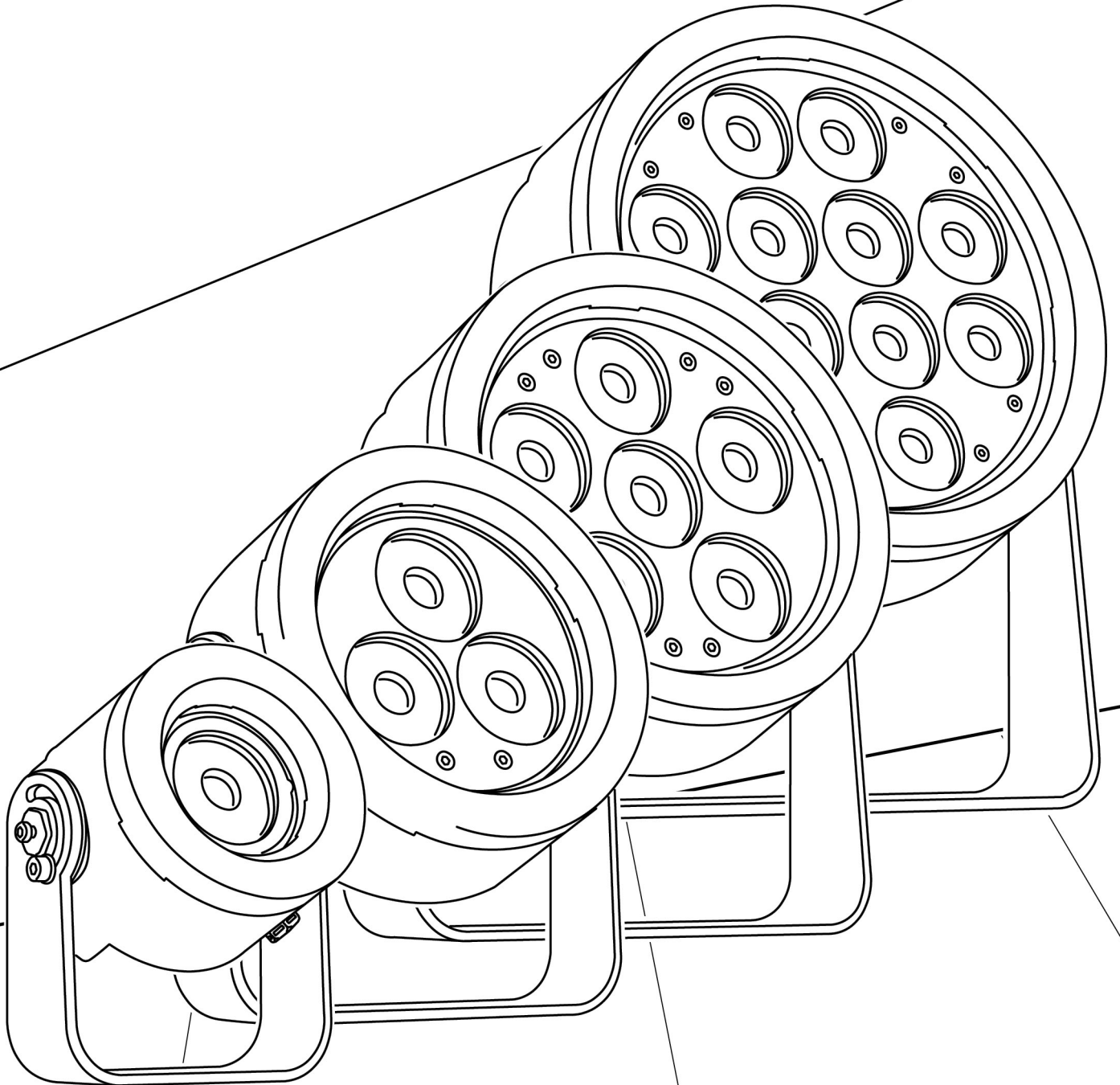



DOCTUS SERIES

USER'S MANUAL



Release	1.02	Code:	For more information	
Language	EN			

ITA

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1 Symbols



General risk



Electric shock risk



Burn risk – hot surface

T_a 45°C

Maximum operating ambient temperature



Minimum distance from illuminated surface.



Do not stare at the operating lighting source



Photobiological safety Risk Group 2

Risk Group 2



Never expose the front lens, from any angle, to direct sun light or strong artificial light sources in order to avoid damage to the internal parts of the product



IEC Protection Class III



Never throw with regular waste

ATTENTION Before the installation and use of the device, read carefully this document and follow all instructions. Keep this document along with the device for future reference. Use the device only as it is described by this document. Do not use the fixture as a safety device.

2 Safety and Operation

Do not attempt to install and use the device (or the devices) before carefully reading this manual and understanding all warning symbols.

Installing the device (or the devices) without following the instructions in this document may be dangerous and cause damage, injury, or death.

Any ordinary maintenance operation not described in this manual must be done only by a qualified technician. Failing to follow the instructions on this "User Manual" shall cancel the warranty issued by D.T.S. Illuminazione Srl.

Before installation, please carefully read this "User Manual" and make sure to check the latest technical updates available on the D.T.S. Illuminazione Srl's website – (www.dts-lighting.it).

2.1 Fire prevention



Minimum distance from illuminated surface.



