificial Light source from any angle to avoid damage of head internal parts. |
|  | European Community Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). |
|   | Dispose the battery at the end of its life according to the regulation in force |

# 2 General Warning

Carefully read the instruction contained in this User Manual, as they give important information regarding your safety and others during installation, use, and maintenance of the product.
The unit is not suitable for domestic use and must be installed by qualified personnel only.
The device must always be equipped with an efficient ground connection.

# 3 Important Safety Information

## *3.1 Fire Prevention*

| | |
|---|---|
|  | • **Minimum distance from illuminated surface: 0.5 m** |
|  | • **Never expose the front lens, from any angle, to direct sunlight or strong artificial light sources to avoid damage to internal parts of the product.**<br>**The front lens may act as a powerful magnifying glass if exposed towards the sun or any strong artificial light source; this will cause damage to the internal parts of the moving head, even if exposed for a few seconds, and even when the unit is turned off.**<br>**It is strongly recommended to leave the front lens directed towards the ground when switching off or leaving the unit unattended.** |
|  | • **The unit features various air inlets and cooling fans located on both the base and the head of the fixture. Under no circumstances should these be blocked or obstructed whilst the projector is operating. Doing so may cause the fixture to seriously overheat, damaging it and compromising its proper operation.**<br>• Each fixture produces heat and must be installed in a well-ventilated place.<br>• Connect the projector to mains power via a thermal magnetic circuit breaker. |

## *3.2 Prevention of Electric Shock*

| | |
|---|---|
|  | • **High voltage is present inside the unit.**<br>**Unplug the unit prior to performing any function which involves handling of the insides of all parts of the product.** |
|  | • **Class I appliance: connection must be made to a mains system fitted with an efficient earthing.**<br>• SYNERGY 6 PROFILE requires the assistance of specialized personnel for all servicing. Please always refer to an authorized DTS service center. |

## 3.3 Safety

| | |
|---|---|
|  | • **Risk Group 2 product according to IEC 62471.**<br>**Do not look directly at the light output and do not stare at the light beam through optical instruments or any other device that may concentrate the light beam. May be harmful to the eyes and skin.** |
|  | • **Do not stare at the operating light source.**<br>**The luminaire should be positioned so that prolonged staring into the luminaire from a minimum distance of 48.88 m is not expected.**<br>• The light source contained in this luminaire shall only be replaced by the manufacturer or their service agent or a similar qualified person.<br>• The unit is not suitable for domestic use and must be installed by qualified personnel only.<br>• The projector should always be installed with the proper tools. The fixing point must always be capable of supporting the weight of the unit.<br>• Always use a safety cable to sustain the weight of the unit in case of failure of the main fixing point. |
|  | • **Pan: 540° rotation; Tilt: 240° rotation.**<br>**Never obstruct the projector's movement while it is operating.** |
|  | • **The external surface of the unit's body, at various points, may exceed 50 °C. Never handle the unit until at least five minutes have passed since it was turned off.** |
| $T_a$ 45°C | • **Ambient temperature should not exceed 45 °C.**<br>• This fixture is intended for use where humidity does not exceed 90% (non-condensing).<br>• After storage, and before switching on the fixture, please ensure that its ambient temperature has been restored to acceptable values.<br>• Never install the fixture in places that lack a constant air flow. |

## 3.4 Level of Protection Against the Penetration of Solid and Liquid Objects

| | |
|---|---|
|  | • **The projector is classified as an ordinary appliance and its protection level against the penetration of solid and liquid objects is IP20.**<br>• The projector contains electric and electronic components which should under no circumstances come into contact with oil, water, or any other liquid. The proper functioning of the unit would be compromised should this occur**.** |
|  | • **Suitable for indoor use only.** |

## 3.5 Waste Electrical and Electronic Equipment (WEEE) Directive:

| | |
|---|---|
|  | • **The projector, the accessories, and the packaging should be sorted for environmental-friendly recycling.**<br>For EC countries: according to the European Directive 2012/19/EU for Waste Electrical and Electronic Equipment and its implementation into national right, luminaires that are no longer usable must be collected separately and disposed of in an environmentally correct manner. |

## 3.6 Long-life auto-charging buffer battery:

| | |
|---|---|
|  | • **The projector contains a rechargeable lead-acid or lithium iron tetraphosphate battery. To preserve the environment, please dispose the battery at the end of its life according to the regulation in force.** |

# 4 General Warranty Conditions

The unit is guaranteed for 36 months from the date of purchase against manufacturing material defects.
The warranty covers defects in materials and workmanship. The warranty is not applicable where a defect is caused by misuse or unauthorized repair of the product.
Any functional or/and physical modification of the product is not allowed.

# 5 Technical Features

## 5.1 Output

- 570 W pure white LED source (7000 K 25,130 Lumens output)
- Native CRI > 70; Higher CRI (DMX-selectable) CRI >90 (R9 >70);
- Average LED life: 20,000 hours (70% lumen output)

## 5.2 Optical Group

- 109,000 Lux (4,6° @ 5 m)
- 4,6° - 43° linear zoom with autofocus
- Linear soft frost filter
- Electronic dimmer / shutter / strobe (0.3 to 33.3 Hz)

## 5.3 Color Generation

- Linear CMY
- Linear CTO (7,000 K – 3,000 K)
- Gel filters emulation
- 6-color wheel (5 color + HI-CRI)
- Two-color generation

## 5.4 Dynamic Effects

- Dynamove FX Engine
- Virtual Animation Wheel
- Customizable rotating 6-gobo wheel
- Circular 24-facet rotating prism
- Linear 6-facet rotating prism

## 5.5 Framing System

- 4-blade rotating framing system
- Real ‘curtain’ effect for each blade
- 60° rotation for each blade (+/- 30°)
- 90° full system rotation (+/- 45°)

## 5.6 User interface

- LCD graphic display + 4 soft keys (“auto-flip” and “key-lock” functions available)
- Li-Fe backup battery for controlling display settings when the unit is not powered

## 5.7 Control

- Art-Net 4, sACN, RDM/DMX 512 protocols
- 44 DMX channels (Default)
- 53 DMX channels
- 16-bit index for insertion and rotation of each blade
- 16-bit index for blade system rotation
- “Standard”, “Silent” and “Auto” operation modes
- Noise level in “Standard” mode: 43dBA @ 1 m (normal operation, full power)
- Internal operating system updatable via DTS firmware uploader dongle

## 5.8 Pan & Tilt

- Pan: 540° 2.7 sec
- Tilt: 240° 1.6 sec
- Tri-phase stepper motor technology
- 16-bit resolution
- Pan / Tilt lock

## 5.9 Power Supply

- Wide-range 100-240 Vac 50/60 Hz
- Power consumption: 750 W max
- Power Factor: PF >0.90

## 5.10 Connections

- DMX: XLR 3-pole and 5-pole In / Out panel connectors
- Power supply: powerCON TRUE1 panel connector
- Art-Net / sACN: etherCON RJ45 panel connector

