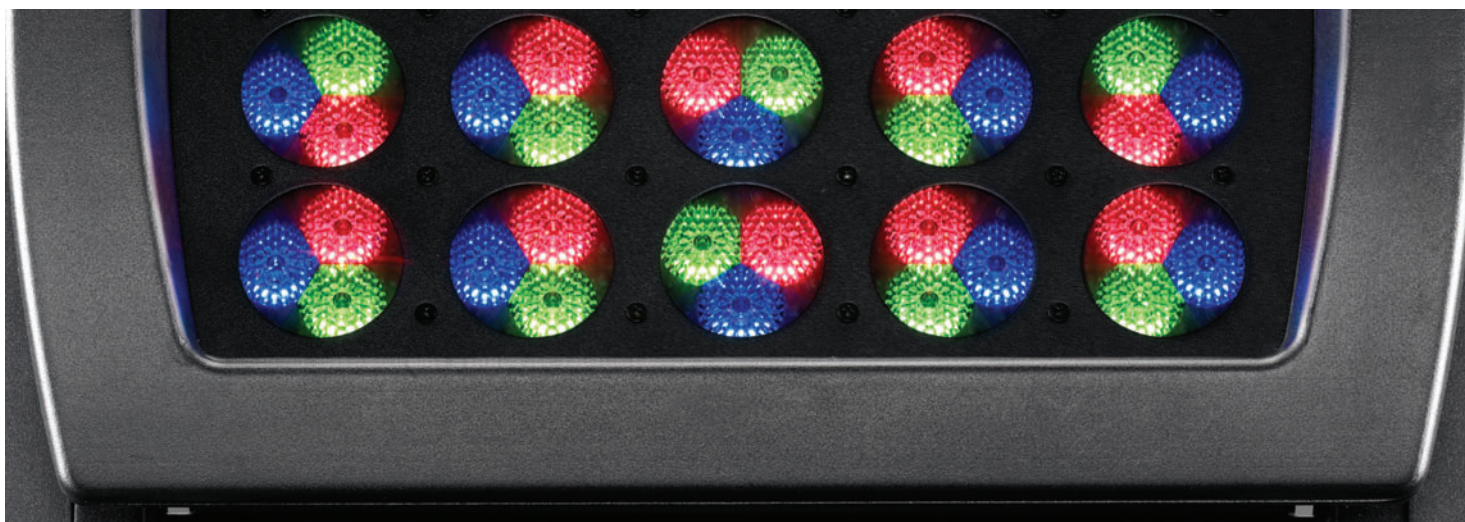




DELTA



The Lighting Company



DELTA Series LED colour changers

**DELTA R /
DELTA F /
DELTA TRILED R /
DELTA TRILED F /
DELTA TRILED R WHITE /
DELTA TRILED F WHITE**



**DELTA B /
DELTA TRILED B /
DELTA TRILED B WHITE**



**DELTA S /
DELTA TRILED S /
DELTA TRILED S WHITE**



Overview

DELTA is a colour changer with LED technology, with a high protection rating (IP65), for internal and external use.

DELTA projects an intense and perfectly uniform light beam, and can generate up to 16 million colours.

DELTA can be fitted with different optical units for installation at different distances from the surfaces and objects to be lit.

DELTA has a full-range AC 90-260 V 50-60 Hz power supply, and is therefore unaffected by voltage variations.

DELTA can be used independently or as part of large networks of colour changers (DMX protocol incorporated).

All DELTA functions (light intensity, colours, special effects, etc.) can be programmed and automatically reproduced in a prearranged sequence for a whole week.

DELTA is available in 12 versions suitable for different uses, and can be installed on the ground or floor, on walls and ceilings or on trusses, in vertical, horizontal or inverted positions.

The **DELTA** series is a radical advance on conventional LED colour changers.

DELTA series colour changers in fact offer users a choice between **2 different LED technologies** (RGB FULL COLOR and TRILED), **3 interchangeable optical units**, **sophisticated linear control over colour temperature** (3200°K ÷ 5500°K), exclusive **motorized or manual movement of the light fitting on 3 axes** (Pan, Tilt 1 and Tilt 2 on mobile-head models), and an **IP65 protection rating**, making them suitable for a vast variety of uses.

