

# HiRad-10EL<sup>®</sup>

## Gen II Rad-Hard Emergency LED Luminaire

**Extremely Reliable**  
**Extremely Heavy Duty**  
**Extremely Efficient**

Product flyer, Version 2.0, Rev A, May 2017

## Generation II Rad-Hard LED Luminaire. A member of *Extreme<sup>3</sup> HD Series<sup>®</sup>* LED products.

**HiRad-50EL<sup>®</sup> Gen II** is a member of *Extreme<sup>3</sup> HD Series<sup>®</sup>* 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-10EL<sup>®</sup>** is high performance, low power, very high radiation resistant emergency LED Luminaire, designed for typical particle accelerator radiation environment.

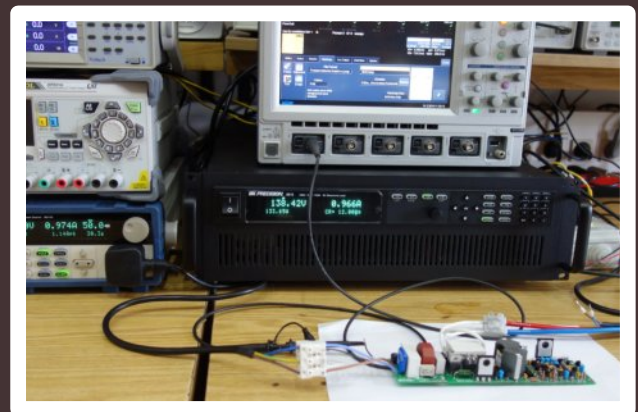
**HiRad-10EL<sup>®</sup>** might be used in applications where use of internal battery is not allowed. The Luminaire is powered with centralized emergency AC or DC power grid.

Applications include, but not limited to:

- Scientific facilities - particle accelerators
- Nuclear Power Plants
- Nuclear waste treatment facilities
- Medical and military facilities

**HiRad-10EL<sup>®</sup>** is very small, lightweight, easy to install, 10W emergency LED Luminaire with high overall system efficacy, exceeding 130 lm/W.

Following the ALARA principle, **HiRad-10EL<sup>®</sup>** includes classic "fluo" style quick snap brackets for easy mounting/replacement and maintenance.



**HiRad-10EL<sup>®</sup>** is tested for total dose of:

- 500 kGy gamma combined with
- $5 \times 10^{14}$  n/cm<sup>2</sup> 1MeV (Si) neutron fluence.

Both tested inside the core of TRIGA Mk II reactor.

LED control gear is developed and produced in-house. Electronics is based on full discrete design without integrated circuits, electrolytic capacitors and optocouplers. Predicted lifetime is more than 20 years, operational 24/7 at 50 °C ambient temperature.

For latest, up to date information please visit:

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# HiRad-10EL<sup>®</sup>

## Gen II Rad-Hard Emergency LED Luminaire

Photometric testing

### Specifications:

Nominal power:	10 W
Nominal voltage (EU):	230 V AC or DC
Power factor:	> 0.93
Luminous flux:	> 1300 lm
CCT:	5000 K
CRI:	> 70
Overall luminaire efficacy:	> 130 lm/W
Electronics efficiency:	> 86.0 %
Housing:	Aluminium
Optics protection:	Polymer Diffuser
Ingress protection:	IP 64
Ambient temperature:	-20 °C to +50 °C
Weight:	0.8 kg
Dimensions [mm]:	310 × 88 × 72
Limited 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  
IEC/EN 60598-1, IEC/EN 60598-2-1  
IEC/EN 61347-1, IEC/EN 61347-2-13  
IEC/EN 60598-2-22

### 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 in the TRIGA MkII research reactor with the representative NPP spectrum.

The product is also available with US input voltage 120 V AC 60 Hz or 120 V DC.

There are also variants with up to 25W of power available on request.