



PRO LINE
professional show lighting

SGM
Technology for Lighting

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Art Direction e progetto grafico Acantocomunicazione

SYNTHESIS SPOT 700 IS THE FIRST OF A NEW GENERATION OF MOVING HEAD FIXTURES DESIGNED AND BUILT BY SGM FOR TOP-LEVEL PROFESSIONAL APPLICATIONS. TWO TYPES OF INTERCHANGEABLE 700W LAMPS, WITH AUTOMATIC HOT RE-STRIKE, COLOUR MIXING, AN UNBEATABLE PRECISE CLEAR DIMMER, AUTOMATIC ELECTRONIC PAN/TILT UNLOCKING, SILENT OPERATION, AS IS THE TRADITION WITH SGM FIXTURES, AND AS BRIGHT AS REQUIRED BY SGM STANDARDS. SYNTHESIS SPOT 700 IS A COMBINATION OF THE BEST FEATURES AUTOMATED FIXTURES CAN OFFER.

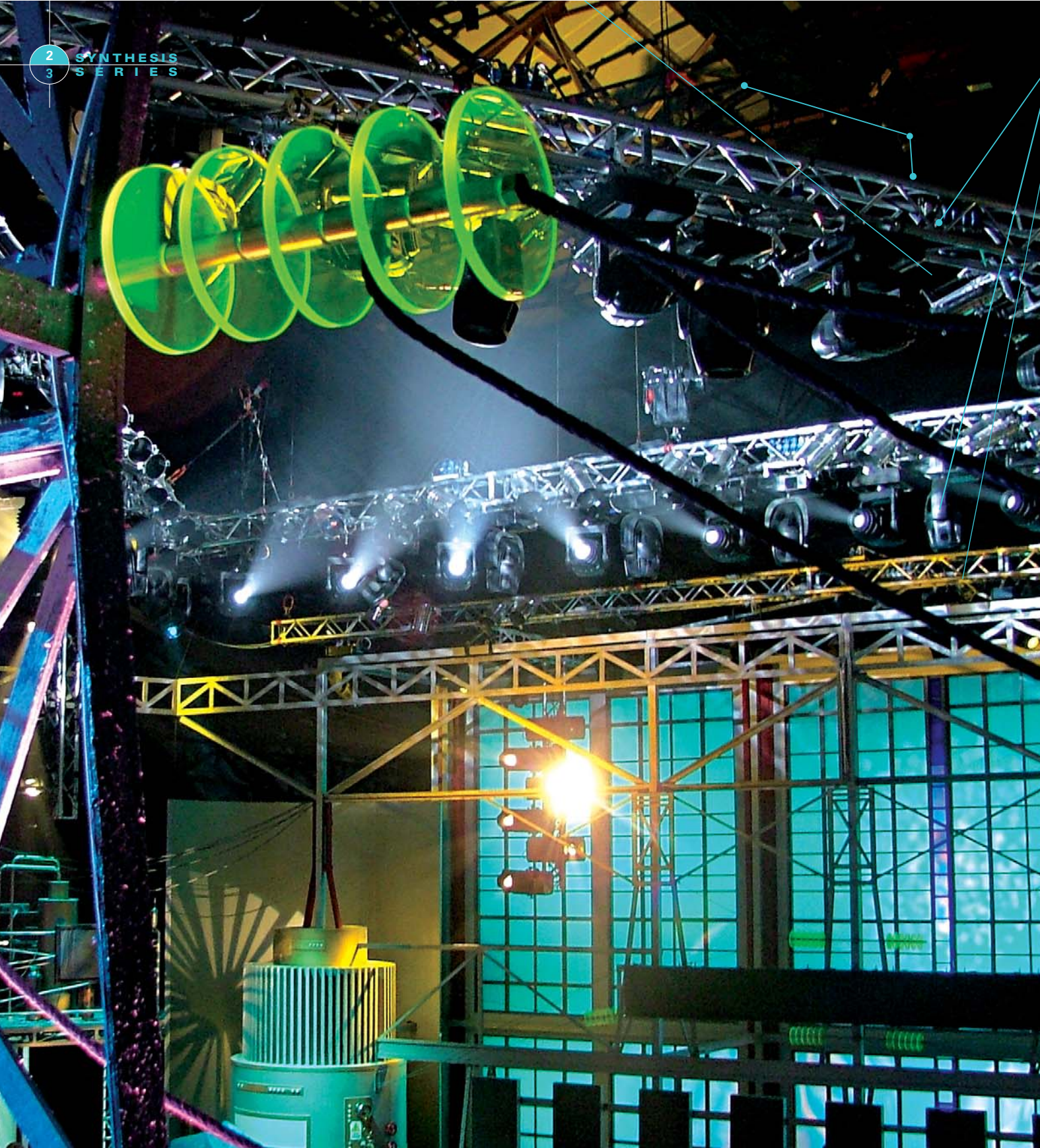
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PROFESSIONAL MOVING HEADS



**SYNTHESIS
SPOT 700
WASH 700**

SGM
Technology for Lighting



S Y N T H E S I S 7 0 0 S E R I E S

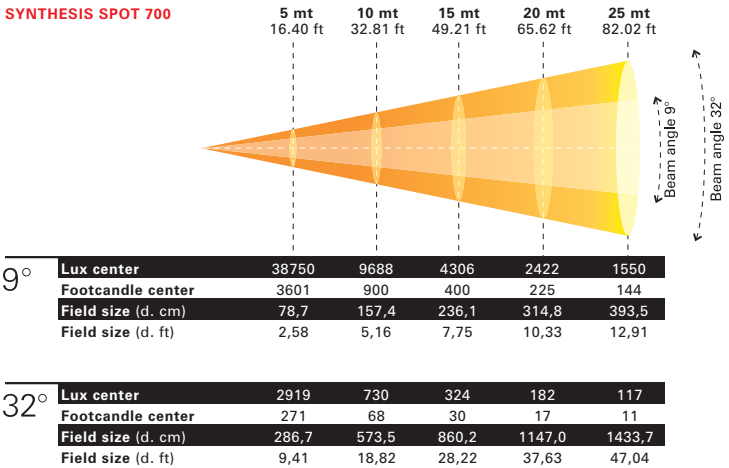
SYNTHESIS is the new generation of moving head fixtures designed and manufactured by SGM for leading edge professional applications.