Never expose the front lens, from any angle, to direct sun light or strong artificial light sources in order to avoid damage to the internal parts of the product

2.2 Prevention of electric shock



Before making any attempt at installation, disconnect the power supply from the mains. DOCTUS do not have parts that can be repaired by the user. Do not try to open the product. Do not use the product if any part of it, or its cables, is damaged. Use the product within the specified voltage and current ranges



IEC Protection Class III

The protection against electric shock relies on the fact that there are no voltages higher than the very low safety voltage SELV. The voltage produced is low to the point that it is not normally dangerous in case of contact with the human body

2.3 Level of protection IP



This product is designed for both indoor and outdoor use.

The IP rating is guaranteed for new products.

Any tampering of the device, like its opening or a cable substitution, or the improper use, shall cancel the warranty.

The cable is part of the IP rating. Because of this, it must be undamaged and its connection must be compliant with the protection rating degree desired for the product.

2.4 Safety

These products must be installed by qualified personnel only, following national laws and local regulation regarding construction and electrical systems.

This product can only be installed by personnel qualified for the installation of electrical appliances. They must ensure that:



- The installation must be compliant with all relevant regulations, local and national laws, bills, norms, and safety regulations;
- The setting must be thoroughly analyzed and one or more preemptive measures must be taken in order to ensure adequate protection from overvoltage and overcurrent, direct or inducted.

Do not exceed the specified input voltage and current.

Do not drop, hit, or shake the product. Strong accelerations can damage the device and cancel its warranty.



Burn risk – hot surface

Never handle the unit until at least 5 minutes have elapsed since the unit was turned off.

$T_a \leq 45^\circ\text{C}$

The ambient temperature should not exceed 45°C

If the product has been subjected to drastic temperature variances, for example, following transportation, do not connect the fixture until it has reached ambient temperature, as moisture condensation may cause electric shock and product damages.



For your own safety, do not stare directly at the operating light source.
It could cause damage to the eyes and skin.



Risk Group 2

Photobiological safety Risk Group 2 according to the European Directive EN 62471

For permanent installation, the product must be positioned so that it can't be possible to stare directly at the light source for a prolonged period of time, from a minimum distance of

DOCTUS 1 FC:	5,77 m (18.93 ft);
DOCTUS 3 FC:	10,23 m (33.56 ft);
DOCTUS 6 FC:	13,40 m (43.96 ft);
DOCTUS 12 FC:	19,54 m (64.11 ft).

2.5 Waste Electrical and Electronic Equipment (WEEE) directive



Electrical and Electronic Equipment

The projector, accessories and packaging should be sorted for environmental-friendly recycling. European Community Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE).

(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 Introduction

3.1 General Information

LED lighting fixture for indoor and outdoor use.

The product is particularly useful for “architainment” lighting, landscaping, or illuminating architectural elements.

The DOCTUS family can be controlled via DTS Illuminazione’s “Drivenet” series PSU, it is possible to control the luminous intensity of each color.

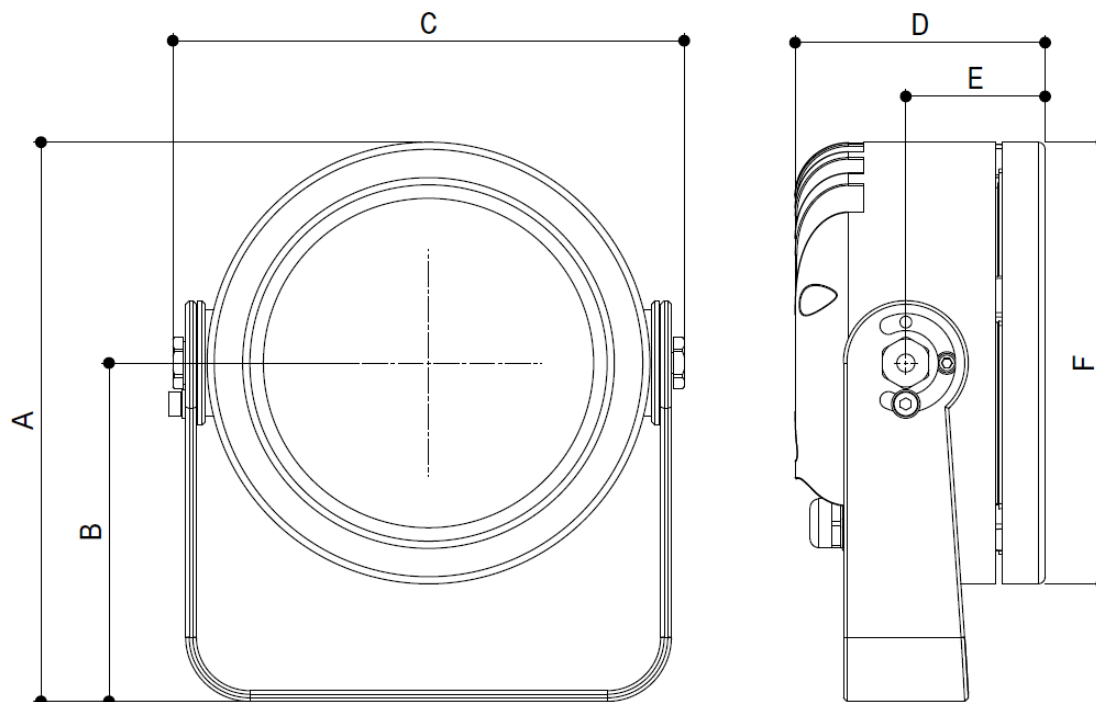
DOCTUS FC / DOCTUS WH

Model	Power absorption	Dimensions (Ø x H x P)	
	W	mm	in
DOCTUS 1	8	80 x 112 x 70	3.15 x 4.41 x 2.76
DOCTUS 3	24	124 x 157 x 70	4.88 x 6.18 x 2.76
DOCTUS 6	48	156 x 201 x 80	6.14 x 7.91 x 3.15
DOCTUS 12	96	204 x 265 x 95	8.03 x 10.43 x 3.74

3.2 Features

- For indoor and outdoor use.
- Bracket mounted.
- Vertical rotation: 230°.
- Ingress protection rating: IP65.
- ACC coating.
- Maximum input LED-driving constant current: 700 mA for each channel.
- IEC Protection Class III.