IP65 protection in a range of mobile heads is an absolute world novelty. From today it is possible to exploit the versatile movements of a mobile head and its capacity to aim its light beam anywhere, in many places that were previously impossible.

DELTA series colour changers can be used for many applications:

- professional (concerts, shows, special events);
- theatre and television (for uniform background colours and cycloramas);
- architecture, for lighting interiors (shopping centres, libraries, museums, homes, etc) and exteriors (buildings, monuments, public spaces, etc.).

Models

The DELTA series includes:

6 models of moving head colour changers:

- **DELTA R** ("RGB Full Color" LED technology, motorized movement).
- **DELTA F** (same characteristics, manual movement).
- **DELTA TRILED R** ("TRILED" LED technology, motorized movement).
- **DELTA TRILED F** (same characteristics, manual movement).
- **DELTA TRILED R WHITE** (white "TRILED" LED technology, motorized movement).
- **DELTA TRILED F WHITE** (same characteristics, manual movement).

3 models of colour changers with brackets (for fixed installation on walls or trusses, with manual movement):

- **DELTA B** ("RGB Full Color" LED technology).
- **DELTA TRILED B** ("TRILED" LED technology).
- **DELTA TRILED F WHITE** (white "TRILED" LED technology).

3 models of colour changers for embedded installation (for fixed ceiling installation):

- **DELTA S** ("RGB Full Color" LED technology).
- **DELTA TRILED S** ("TRILED" LED technology).
- **DELTA TRILED S WHITE** (white "TRILED" LED technology).

Optical units

For each model, three optical units that can be easily interchanged by users are available (**10°** (DELTA) / **8°** (DELTA TRILED), **25°** and **40°**), offering different light beam projection angles and optimized for the use of DELTA at different distances from the surfaces to be coloured.



DELTA (R / F)

DELTA is the brightest LED colour changer in its category.

The DELTA light source is composed of 40 RGB Full Color LED lights. Each LED has a power rating of 3 W, giving a total luminous flux of 2800 Lumens. Lighting efficiency is an excellent 260 Lux / 5 m (25° optical unit). The new RGB Full Color LED technology ensures radically enhanced quality in comparison with previous systems, offering a series of unmistakable advantages.

Perfect uniformity of light beams.

DELTA guarantees high mixing quality for RGB colours, with chromatic synthesis taking place directly inside each single LED, which can independently generate 16 million colours. DELTA therefore gives a perfectly uniform light beam, no matter what colour is used.

This ensures constantly regular and uniform projection on surfaces, unlike other systems in which the width and form of projected light beams changes when different colours are used.



No more colour separation effects.

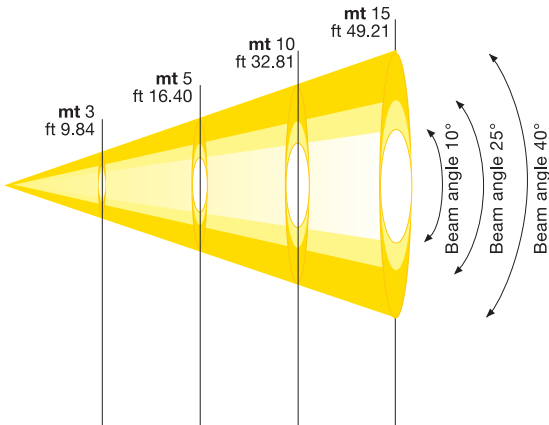
The 40 RGB Full Color LEDs inside each DELTA model all generate the same colour at the same time, so that the illuminated object is not only uniformly lit, but also projects no false shadows.

With other systems instead that generate 3 different colours to obtain the required shade, the illuminated objects project false and troublesome chromatic separation effects with three shadows of different colours.

Fine control over temperature colour.

White colour temperature can be varied on a linear range from 3200°K to 5500°K, a function that further enhances the versatility of DELTA, making it ideal for use in theatres, television studios, photo sets and a multitude of applications in the professional and architectural fields.

A DMX channel is dedicated specifically to this function.