## 5.11 Internal Protection Devices

- Overvoltage and over temperature circuits protection

## 5.12 Operating Temperature

- -10 °C / 45 °C

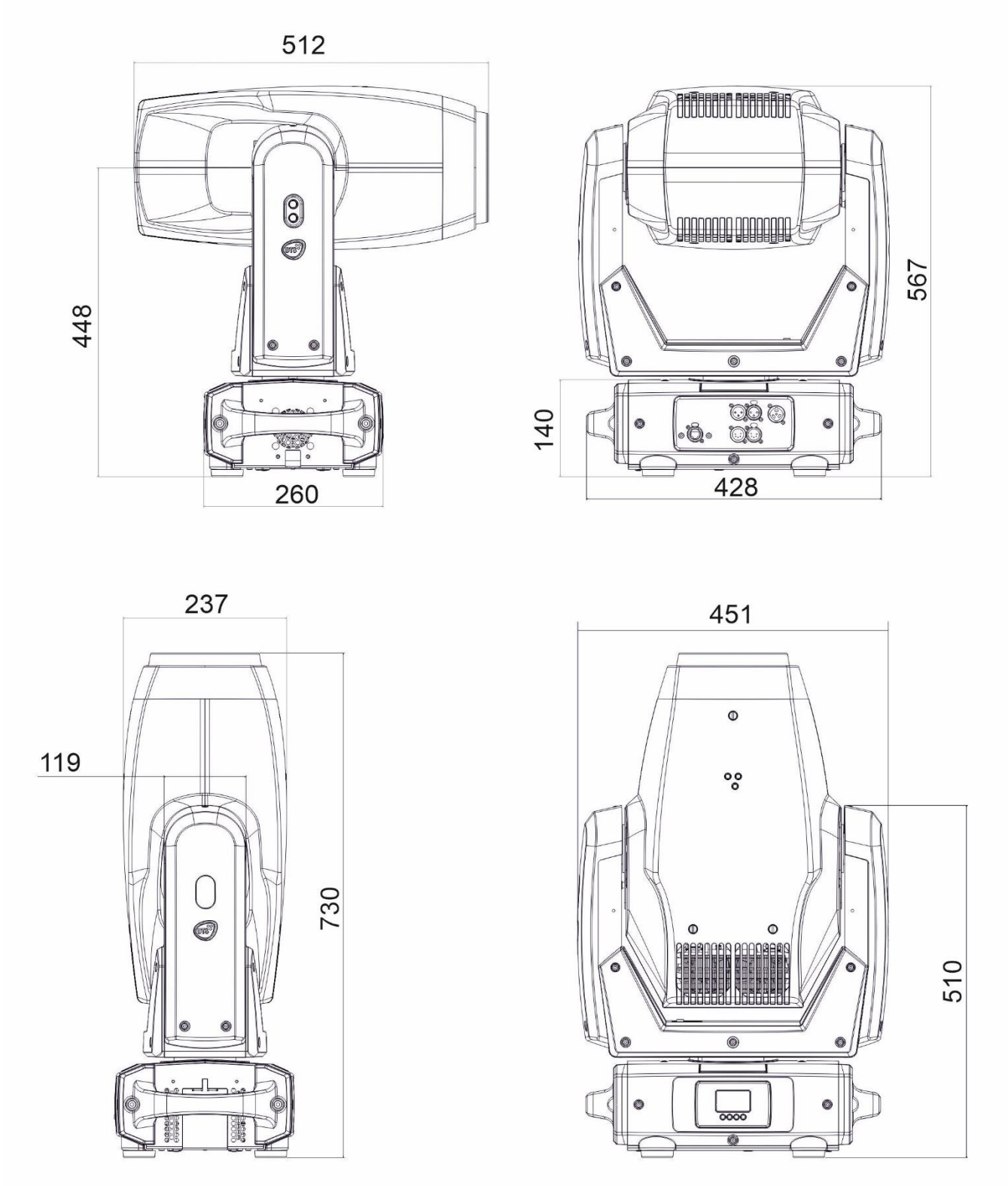
## 5.13 Storage Temperature

- -20 °C / 60 °C

## 5.14 Physical

- IP20
- Weight: 34,5 kg
- Finishing: Black

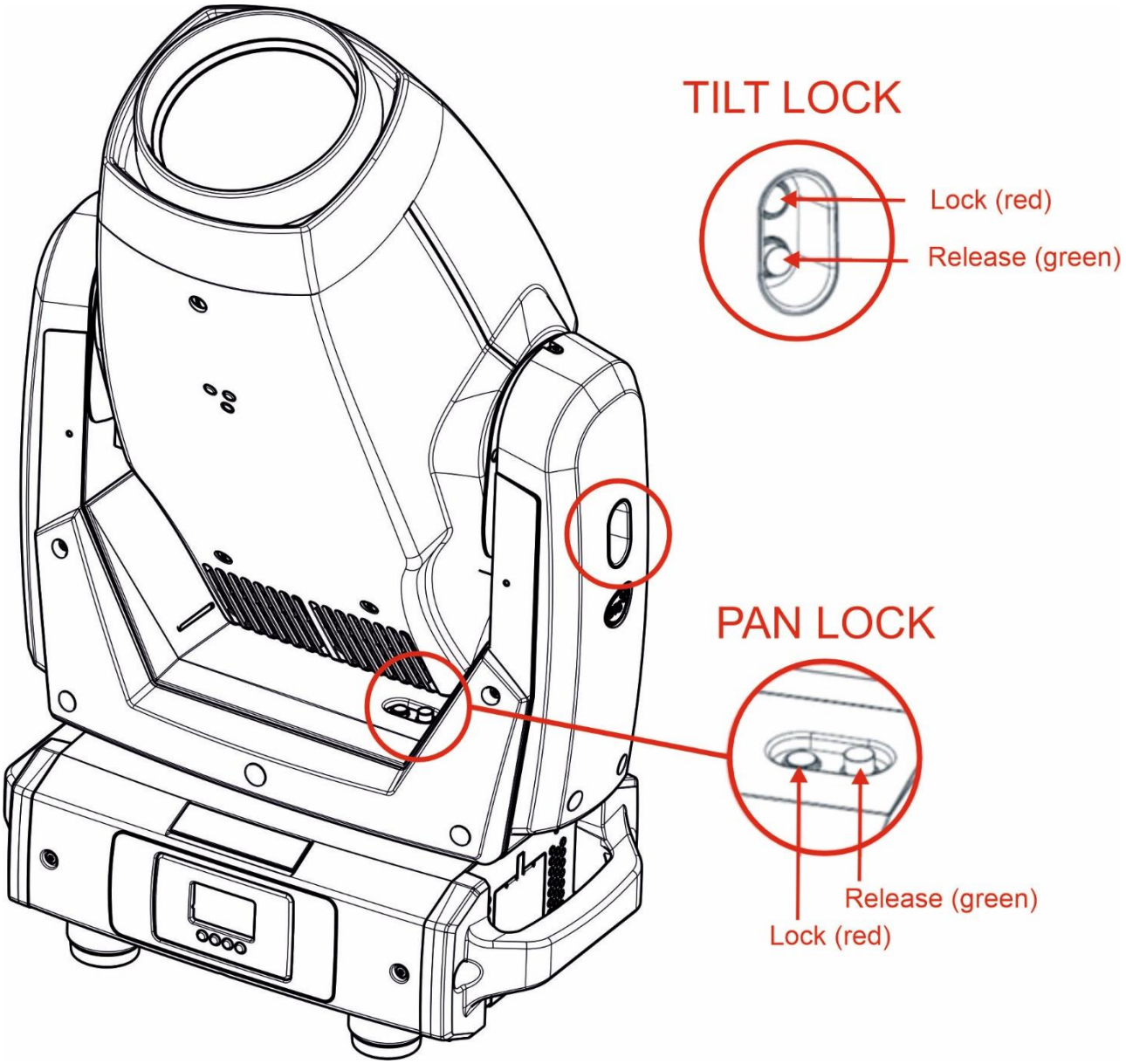
## *5.15 Dimensions*



# 6 Pan / Tilt Lock

When moving or servicing the unit, you can lock the pan and tilt movements.

To lock or release the pan and tilt, follow the instructions as seen below:




# 7 Included Items

- 1x PowerCON TRUE1 female connector (code 0520P066)
- 2x Omega clamp with ¼- turn “Fast Lock” connection (code 02K00549)

# 8 Accessories on Request

- Aliscaf clamp for Ø 48-51 mm tube - max load 200 Kg (code 0521A033)
  **Indicated for any kind of loads, both vertical and/or horizontal**.

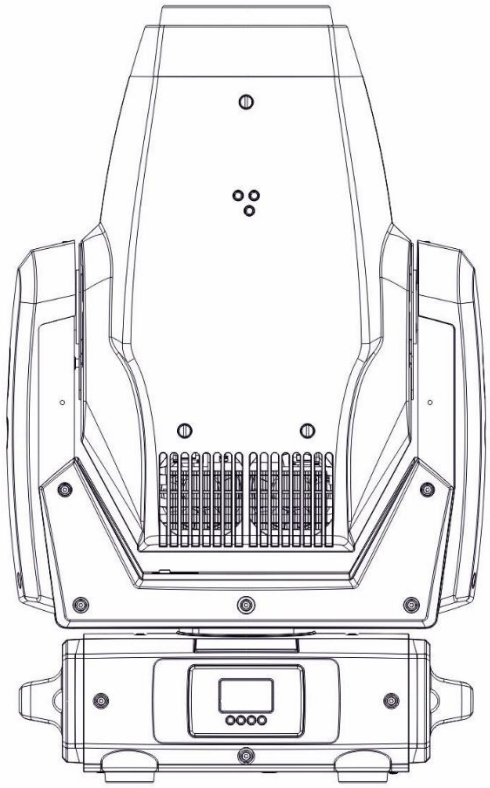
- Professional G-QUICK clamp - max load 100 Kg (code 0521A037)
  **Not indicated for horizontal load.**
- Safety cable 5 x 600 mm (Max load 60 Kg) (code 0521A038)
- Flightcase for 2 units (Code 0521C073)
- Medium Frost filter kit (Code 02SK0428)
- Heavy Frost filter kit (Code 02SK0430)
- DTS firmware uploader dongle (code 03.LA.206)

# 9 Installation

The unit is suitable for dry locations only.

SYNERGY 6 PROFILE may be either floor or ceiling mounted.

For floor mounting installations, SYNERGY 6 PROFILE is supplied with four rubber mounting feet on the base.



For ceiling mounted installations, DTS recommend the use of appropriate clamps to fix the unit to the mounting surface.

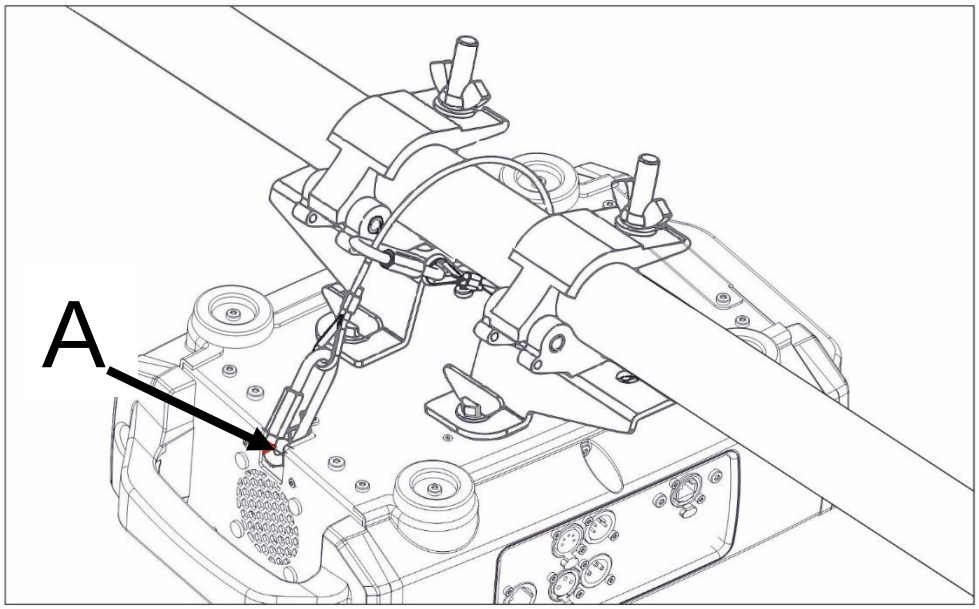
The supporting structure from which the unit is hung should be capable of bearing the weight of the unit, as should any clamps used to hang it.

The structure should also be sufficiently rigid as not to move or shake whilst the SYNERGY 6 PROFILE is moving.

Four ¼-turn “Fast Lock” connections placed in the base of the unit allow SYNERGY 6 PROFILE to hang by using two Omega brackets (provided with the unit) in conjunction with an Aliscaf clamp (available on demand).

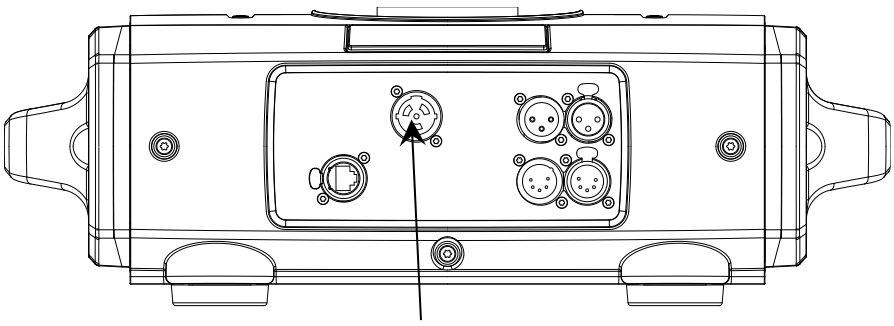
## 9.1 Safety Cable

A safety cable must be securely fixed to SYNERGY 6 PROFILE and to the suspension truss in order to avoid the fixture accidentally falling, should the main fixing point fail.
The safety cable used must be approved by a notified body according to IEC 60598-2-17 and must be capable of bearing at least 10 times the weight of the unit. For more information, please refer to an authorized DTS service center.
A suitable safety cable (code 0521A038) is available on demand.
You may attach the safety cable to the attachment point (A) located at the base of the fixture, as shown in the picture below.




# 10 Mains Connection

SYNERGY 6 PROFILE operates at 100-240 Vac 50/60 Hz.
Prior to connecting the unit to the mains, ensure that your local mains electricity supply properties are compatible with those of the product.
For connection purposes, ensure that your plug is capable of supporting 3,5 A at 230 Vac or 7 A at 100 Vac for each unit connected.
Strict adherence to regulatory norms is strongly recommended.