3.3 Dimensions



	A		B		C		D		E		F	
Model	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
DOCTUS 1	112	4.41	72	2.83	101	3.98	70	2.76	42	1.65	80	3.15
DOCTUS 3	157	6.18	95	3.74	145	5.71	70	2.76	39	1.54	124	4.88
DOCTUS 6	201	7.91	123	4.84	177	6.97	80	3.15	44	1.73	156	6.14
DOCTUS 12	265	10.43	163	6.42	227	8.94	95	3.74	48	1.89	204	8.03

4 Installation

4.1 Things to Consider

Plan the setup before mounting the product. This will guarantee a successful and durable installation. It is recommended to carefully consider the following:

- Atmospheric conditions and ambient temperature of the installation site.
- Installation distances, adequate cable length and section.
- The quantity and model of the devices, and their power supply units.
- A correct protection from overvoltage.
- A correct orientation of the light beam.

4.2 Before the Installation

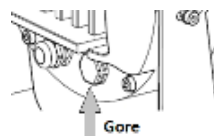
4.2.1 Check-up List for the Installation

- Prepare all cables and necessary accessories.
- Test the DOCTUS before installing. Pay attention not to damage cables/connectors during check-up.
- Ensure that all check-ups described within this document are thoroughly followed.
- Place the DOCTUS on the desired position. If the installation can't be finished before nightfall, store the devices and their cables inside a closed and dry place.

Before installation, please make sure that all devices and cables are kept in a dry place. This will avoid humidity to be retained inside them, avoiding failure of the products.

4.2.2 Tips for the Installation

- DO NOT try to install the device in rainy or adverse meteorological conditions.
- DO NOT leave and expose the DOCTUS or their power supply unit disconnected in wet environment or rain/snow conditions.
- IP rating failures caused by damaged/strained cables (during or after the installation) will cancel the warranty issued by D.T.S. Illuminazione S.r.l.
- ALWAYS keep the cables protected from pointy objects and ensure that no cable is damaged.
- Failing to keep the DOCTUS into the -10 to 45 °C operating temperature range (14 to 113 °F) and the -25 to 60 °C storage temperature range (-13 to 140 °F), will cancel the warranty issued by D.T.S. Illuminazione S.r.l.
- Do not obstruct or submerge the Gore valve.



- Fasten the projector with screws, clamps, or other supports capable of sustaining their weight. If necessary, use a safety cable.
- It is recommended the use of an adequate residual current device/circuit breaker on the power supply mains.
- This fixture is susceptible to overvoltage. The installation of a protection device on the electrical system can diminish the intensity of these phenomena, protecting the fixtures from possible damage.

4.2.3 Preparation Procedure for Cables and Connectors

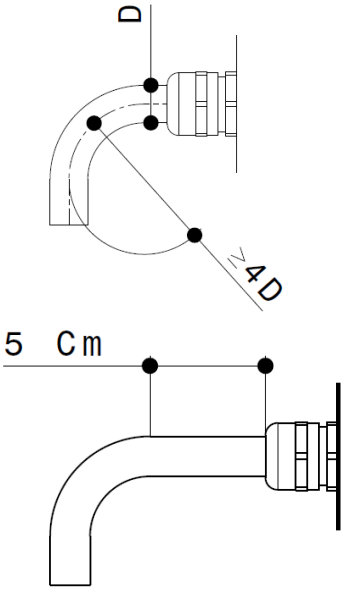
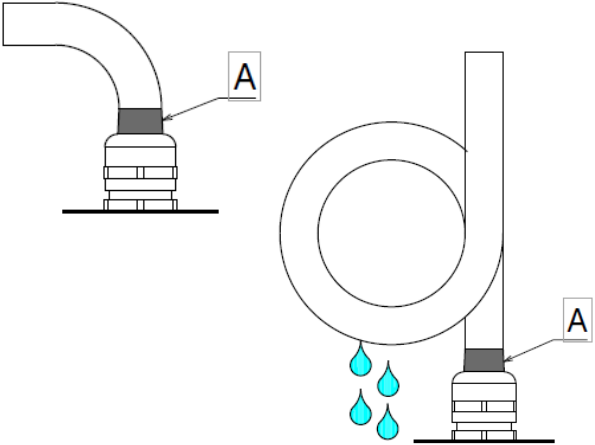
- Test all DOCTUS units before the installation.
- Report any operational defects to D.T.S. Illuminazione S.r.l or their official distributor or dealer.
- Do not install any DOCTUS that presents any operational defect.
- Plan any potential cable folding (please refer to the following paragraph "Cable Folding").
- Fasten both ends of the cables with connections fit for the environment in which they are made.
- Connect the DOCTUS to their power supply units with appropriate connection cables.
- Cut the cable to the necessary length.
- Should the length of the cables be insufficient, provide an extension by using a cable with the same features. The junction between the two must be ranked at minimum IP65, or be made and left in a closed and dry location.
- Should the cables be damaged, they must be adequately repaired by restoring their IP protection

rating.