Lux center	5270	2043	505	225	Beam angle 10°
Foot candles	532	190	47	21	
Diameter cm	52	87	175	262	
Diameter ft	1,71	2,85	5,74	8,60	
Lux center	700	260	65	29	Beam angle 25°
Foot candles	65	24	6	3	
Diameter cm	133	221	442	664	
Diameter ft	4,36	7,25	14,50	21,78	
Lux center	400	145	36	16	Beam angle 40°
Foot candles	37	13	3	1	
Diameter cm	218	362	728	1091	
Diameter ft	7,15	11,88	23,88	35,79	

DELTA - WHITE COLOUR PHOTOMETRIC CHART

DELTA TRILED (R / F)

DELTA TRILED is an extremely bright LED colour changer, thanks to the high efficiency (Lumen / Watt) of the 1 W LEDs used, over 40% more than similar 3 W LEDs.

The DELTA light source is composed of 20 TRILEDs.

Each TRILED has a power rating of 3W (1W Red, 1W Green, 1W Blue), and total luminous flux is 2400 Lumens.

Luminous efficiency is 270 Lux / 5 m (25° optical unit).

DELTA TRILED offers high uniformity of colour projection. Unlike other systems where LEDs are distributed over the illumination surface, DELTA TRILED uses modules composed of three LEDs close to each other (red, green and blue), guarantying uniform light emission without spots, with excellent even coverage of lighted areas with constant width and form of the projected light beam.

DELTA can generate 16 million colours, with accurate control over light

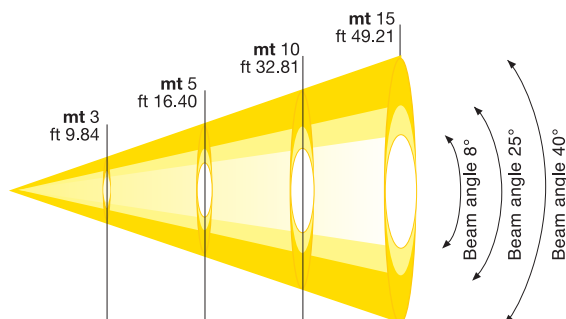
intensity and saturation.

Colour temperature can be varied over a linear range from 3200°K to 5500°K.

“Boost” Function

The “Boost” function (user selectable) allows the power of the installed LEDs to be increased up, boosting DELTA light output by up to 20%.

The power increase shortens LED duration e.g. boost max = -50% LED duration. If the Boost function is used, both these parameters should be taken into consideration.



Lux center	3200	1152	288	128	Beam angle 8°
Foot candles	297	107	27	12	
Diameter cm.	40	70	140	210	
Diameter ft.	1,31	2,30	4,59	6,89	
Lux center	750	270	68	30	Beam angle 25°
Foot candles	70	25	6	3	
Diameter cm.	133	221	442	664	
Diameter ft.	4,36	7,25	14,50	21,78	
Lux center	330	120	30	3	Beam angle 40°
Foot candles	31	11	3	0	
Diameter cm.	218	362	728	1091	
Diameter ft.	7,15	11,88	23,88	35,79	

DELTA TRILED - WHITE COLOUR PHOTOMETRIC CHART

DELTA TRILED WHITE (R / F)

DELTA TRILED WHITE is one of the brightest LED colour changers on the market, thanks to the high efficiency (Lumen / Watt) of the 1 W LEDs used, over 60% more than similar 3 W LEDs.

The DELTA light source is composed of 20 white TRILEDs.

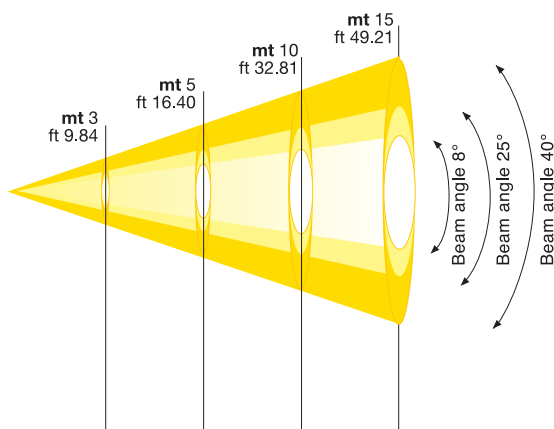
Each TRILED module (made of three 1W white LEDs) has a total power rating of 3 W; total luminous flux is 2.700 Lumens.

The DELTA TRILED WHITE is ideal in various applications where the generation of different colours is not needed.