**MAINS IN**
**100 - 240 Vac 50 / 60Hz**
male PowerCON TRUE1 panel connector

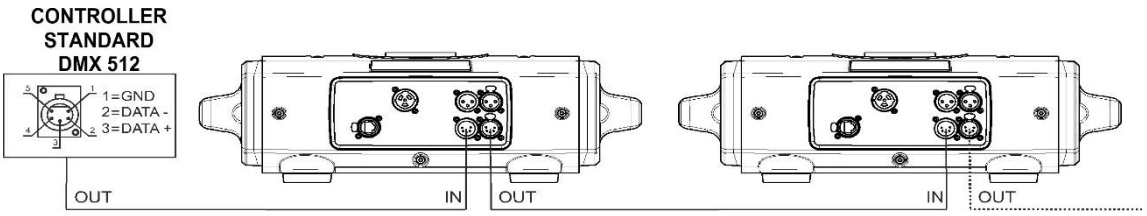
## *10.1 Protection*

The use of a thermal magnetic circuit breaker is recommended for each unit.
Class I appliance: connection must be made to a mains system fitted with an efficient earthing.

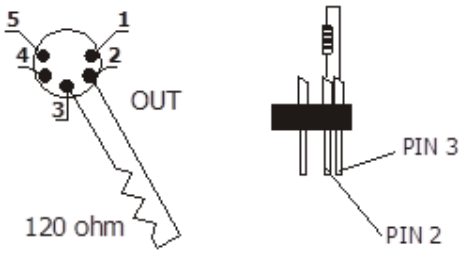
# 11 DMX Signal Connection

• The unit operates using the digital USITT DMX512 signal.
• Connection between the light controller and the projector, or between projectors, must be carried out using a two-pair screened ø 0.5 mm cable, and a XLR 5 or 3 pins connector.
• Ensure that the conductors do not touch each other. Do not connect the ground cable to the XLR chassis. The housing of the plug must be isolated.
• Connect the light controller to the DMX IN panel connector of the projector; to create a link to the next projector, simply connect the DMX OUT plug of the former to the DMX IN plug of the new fixture in line.
Following this procedure, all the projectors will be cascade connected.

PS. *If the display showing the DMX address flashes, then one of the following errors has occurred:*
- DMX signal not present
- DMX reception problem




For installations where long-distance DMX cable connections are needed, the use of a DMX terminator is recommended.
The DMX terminator is a male XLR 3- or 5-pins connector with a 120 Ω resistor between pin 2 and pin 3.
The DMX terminator must be plugged in into the last unit's DMX OUT panel connector of the DMX line.




Place a 120 Ω resistor between pin 2 and 3 of a male XRL connector;
Plug the resistor into the DMX OUT panel connector of the last unit connected to the DMX line.

## 11.1 DMX Modes

SYNERGY 6 PROFILE can be controlled with 44 DMX channels (Default) or 53 DMX channels.

**e.g.,** when using the unit in 44 DMX channels mode (Default), set the following addresses on the light desk:

| | | |
|---|---|---|
| Projector 1 | A001 | |
| Projector 2 | A045 | *If you want to select the next projector, just add "44" to the former DMX address* |
| Projector 3 | A089 | |
| ….. | A…. | |
| projector 6 | A221 | |

## 11.2 Setting Up the DMX Address

1 Press the UP and DOWN key until you reach the desired DMX address. The numbers on the display will start flashing (new DMX address hasn't yet been set).

2 Press ENTER to confirm your selection. The numbers on the display will stop flashing; the projector is now set to the new DMX address.

**TIP**: if you keep pressed down the UP or DOWN keys, address scrolling will be quicker allowing thus for a faster selection.

# 12 Art-Net / sACN Signal Connection

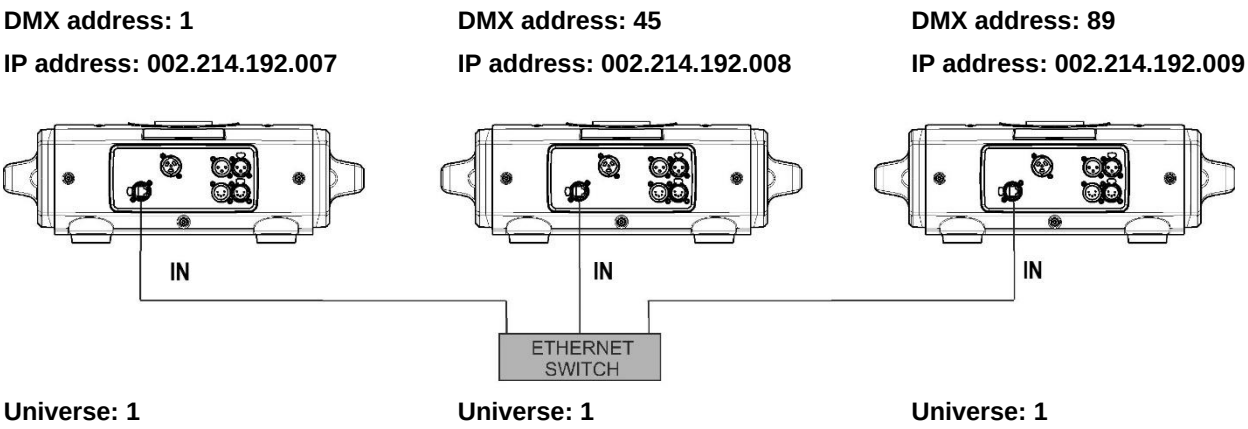
SYNERGY 6 PROFILE can be controlled through Art-Net / sACN signals.
Connection between the light controller and the projector must be carried out using a category 5 network cable and a standard RJ45 connector.

## 12.1 Direct Ethernet Operation

For direct Ethernet operation, connect the light controller's Art-Net / s-ACN output signal via Ethernet switch to each unit's etherCON RJ45 IN connector.

For each unit, scroll to "NETWORK" menu (refer to the paragraph "Display Function" for further details):

- Inside the "INPUT" menu, select "Art-Net" or "sACN" as input control signal.
- Inside the "IP ADDRESS MODE" menu, select "Default" or "Static" mode.
- Inside the "ETH TO DMX" menu, select OFF.
- Set the IP address and Net Mask. IP address must be different for each unit on a network.
- Set the Art-Net or sACN Universe.

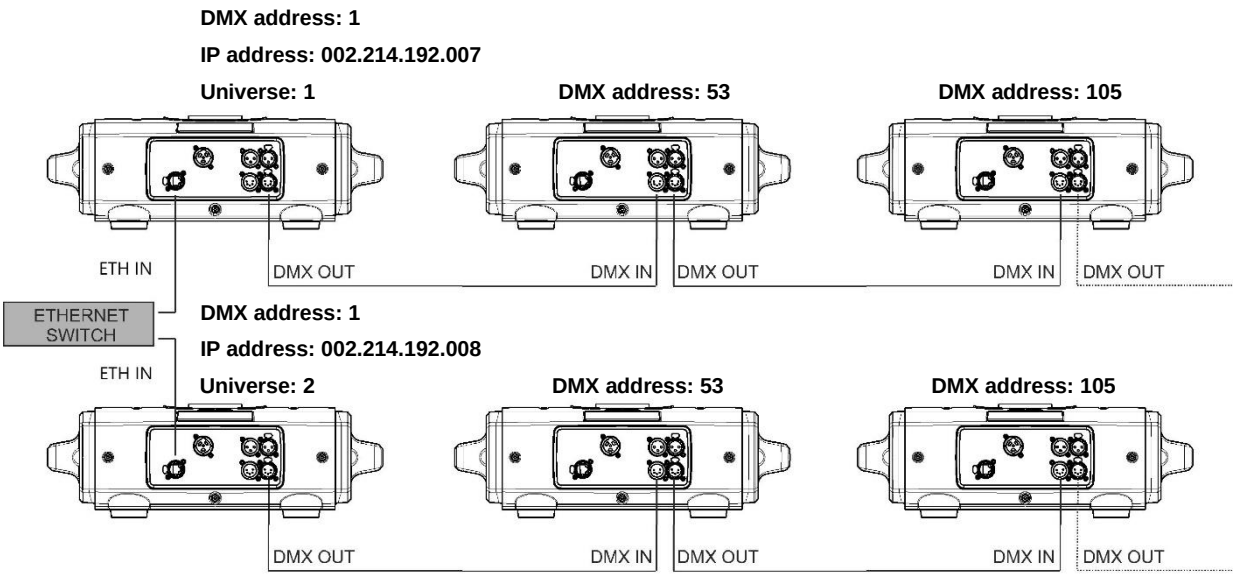



## *12.2 Ethernet to RDM/DMX Operation*

For Ethernet to RDM/DMX operation, connect the light controller's Art-Net / s-ACN output signal via Ethernet switch to the etherCON RJ45 input connector of the first unit only.
In this configuration, the first unit works as an Ethernet-to-DMX converter and sends RDM/DMX signal to its DMX output connector. All the other units must be connected as a DMX chain with standard DMX settings.

**Only for the first unit**, scroll until reaching "NETWORK" menu (refer to DISPLAY FUNCTIONS for details):

- Inside the "INPUT" menu, select "Art-Net" or "sACN" as input control signal.
- Inside the "IP ADDRESS MODE" menu, select "Default" or "Static" mode.
- Inside the "ETH TO DMX" menu, select ON.
- Set the IP address and Net Mask. IP address must be different for each unit on a network.
- Set the Art-Net or sACN Universe.




For installations where long-distance DMX cable connections are needed, the use of a DMX terminator is recommended. Please refer to page 16 for further information DMX terminators.

# 13 Updating the Firmware

In order to update to the latest firmware release of the SYNERGY 6 PROFILE, you will need:

- DTS firmware uploader dongle (code 03.LA.206).
- “DTS Firmware Upgrade Utility v.2.02” program installed on PC (Windows OS).
- Latest firmware release available for the SYNERGY 6 PROFILE.

