

# P-50

## 50 Watt Underwater Ultra Rad-Hard LED Luminaire



Product flyer, Version 1.2, June 2024

### Nuclear grade Underwater LED Luminaire

**P-50** is latest generation of high radiation resistant LED Luminaires, proudly created and made by DITO Lighting, Slovenia, EU.

**P-50** is nuclear grade Underwater LED Luminaire, designed for continuous operation under the water up to depth of 20 meters. The Luminaire is based on proven **H** Series of Ultra Rad-Hard LED products, sharing the same radiation resistance properties.

**P-50** is true “all in one” product. Electronics is built-in inside the Luminaire, therefore the unit is connected directly to the mains, without any external boxes mounted elsewhere outside radiation area.

The housing is made of aluminium. The unit is small, compact and very lightweight, therefore easy to handle. Despite small form factor, overall system efficacy is more than 120 lm/W.

**P-50** is preferred choice for less demanding underwater nuclear applications. The Luminaire is primarily designed for inspection lighting inside the NPP pools. It can be used for lighting of scientific research reactors pools, as spent fuel storage pool lighting and as gamma irradiation facility lighting.

Besides underwater lighting, **P-50** can be used for “in the air” applications, where ambient temperatures do not exceed 50 °C.



**P-50** uses silicone optics. Silicone optics is flexible, has operational temperature range of over 200 °C, is 100 % shatter proof and chemically stable.

Default holder enables simple installation and tilting of the unit. The Luminaire is equipped with 20 meters of high performance, radiation resistant underwater cable.

The Luminaire is fully potted, with special silicone based compound. There is no air trapped inside the housing. Beside excellent protection against water, soft potting also protects internal electronics against shocks and vibrations.

For latest, up to date information please visit:

[www.dito-lighting.com](http://www.dito-lighting.com)  
[nuclear@dito-lighting.com](mailto:nuclear@dito-lighting.com)



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### Specifications:

Rated power:	50 W
Available voltages:	100, 120, 220, 230, 277 V
Power factor:	> 0.9
Luminous flux:	> 6000 lm
CCT:	5000 K
CRI:	> 80
Luminaire efficacy:	> 120 lm/W
Electronics location:	internal
Housing material:	Aluminium
Optics material:	Silicone
Ingress protection:	IP 68, continuous, 20 m
Impact protection:	IK 07
Water temperature:	up to 50 °C
Cable length:	20 m
Weight:	1.5 kg w/o cable
Dimensions, w/holder:	114 × 230 mm

Warranty: 5 years

### In compliance with (partial list):

MIL-STD-883, Method 1017 neutrons  
MIL-STD-883, Method 1019 gamma  
ESA ESCC No. 22900 gamma

2014/30/EU (EMC)

2014/35/EU (LVD)

### Radiation tolerance:

Gamma:	$5 \times 10^5$ Gy
Neutrons 1MeV (Si):	$5 \times 10^{14}$ n/cm <sup>2</sup>

### Reliability (environment: GB @ 50 °C):

Calculation method:	MIL-217F N2
MTBF:	3.758.857 h
Predicted lifetime:	> 22 years
Confidence level:	95 %

### Notes:

Irradiation tests performed inside the core of the TRIGA MkII nuclear research reactor with the representative NPP spectrum.

Different input voltages versions are available: 100, 120, 220, 230 and 277 VAC/VDC. Mains frequency can vary between 45 and 65 Hz. The Luminaire does not support wide input voltage range.

The Luminaire is designed for professional use only.

Custom cable length and custom Luminaire holder are available on request.