The DELTA TRILED WHITE projects a white light beam with a great luminous efficiency (338 Lux at 5 mt with 25° optic), and provides a precise control over its colour temperature.

In fact the colour temperature of the white can be linearly controlled from 3.200°K to 5.500°K, through a dedicated DMX channel.

The DELTA TRILED WHITE therefore fits perfectly various applications (theatres, television sets, etc.) where white light must have well defined features.



Lux center	4000	1440	360	160	Beam angle 8°
Foot candles	372	134	33	15	
Diameter cm.	40	70	140	210	
Diameter ft.	1,31	2,30	4,59	6,89	

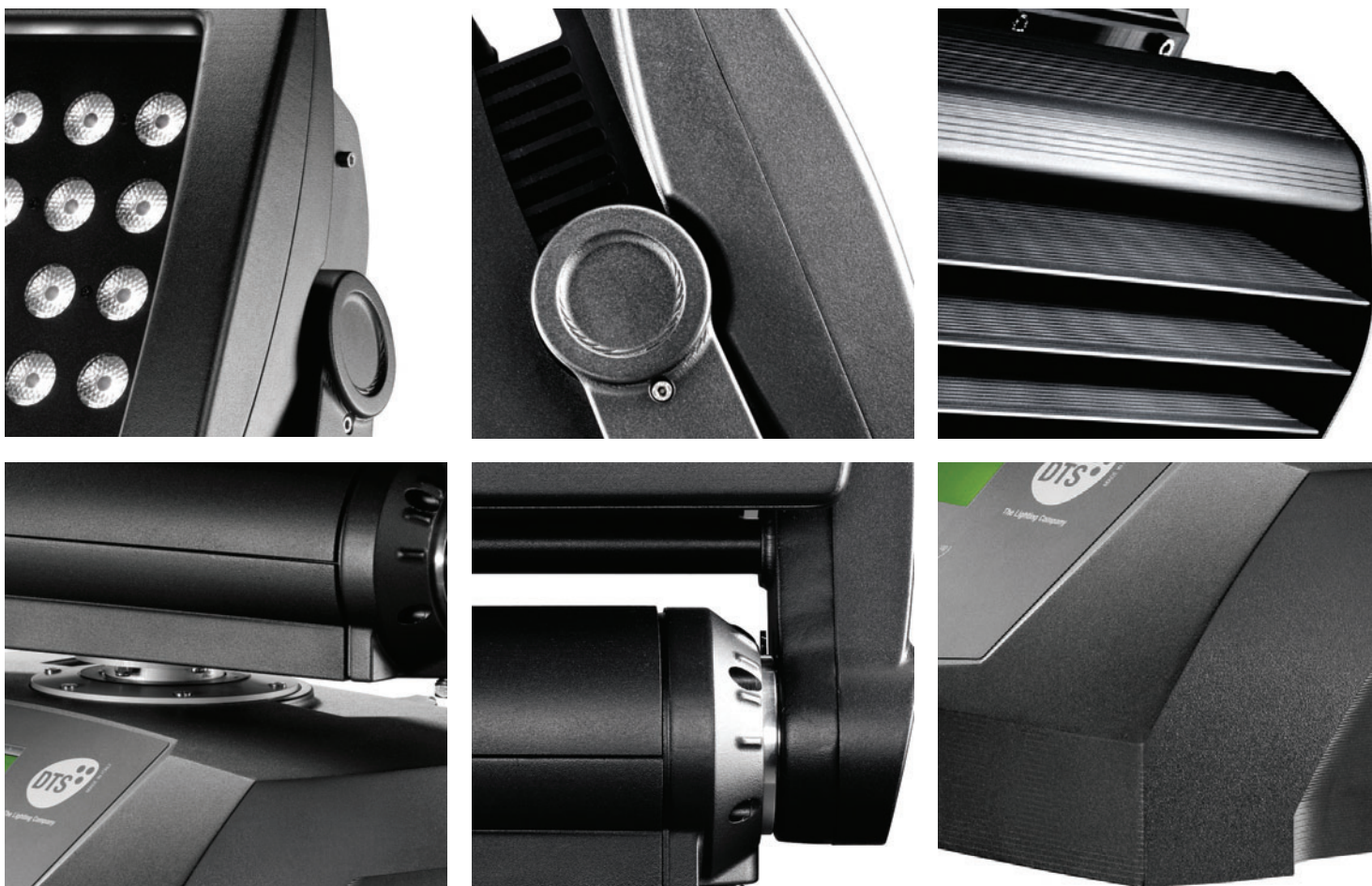
Lux center	938	338	84	38	Beam angle 25°
Foot candles	87	31	8	4	
Diameter cm.	133	221	442	664	
Diameter ft.	4,36	7,25	14,50	21,78	