**Updating to the latest firmware release:**

To perform the update, please follow the procedure as described below:

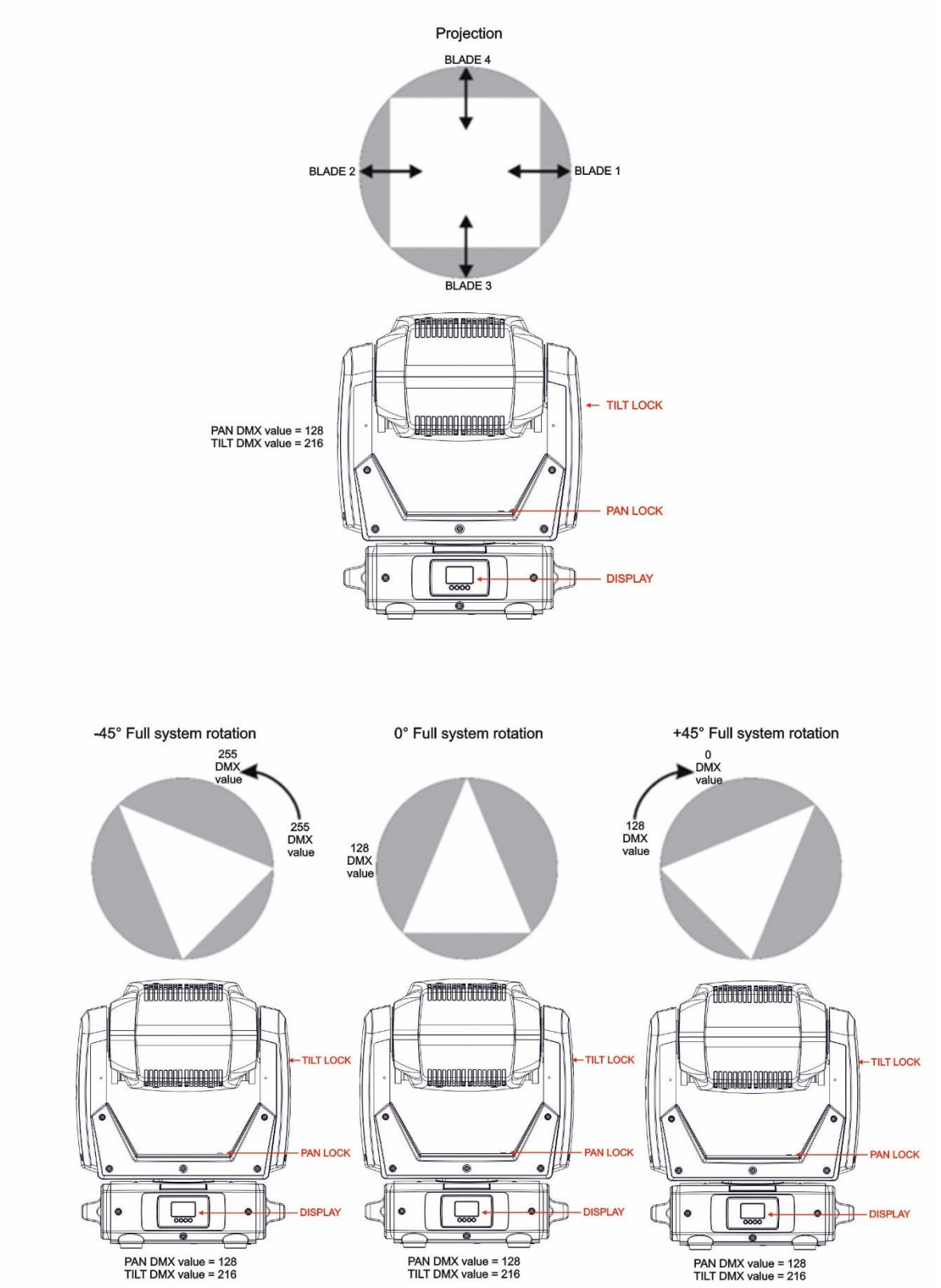
*1* Connect the DTS Firmware Uploader Dongle to a spare USB port on the PC.

*2* Connect the unit’s DMX IN to the DTS Firmware Uploader Dongle’s DMX OUT with a standard DMX cable and turn on the fixture.

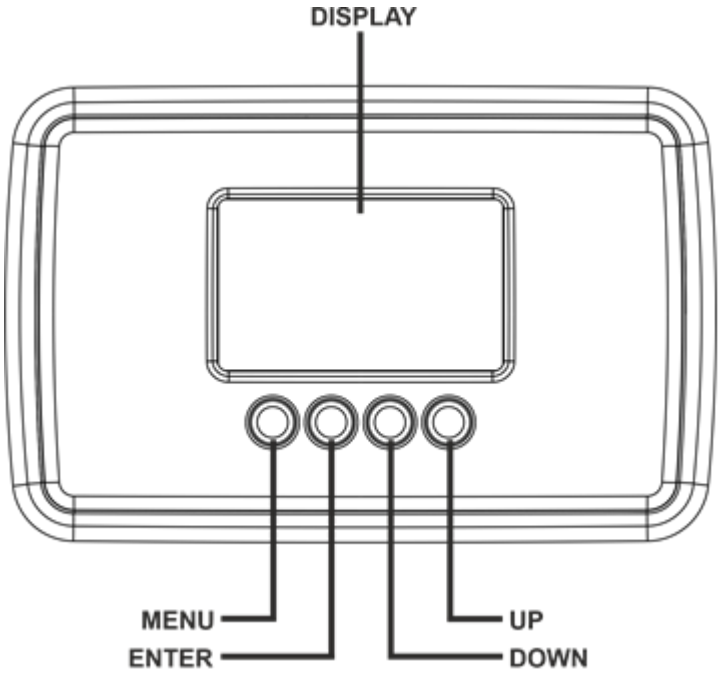
*3* Send the new firmware release into the unit by using “DTS Firmware Upgrade Utility v.2.02” program.
At the end of the procedure, the unit will reset.

For more information, please refer to an authorized DTS service center.

# 14 Rotating Framing System



# 15 Display Functions




The SYNERGY 6 PROFILE display panel shows all the available control menus.

By selecting the available functions on these menus, you will be able to change the fixture's settings and behavior.

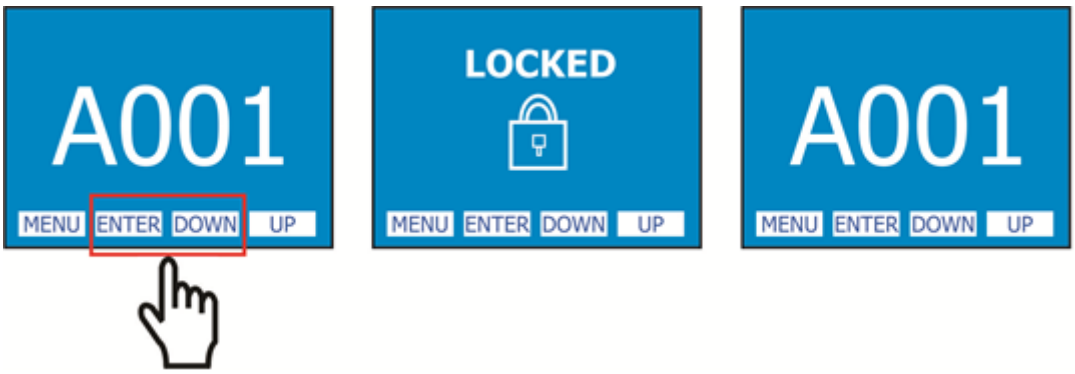
Beware that changing these settings may vary the operating functions of the unit so that it may not respond correctly to the signal given to it. Carefully read the instructions and tables below before carrying out any variations or selections.

| | |
|---|---|
| **MENU** | • To access the control menus in the display panel.<br>• To return to the previous level in the menu structure without making a change.<br>• To exit the menus. |
| **ENTER** | • To select any required menu.<br>• To confirm any changes. |
| **UP / DOWN** | • To navigate the menus structure.<br>• To change any value. |

| | |
|---|---|
| **Motors Firmware Release** | **10** |
| **RDM Device Model ID** | **0x001D** |
| **DMX Personality IDs** | **0x01 "44 CHANNELS"**<br>**0x02 "53 CHANNELS"** |

**“Display Key-Lock” Function**

This function can be enabled/disabled by contemporary pressing ENTER + DOWN keys for 3 seconds.




| MAIN MENU | LEVEL 1 | LEVEL 2 | LEVEL 3 | FUNCTION |
|---|---|---|---|---|
| NETWORK | INPUT | DISABLED | | **Allows to disable Ethernet operation (Default).** |
| | | ARTNET | | Allows to select Art-Net as input control signal protocol. |
| | | SACN | | Allows to select sACN as input control signal protocol. |
| | IP ADDR MODE | DEFAULT | | **Fixed IP address with manual setting of first byte only and fixed Net Mask (Default).** |
| | | STATIC | | Static IP address and Net Mask. |
| | DEFAULT IP | IP 2.214.192. 7<br>MASK 255. 0. 0. 0 | | Fixed IP address and Net Mask. It is possible to set only first byte of the IP address. ***IP address must be different for each unit on a network.*** |
| | ARTNET UNIV. | 00000 - 32767 | | Allows to set the Art-Net Universe (range 0÷32767). |
| | SACN UNIVERSE | 00001 - 63999 | | Allows to set the sACN Universe (range 1÷63999). |
| | PRIORITY | DMX512 | | Allows to set the priority between input control signals when the unit is connected via DMX and via ETHERNET at the same time. **RDM / DMX signal has the priority on the Art-Net / sACN signal (Default).** |
| | | ETHERNET | | Art-Net / sACN signal has the priority on the DMX signal. |
| | ETH TO DMX | OFF | | Allows to enable ETHERNET to RDM/DMX operation. **Default = OFF.** |
| | | ON | | In this configuration the first unit works as an Ethernet to DMX converter and sends RDM/DMX signal to its DMX output connector. |
| | NO SIGNAL | KEEP LAST | | Allows to set the desired unit’s behavior in case Art-Net or sACN signal is missing or not available. **Keep last valid Art-Net or sACN signal (Default).** |
| | | BLACKOUT | | Black-out. |
| PAN DIRECTION | NORMAL | | | Allows to set the Pan movement. **Default = Normal** |
| | REVERSE | | | |
| TILT DIRECTION | NORMAL | | | Allows to set the Tilt movement. **Default = Normal** |
| | REVERSE | | | |
| SPEED | PAN | 1 - 4 | | Pan Speed control. **Default = 2** |

