



INSTRUCTIONS MANUAL

## LTRNOBHP series

High power LED ring illuminators, oblique type



LIGHTING

## INDEX

<b>1. Product overview</b>	<b>3</b>
<b>2. Disclaimer</b>	<b>3</b>
<b>3. Safety notes</b>	<b>3</b>
<b>4. Product warranty</b>	<b>3</b>
4.1. Warranty	3
4.2. Product end-of-life handling	4
<b>5. Optical specifications</b>	<b>4</b>
<b>6. Electrical specifications</b>	<b>5</b>
6.1. Specification table	5
6.2. Connections	5
<b>6.2.1. Illuminator connector</b>	<b>5</b>
<b>6.2.2. Illuminator cable</b>	<b>6</b>
<b>7. Mechanical specifications</b>	<b>7</b>
7.1. LTRNHP075x45	7
7.2. LTRNHP165x45	8
7.3. LTRNHP205x45	9
7.4. LTRNHP210x20	10
7.5. LTRNHP245x25	11
<b>8. Environmental specifications</b>	<b>12</b>
<b>9. Compatibility</b>	<b>12</b>

## 1. Product overview

LTRNOBHP series are the high-power version of LTRNOB series LED ring illuminators and are specifically designed to match Opto Engineering® 360° view optics.

Every illuminator is equipped with a clamping system which makes it very easy to mount it on Opto Engineering® 360° view optics.

These LED ring lights are designed to work both in continuous and strobe mode for high speed inspection and provide the best illumination geometry for the most common applications of the matching lenses in the beverage, pharma and automotive industries.

## 2. Disclaimer

Always deploy and store Opto Engineering® products in the prescribed conditions in order to ensure proper functioning. Failing to comply with the following conditions may shorten the product lifetime and/or result in malfunctioning, performance degradation or failure.

Ensure that incorrect functioning of this equipment cannot cause any dangerous situation or significant financial loss to occur. It is essential that the user ensures that the operation of the illuminator is suitable for their application. All trademarks mentioned herein belong to their respective owners.

Except as prohibited by law:

- All hardware, software and documentation are provided on an “as is” basis
- Opto Engineering® accepts no liability for consequential loss, of any kind

Upon receiving your Opto Engineering® product, visually examine the product for any damage during shipping. If the product is damaged upon receipt, please notify Opto Engineering® immediately.

## 3. Safety notes

Please read the following notes before using this controller. Contact your distributor or dealer for any doubts or further advice.

This device must not be used in an application where its failure could cause a hazard to human health or damage to other equipment. Keep in mind that if the device is used in a manner not foreseen by the manufacturer, the protection provided by its circuits and by its enclosure may be impaired.

The illuminator must be adequately shielded if employed in dusty and humid places.

When operating at the maximum ratings the illuminator can get very hot. The illuminator should be positioned where personnel cannot accidentally touch it and away from flammable materials. Never exceed the power ratings stated in the manual.

## 4. Product warranty

### 4.1. Warranty

The device warranty is 12 months from the effective delivery date with reference to the device serial number. The warranty covers the replacement or repairs of the defective part (components, device or part of it) with the exclusion of dismantling and shipping costs.

The replacement of one or more components does not renew the warranty period of the entire device. The manufacturer cannot be held liable for any compensation for whatever reason and the buyer renounces any claims for costs or damages to third parties due to any machine downtime.

The electronics and parts subjected to normal use or deterioration due to atmospheric agents and the external environment are excluded from the warranty. Also, all failure caused by the lack of, insufficient or incorrect maintenance performed by unskilled or unauthorized personnel or due to unintended use or unauthorized replacements, alterations or repairs is excluded from the warranty.

## 4.2. Product end-of-life handling

Observe the following guidelines when recycling this equipment or its components.

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. In order to avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol indicates that this product complies with the applicable European Union requirements according to the **WEEE (Waste Electrical and Electronic Equipment) Directive 2012/19/EU**

## 5. Optical specifications

The following table depicts all optical information on LTRNOBHP high-power LED ring illuminator series.