Lux center	163	59	15	7	Beam angle 40°
Foot candles	15	5	1	1	
Diameter cm.	218	362	728	1091	
Diameter ft.	7,15	11,88	23,88	35,79	

DELTA TRILED WHITE - WHITE COLOUR PHOTOMETRIC CHART

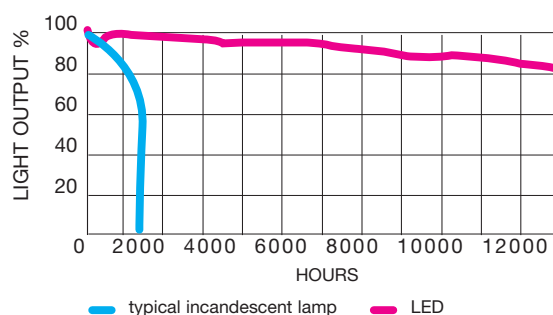
Construction

DELTA is made from aluminium and corrosion-proof stainless steel. The head and base of lights are made in one-piece aluminium die-casts, absolutely resistant to heat expansion (unlike the extruded metal components commonly used in other systems). This construction technique guarantees a high level of protection against the penetration of solids and liquids (IP65) that lasts over time. The light body is covered with a coat of epoxy paint that is resistant to atmospheric agents.



Energy saving / low environmental impact

The use of RGB Full Color LED or TRILED technology allows users to obtain great savings in power consumption. LED lights in fact use a lot less electricity than conventional light sources, proportional to the intensity of the light emitted. LED lights also have a significantly longer lifespan than any other conventional light source (about 100,000 hours in normal operating conditions). DELTA features a series of technical solutions (starting with efficient heat dispersion) that guarantee this long life and constant quality over time of the colours of the LEDs used. This allows running costs for systems to be drastically reduced, as well as costs for periodic lamp replacement and maintenance costs. The use of LED technology therefore means lower environmental impact as well, thanks to the limited energy resources needed and fewer burnt-out lamps to be thrown away. Safe use of DELTA and DELTA TRILED is also guaranteed by the total absence of infrared emissions (potentially dangerous for the surfaces or objects illuminated) and ultraviolet radiation (harmful for human health).



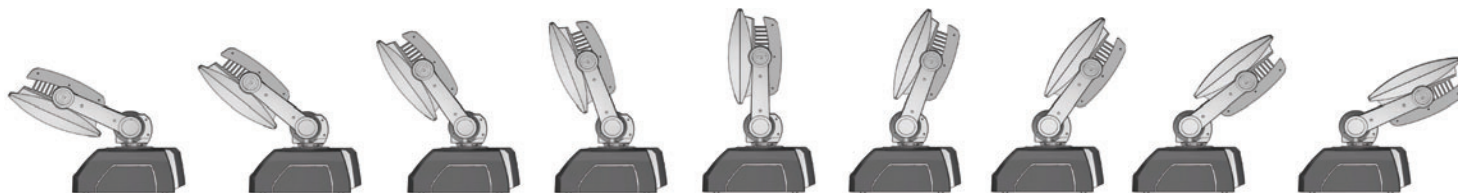
Pan / Tilt

DELTA offers movement on 3 axes (Pan 320°, Tilt-1 130°, Tilt-2 180°), motorized (16-bit resolution) or manual.