SYNTHESIS 700 fixtures have a heart that beats at 700 Watts, but unleash power comparable to a 1200 Watt light source and are fitted with outstanding components that are exclusive on the lighting market: **Wireless DMX**. As standard, **RDM Protocol** implemented on **DMX and Ethernet Interface**. The SYNTHESIS series is a combination of the best features automated fixtures can offer.

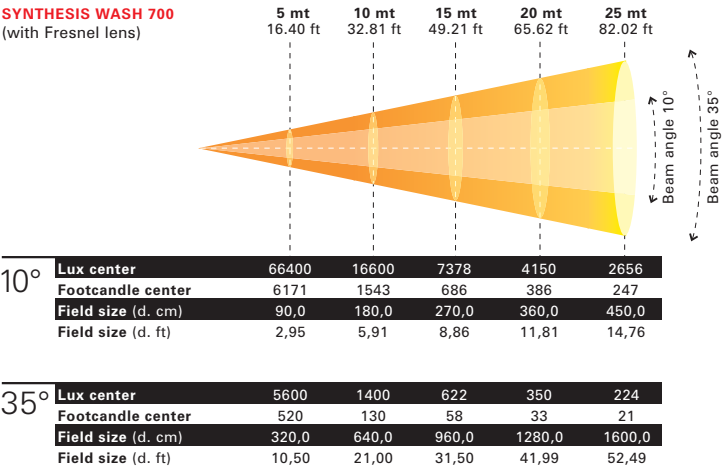




SYNTHESIS SPOT 700



SYNTHESIS WASH 700
(with Fresnel lens)



01: Wireless DMX

The **SYNTHESIS 700** series is the world's first moving head fixture fitted with wireless DMX control as standard. The AFHSS-derived technology used has an operating radius of over 500 metres, and has been widely tested in locations with Wi-Fi, Bluetooth and GPRS-UMTS signals.

02: RDM Protocol

SYNTHESIS 700 series units are the world's first moving head fixtures featuring RDM protocol implemented on DMX as standard. The 2-way (talkback) protocol enables real-time fixture control and monitoring, and the units are able to send information and messages regarding their status.

03: Ethernet Interface

The **SYNTHESIS 700** series is the first in the world equipped as standard with an Ethernet interface that enables the fixture to be controlled via Art-net data transmission protocol.

04: Luminous efficiency and energy saving

The power of 1200W with the consumption of 700: the perfect combination. Brightness: this is the feature that distinguishes **SYNTHESIS 700 series** on the scenario of fixtures if the same class and puts it alongside products in the 1200W class. The combination of advanced technical choices:

- short arc single-ended lamp;
- high efficiency dichroic reflector designed specifically for the lamp;
- heat filters with low visible light reduction;
- optimized optics with special surface finish,

enable to achieve a result in terms of brightness up to the standards SGM users are accustomed to. As well as this, **SYNTHESIS 700 series** adds considerable saving in terms of energy and costs, as well as lower environmental impact.

05: Optical group

SYNTHESIS 700 series is fitted with a **700W hot re-strike HTI SE discharge lamp** used along with an optical group that gives extraordinary luminous power:

- SYNTHESIS WASH 700 **66,400** Lux at 5 m.
- SYNTHESIS SPOT 700 **38,750** Lux at 5 m.

To meet the fixture's various application requirements, in collaboration with OSRAM, we have developed **two lamps** that are identical from the mechanical and electronic point of view (to be able to be fitted in the same fixture) but with two different colour temperatures: 7200°K and 5600°K. Each lamp is distinguishable by the brand and enables to achieve the best possible performance, by means of a simple replacement (without the use of a CTO filter).

06: Variable zoom

The variable zoom allows linear beam adjustment maintaining extraordinary intensity.

- SYNTHESIS WASH 700

Fresnel lens between 8° and 40°

PC Antialo lens between 7° and 37°

Super Wide lens between 60° and 80°

- SYNTHESIS SPOT 700

between 9° and 32°





07: On-board microcomputer

SYNTHESIS 700 series is fitted with a microcomputer that allows to customize the fixture according to the type of installation. It's possible to set pan and tilt movement, obtain information on lamp life and fixture running time, run test programs, etc., all using the built-in display.

08: Setting parameters on the display

SYNTHESIS 700 series offers the possibility of setting all the necessary operating parameters, even without a mains power supply. This feature is particularly useful for applications involving mobile rigs.

09: Automatic Pan/Tilt unlocking

A unique feature in the market, and particularly useful for touring applications, where it's necessary to constantly transport fixtures with their pan and tilt blocked. Should the operator forget, the fixture automatically unlocks Pan and Tilt when it is switched on.

10: 400V Protection

A unique system at world level for safeguarding electronic components. Those working in the live entertainment industry are well aware of what happens when the power supply's neutral wire comes loose! The fixture gets a 400V "shock" that causes considerable damage.

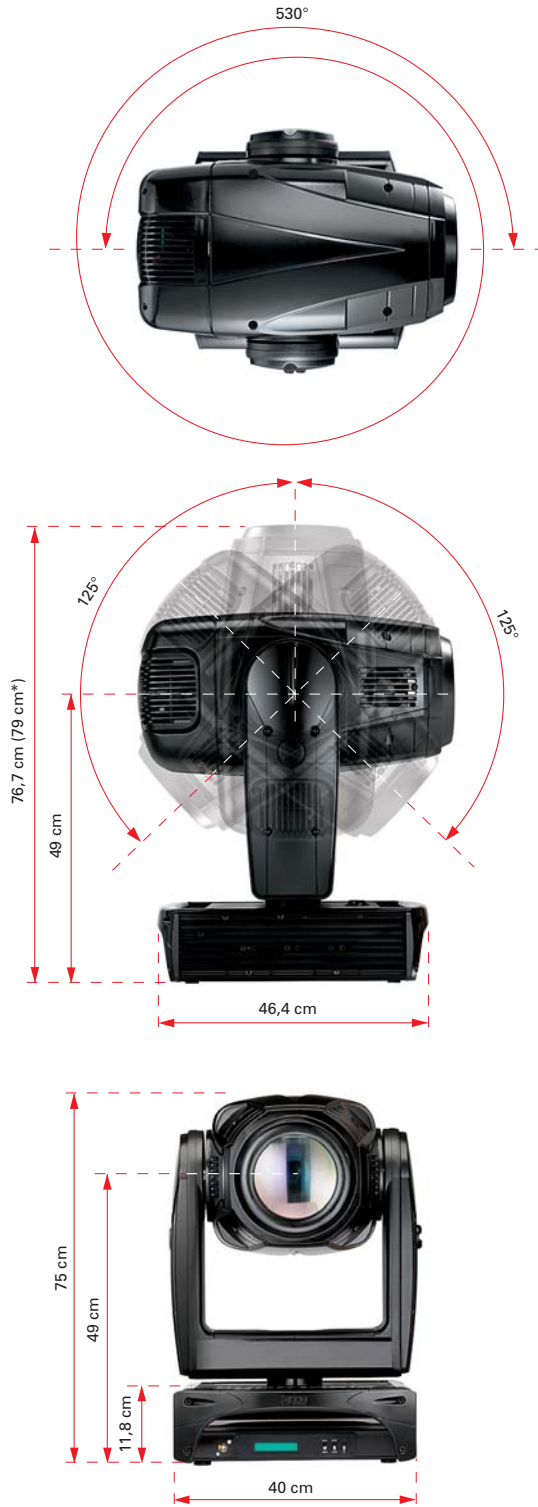
SYNTHESIS 700 series is protected against "Misfortune". All Sythesis' electronic components are designed to ensure protection against accidental incorrect power supplies.