| MAIN MENU | LEVEL 1 | LEVEL 2 | LEVEL 3 | FUNCTION |
|---|---|---|---|---|
| | TILT | 1 - 4 | | Tilt Speed control.<br>**Default = 2** |
| | ZOOM | 1 - 4 | | Zoom Speed control.<br>**Default = 4** |
| | BLADE | 1 - 4 | | Blades Speed control.<br>**Default = 4**<br><br>***WARNING! Speed value must not be set while blades are moving during programming.*** |
| | CMY | 1 - 4 | | CMY Speed control.<br>**Default = 4**<br><br>***WARNING! Speed value must not be set while CMY filters are moving during programming.*** |
| DISPLAY | FLIP | AUTO | | Reverses display's reading depending on the mounting position. Automatic, on the ground or suspended.<br>**Default = AUTO** |
| | | ON THE GROUND | | |
| | | SUSPENDED | | |
| | STANDBY | DISABLED | | Display stand-by disabled. |
| | | ENABLED | | Display goes OFF after 5 seconds. **(Default).** |
| | | FORCED ENABLED | | Display forced OFF even if control signal is missing or error messages are shown. |
| | CONTRAST | 20 - 35 | | Display contrast regulation (range 20 ÷ 35).<br>**Default = 25** |
| DMX MODE | 44 CHANNELS | | | **Allows to select 44 DMX channels mode (Default).** |
| | 53 CHANNELS | | | Allows to select 53 DMX channels mode:<br>-16 bit index for insertion and rotation of each blade.<br>-16 bit index for blade system rotation. |
| NO DMX ACTION | KEEP LAST DMX | | | Allows to set the desired unit's behavior in case DMX signal is missing or not available.<br>**Keep last valid DMX signal (Default).** |
| | PROGRAM<br>1 - 48 | 1 - 48<br>0.5x - 3x | | 48 pre-programmed steps. Speed time values (range 0.5x - 3x) selectable by user.<br>**Default = 1x** |
| | SINGLE CUE | PAN MSB | 0 - 255 | Fixed cue with values selectable by user.<br>**Default = 128** |
| | | PAN LSB | 0 - 255 | **Default = 000** |
| | | TILT MSB | 0 - 255 | **Default = 128** |
| | | TILT LSB | 0 - 255 | **Default = 000** |
| | | SPEED MOV. | 0 - 255 | **Default = 0** |
| | | DIMMER MSB | 0 - 255 | **Default = 255** |
| | | DIMMER LSB | 0 - 255 | **Default = 255** |
| | | SHUTTER | 0 - 255 | **Default = 15** |
| | | COLOUR | 0 - 255 | **Default = 0** |
| | | COLOUR MODE | 0 - 255 | **Default = 0** |
| | | CYAN | 0 - 255 | **Default = 0** |
| | | MAGENTA | 0 - 255 | **Default = 0** |
| | | YELLOW | 0 - 255 | **Default = 0** |
| | | CTO | 0 - 255 | **Default = 0** |
| | | GEL FILTERS | 0 - 255 | **Default = 0** |
| | | GOBO | 0 - 255 | **Default = 0** |
| | | GOBO R-I MSB | 0 - 255 | **Default = 0** |

| MAIN MENU | LEVEL 1 | LEVEL 2 | LEVEL 3 | FUNCTION |
|---|---|---|---|---|
| | | GOBO R-I LSB | 0 - 255 | **Default = 0** |
| | | GOBO SHAKE | 0 - 255 | **Default = 0** |
| NO DMX ACTION | SINGLE CUE | BLADE SYS ROT | 0 - 255 | **Default = 0** |
| | | BLADE 1 INS | 0 - 255 | **Default = 0** |
| | | BLADE 1 ROT | 0 - 255 | **Default = 128** |
| | | BLADE 2 INS | 0 - 255 | **Default = 0** |
| | | BLADE 2 ROT | 0 - 255 | **Default = 128** |
| | | BLADE 3 INS | 0 - 255 | **Default = 0** |
| | | BLADE 3 ROT | 0 - 255 | **Default = 128** |
| | | BLADE 4 INS | 0 - 255 | **Default = 0** |
| | | BLADE 4 ROT | 0 - 255 | **Default = 128** |
| | | BLADE EFFECTS | 0 - 255 | **Default = 0** |
| | | DYNAMOVE M. | 0 - 255 | **Default = 0** |
| | | MACRO SPEED | 0 - 255 | **Default = 0** |
| | | PRISM MODE | 0 - 255 | **Default = 0** |
| | | PRISM 1 POS | 0 - 255 | **Default = 0** |
| | | PRISM 1 R-I | 0 - 255 | **Default = 0** |
| | | PRISM 2 POS | 0 - 255 | **Default = 0** |
| | | PRISM 2 R-I | 0 - 255 | **Default = 0** |
| | | FROST | 0 - 255 | **Default = 0** |
| | | FOCUS MSB | 0 - 255 | **Default = 128** |
| | | FOCUS LSB | 0 - 255 | **Default = 128** |
| | | ZOOM | 0 - 255 | **Default = 128** |
| | | RESTORE DEFAULT | | **Set all Parameters to Default** |
| | BLACKOUT | | | Black-out. |
| RESET BY DMX | ENABLED | | | **Reset via DMX enabled (Default).** |
| | DISABLED | | | Reset via DMX disabled. |
| | NOW | | | Instant unit motors reset. |
| FAN SETTING | STANDARD | | | **STANDARD mode = High fans speed: The LED always works at maximum power. (Default)** |
| | SILENT | | | SILENT mode = Low fans speed for a very low noise operation (85% Lumens output). |
| | AUTOMATIC | | | Automatic fans speed. If LED temperature <40°C: fans OFF. If LED temperature >40°C: fans speed is increased within the values as per FAN SETTING STANDARD. |
| GOBO ROTATION DURING GOBO SCROLLING | ENABLED | | | Allows to enable gobo rotation during gobo scrolling for rotating gobo wheel. **Default = ENABLED** |
| | DISABLED | | | |
| FOCUS | EXCURSION | STANDARD | | **Standard Focus range (Default).** |
| | | EXTENDED | | Extended Focus range. |
| | AUTOFOCUS | DISABLED | | **Default = DISABLED.** to have the best resolution it is suggested the first time you focus to set Zoom at DMX value 100 (DMX range 0-255) or 39%. |
| | | ENABLED | | |
| LED | SMOOTH | OFF - 20 | | Allows to select the value of delay (in ms) for DIMMER channel reaction to DMX dimming command. OFF = Instant response. **4 = 100 ms smooth response (Default).** |

| MAIN MENU | LEVEL 1 | LEVEL 2 | LEVEL 3 | FUNCTION |
|---|---|---|---|---|
| | | | | 20 = 500 ms smooth response. |
| | GAMMA CORR. | QUAD 2.0 | | **Allows to set quadratic current output for LED (Default).** |
| | | LINE | | Allows to set linear light output. |
| | FREQUENCY | 610 - 5000 HZ | | Allows to adjust the PWM frequency value (Hz) in order to reduce flickering in the process of camera recordings. Range = 610 Hz – 5 KHz **Default = 1000 Hz** |
| SYSTEM INFO | SOFTWARE | SYNERGY 6 PROFILE 24 OCT 2023 MOTOR: V.10 LED: V.1.00 | | Unit model, motors firmware release date, Motors and LED Driver PCBs firmware release. |
| | TEMPERATURES | LED:048°C DRV-1:049°C DRV-2:048°C MICRO: 043°C 10M: 042°C 5M-1: 045°C 5M-2: 045°C 5M-3: 045°C | | LED: LED temperature monitoring. DRV-1: Out 1 and 2 of LED Driver PCB temperature monitoring. DRV-2: Out 4 and 5 of LED Driver PCB temperature monitoring. MICRO: Micro controller on LED Driver PCB temperature monitoring. 10M: 10 Motors PCB temperature monitoring. 5M-1: 5 Motors PCB 1 temperature monitoring. 5M-2: 5 Motors PCB 2 temperature monitoring. 5M-3: 5 Motors PCB 3 temperature monitoring. |
| | TIME COUNTERS | UNIT LIFE: 0516 hr LED LIFE: 0481 hr DRV LIFE: 0495 hr | | Unit, LED module and LED Driver PCB life time. |
| | ADDRESSES | RDM:0710:000111A6 MAC:70:B3:D5:D7:C3:F6 | | RDM and MAC IDs. |
| RESERVED | ENTER CODE 0 – 255 (code 100) | PAN LOCK | NO | Lock the Pan to the desired value. **NO = Default.** |
| | | | YES | |
| | | TILT LOCK | NO | Lock the Tilt to the desired value. **NO = Default.** |
| | | | YES | |
| | | PAN FREE | NO | Remove power to Pan motor. **NO = Default.** |
| | | | YES | |
| | | TILT FREE | NO | Remove power to Tilt motor. **NO = Default.** |
| | | | YES | |
| | | LOCK DETECTOR | ON | Allows to activate the Lock detector on Pan and Tilt. If for any reason there is something blocking the movement for Pan&Tilt motors during the initial reset (example unit into the flight case and power connected), it automatically will stop to reset Pan&Tilt motors after 5 seconds from the startup and a warning message (Pan locked-Tilt locked) will appear on unit display. **ON = Default.** |
| | | | OFF | |
| | | REBOOT | | Unit reboot without needing of turning OFF the unit. |
| | | EXIT TO MAIN | | Exit from Reserved menu. |
| DEFAULT | SURE? | PRESS ENTER TO CONFIRM | | To restore factory settings. |

| MAIN MENU | LEVEL 1 | LEVEL 2 | LEVEL 3 | FUNCTION |
|---|---|---|---|---|
| | | PRESS MENU TO CANCEL | | Exit without restoring factory settings. |
| MANUAL CONTR. 44 CH DMX PERSONALITY | RESET | HEAD MOTORS | | To reset head motors only. |
| | | PAN TILT | | To reset Pan and Tilt only. |
| | | ALL MOTORS | | To reset all motors. |
| | RESTORE DEF. | YES/NO | | To restore parameters default settings. |
| | PAN MSB | 0 - 255 | | Manual mode with functions value selectable by user. **Default = 128** |
| | PAN LSB | 0 - 255 | | **Default = 0** |
| | TILT MSB | 0 - 255 | | **Default = 128** |
| | TILT LSB | 0 - 255 | | **Default = 0** |
| | SPEED MOV. | 0 - 255 | | **Default = 0** |
| | DIMMER MSB | 0 - 255 | | **Default = 255** |
| | DIMMER LSB | 0 - 255 | | **Default = 255** |
| | SHUTTER | 0 - 255 | | **Default = 15** |
| | COLOUR | 0 - 255 | | **Default = 0** |
| | COLOUR MODE | 0 - 255 | | **Default = 0** |
| | CYAN | 0 - 255 | | **Default = 0** |
| | MAGENTA | 0 - 255 | | **Default = 0** |
| | YELLOW | 0 - 255 | | **Default = 0** |
| | CTO | 0 - 255 | | **Default = 0** |
| | GEL FILTERS | 0 - 255 | | **Default = 0** |
| | GOBO | 0 - 255 | | **Default = 0** |
| | GOBO R-I MSB | 0 - 255 | | **Default = 0** |
| | GOBO R-I LSB | 0 - 255 | | **Default = 0** |
| | GOBO SHAKE | 0 - 255 | | **Default = 0** |
| | GOBO 2 | 0 - 255 | | **Default = 0** |
| | BLADE SYS ROT | 0 - 255 | | **Default = 0** |
| | BLADE 1 INS | 0 - 255 | | **Default = 0** |
| | BLADE 1 ROT | 0 - 255 | | **Default = 128** |
| | BLADE 2 INS | 0 - 255 | | **Default = 0** |
| | BLADE 2 ROT | 0 - 255 | | **Default = 128** |
| | BLADE 3 INS | 0 - 255 | | **Default = 0** |
| | BLADE 3 ROT | 0 - 255 | | **Default = 128** |
| | BLADE 4 INS | 0 - 255 | | **Default = 0** |
| | BLADE 4 ROT | 0 - 255 | | **Default = 128** |
| | BLADE EFFECTS | 0 - 255 | | **Default = 0** |
| | DYNAMOVE M. | 0 - 255 | | **Default = 0** |
| | MACRO SPEED | 0 - 255 | | **Default = 0** |
| | PRISM MODE | 0 - 255 | | **Default = 0** |
| | PRISM 1 POS | 0 - 255 | | **Default = 0** |
| | PRISM 1 R-I | 0 - 255 | | **Default = 0** |
| | PRISM 2 POS | 0 - 255 | | **Default = 0** |
| | PRISM 2 R-I | 0 - 255 | | **Default = 0** |
| | FROST | 0 - 255 | | **Default = 0** |
| | FOCUS MSB | 0 - 255 | | **Default = 128** |
| | FOCUS LSB | 0 - 255 | | **Default = 128** |
| | ZOOM | 0 - 255 | | **Default = 128** |