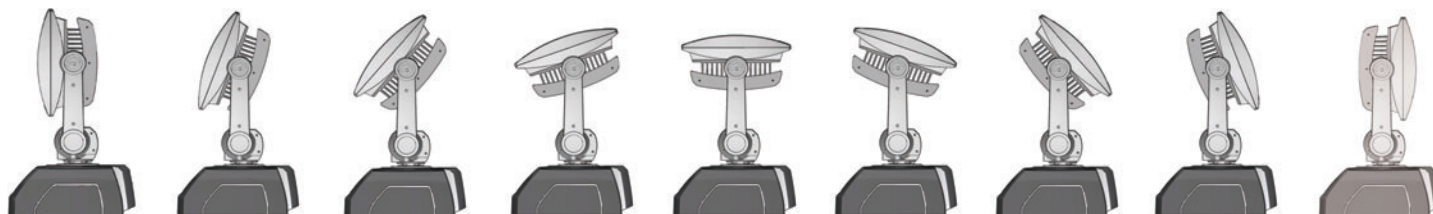
+160° ← 0 → -160°
(tot. 320°)

PAN



+65° ← 0 → -65°
(tot. 130°)

TILT 1



+90° ← 0 → -90°
(tot. 180°)

TILT 2

The exclusive movement of the head on 3 axes offers flexibility of movement that is unique for its type, and a single DELTA can light points that can be reached only by several colour changers with normal pan / tilt movements.

This makes it possible to use fewer lights in a fixed or mobile installation, giving clear advantages in terms of practical use and savings, both in investments for the purchase of colour changers and on logistics costs and power consumption.

DELTA has a safety-locking system (Tilt 1 - versions with motorized movement, Tilt 1 / Tilt 2 / Pan - versions with manual movement) that stably blocks the head in the position chosen, preventing it from moving. This feature is particularly useful in fixed installations, where the direction of the light beam does not need to be changed.

Head repositioning in the case of accidental movement is automatic on motorized versions (digital encoder).



Cooling

DELTA is the ideal light for a vast range of applications in which silent operation is a priority in the choice of a colour changer, such as museums, theatres, television studios and public and private venues of various kinds. DELTA is in fact totally silent, because it has no internal ventilators. LEDs are cooled by convection through the large aluminium heat sink mounted on the rear.

The heat sink fins have microgrooves that increase the radiant surface, further enhancing heat dissipation.

The efficient cooling system used offers two advantages. Even after hours of continuous use, DELTA does not heat up, and can therefore be positioned close to the objects or backgrounds to be lit. In addition, excellent cooling guarantees longer life for LED lights and ensures optimal operation over time, with constant quality of emitted light.



IP65

DELTA has been carefully designed to offer a high protection level (IP65) against penetration by solid bodies and liquids, and to guarantee this reliability it has successfully passed tests in excess of the declared protection rating.

Every detail has been studied to allow DELTA to be installed both indoors and outdoors in total operating safety.

The DELTA head is made from two half-shells made in die-cast aluminium, resistant to heat expansion.

A special gasket in silicone sponge fitted into a special groove all around the edge of the head provides excellent hermetical sealing.

This gasket, even if the head is opened many times (for example, to fit different optical units), continues to guarantee perfect sealing over time.

The DELTA head also has special ducts to allow rainwater to drain off.

Moving parts are protected with special watertight seals.



The DMX In, DMX Out and Mains connectors also feature professional HARTING / ILME sockets with an IP65 protection rating, unlike other commercially available lights, which need special work to bring non-compliant connectors up to IP65 standards.

Every detail must in fact be certified IP65 for a product to be truly considered as being IP65.





Input signals

DELTA can be controlled with Standard DMX 512 USITT serial digital signals.
DMX In and DMX Out connectors are included.

ch 1	Pan	Pan 8 bit
ch 2	Pan fine	Pan 16 bit
ch 3	Tilt	Tilt 8 bit
ch 4	Tilt fine	Tilt 16 bit
ch 5	Movement Speed	Pan / Tilt movement speed
ch 6	Dimmer	Electronic dimmer
ch 7	Shutter / Strobo	Stroboscopic effects (linear adjustment of speed)
ch 8	Red	Linear 0÷100% adjustment of red intensity
ch 9	Green	Linear 0÷100% adjustment of green intensity
ch 10	Blue	Linear 0÷100% adjustment of blue intensity
ch 11	White	White insertion (priority over channels 8-9-10)
ch 12	CTC	Linear adjustment of colour temperature + customized white *
ch 13	Macro	Pre-defined colours
ch 14	Function	Service channel
ch 15	Reset	Pan and Tilt reset

(*) Possibility to create and store your own customized white

Interface

DELTA is programmed/configured over an interface with 4 buttons and an OLED display that guarantees high graphic resolution and perfect legibility in all conditions of ambient illumination and external temperature, even below freezing point, when normal LCD displays are no longer visible.
All DELTA functions can also be managed with a specific infrared remote control.
The implemented controls in the incorporated microcomputer include calibration, self-testing, information on operation and machine status, etc.
Internal software can be updated by DMX.