11: Precise rapid movement

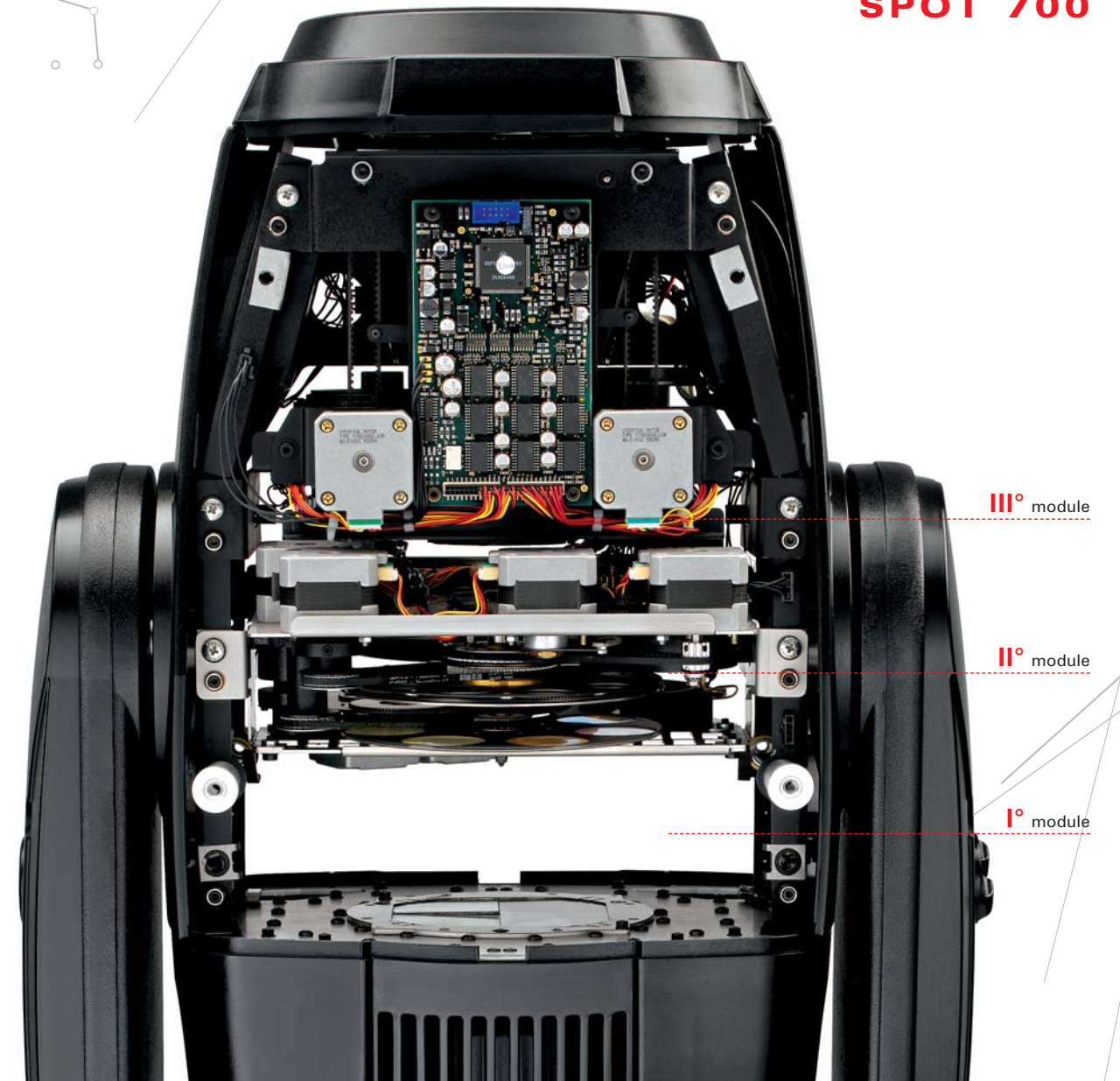
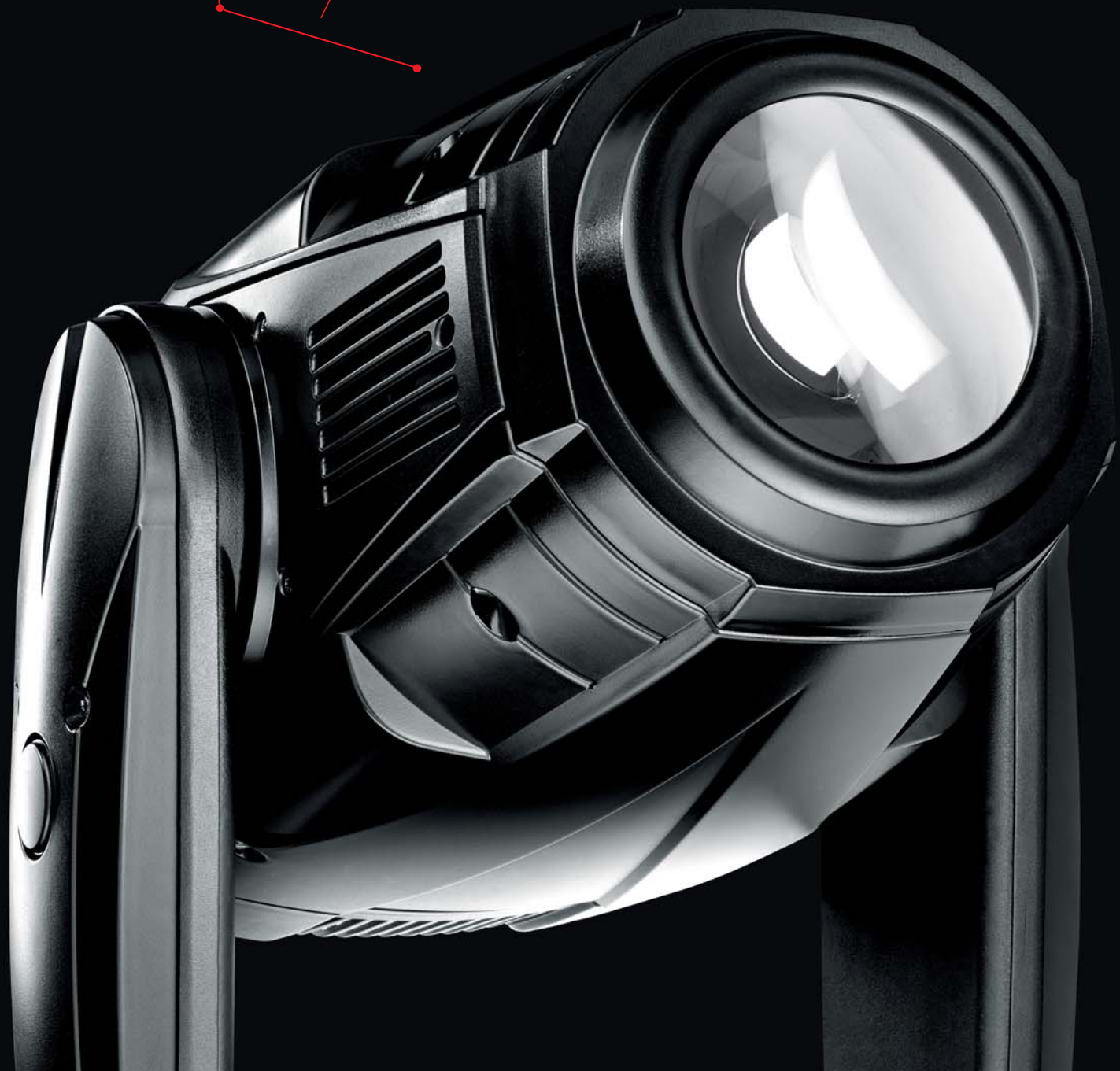
Movement precision and speed are ensured by powerful stepper motors. Control is entrusted to a 16- bit system, inertia and acceleration times perfectly distributed and the excellently balanced mechanism guarantee precise smooth movement and high speed (530° PAN in 4 seconds and 250° TILT in 3,4 seconds).