Part Number	Light Colour, Peak wavelength	Optimal working distance	Lighting area diam.	
			inner	outer
		mm	mm	mm
LTRNHP075R45	Red - 625 nm	20 - 50	43,5	65
LTRNHP075G45	Green - 525 nm	20 - 50	43,5	65
LTRNHP075B45	Blue - 475 nm	20 - 50	43,5	65
LTRNHP075W45	White - 6200 K	20 - 50	43,5	65
LTRNHP165R45	Red - 625 nm	30 - 50	133,5	162
LTRNHP165G45	Green - 525 nm	30 - 50	133,5	162
LTRNHP165B45	Blue - 475 nm	30 - 50	133,5	162
LTRNHP165W45	White - 6200 K	30 - 50	133,5	162
LTRNHP205R45	Red - 625 nm	30 - 50		
LTRNHP205G45	Green - 525 nm	30 - 50		
LTRNHP205B45	Blue - 475 nm	30 - 50		
LTRNHP205W45	White - 6200 K	30 - 50		
LTRNHP210R20	Red - 625 nm	50 - 100	117,5	182
LTRNHP210G20	Green - 525 nm	50 - 100	117,5	182
LTRNHP210B20	Blue - 475 nm	50 - 100	117,5	182
LTRNHP210W20	White - 6200 K	50 - 100	117,5	182
LTRNHP245R25	Red - 625 nm	20 - 80	160	215
LTRNHP245G25	Green - 525 nm	20 - 80	160	215
LTRNHP245B25	Blue - 475 nm	20 - 80	160	215
LTRNHP245W25	White - 6200 K	20 - 80	160	215

Table 1: optical specifications

## 6. Electrical specifications

This section reports all electrical information on LTRNOBHP high-power LED ring illuminator series.

### 6.1. Specification table

Part Number	Continuous mode (1)			Pulsed mode (2)	
	Supply voltage	Current	Max power	Peak current	Peak power
	V	mA	W	mA	W
LTRNHP075R45	24 ± 2 %	420	10	2800	79
LTRNHP075G45		420	10	6000	163
LTRNHP075B45		420	10	6000	163
LTRNHP075W45		420	10	7200	178
LTRNHP165R45	24 ± 2 %	1670	40	7000	169
LTRNHP165G45		1670	40	9000	239
LTRNHP165B45		1670	40	9000	221
LTRNHP165W45		1670	40	13500	293
LTRNHP205R45	24 ± 2 %	1670	40	7000	169
LTRNHP205G45		1670	40	9000	239
LTRNHP205B45		1670	40	9000	221
LTRNHP205W45		1670	40	13500	293
LTRNHP210R20	24 ± 2 %	2090	50	9000	217
LTRNHP210G20		2090	50	12000	319
LTRNHP210B20		2090	50	12000	294
LTRNHP210W20		2090	50	18000	391
LTRNHP245R25	24 ± 2 %	2710	65	10000	241
LTRNHP245G25		2710	65	14000	372
LTRNHP245B25		2710	65	14000	343
LTRNHP245W25		2710	65	20000	434

Table 2: electrical specifications

NOTE: (1) With constant driving voltage.

(2) With constant driving current. At max pulse width (1 ms), max pulse frequency = 15Hz.

### 6.2. Connections

The illuminator is equipped with a pigtail and a 5 poles male connector.

The illuminator is provided with a 5 m cable for connection to the vision machine.

#### 6.2.1. Illuminator connector

The illuminator is equipped with a pigtail (30 cm length) and 5 poles male connector WEIPU SP2110/P5 straight. The pinout is listed in table 3.

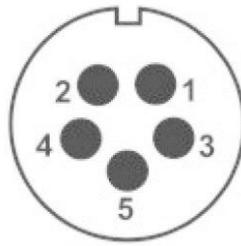


Figure 1: illuminator side, front view

Pin number	Name	Description
PIN 1	LDC+	LED+ Continuous mode
PIN 2	NTC+	Thermal sensor input. Positive terminal
PIN 3	LD-	LED-
PIN 4	LDS+	LED+ Strobe mode
PIN 5	NTC-	Thermal sensor input. Negative terminal

Table 3: pin out of illuminator connector

## 6.2.2. Illuminator cable

The illuminator is provided with a 5 m cable for connection to the vision machine.

- Side 1: 5 poles female connector WEIPU SP2111/S5 straight
- Side 2: cable end

The pinout is listed in table 4.