Independent operation

DELTA can be used without external consoles, in “Master” or “Slave” mode, in chains of colour changers including up to 32 units.
In this configuration, the “Master” DELTA controls the other units in the chain (“Slaves”) over DMX connections, using its own internal microcomputer.

INDEPENDENT OPERATION



CONTROL VIA EXTERNAL CONSOLE



Automated playback (7 days)

All functions of the internal DELTA menu can be programmed and memorized in a sequence of events (including different luminosity settings, generation of 16 million different colours, reproduction of special effects, etc.), which can be played back in a predetermined sequence over an entire week.
The playback of memorized events is totally automated, and fully respects the start, duration and end of each event, second by second, for 7 days.
The sequence can be modified at any time, and the sequence of 7 days can be repeated infinitely.
So there's no need to switch DELTA on or off manually during the playback period. DELTA does everything by itself.

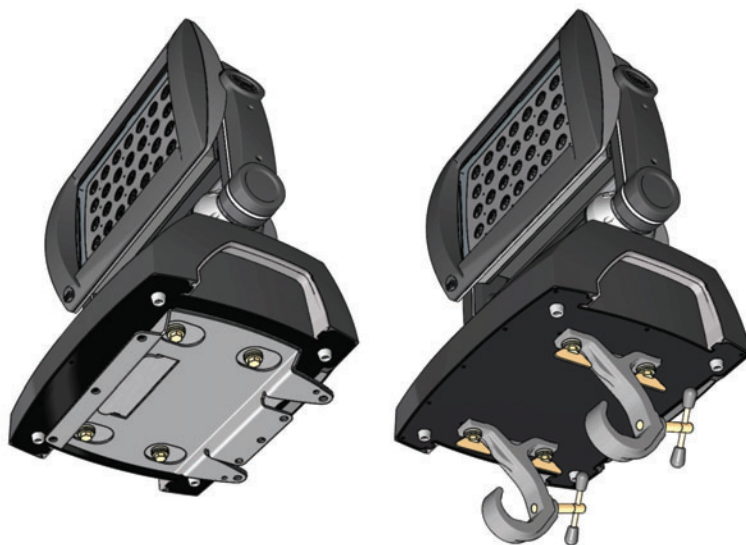
Installation

DELTA R / DELTA F / DELTA TRILED R / DELTA TRILED F / DELTA TRILED R WHITE / DELTA TRILED F WHITE

DELTA can be installed in a wide variety of functional and architectural applications.

Colour changers are fitted with 4 fixing points on the bottom, used to attach a connection flange specifically created for DELTA or other accessories (clamps, hooks, etc) with a Fast Lock closure/release system (1/4 turn).

DELTA can operate in vertical, horizontal or inverted positions, and can be positioned on the floor or ground, fixed to walls or fitted to trusses.



DELTA B / DELTA TRILED B / DELTA TRILED B WHITE.

DELTA B, DELTA TRILED B and DELTA TRILED B WHITE have the same characteristics of electronics, optical units and luminosity as mobile head versions, but are without the base and Pan / Tilt movements. DELTA B, DELTA TRILED B and DELTA TRILED B WHITE are fitted with a swivelling fixing bracket, and are designed for fixed installation on walls or trusses.



DELTA S / DELTA TRILED S / DELTA TRILED S WHITE

DELTA S, DELTA TRILED S and DELTA TRILED S WHITE have the same characteristics of electronics, optical units and luminosity as mobile head versions, but are without the base and Pan / Tilt movements. DELTA S, DELTA TRILED S and DELTA TRILED S WHITE are fitted with a fixing flange, and are designed for fixed installation with tilting movement by embedding in ceilings.



Full-range power supply

DELTA has a full-range AC 90-260 V, 50-60 Hz power supply. Full-range power supply ensures reliable operation of DELTA even in the presence of significant power surges, and guarantees optimal light yield even in the case of voltage drops.