* SYNTHESIS WASH 700



12: Silent operation

A SGM tradition that fears no comparison. Intense study and research work have led to optimisation of the cooling system for the lamp and the parts of the fixture exposed to light. This result, along with the control of the temperature in every critical zone of the fixture, ensures that **SYNTHESIS 700 series** operates with maximum silence.



01:

Modular construction

Three independent modules, great flexibility. The **SYNTHESIS SPOT 700** head was designed according to a totally new concept: this has enabled all the fixture's functions to be divided into three modules.

Each module is independent from the others from the point of view of electronics and mechanics, and can be extracted by removing two quarter-turn screws and a 4-pin connector.

- The first module contains: The CMY CTO dimmer.
- The second module contains: 2 gobo wheels, 1 colour wheel, animation wheel and iris diaphragm.
- The third module contains: focus-zoom, shutter, prisms and additional lenses, frost.

I° module

02: Colour generation

SYNTHESIS SPOT 700 offers lighting designers an advanced **CMY mixing colour system** made of 3 palettes, which allows to obtain a uniform light beam and an infinite range of shades, from the most saturated to the softest colours, with efficient control of their tones. The CMY system is integrated by a **linear CTO filter** and a further **colour wheel** with 6 colours + white.

Combined Dimmer CMY operation

Uniformity and unequalled precision. The CMY colour system stands out from those of other fixtures in the same class for the smoothness of colour insertion and in particular for the operating uniformity when combined with the dimmer: practically fault-free.



II° module

03: Gobos / Animation Wheel

SYNTHESIS SPOT 700 has a comprehensive series of features to create a wide variety of lighting effects: **2 customizable gobo wheels** feature 8 rotating indexable gobos + white each), with high-precision 16 bit rotation and indexing. Gobos are easily interchangeable, and can include an almost endless variety of images taken from the wide SGM library or be custom made, in three different types: dichro gobo, metal gobo and glass gobo. An absolute innovation for the market, the animation wheel can be rotated 360° on its axis and round the gobo, as well as being easily interchangeable. A feature that ensures great versatility and unbeatable effects.



III° module

04: Focus / Zoom

This module contains: focus-zoom, shutter, prisms and additional lenses, frost.

Exclusive and perfect for shows, the additional lens can be enabled by means of a DMX command and offers three different types of interchangeable functions:

- 2nd non - rotating overlapping prism
- extension of Zoom range
- Wash function

The additional lens multiplies the fixture's application possibilities – it's very useful for show applications and makes the Synthesis Spot 700 unique among the fixtures on the market.



05: Motorized zoom

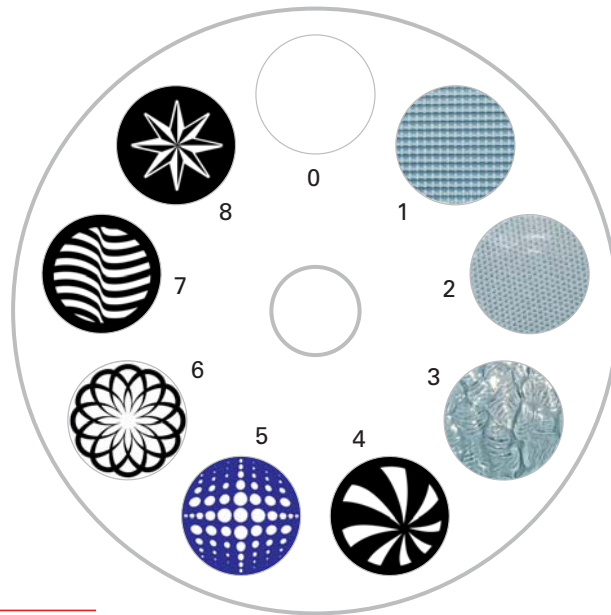
Projected images can be kept in focus at any projection angle and from any distance thanks to the motorized focus. The built-in motorized 9°- 32° zoom gives the lighting designer a wide range of beam angles.