4.2.4 Cable Folding

Cables MUST NOT be folded with a curvature radius inferior to four times their external diameter (4x cable diameter).

The cable, when extending from the product, must be kept straight for a minimum length of 5 cm (1.97 in) next to the cable gland.

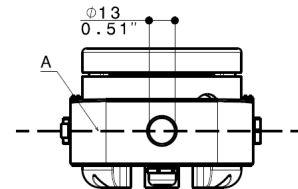
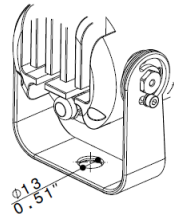
<p>Traction forces on contact points, and on the cable gland, must be avoided as per procedure: when extending from the product, the cable must not be folded for at least 5 cm (1.97 in). Bends on the cable must have a curvature radius over four times the diameter of the cable itself.</p>	
<p>Avoid positioning the fixtures with their cables extending from them in a vertical position. If this can't be avoided:</p> <ul style="list-style-type: none"> • After the installation, add silicon glue to the cable surface next to the device (picture on the right, letter A); • Place the cable in order to obtain a "draining" ring (see picture on the right). 	

WARNING: do not use acetic silicones.

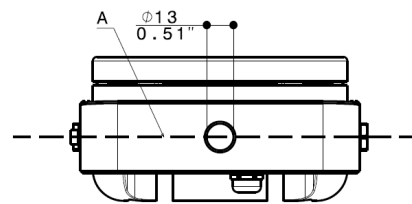
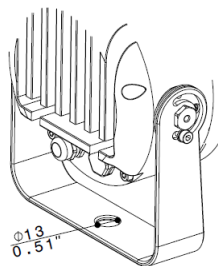
4.3 DOCTUS Mounting

4.3.1 Drilling Templates

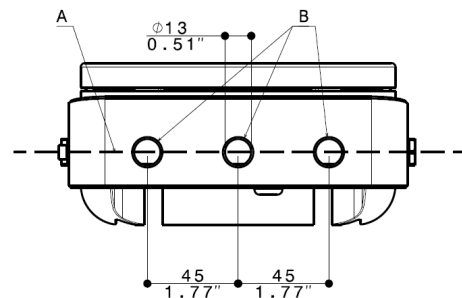
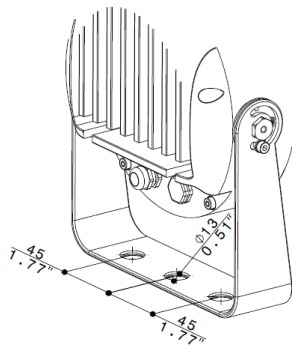
DOCTUS 1



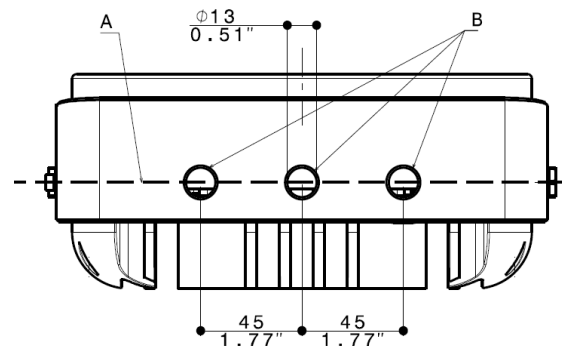
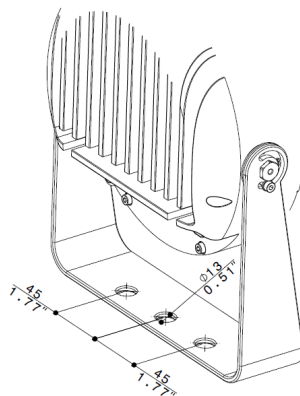
DOCTUS 3



DOCTUS 6



DOCTUS 12



NOTES:

The drilling templates are lined with the rotation axis of the product.

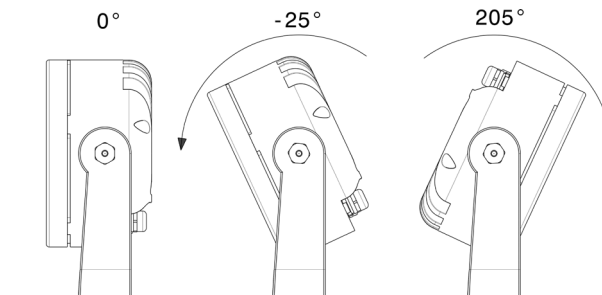
DOCTUS 1 and 3 brackets are provided with only one drilling template. As soon as the desired light beam orientation has been obtained, accurately fasten the fixture.

For DOCTUS 6 and 12, use at least two of the provided drilling templates for fastening the product.

