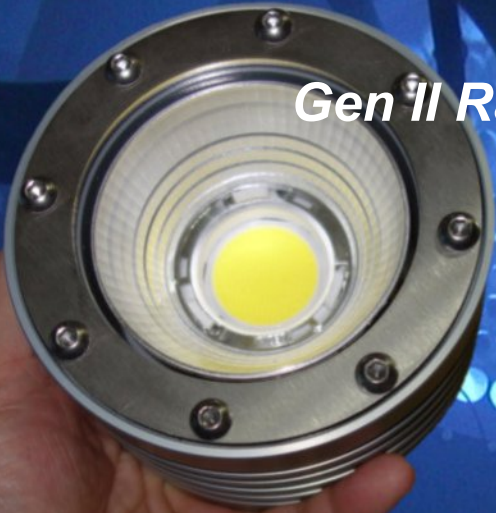


HiRad-50PL[®]

Gen II Rad-Hard Pool LED Luminaire



Extremely Reliable
Extremely Heavy Duty
Extremely Efficient

Product flyer, Version 2, Rev A, May 2017

Generation II Rad-Hard underwater LED Luminaire.
A member of *Extreme³ HD Series[®]* LED products.

HiRad-50PL[®] Gen II a member of *Extreme³ HD Series[®]* LED products, designed and made from ground up by DITO Lighting, Slovenia, EU. **Gen II** is improved version of our first generation, with better radiation tolerance.

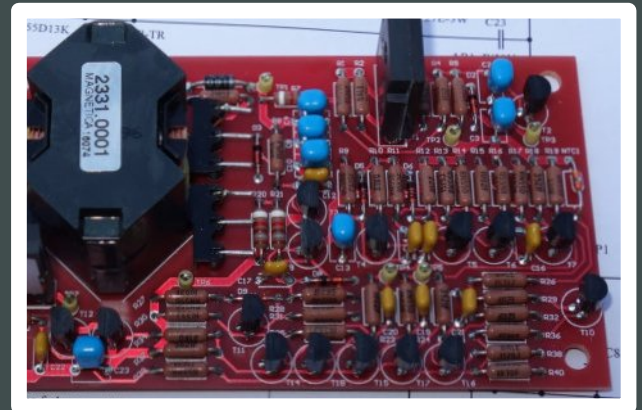
HiRad-50PL[®] is a high performance, modular, underwater LED Luminaire designed to be used in the nuclear reactor pool, continuously submerged.

HiRad-50PL[®] is tested for total dose of **500 kGy gamma** combined with **5×10^{14} n/cm² 1MeV (Si)** equivalent neutron fluence. All tests performed in the TRIGA Mark II Nuclear Research Reactor.

HiRad-50PL[®] is available in two versions. An aluminium version is designed for scientific reactors, while copper version is used in the NPP's reactor pool, where use of catalytic materials like the aluminium is not allowed.

HiRad-50PL[®] is a powerful, 50 W, modular, scalable, LED Luminaire. Lightweight, compact and easy to install.

Any number of units can be used inside the reactor pool, achieving required luminous flux and illumination pattern. Stainless steel holders are typically custom made, grouping more units on one holder if necessary.



LED driver is separated and mounted outside the pool for easy maintenance.

Proprietary electronics is completely developed in-house by DITO Lighting.

LED control gear is based on full discrete design without integrated circuits, electrolytic capacitors, optocouplers. Predicted lifetime is more than 20 years. Mission profile 24/7 at 50 °C ambient temperature.

For latest, up to date information please visit:

www.dito-lighting.com
info@dito-lighting.com



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HiRad-50PL[®]

Gen II Rad-Hard Pool LED Luminaire

IJS nuclear research facility in Ljubljana, using DITO Lighting HiRad-50PL[®] LED Luminaires.

Specifications:

Nominal power:	50 W
Nominal voltage:	230 V AC or DC
Power factor:	> 0.94
Luminous flux:	5500 lm
CCT:	5000 K
CRI:	70
Overall luminaire efficacy:	110 lm/W
Electronics efficiency:	> 89.0 %
Housing:	Copper/Alu
Optics protection:	Polymer
Ingress protection:	IP 68, continuous
Submersion depth:	< 10 m
Water temperature:	4 °C to +50 °C
Weight without holder [Cu]:	3 kg
Weight without holder [Al]:	1 kg
Dimensions [mm]:	dia 125 × 85

Warranty: 5 years

In compliance with (partial list):

MIL-STD-833, Method 1017 neutrons
MIL-STD-833, Method 1019 gamma
ESA ESCC No. 2290 gamma
EN 55015, EN 61547
EN 60598-1, EN 60598-2-1
EN 61347-1, EN 61347-2-13

Radiation tolerance (steady state):

Gamma:	5×10^5 Gy
Neutrons 1MeV (Si):	5×10^{14} n/cm ²

Reliability (environment: GB @ 50 °C):

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

Survivability - operating:

Gamma:	1×10^6 Gy
Neutrons 1MeV (Si):	1×10^{15} n/cm ²

Notes:

All irradiation tests performed in the core of the TRIGA Mk II nuclear research reactor with the representative NPP spectrum.

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