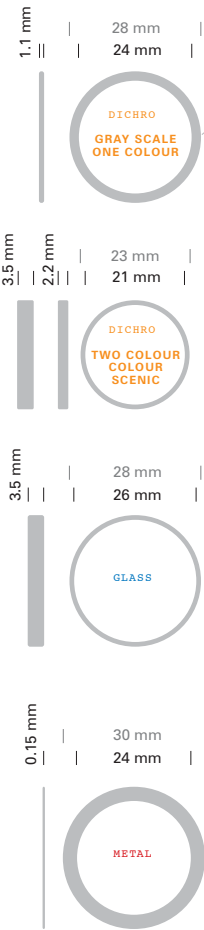
GOBO DISPOSITION



- Gobo Wheel 1**
(2101331)
- 0. Empty
 - 1. D4F0122 **DICHRO**
 - 2. D4F0114 **DICHRO**
 - 3. D4F0123 **DICHRO**
 - 4. D4F0125 **DICHRO**
 - 5. D4F0126 **DICHRO**
 - 6. D4F0119 **DICHRO**
 - 7. D6F0039 **DICHRO**
 - 8. D4F0116 **DICHRO**



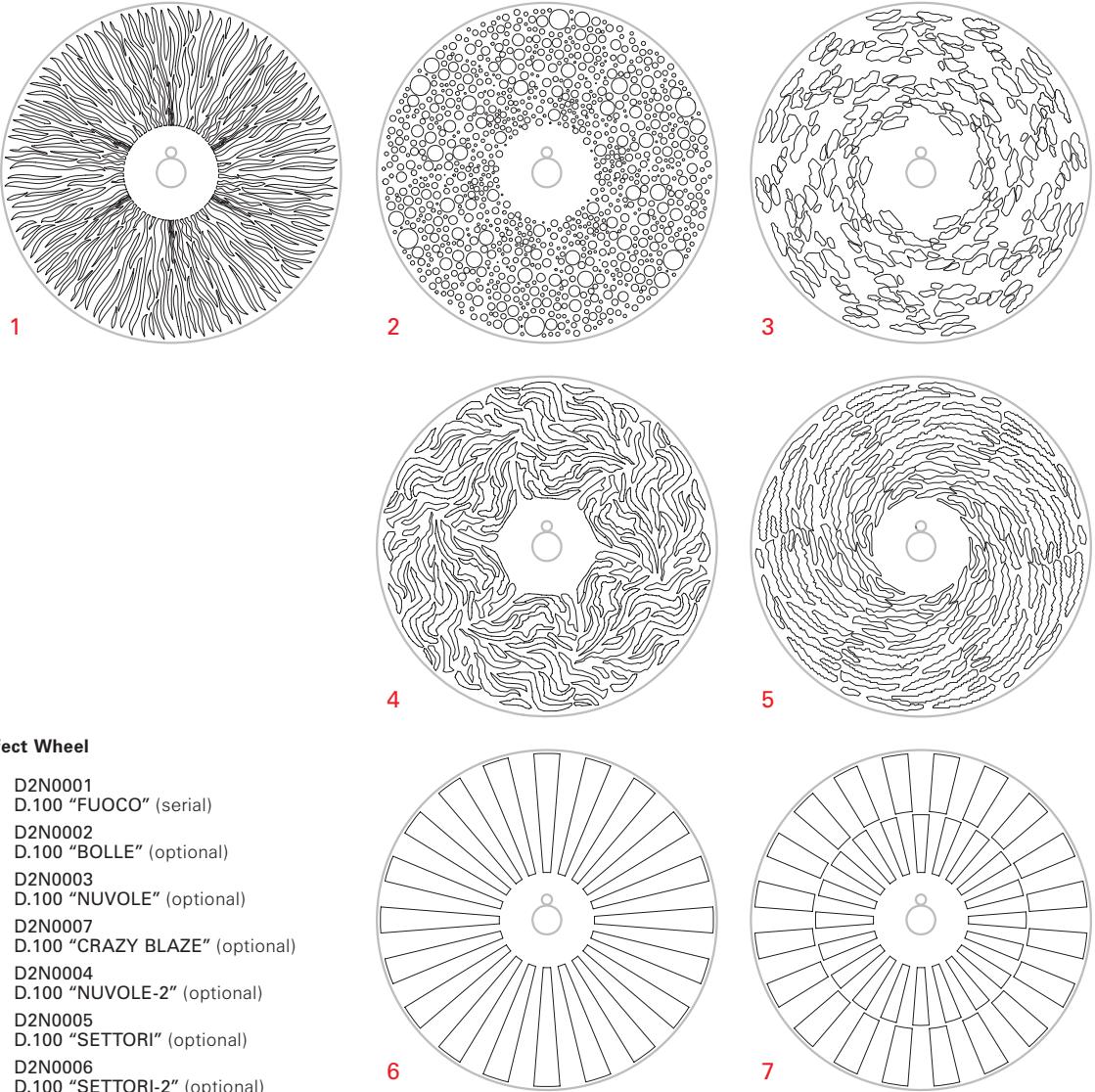
- Gobo Wheel 2**
(2101332)
- 0. Empty
 - 1. D8F0002 **GLASS**
 - 2. D8F0012 **GLASS**
 - 3. D8F0008 **GLASS**
 - 4. D4F0121 **DICHRO**
 - 5. D4F0117 **DICHRO**
 - 6. D4F0120 **DICHRO**
 - 7. D4F0118 **DICHRO**
 - 8. D4F0124 **DICHRO**



Metal D
Dichro Grayscale F
Dichro 1 colour F
Dichro 2 colour H
Dichro Colour Scenic H
Glass Texture F
Glass Crushed F
Animation Wheel N