4.4 Vertical Orientation

4.4.1 Excursion

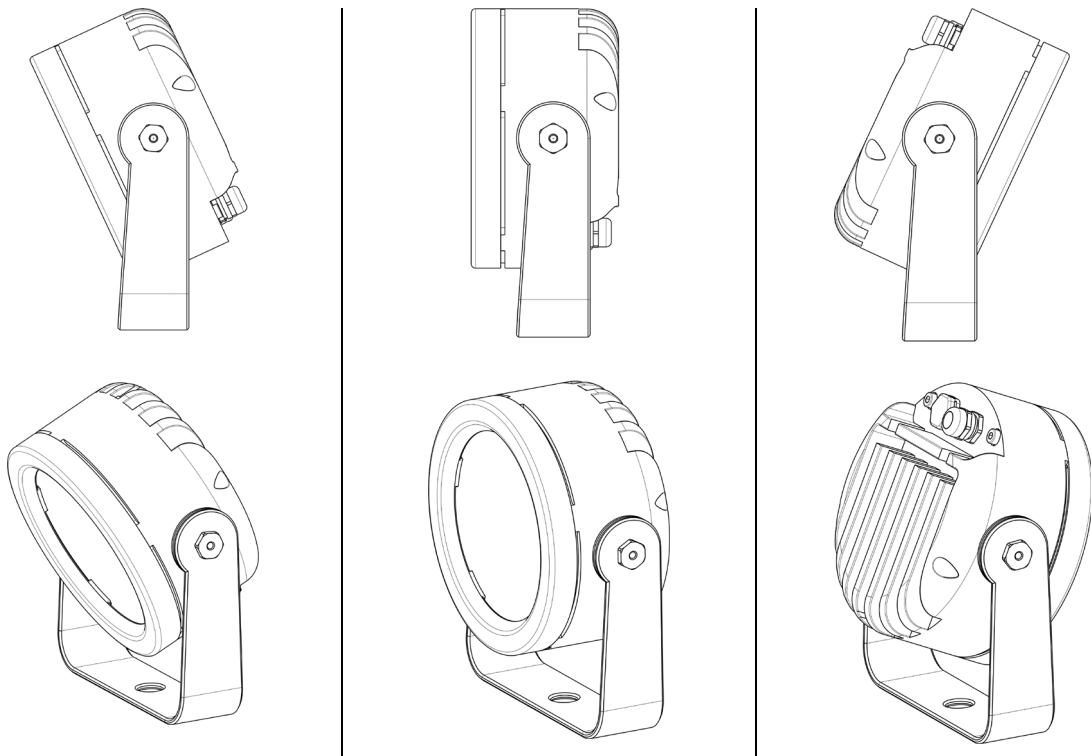
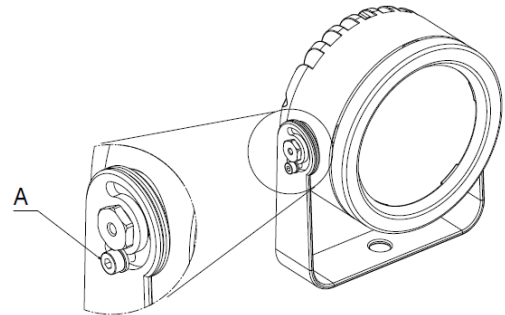
DOCTUS can be vertically oriented with a 230° excursion.



4.4.2 Adjustment

After installing the product, the vertical orientation of the light beam may be obtained by manually rotating the head of the fixture. The rotation system is manufactured within D.T.S. Illuminazione Srl's plants with a friction level which allows for its manual positioning. After adjusting to the desired level, use the "A" screw to fasten the head.

The screw must be fastened by using a 3 mm (0.118 in) hex key, not included.



4.5 Power Supply

4.5.1 PSU Requirements

Not all power supply units are capable of driving DOCTUS fixtures. In order to select the correct PSU, please consider the following:

- DOCTUS range is ranked with an IEC protection class III, therefore the PSU of this device must have an SELV output and guarantee double isolation between input and output.
- Each channel must have driven current output, with a maximum constant current of 700 mA dc.
- The PSU's output voltage must be able to reach a maximum voltage of at least 48 Vdc without exceeding the maximum SELV regulations voltage.
- All constant current power supply units with 48 V output available on the D.T.S. Illuminazione Srl catalogue, are able to provide correct power supply to all DOCTUS fixtures.

4.5.2 Connection Charts

DOCTUS FC and DOCTUS WH fixtures are provided with an end-stripped 8-pole cable.

Each conductor that makes up the cable has a color that allows to correctly identify their association with the polarity of each LED color.

CONNECTIONS			
LED		CONDUCTOR'S COLOR	"Drivenet" PSU OUTPUT PIN
FC	WHITE		
RED +	WHITE 1 +	WHITE	PIN 1
RED -	WHITE 1 -	BROWN	PIN 2
GREEN +	WHITE 2 +	GREEN	PIN 3
GREEN -	WHITE 2 -	YELLOW	PIN 4
BLUE +	WHITE 3 +	GRAY	PIN 5
BLUE -	WHITE 3 -	PINK	PIN 6
WHITE +	WHITE 4 +	RED	PIN 7
WHITE -	WHITE 4 -	BLUE	PIN 8

More devices can be connected to the same output channel group.