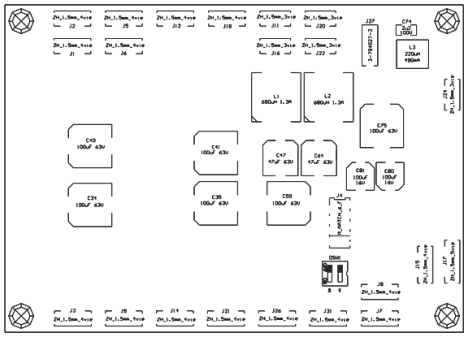
# 16 Error Messages

| ERROR SHOWN ON DISPLAY | APPEARS WHEN |
|---|---|
| **PAN** | -Pan motor fault<br>-Pan encoder fault<br>-Pan motor driver on Pan&Tilt PCB fault<br>-Wiring connection between Pan encoder and Pan&Tilt PCB fault |
| **PAN LOCKED** | -Pan locked<br>-Pan motor fault<br>-Pan encoder fault<br>-Pan motor driver on Pan&Tilt PCB fault<br>-Wiring connection between Pan encoder and Pan&Tilt PCB fault |
| **TILT** | -Tilt motor fault<br>-Tilt encoder fault<br>-Tilt motor driver on Pan&Tilt PCB fault<br>-Wiring connection between Tilt encoder and Pan&Tilt PCB fault |
| **TILT LOCKED** | -Tilt locked<br>-Tilt motor fault<br>-Tilt encoder fault<br>-Tilt motor driver on Pan&Tilt PCB fault<br>-Wiring connection between Tilt encoder and Pan&Tilt PCB fault |
| **PAN ZERO SENSOR LINE** | -Pan magnet missing<br>-Pan hall sensor PCB fault<br>-Wiring connection between Pan hall sensor PCB and Pan&Tilt PCB fault |
| **TILT ZERO SENSOR LINE** | -Tilt magnet missing<br>-Tilt hall sensor PCB fault<br>-Wiring connection between Tilt hall sensor PCB and Pan&Tilt PCB fault |
| **TEMP. LED MOD.** | LED module temperature detected under -20°C or over 100°C.<br>Unit immediately goes in black-out. |
| **TEMP. LED DRV1** | LED Driver PCB temperature 1 (DRV1) detected under -20°C or over 100°C. Unit immediately goes in black-out. |
| **TEMP. LED DRV2** | LED Driver PCB temperature 2 (DRV2) detected under -20°C or over 100°C. Unit immediately goes in black-out. |
| **TEMP. LED MICRO** | Micro controller on LED Driver PCB temperature detected under -20°C or over 100°C. Unit immediately goes in black-out. |
| **SUPPLY VOLTS TOO LOW** | PCBs input voltage <46,5Vdc. |
| **SUPPLY VOLTS TOO HIGH** | PCBs input voltage >49,5Vdc. |
| **BUS 10 MOTORS CARD 1** | -Pan&Tilt PCB bus driver fault<br>-10 Motors PCB (1)* bus driver fault<br>-10 Motors PCB (1)* input voltage missing<br>-Internal Bus wiring connection fault |
| **BUS 5 MOTORS CARD 2** | -Pan&Tilt PCB bus driver fault<br>-5 Motors PCB (2)* bus driver fault<br>-5 Motors PCB (2)* input voltage missing<br>-Internal Bus wiring connection fault |
| **BUS 5 MOTORS CARD 3** | -Pan&Tilt PCB bus driver fault<br>-5 Motors PCB (3)* bus driver fault<br>-5 Motors PCB (3)* input voltage missing<br>-Internal Bus wiring connection fault |
| **BUS 5 MOTORS CARD 4** | -Pan&Tilt PCB bus driver fault<br>-5 Motors PCB (4)* bus driver fault<br>-5 Motors PCB (4)* input voltage missing<br>-Internal Bus wiring connection fault |
| **BUS LED DRIVER** | -Pan&Tilt PCB bus driver fault<br>-LED Driver PCB bus driver fault<br>-LED Driver PCB input voltage missing<br>-Internal Bus wiring connection fault |
| **BUS ARTNET** | -Pan&Tilt PCB bus driver fault<br>-Art-Net PCB bus driver fault<br>-Art-Net PCB input voltage missing<br>-Wiring connection between Art-Net PCB and Pan&Tilt PCB fault |
| **CYAN<br>OR CARD 1 - RESET LINE 1** | -Cyan motor fault<br>-Cyan motor driver on 10 Motors PCB (1)* fault<br>-Cyan magnet missing<br>-Cyan hall sensor PCB fault |
| **MAGENTA<br>OR CARD 1 - RESET LINE 1** | -Magenta motor fault<br>-Magenta motor driver on 10 Motors PCB (1)* fault<br>-Magenta magnet missing<br>-Magenta hall sensor PCB fault |
| **YELLOW<br>OR CARD 1 - RESET LINE 1** | -Yellow motor fault<br>-Yellow motor driver on 10 Motors PCB (1)* fault<br>-Yellow magnet missing<br>-Yellow hall sensor PCB fault |

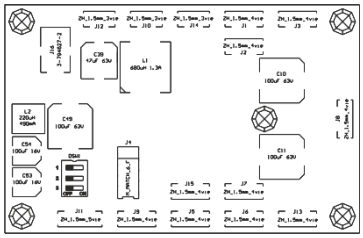
| ERROR SHOWN ON DISPLAY | APPEARS WHEN |
|---|---|
| **FOCUS<br>OR CARD 1 - RESET LINE 3** | -Focus motor fault<br>-Focus motor driver on 10 Motors PCB (1)* fault<br>-Focus magnet missing<br>-Focus hall sensor PCB fault |
| **ZOOM<br>OR CARD 1 - RESET LINE 2** | -Zoom motor fault<br>-Zoom motor driver on 10 Motors PCB (1)* fault<br>-Zoom magnet missing<br>-Zoom hall sensor PCB fault |
| **24F/6F PRISM<br>OR CARD 1 - RESET LINE 5** | -24 facet or 6 facet prism motor fault<br>-24 facet or 6 facet prism motor driver on 10 Motors PCB (1)* fault<br>-24 facet or 6 facet prism magnet missing<br>-24 facet or 6 facet prism hall sensor PCB fault |
| **24F/6F PRISM INDEX<br>OR CARD 1 - RESET LINE 4** | -24 facet or 6 facet prism index motor fault<br>-24 facet or 6 facet prism index motor driver on 10 Motors PCB (1)* fault<br>-24 facet or 6 facet prism index magnet missing<br>-24 facet or 6 facet prism index hall sensor PCB fault |
| **CTO<br>OR CARD 2 - RESET LINE 1** | -CTO motor fault<br>-CTO motor driver on 5 Motors PCB (2)* fault<br>-CTO magnet missing<br>-CTO hall sensor PCB fault |
| **COLOUR WHEEL<br>OR CARD 2 - RESET LINE 4** | -Colour wheel motor fault<br>-Colour wheel motor driver on 5 Motors PCB (2)* fault<br>-Colour wheel magnet missing<br>-Colour wheel hall sensor PCB fault |
| **GOBO / GOBO INDEX<br>OR CARD 2 - RESET LINE 3** | -Gobo 1 wheel/index motor fault<br>-Gobo 1 wheel/index motor driver on 5 Motors PCB (2)* fault<br>-Gobo 1 wheel/index magnet missing<br>-Gobo 1 wheel/index hall sensor PCB fault |
| **PROFILER INDEX<br>OR CARD 3 - RESET LINE 1** | -Profiler index motor fault<br>-Profiler index motor driver on 5 Motors PCB (3)* fault<br>-Profiler index magnet missing<br>-Profiler index hall sensor PCB fault |

** Refer to page 29 for Motors and LED Driver PCBs details.*

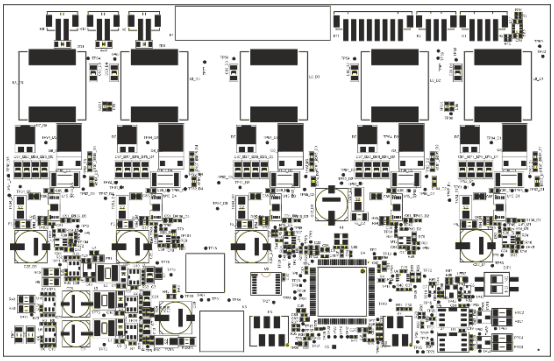
# 17 Motors and LED Driver PCBs References



| *PCB Description* | *Function* | *Dip Switch* |
|---|---|---|
| 10M-1 or 10 MOTORS CARD 1 | FOCUS, ZOOM, CYAN, MAGENTA, FROST, 6-FACET PRISM, 24-FACET PRISM, PRISMS ROTATION. | 1 = OFF<br>2 = OFF<br>  |



| *PCB Description* | *Function* | *Dip Switch* |
|---|---|---|
| 5M-2 or 5 MOTORS CARD 2 | COLOR WHEEL, CTO, ROTATING GOBO WHEEL, GOBO ROTATION. | 1 = ON<br>2 = OFF<br>3 = OFF<br>  |
| 5M-3 or 5 MOTORS CARD 3 | 2 BLADES + PROFILER INDEX | 1 = OFF<br>2 = ON<br>3 = OFF<br>  |
| 5M-4 or 5 MOTORS CARD 4 | 2 BLADES | 1 = ON<br>2 = ON<br>3 = OFF<br>  |