(1) A040139 - Bezel
(2) A040287 - Bezel

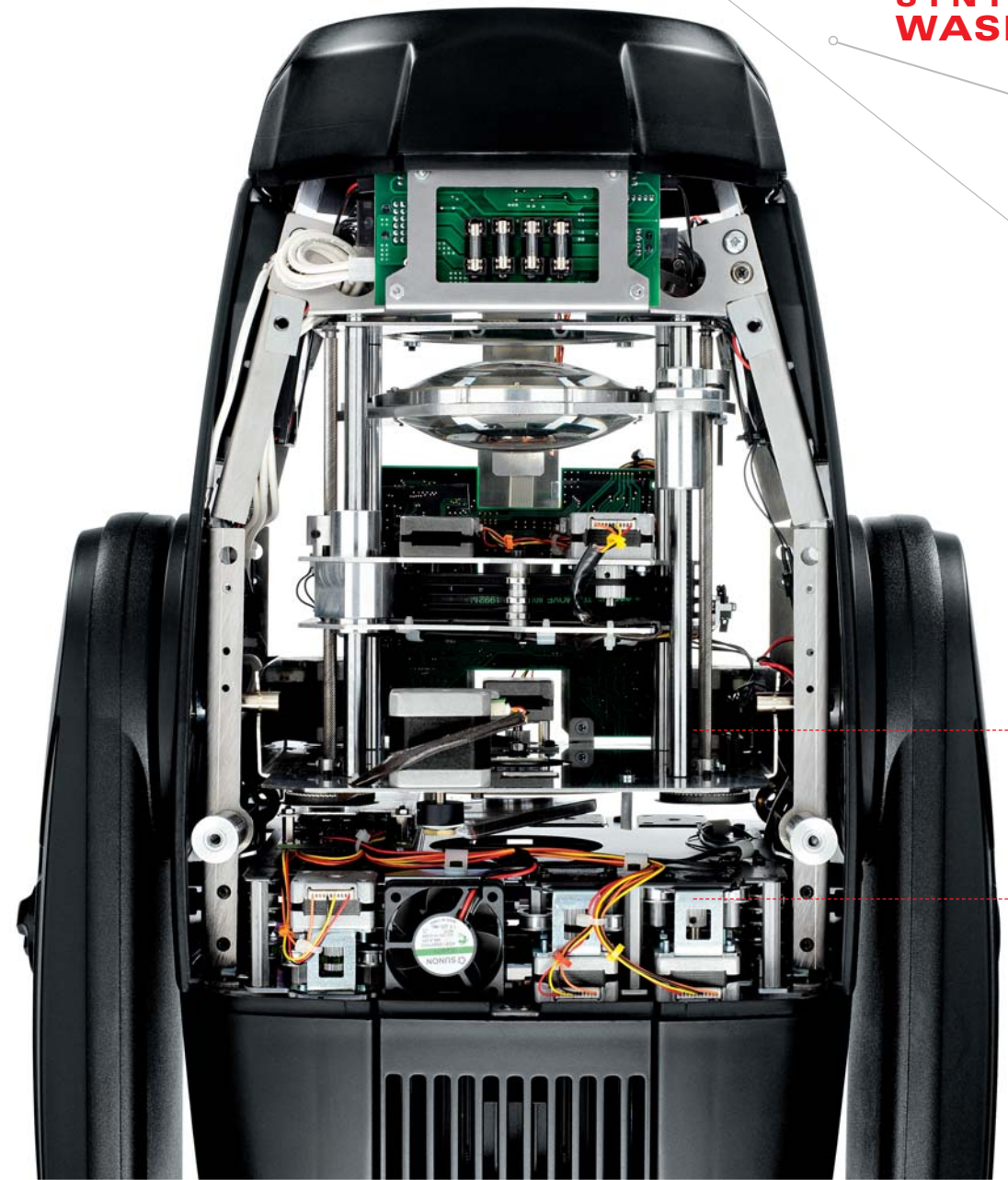
ANIMATION WHEEL



- Effect Wheel**
- 1. D2N0001
D.100 "FUOCO" (serial)
 - 2. D2N0002
D.100 "BOLLE" (optional)
 - 3. D2N0003
D.100 "NUVOLE" (optional)
 - 4. D2N0007
D.100 "CRAZY BLAZE" (optional)
 - 5. D2N0004
D.100 "NUVOLE-2" (optional)
 - 6. D2N0005
D.100 "SETTORI" (optional)
 - 7. D2N0006
D.100 "SETTORI-2" (optional)



SYNTHESIS WASH 700



01:

Modular construction

Two independent modules ensure utmost operating and maintenance flexibility. The head of the **SYNTHESIS WASH 700** was designed according to the concept already used for the Synthesis Spot 700: this enabled to divide all the mechanical and optical parts of the fixture into just two easily extractable modules. Each module is independent from the other from the point of view of electronics and mechanics, and can be easily extracted by removing two quarter-turn screws and a 4-pin connector.

I° module

02: **CMY, Dimmer and CTO**

SYNTHESIS WASH 700 offer lighting designers a leading edge **CMY** colour mixing system that ensures an endless range of colours, from the deepest to the softest, with effective control of their tones.

The CMY system integrates a linear **CTO** filter and a wheel with 4 deep colours + white.

The light emitted is mechanically controlled by two metal dimmer blades that regulate light beam output smoothly and gradually.



II° module

03: **Beam shaper, diaphragm, zoom lens, frost, colour wheel and strobe**

SYNTHESIS WASH 700 is fitted with an optic system that is unique in the wash fixture category.

The built-in 2-blade **beam shaper** is adjustable, with continuous indexing from 0 to 180°, enabling to sculpt the light beam to meet specific needs and ensuring high-precision lighting of specific areas of the set.

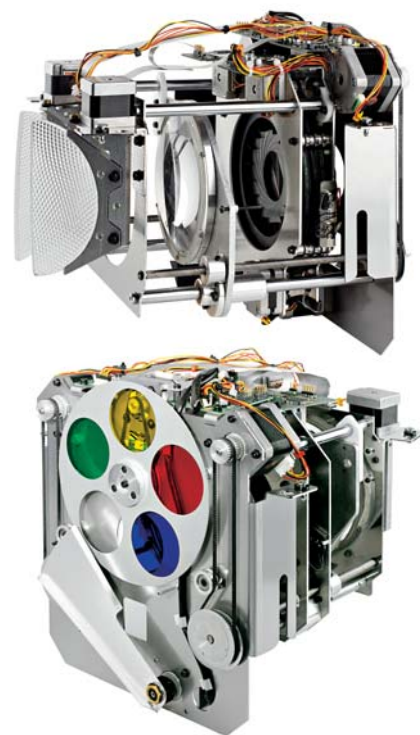
The built-in **diaphragm** gives sooth control that can be adjusted from an aperture of 0 mm to 90 mm, allowing to adjust the soft edge effect.

The **Zoom lenses** enable to adjust beam aperture from a minimum of 6° to a maximum of 40°.

The **Frost lens** ensures even beam coverage extends the zoom range to 40°.

The **strobe** effect is obtained with an ultra-light aluminium blade that opens and closes the lens at a rate of from 1 to 12 flashes per second and, if necessary, can be used for total black-out.