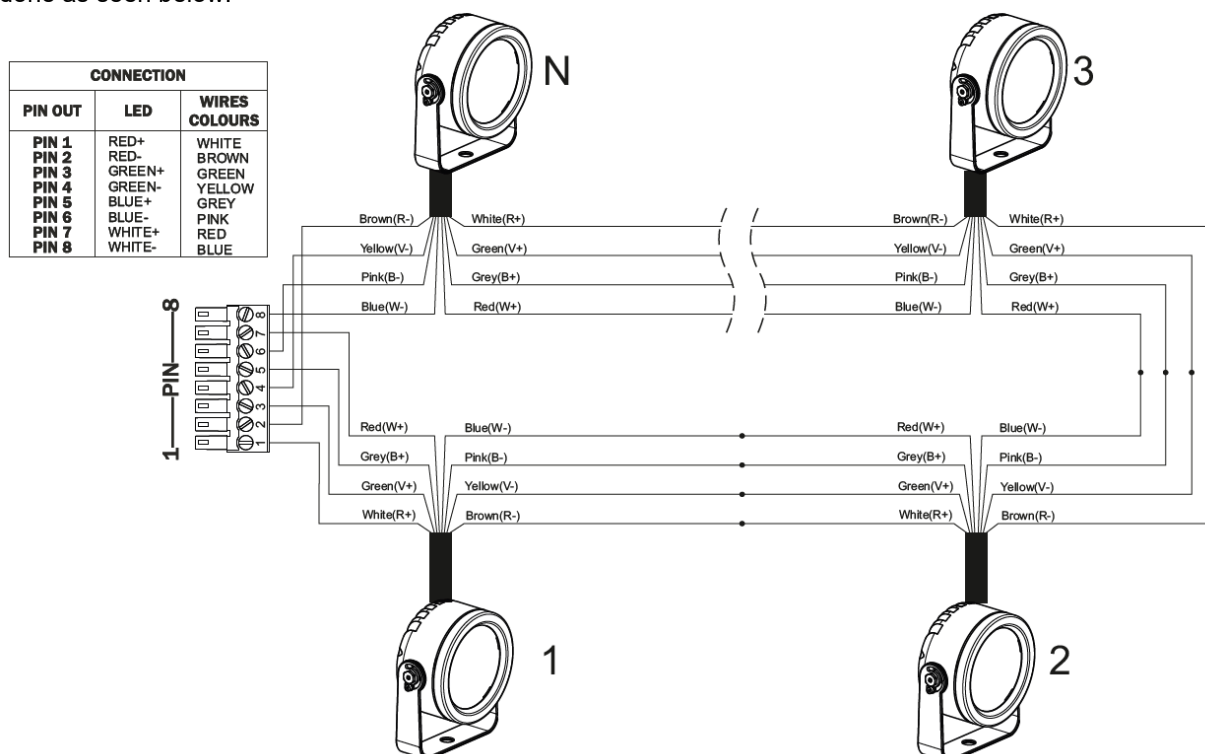
The connection must be done serially through each single color of the conductors across devices.

One "Drivenet" (48 V models) output channel group, with an output current of 700 mA, can supply:

1x DOCTUS 12	2x DOCTUS 6	4x DOCTUS 3	12x DOCTUS 1
	1x DOCTUS 6 2x DOCTUS 3	3x DOCTUS 3 3x DOCTUS 1	
	1x DOCTUS 6 1x DOCTUS 3 3x DOCTUS 1	2x DOCTUS 3 6x DOCTUS 1	
	1x DOCTUS 6 6x DOCTUS 1	1x DOCTUS 3 9x DOCTUS 1	

4.5.3 Serial Connection

As stated in the previous paragraph, the serial connection of two or more DOCTUS FC or DOCTUS WH can be done as seen below:



4.5.4 Maximum Distance

Should the PSU be moved away from the product, please consider the following:

- Cable junctions and connections must be done by following the instructions as stated before in this document.
- With "Drivenet" set at 700 mA – 48 V, and using cables of the same type of those included with the product, it is possible to have a maximum distance between the PSU and the farthest device (considering cable length) of 100 m.

5 Maintenance

D.T.S. Illuminazione Srl's products are of higher quality and design, therefore must be treated with care. The following recommendations will help you keep your warranty intact, to make the best possible use of the product, and to maximize their lifespan:

- Do not use the product (or products) before carefully reading this manual.
- Failing to comply with the instructions on this manual may cause injury or damage.
- Periodically check the status of the cables. Make sure the cables are not damaged.
- Ensure that a sufficient air flow is given to the device, removing any obstruction that may prevent proper cooling of the product.
- DO NOT use aggressive chemicals, solvents or abrasive detergents to clean the product. For the body, use a wet cloth. For the front panel, use window cleaning products.
- For the best duration of the product painting, periodic washing with fresh water is recommended. Cleaning frequency varies in accordance with the salinity present in the place of installation. Avoid high pressure water jets.
- If the product does not work the way it is meant to, please contact the nearest authorized support

center or refer directly to D.T.S. Illuminazione S.r.l.

- Do not try to repair the product yourself. In case of need, please contact the nearest authorized support center or refer directly to D.T.S. Illuminazione Srl.