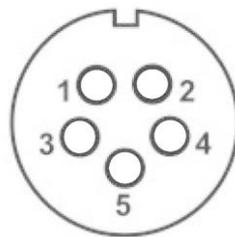


Figure 2: cable side, front view

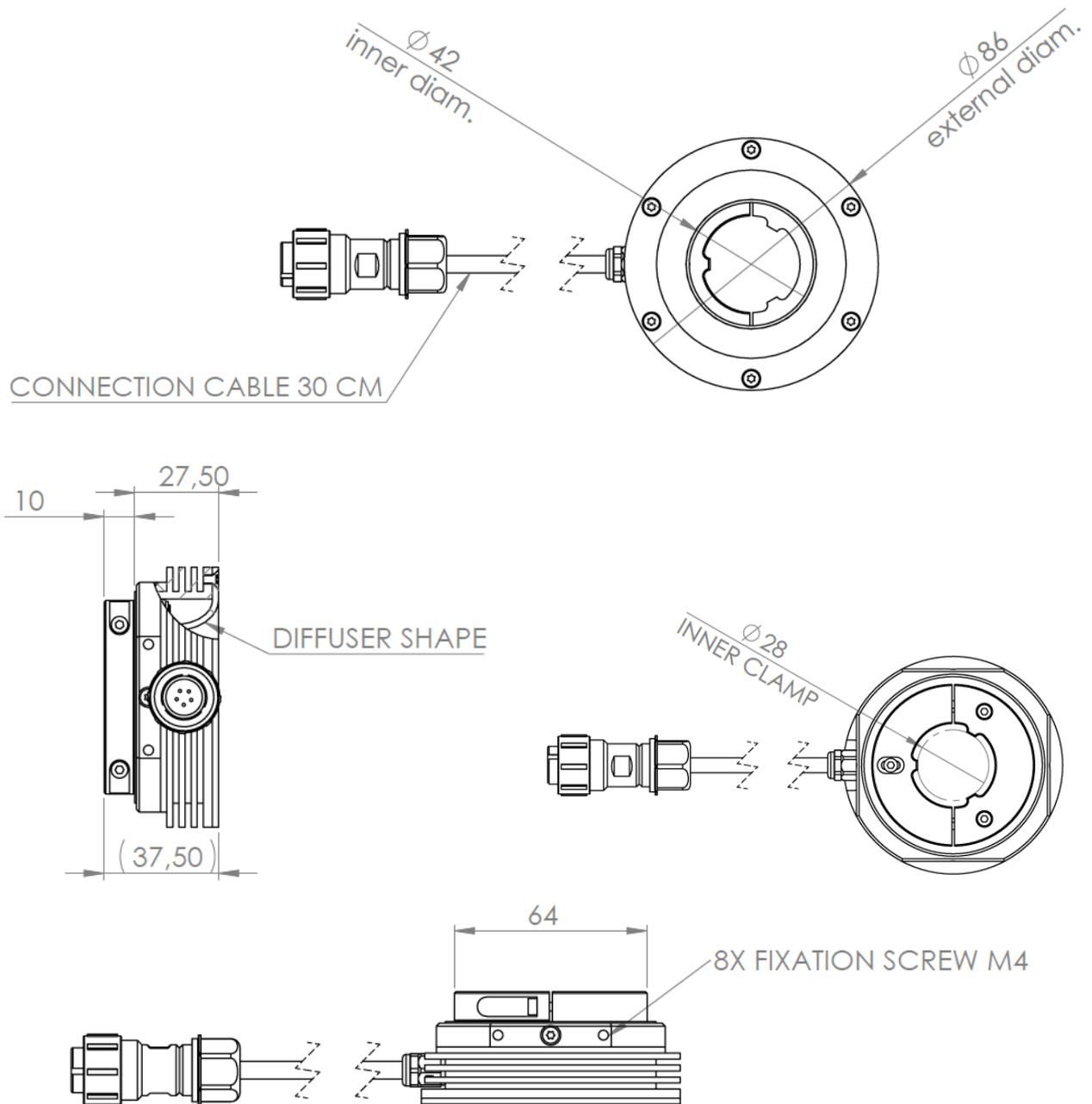
Pin number	Colour	Name	Description
PIN 1	Brown + white	LDC+	LED+ Continuous mode
PIN 2	Pink	NTC+	Thermal sensor input. Positive terminal
PIN 3	Green + yellow	LD-	LED-
PIN 4	Red + Blue	LDS+	LED+ Strobe mode
PIN 5	Grey	NTC-	Thermal sensor input. Negative terminal