This system ensures high speed and low operating noise, as well as a remarkable flexibility of use, thanks to the simultaneous use of the dimmer.





1.



2.



3.

04: Three types of interchangeable main lenses

SYNTHESIS WASH 700 is fitted with three interchangeable main lenses. Each lens gives the light beam different features and apertures.

1. FRESNEL LENS

- diameter 200 mm.
- Zoom Range Min = 8° - Max = 40°

This lens is fitted as standard on the **SYNTHESIS WASH 700** and enables to obtain a beam for even colouring in the majority of applications.

2. ANTI-HALO PC LENS

- diameter 180 mm.
- Zoom Range Min = 7° - Max = 37°

Generates a narrow high-powered beam with a small amount of soft edge, suited to the creation of crisp clear-cut blades of light on the set.

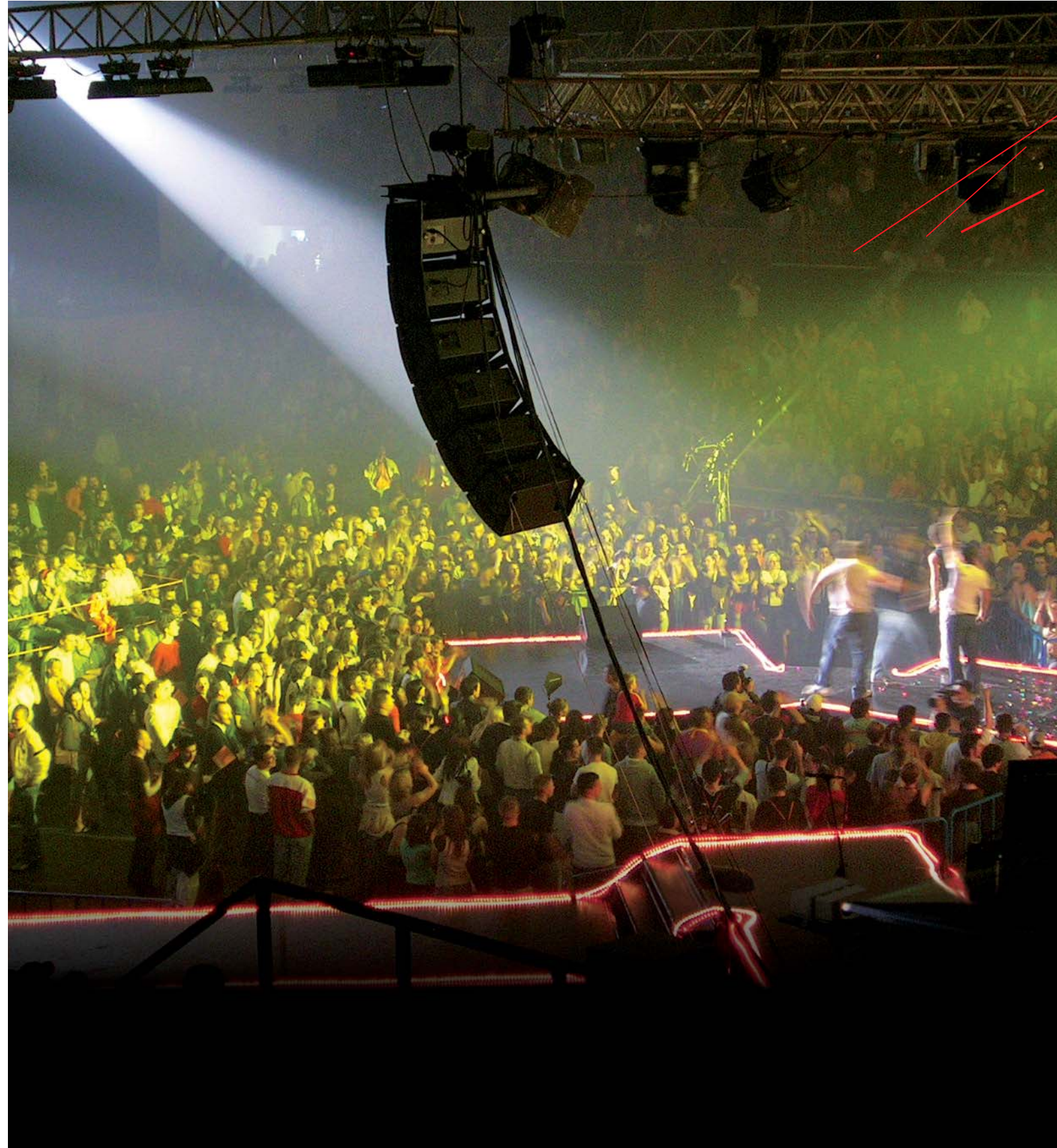
3. SUPER-WIDE LENS

- diameter 200 mm.
- Zoom range Min = 60° - Max = 80°

Ensure a very wide even aperture of the light beam – ideal for even illumination of very large areas. Due to its aperture, the super-wide lens completely eliminates the zoom effect.

05: Combined Dimmer CMY operation

The CMY colour mixing system distinguishes this fixture from others in the same class for its evenness and unbeatable precision, as well as the control of the dimmer: it's practically fault-free.