6 Technical Specifications

DOCTUS FC

Model		DOCTUS 1	DOCTUS 3	DOCTUS 6	DOCTUS 12
Body		Painted aluminum			
Light source		High-power RGBW LED			
Number of LEDs		1	3	6	12
Color temperature		-			
Lenses (**) (***)		10°; 25°; 35°; Elliptic 12°x40°; Elliptic 40°x12°			
Maximum input current		700 mA cc (for each channel)			
Total Maximum power @ 700 mA		8 W	24 W	48 W	96 W
Weight (*)		1 kg (2.20 lb)	1.7 kg (3.74 lb)	2.5 kg (5.51 lb)	4,4 kg (9.70 lb)
Operating temperature range		-10 to 45 °C (14 °F to 113 °F)			
Storage temperature range		-25 to 60 °C (-13 °F to 140 °F)			
IEC Class		Class III			
IP grade		IP65			
N° of channels		4 independent channels, 1 for each color			
Connection cable	Type	8 x 0,25 mm ² (8 x AVG 23)			
	Length (**)	1 m (39") o 5 m (197")			
Honey-comb filter		Unique models with filter already on board (refer to product's code)			

(*)Product's weight includes 5 m (197") cable

(**) Depending on model (see product's code)

(***) Internal lens opening

DOCTUS WH

Model		DOCTUS 1	DOCTUS 3	DOCTUS 6	DOCTUS 12
Body		Painted aluminum			
Light source		High-power white LED			
Number of LEDs (****)		1	3	6	12
Color temperature (**)		3000 K; 4000 K;			
Lenses (**) (***)		10°; 25°; 35°; Elliptic 12°x40°; Elliptic 40°x12°			
Maximum input current		700 mA cc (for each channel)			
Total Maximum power @ 700 mA		8 W	24 W	48 W	96 W
Weight (*)		1 kg (2.20 lb)	1.7 kg (3.74 lb)	2.5 kg (5.51 lb)	4,4 kg (9.70 lb)
Operating temperature range		-10 to 45 °C (14 °F to 113 °F)			
Storage temperature range		-25 to 60 °C (-13 °F to 140 °F)			
IEC Class		Class III			
IP		IP65			
N° of channels		4 independent channels			
Connection cable	Type	8 x 0,25 mm ² (8 x AVG 23)			
	Length (**)	1 m (39") o 5 m (197")			
Honey comb filter		Unique models with filter already on board (<i>refer to product's code</i>)			

(*)Product's weight includes 5 m (197") cable

(**) Depending on model (see product's code)

(***) Internal lens opening

(****) LEDs are distributed on 4 different channels

NOTE:

As for all electrical devices, LEDs will degrade through time with a consequent reduction in their luminosity. This explains why it is almost impossible to obtain identical photometric performances between two different LED devices with different operating lifetime. LEDs lifespan varies greatly and is the result of a complex formula which considers multiple factors such as operating efficiency, continuous operating time, and environment conditions (e.g., ambient temperature).

All semi-conductor devices, such as LEDs, are subject to inherent variables related to their technical features. In order to improve output and performance uniformity, D.T.S. Illuminazione Srl uses selected LEDs considering the aforementioned factors, reducing to the minimum variations in output luminosity, color temperature and tone shift in color between devices.

7 Troubleshooting

Warning: Make sure to unplug the devices from their power supply when connecting/disconnecting cables.

Problem	Probable cause	Possible solutions
The product, after installation, doesn't turn on.	Wrong PSU connection	<ul style="list-style-type: none"> Check connections between DOCTUS and their power supply. Ensure correct polarity is respected. Check that the PSU is working properly Check the PSU's correct connection to the mains.
Presence of shadows during projection	Obstructed light source	<ul style="list-style-type: none"> Check if cables, wires, or debris are obstructing the light source or if they are placed between the source and the illuminated surface.
LEDs' intensity is too low	Too many devices connected or wrong setup	<ul style="list-style-type: none"> Make sure the PSU is not overloaded by having too many devices connected to it. Make sure the PSU is set up correctly. Make sure that the used cables have a proper section and that their length is inferior to the maximum length possible. Make sure that connections are properly made.
Flickering	Wrong input power Too many devices connected to the same output	<ul style="list-style-type: none"> Make sure the PSU has proper input voltage Make sure PSUs are not overloaded and that they are working inside their proper operating temperature range and voltage range. Make sure that connections are properly made. Make sure the PSU is not overloaded by having too many devices connected to it.

If the problem persists or the product doesn't work as specified, please contact the nearest authorized support center or refer directly to D.T.S. Illuminazione S.r.l.

8 Accessories and their Installation

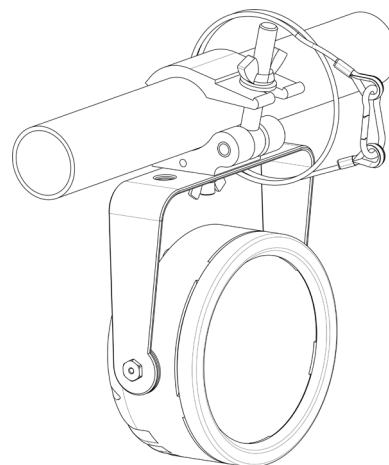
Three different accessories, which can be mounted during installation of the device, are designed for DOCTUS. The accessories can be ordered separately from the product.

8.1 Safety Cable

In order to avoid accidental falls, a safety cable might be needed for temporary installation. Using a safety cable doesn't exempt from a correct installation of the product.

8.1.1 Safety Cable Installation

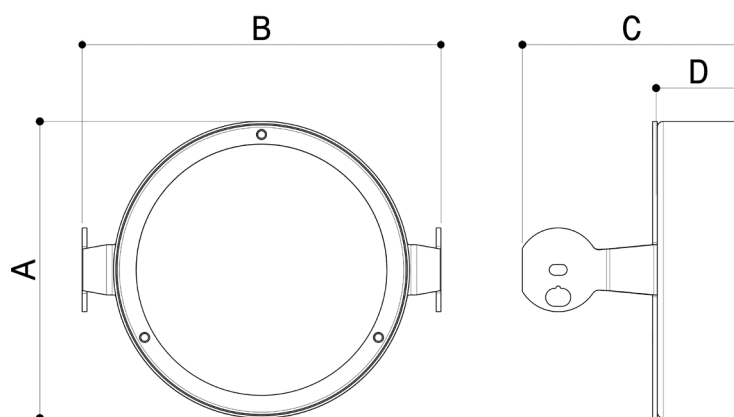
The picture on the right represents the correct way to install a safety cable and **it is not** indicatively of an installation carried out flawlessly.