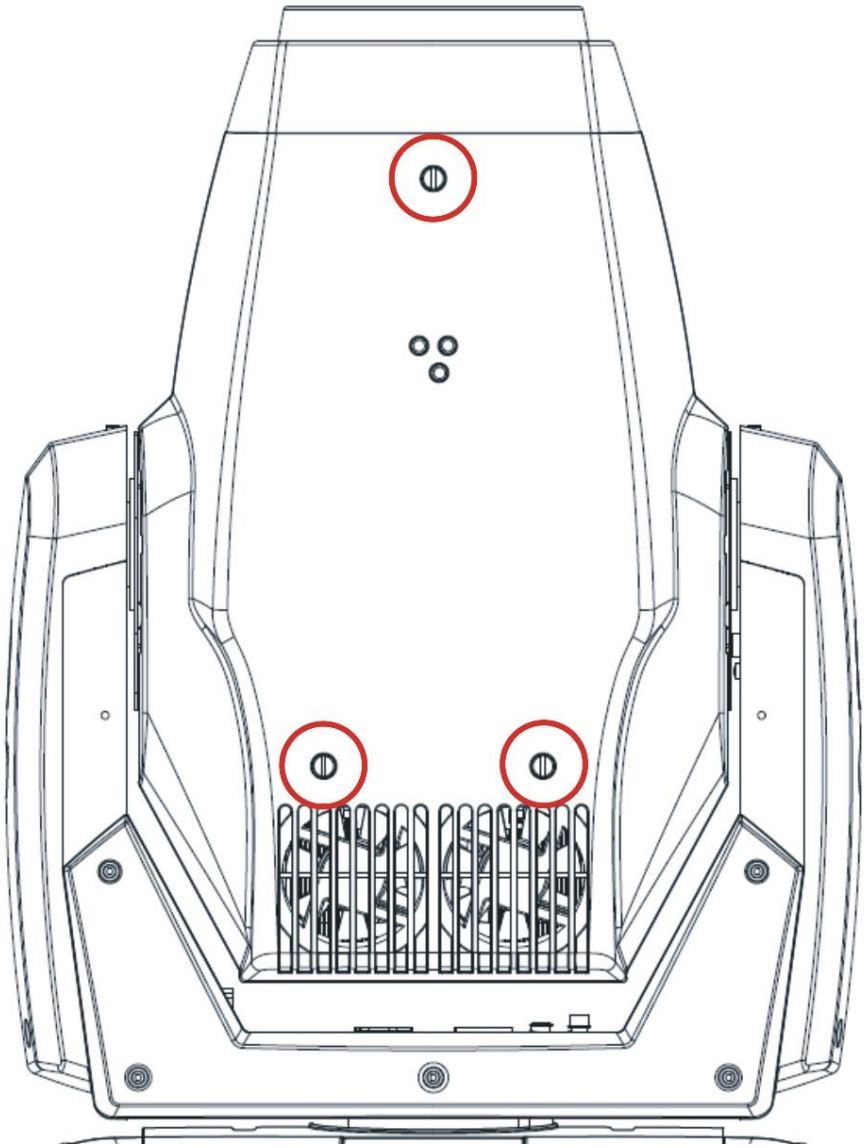
| *PCB Description* | *Function* | *Dip Switch* |
|---|---|---|
| DRV or LED DRIVER CARD | LED intensity control | 1 = OFF<br>2 = OFF<br>  |

# 18 Opening the Housing

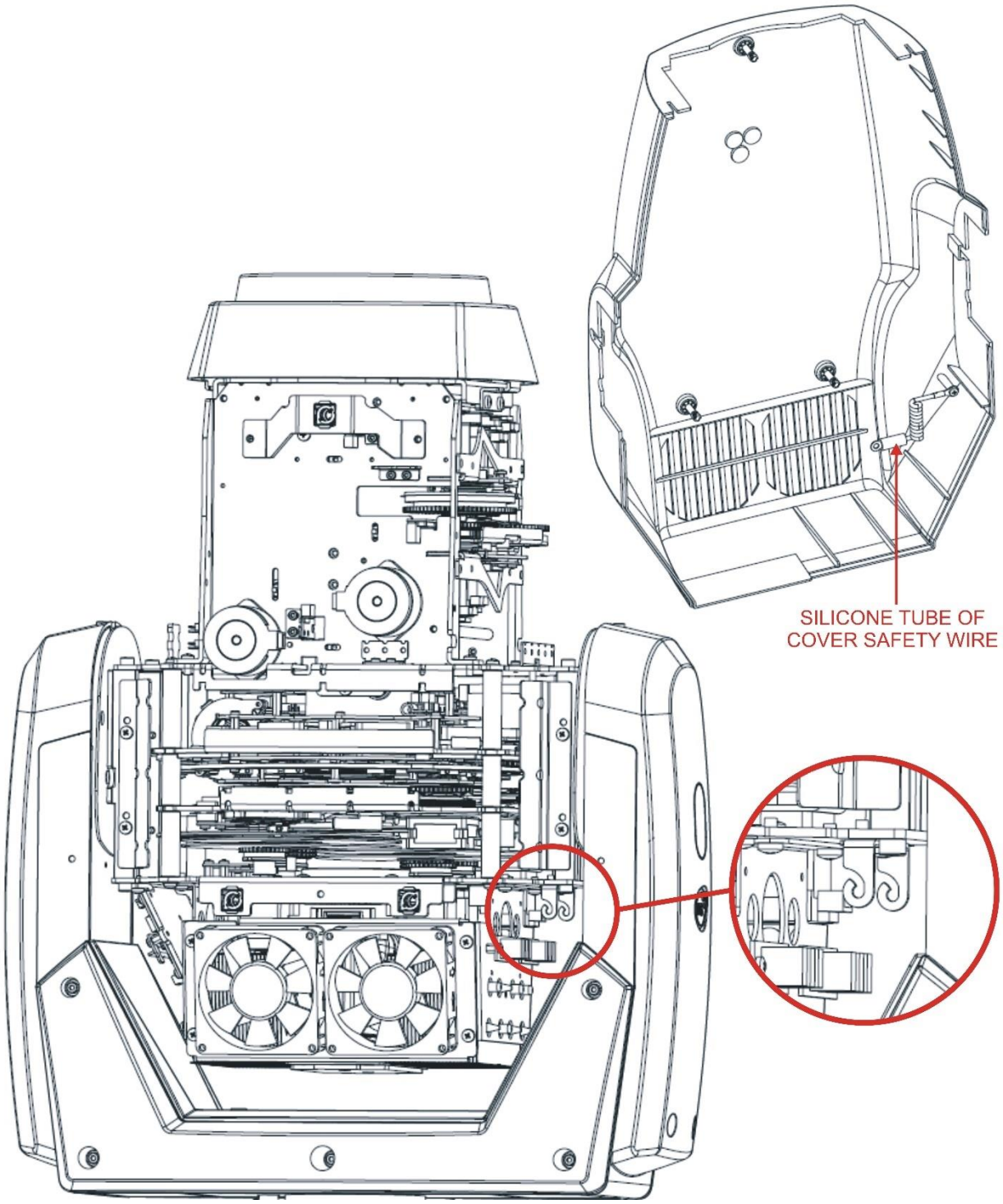
It is possible to inspect the inside of the projector by removing the covers, as indicated below.

**WARNING! Remove mains power prior to accessing the projector's internal components.**

1) Using a flat bladed screwdriver, loose the four "¼-turn" screws that fix the head covers on both sides.



2) Remove each cover, then slide away the protective silicone tube from the safety wire. Unhook the wire in order to access the internal components of the head.

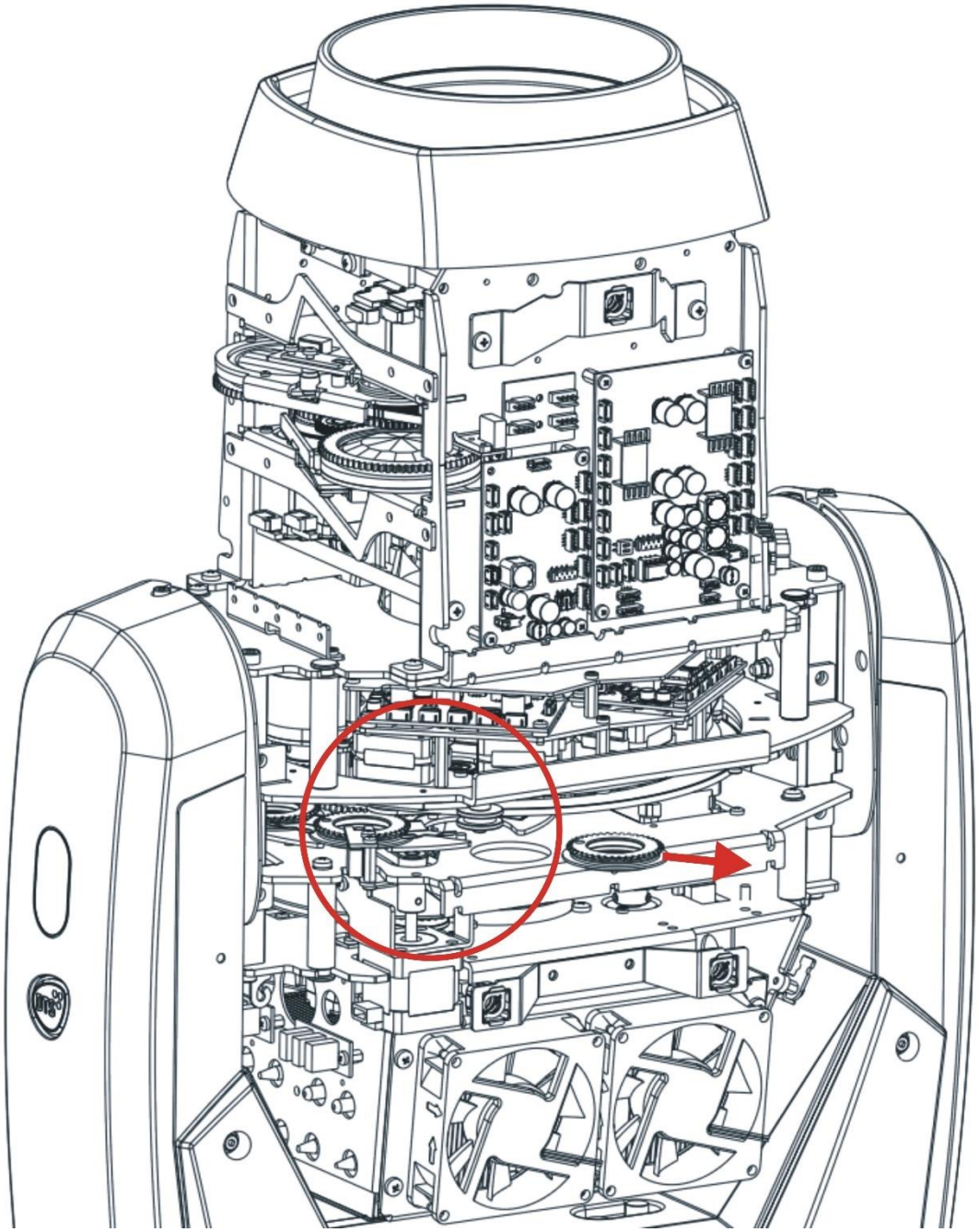


# 19 Removing / Replacing the rotating gobos

SYNERGY 6 PROFILE uses a mechanical system which allows the fixture's gobos to be removed without the use of special tools.

When replacing gobos, ensure that the projector is switched off.

Open the projector housing as described on pages 30 / 31 and pull out the gobo holder from the rotating gobo wheel as shown in the picture below.



# 20 Rotating Gobo Dimensions

Replacement gobos should be made in either dichroic glass or metal.