TECHNICAL SPECIFICATIONS

| | | |
|-----------------------|--|--|
| LAMP | <div><div>HTI 700W SE (7.200°K) or HTI 700W SE (5.600°K)</div><div><div><div>— Average lamp life 750 hr.</div><div>— Automatic hot restrike</div><div>— Remote Lamp on/off via DMX.</div><div>— Lamp power reduction in the event of overheating</div><div>— Lamp elapsed time and ignition counters</div></div></div></div> | <div><div>HTI 700W SE (7.200°K) or HTI 700W SE (5.600°K)</div><div><div><div>— Average lamp life 750 hr.</div><div>— Automatic hot restrike</div><div>— Remote Lamp on/off via DMX.</div><div>— Lamp power reduction in the event of overheating</div><div>— Lamp elapsed time and ignition counters</div></div></div></div> |
| COLOURS | <div><div>— Advanced CMY colour mixing</div><div>— Customizable colour wheel: 6 colours + white</div><div>— Linear CTO filter</div></div> | <div><div>— Advanced CMY colour mixing</div><div>— Customizable colour wheel: 4 colours + white</div><div>— Linear CTO filter</div></div> |
| GOBO | <div><div>— 2 customizable gobo wheels:</div><div>— 8 rotating indexable gobos 16-bit</div><div>— Gobo change in sync with or without music and/or with blackout</div><div>— Animation wheel (interchangeable); 360° rotation and revolution</div></div> | |
| EFFECTS | <div><div>— Linear frost</div><div>— 2-tone beams</div><div>— Colour change in sync with or without music and/or with blackout</div><div>— Rainbow colour</div><div>— UV light</div><div>— 1 rotating prism (4 facets)</div><div>— 1 overlapping non-rotating prism</div><div>— Linear iris diaphragm</div></div> | <div><div>— Frost lens</div><div>— Colour change in sync with or without music</div><div>— Rainbow colour</div><div>— Linear iris diaphragm</div></div> |
| OPTICS | <div><div>— Motorized zoom 9°-32°</div><div>— Motorized focus</div></div> | <div><div>— Motorized zoom</div><div>— Fresnel lens 8°-40°</div><div>— PC Antialo lens 7°-37°</div><div>— Super Wide lens 60°-80°</div></div> |
| DIMMER-SHUTTER-STROBE | <div><div>— Linear dimmer</div><div>— Shutter</div><div>— Strobe 1-12 flashes per second, also with music sync.</div></div> | <div><div>— Linear dimmer</div><div>— Shutter</div><div>— Strobe 1-12 flashes per second, also with music sync.</div></div> |
| PAN-TILT | <div><div>— Pan 530° 4 sec.</div><div>— Tilt 250° 3,4 sec.</div><div>— Pan/Tilt lock; electronic Pan/Tilt unlock</div><div>— Pan/Tilt w. 8/16 bit resolution</div><div>— Automatic Pan/Tilt repositioning</div></div> | <div><div>— Pan 530° 4 sec.</div><div>— Tilt 250° 3,4 sec.</div><div>— Pan/Tilt lock; electronic Pan/Tilt unlock</div><div>— Pan/Tilt w. 8/16 bit resolution</div><div>— Automatic Pan/Tilt repositioning</div></div> |
| INPUT | <div><div>— DMX 512 or RS 232 input signal</div><div>— 35 DMX channels</div><div>— Ethernet interface (ART-NET protocol)</div><div>— Wireless DMX interface as standard</div><div>— RDM protocol implemented on DMX (monitoring internal parameters)</div></div> | <div><div>— DMX 512 or RS 232 input signal</div><div>— 20 DMX channels</div><div>— Ethernet interface (ART-NET protocol)</div><div>— Wireless DMX interface as standard</div><div>— RDM protocol implemented on DMX (monitoring internal parameters)</div></div> |
| SET UP | <div><div>— Settings via on-board microcomputer viewable on display, even with fixture off</div><div>— Display “flip” function 180° rotation</div><div>— Adjustable display brightness</div><div>— Fixture running time counter</div><div>— On-board temperature sensors (base, power, one for each module)</div><div>— Total fixture software update via DMX</div><div>— Graphic display (140 x 16)</div></div> | <div><div>— Settings via on-board microcomputer viewable on display, even with fixture off</div><div>— Display “flip” function 180° rotation</div><div>— Adjustable display brightness</div><div>— Fixture running time counter</div><div>— On-board temperature sensors (base, power, one for each module)</div><div>— Total fixture software update via DMX</div><div>— Graphic display (140 x 16)</div></div> |
| POWER | <div><div>— Power supply with PFC (universal 90/245V 50/60Hz); protected against 400V</div><div>— Electronic Ballast</div></div> | <div><div>— Power supply with PFC (universal 90/245V 50/60Hz); protected against 400V</div><div>— Electronic Ballast</div></div> |
| CONSUMPTION | <div><div>— Max consumption: 1,000 W.</div><div>— Automatic energy saving in the event of blackout use</div></div> | <div><div>— Max consumption: 1,000 W.</div><div>— Automatic energy saving in the event of blackout use</div></div> |
| DIMENSIONS WEIGHT | <div><div>— (HxLxD): 76 x 43 x 46 cm</div><div>— 42 Kg</div></div> | <div><div>— (HxLxD): 79 x 43 x 46 cm</div><div>— 42 Kg</div></div> |
| CODE | <div><div>— Black code: 020_2470</div><div>— White code: 020_2471</div><div>— Silver code: 020_2472</div></div> | <div><div>— Black code: 020_2800</div><div>— White code: 020_2801</div><div>— Silver code: 020_2802</div></div> |

DMX CHANNELS

| |
|------|
| Ch1 |
| Ch2 |
| Ch3 |
| Ch4 |
| Ch5 |
| Ch6 |
| Ch7 |
| Ch8 |
| Ch9 |
| Ch10 |
| Ch11 |
| Ch12 |
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| Ch30 |
| Ch31 |
| Ch32 |
| Ch33 |
| Ch34 |
| Ch35 |

SYNTHESIS SPOT 700

| | |
|----------------------------|------------------|
| Pan MSB | Pan MSB |
| Pan LSB | Pan LSB |
| Tilt MSB | Tilt MSB |
| Tilt LSB | Tilt LSB |
| Iris | Iris |
| Colour | Colour |
| Gobo 1 | Frost |
| Shutter / Strobe | Shutter / Strobe |
| Dimmer | Dimmer |
| Gobo 1 rotation (MSB) | Shutter opening |
| Prism | Shutter rotation |
| Prism rotationa | Macro |
| Focus (MSB) | Focus (MSB) |
| Zoom | Zoom |
| Animation Wheel | Cyan |
| Frost | Magenta |
| M speed | M speed |
| Reset / Lamp | Reset / Lamp |
| Gobo 1 shake | Yellow |
| Colour Mode | CTO |
| Gobo 1 rotation mode | |
| Macro | |
| Gobo 1 rotation (LSB) | |
| Gobo 2 | |
| Gobo 2 rotation (MSB) | |
| Gobo 2 rotation (LSB) | |
| Gobo 2 rotation mode | |
| Gobo 2 shake | |
| Animation Wheel rotation | |
| Revolution Animation Wheel | |
| Cyano | |
| Magenta | |
| Yellow | |
| CTO | |
| Focus (LSB) | |



01: Easy installation

SYNTHESIS 700 series is powerful and versatile, yet compact and light weight; in fact, the fixture can be easily transported and installed, thanks to the practical handles and 'Fast Lock' hanging clamps.

02: Accessories

The sturdy dedicated **flight cases** effectively protect the fixtures from impact and falls during transport and storage. Flight cases are available in one or two fixture versions with or without wheels, and are fitted internally with accessories compartments.