8.2 Top Hat

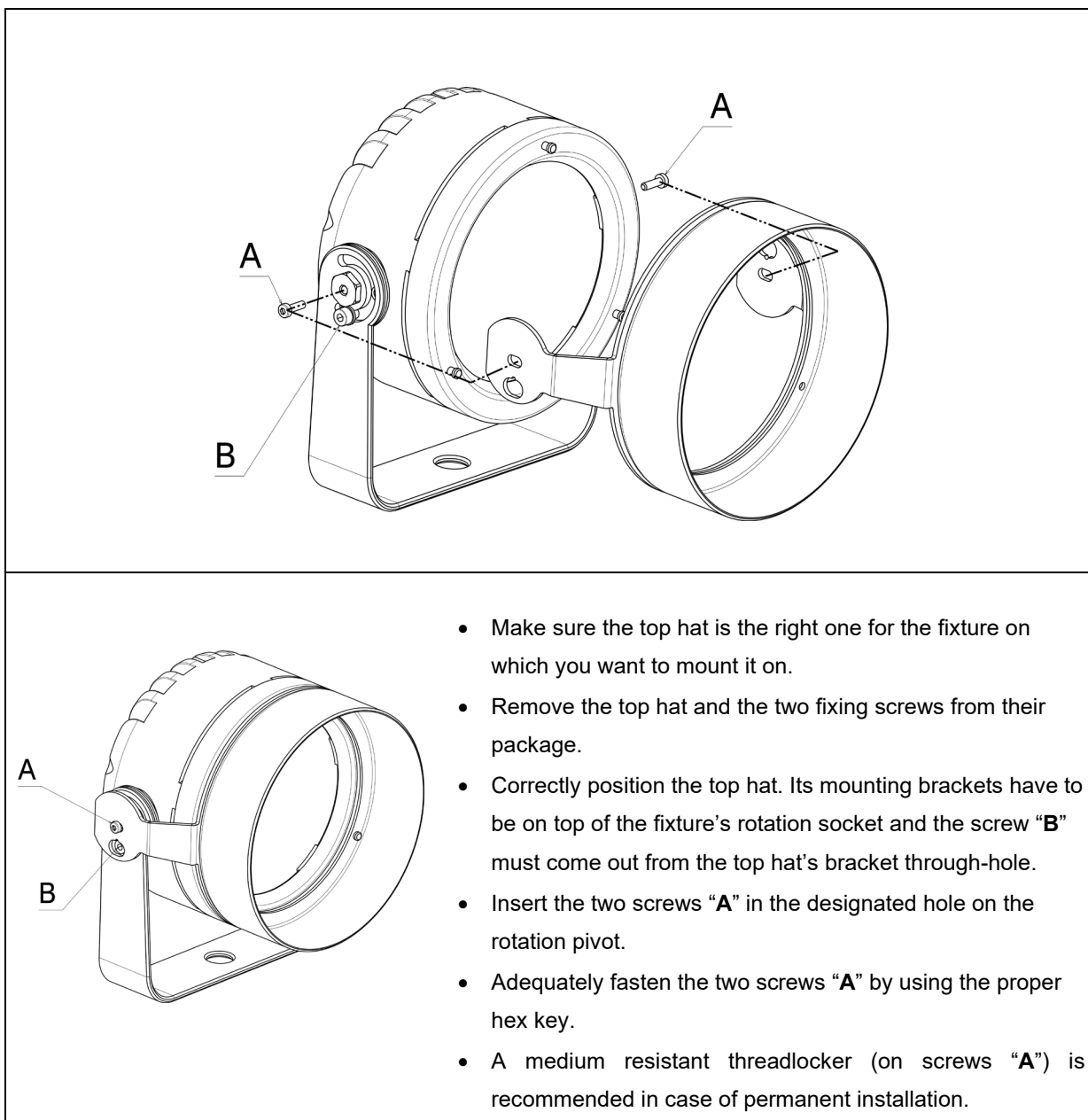
For each model, a top hat that can be ordered separately and mounted later, is available as accessory.

8.2.1 Dimensions



Model	A		B		C		D	
	mm	in	mm	in	mm	in	mm	in
DOCTUS 1	80	3.15	106	4.17	86	3.07	29	1.14
DOCTUS 3	124	4.88	150,2	5.91	91,5	3.60	37	1.46
DOCTUS 6	156	6.14	182,2	7.17	106,5	4.19	47	1.85
DOCTUS 12	204	8.03	233,2	9.18	123,4	4.86	60	2.36

8.2.2 Top Hat Installation



9 Warranty

D.T.S. Illuminazione Srl's products are guaranteed against any material or operational defect starting from the purchasing date, given that the acquired products have been used as indicated on this User Manual. Please refer to www.dts-lighting.it for the complete warranty terms and conditions.

10 Product Disposal

DOCTUS are electrical devices and therefore, at the end of their lifetime, must be disposed according to local regulations and for no reason can they be dispersed in the environment.

NOTES

ISO 9001:2015

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



**ITALIAN
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