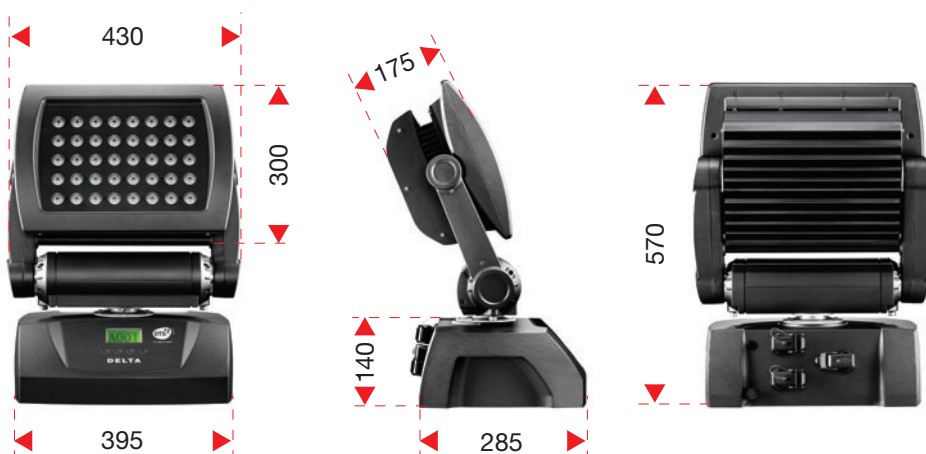
Operating temperature

DELTA operates correctly at ambient temperatures between -10° and +40°C..

Flight case

The professional flight case specifically constructed to contain DELTA offers effective protection in all phases of transport and movement. Made in robust multiply wood coated with black scratchproof paint, the flight case is finished with aluminium profile bars and steel corner plates, and has flush handles.

	DELTA R	DELTA F	DELTA B	DELTA S	DELTA TRILED R	DELTA TRILED F	DELTA TRILED B	DELTA TRILED S	DELTA TRILED R WHITE	DELTA TRILED F WHITE	DELTA TRILED B WHITE	DELTA TRILED S WHITE
40 RGB Full Color LEDs / LED power: 3W	•	•	•	•								
20 TRILED LEDs / LED power 1W x 3					•	•	•	•	•	•	•	•
Total luminous flux	2800 Lumens				2.400 Lumens				2.700 Lumens			
RGB colour generation / 16 milion colours	•	•	•	•	•	•	•	•				
White colour									•	•	•	•
Colour temperature variable on a linear range (3200°K ÷ 5500°K)	•	•	•	•	•	•	•	•	•	•	•	•
No infrared emissions / no ultraviolet emissions	•	•	•	•	•	•	•	•	•	•	•	•
LEDs average lifespan: 100.000 hours	•	•	•	•	•	•	•	•	•	•	•	•
Optical units can be interchanged by users	•	•	•	•	•	•	•	•	•	•	•	•
Interface: OLED display + 4 buttons / infrared remote control	•	•	•	•	•	•	•	•	•	•	•	•
Control signals: Standard DMX 512 USITT serial digital signals	•	•	•	•	•	•	•	•	•	•	•	•
15 DMX channels	•	•	•	•	•	•	•	•	•	•	•	•
Independent operation (Master / Slave)	•	•	•	•	•	•	•	•	•	•	•	•
Programmable automated playback (7 days)	•	•	•	•	•	•	•	•	•	•	•	•
Movement on 3 axes (Pan 320° / Tilt1 130° / Tilt2 180°)	•	•			•	•			•	•		
Motorized 16 bit movement (Pan / Tilt2)	•				•				•			
Safety-locking system	•	•	•	•	•	•	•	•	•	•	•	•
Head automatic repositioning in the case of accidental movement	•				•				•			
IP65 protection level	•	•	•	•	•	•	•	•	•	•	•	•
Professional HARTING / ILME sockets (IP65 protection rating)	•	•	•	•	•	•	•	•	•	•	•	•
Full-range AC 90-260 V, 50-60 Hz power supply	•	•	•	•	•	•	•	•	•	•	•	•



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D.T.S. products are designed
and manufactured at D.T.S. plants in Italy



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