Table 4: pin out of illuminator cable

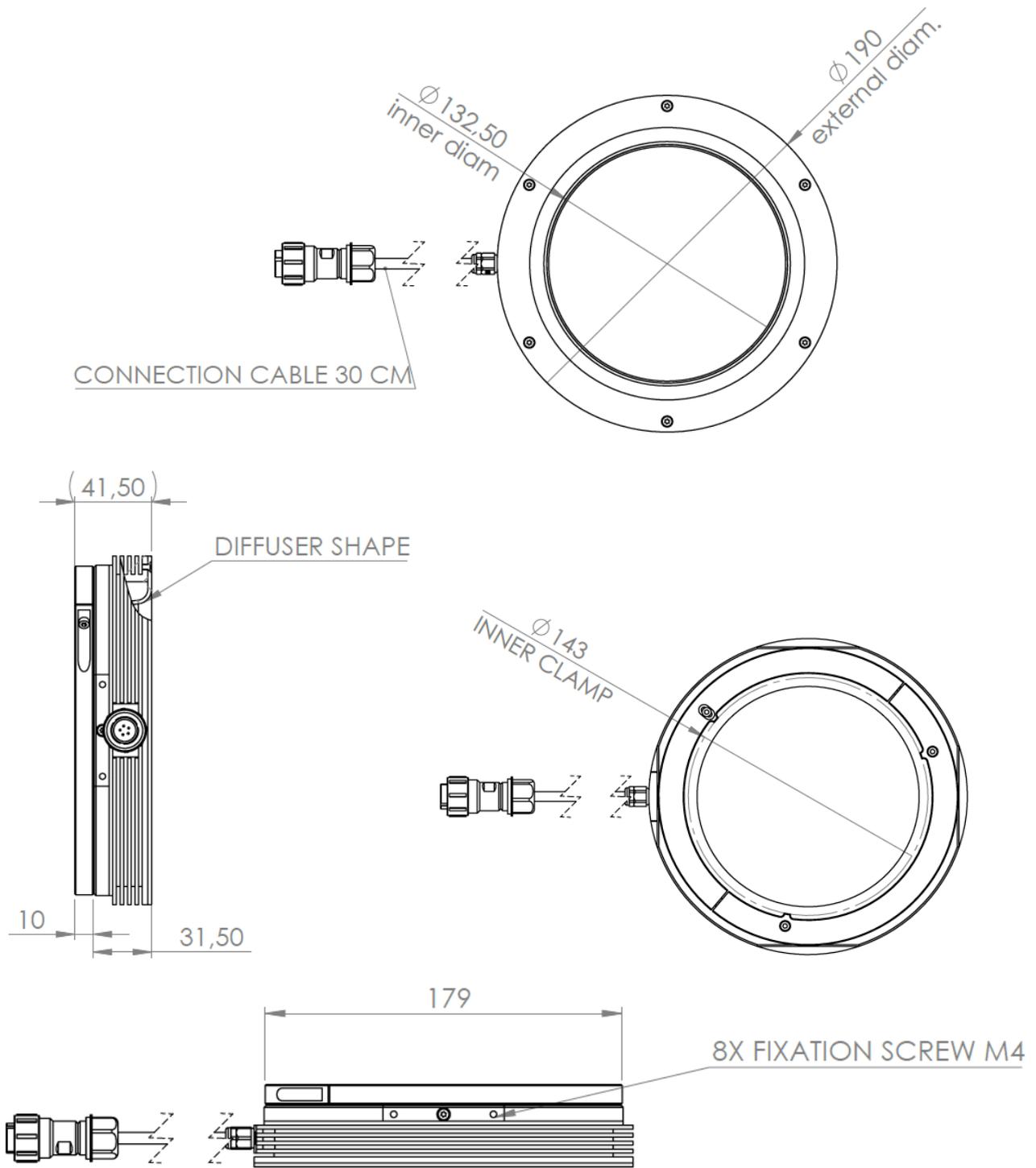
## 7. Mechanical specifications

This section reports all the mechanical information on LTRNOBHP high-power LED ring illuminator series.