Gobo dimensions are as follows:

**Rotating gobos**

ø external (ED) = 27.9 mm + 0 / - 0,1 mm

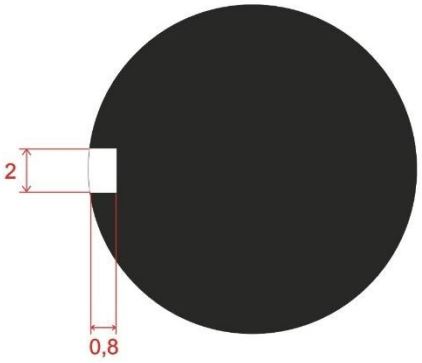
ø of image (ID) = 21.0 mm

thickness = from 0.2 to 2,2 mm (see catalogue)



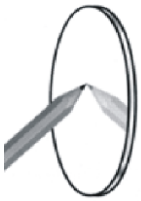
**Ø external (ED) = 27.9 mm**
**Ø of image (ID) = 21.0 mm**

**REFERENCE FOR GOBOS INDEX**
**(Ablation process as per image)**




**Coated side**

When an object is held up the coated side of the glass gobo there is no space between the object and its reflection.



**Coated side**

**Uncoated side**

When an object is held up the uncoated side of the glass gobo there is a space between the object and its reflection.

**Uncoated side**

**Load with coated surface toward the light source.**

# 21 Periodic Cleaning

**WARNING! Disconnect from mains before servicing**.

## *21.1 Lenses and Filters*

Even a fine layer of dust can substantially reduce the luminous output.

Excessive dust, smoke fluid, and particle buildup can degrade and seriously damage lenses and dichroic filters.

It is recommended to regularly clean all lenses and glass filters using a soft cotton cloth, dampened with a dedicated lens cleaning solution.

Maintenance period may vary, depending on environmental conditions.

## *21.2 Fans and Air Passages*

The fans and air passages must be cleaned approximately every 6 weeks.

This time period will of course vary depending on the conditions in which the projector is operating.

Suitable instruments for performing this type of maintenance are a brush and a common vacuum cleaner or air compressor.

If necessary, clean the fans and air passages more frequently than suggested.

# 22 Periodic Check-ups

**WARNING! Disconnect from mains before servicing.**

## *22.1 Mechanical Parts*

Periodically check all mechanical parts, gears, guides, belts, etc., for wear and tear. Replace them if necessary.

Periodically check the lubrication of all components, particularly the parts subjected to high temperatures.

If necessary, apply suitable lubricant (available from your DTS distributor) where needed.

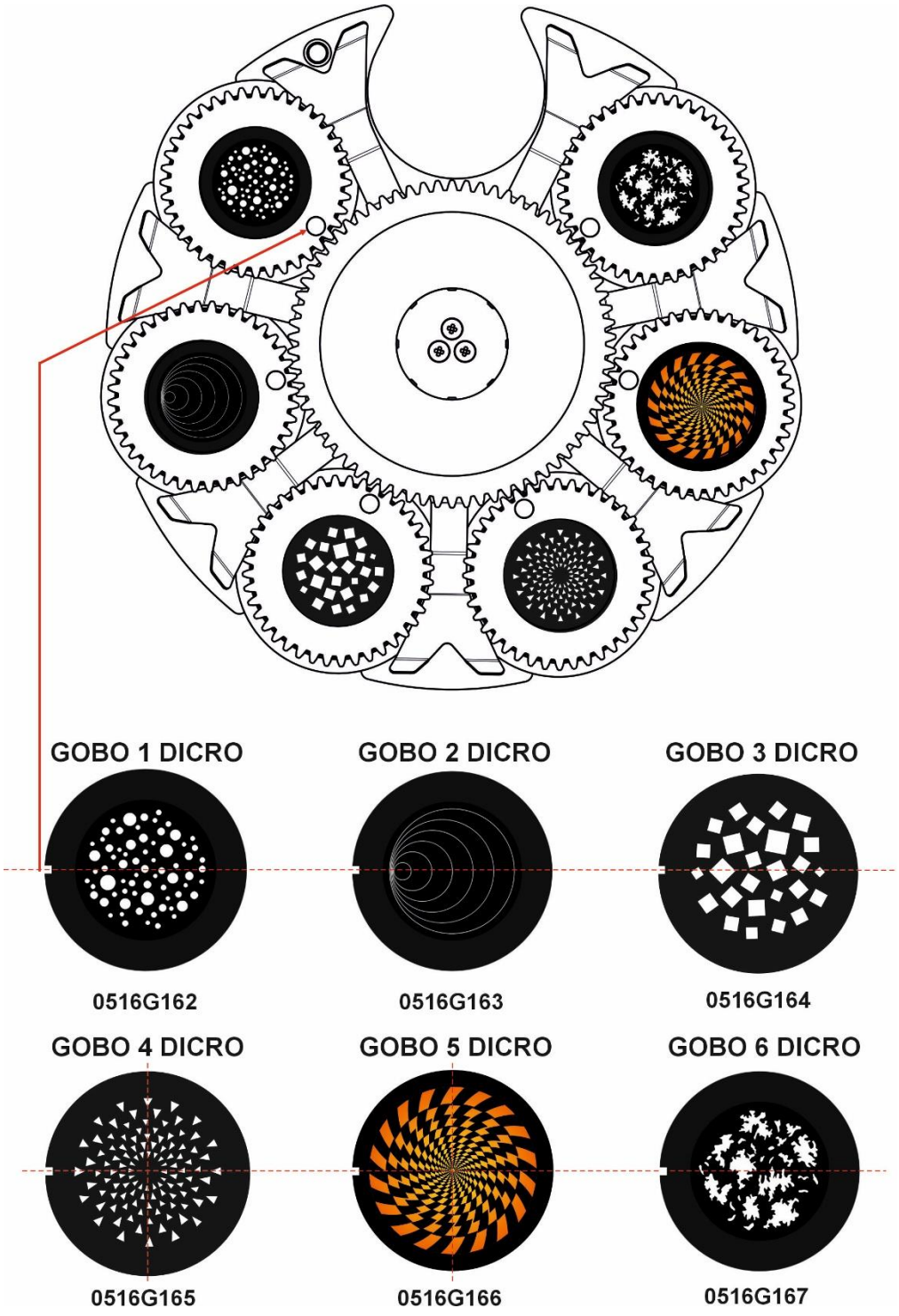
Check the tension of the belts and adjust them where necessary.

## *22.2 Electrical Components*

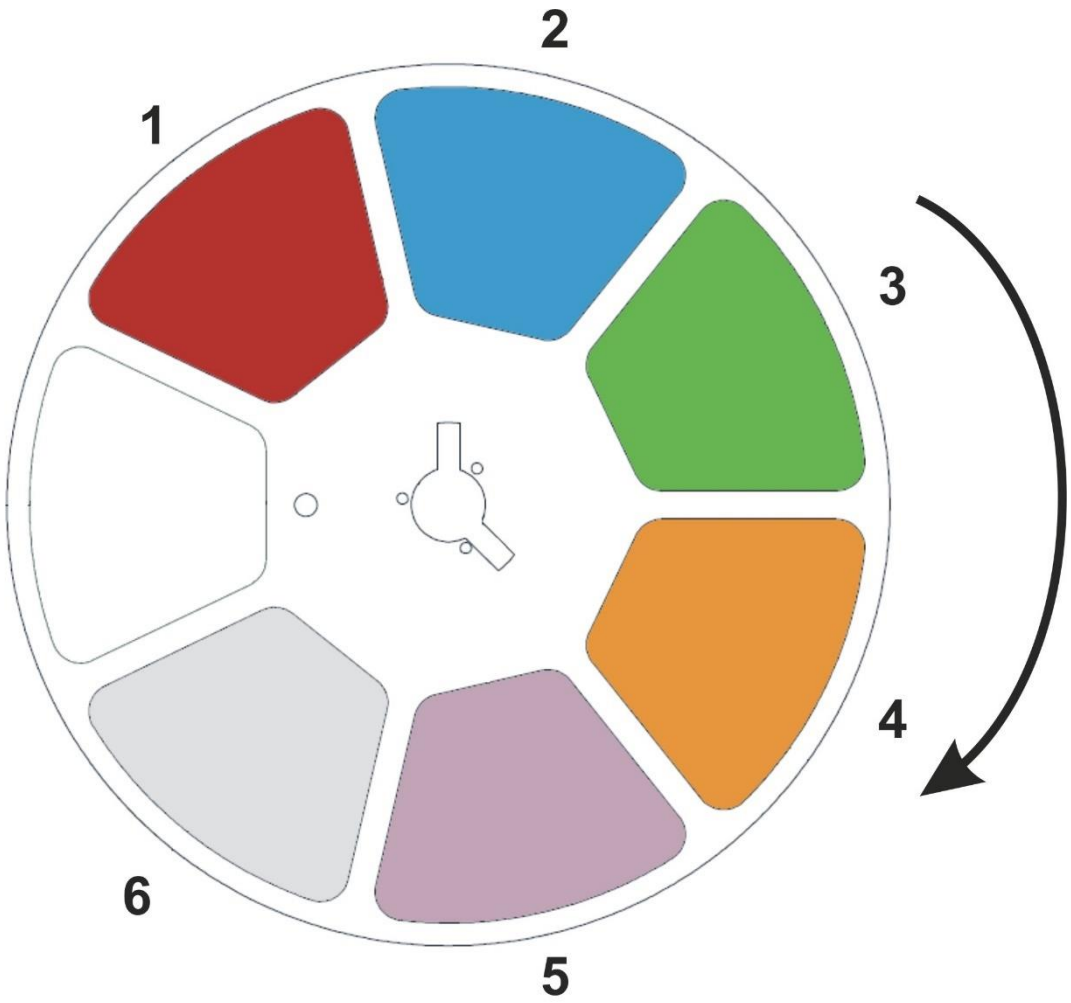
Check all electrical components for correct earthing and proper connection of all connectors. Refasten where necessary.

# 23 Rotating Gobo Wheel

Rotating gobos need to be installed by following the references shown in the picture below to have a properly indexing:
Each gobo must be mounted into its gobo holder by keeping the notch on the edge towards the gobo holder magnet.
Magnet of gobo holder must be oriented towards the center of the wheel.



# 24 Color Wheel




| COLOUR 1 | COLOUR 2 | COLOUR 3 | COLOUR 4 | COLOUR 5 | COLOUR 6 |
|---|---|---|---|---|---|
| DARK RED | NAVY BLUE | DARK GREEN | AMBER | PURPLE | HIGHER CRI |
| 0507C059.D23 | 0507C077.D23 | 0507C067.D23 | 0507C066.D23 | 0507C078.D23 | 0507K010.D23 |

# NOTES

## ISO 9001:2015

DTS quality system is certified to the ISO 9001:2015 standard.

ITALIAN
PROFESSIONAL
LIGHTING

D.T.S. Illuminazione S.r.l.
via Fagnano Selve, 12/14
47843 Misano adriatico (RN) Italy
+39 0541 611131
www.dts.lighting - info@dts-lighting.it