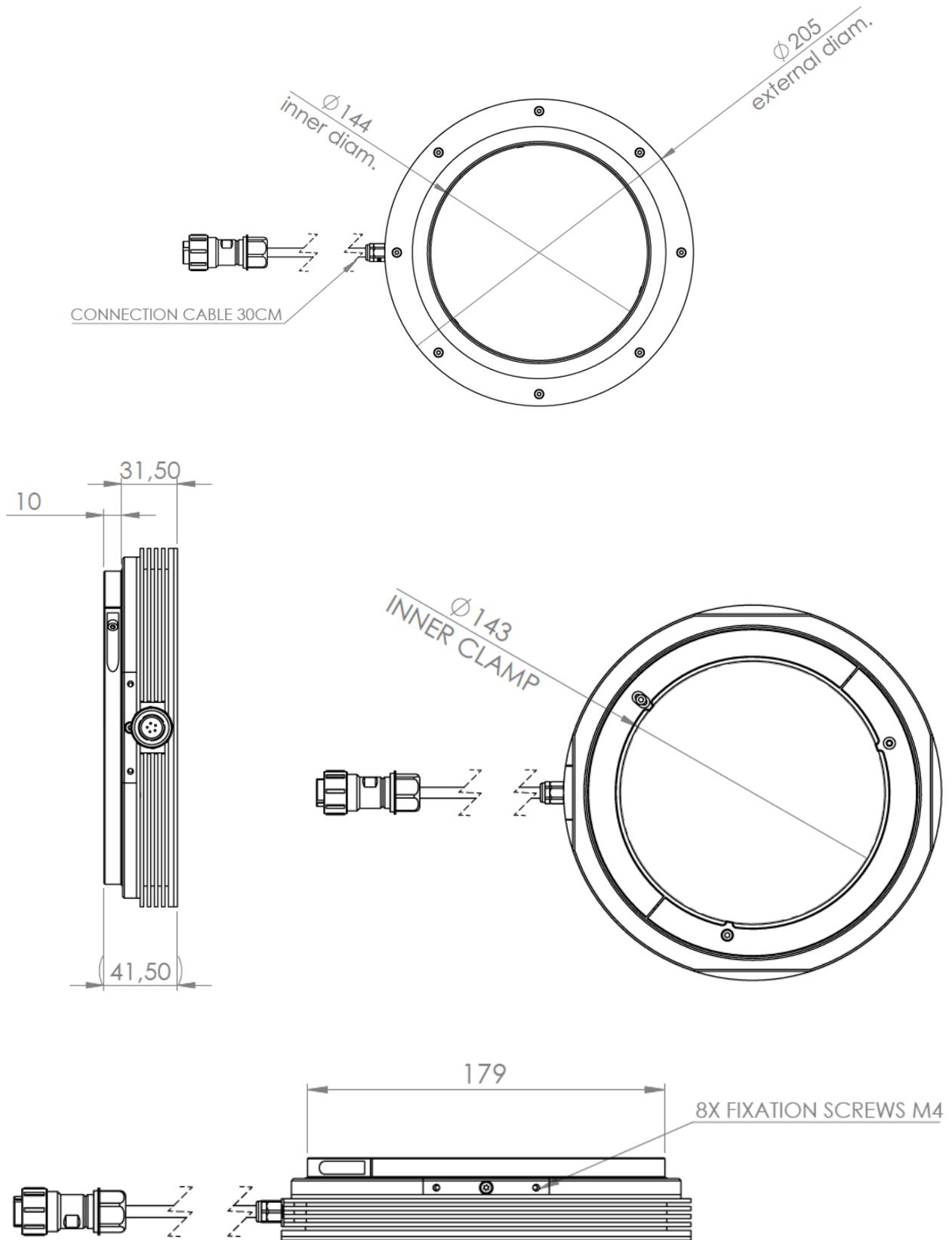
### 7.1. LTRNHP075x45



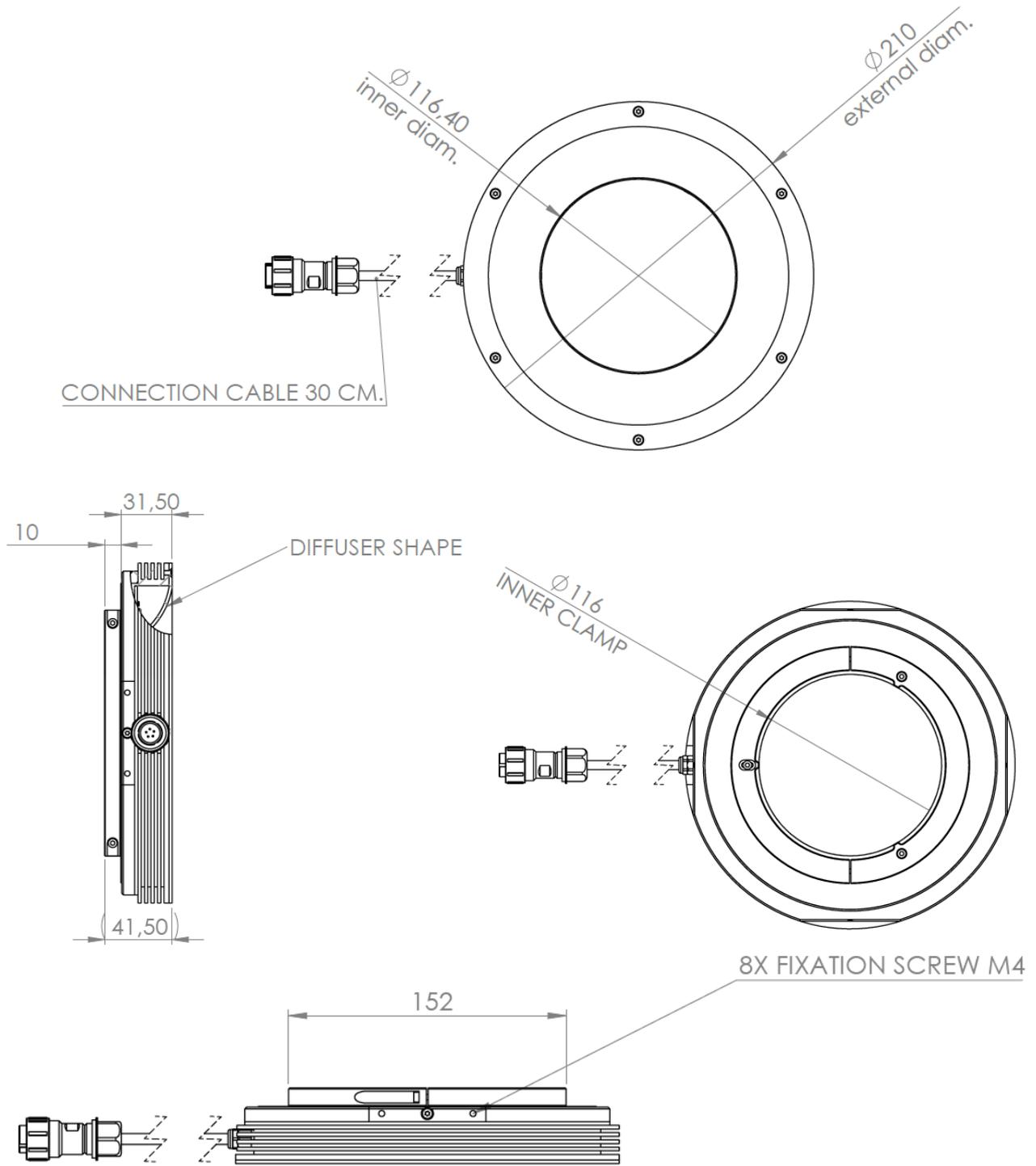
## 7.2. LTRNHP165x45



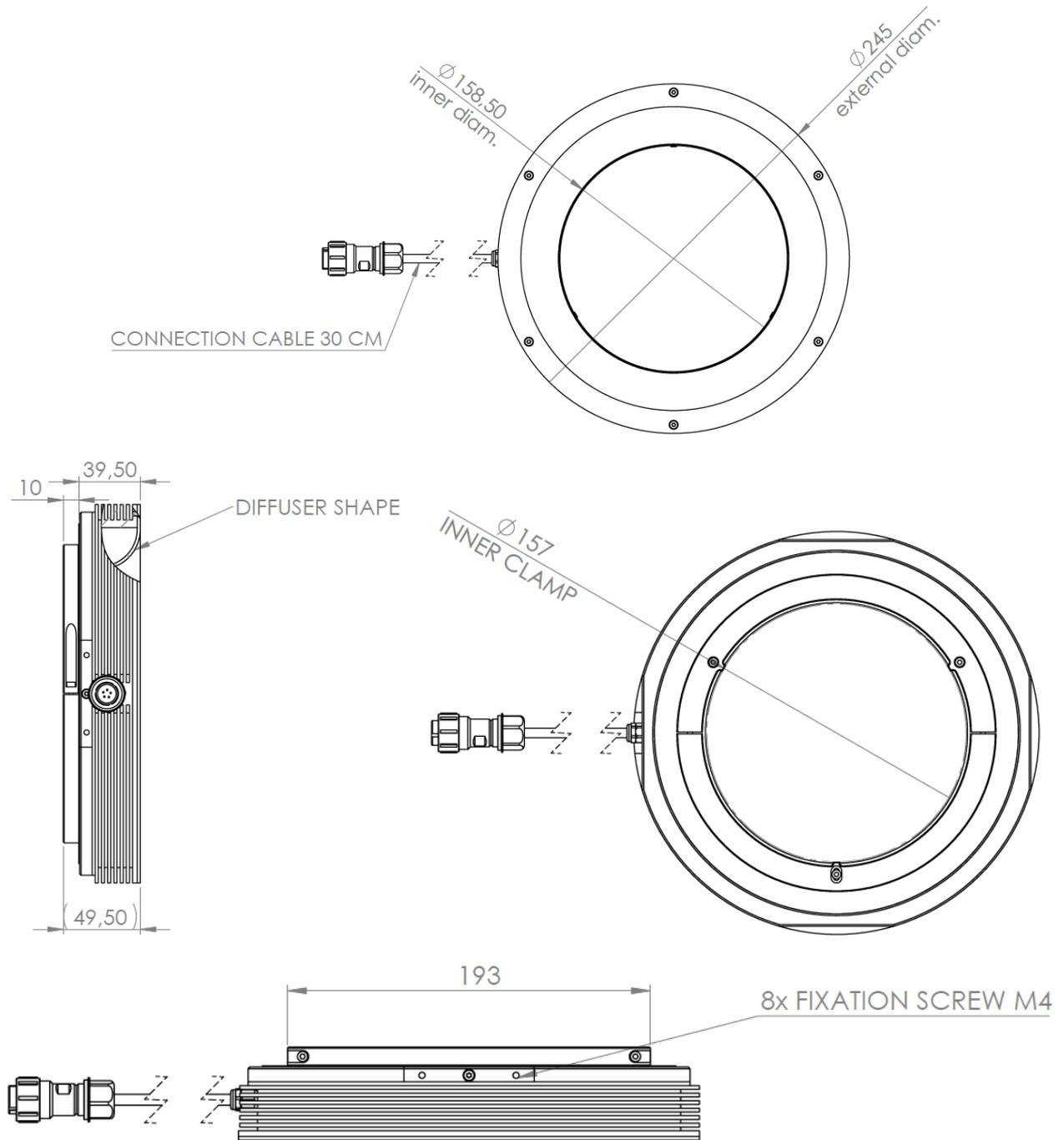
### 7.3. LTRNHP205x45



### 7.4. LTRNHP210x20



### 7.5. LTRNHP245x25



## 8. Environmental specifications

This section reports the environmental specifications on LTRNOBHP high-power LED ring illuminator series.

Operating temperature (deg)	from 0 °C up to 40 °C
Storage temperature (deg)	from -20 °C up to 60 °C
Humidity	20-85%, non-condensing
Installation	indoor use only
Housing material	black and blue anodized aluminum
Standards	  

Table 5: environmental specifications

## 9. Compatibility

This section reports all the Opto Engineering® products compatible with the LTRNOBHP high-power LED ring illuminator series.

Lenses	PCxx030HP
Controllers	LTDV1CH-17V LTDVExCH-20 LTDV6CH
Cable	CBLT010

Table 6: Opto Engineering® products compatibility



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