

MLL1000

High LED technology

The MLL1000 lamp, developed and patented by MSM, is a luminous equipment with the highest LED technology.

Ideal to be installed on classic glass optics

While others LED lamps of the market, those are characterised by their use of a virtual light source. The light emission is made through prisms to a hyperbole, in such a way that the light source is virtualised in the exact in focus point lens, as a filament or metallic halogen lamp. Thus, the focal distance of the lens is maintained and it can replace any traditional lamp of the market. Ideal to be installed on classic glass optics, both rotating or flashing lighthouses.

Energy saving up to 60%

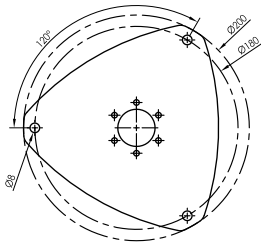
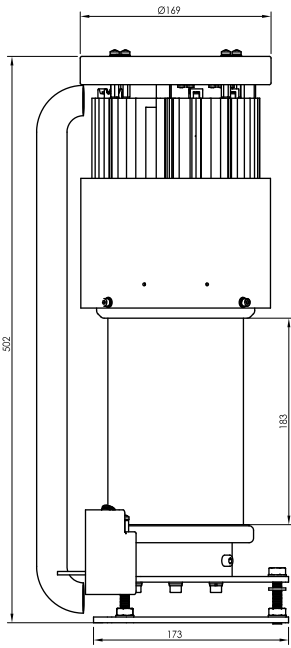
Its main advantages are: its significant energy saving (and consequently the environment preservation), its service life (up to 100,000 hours) and its easy installation, as diesel generator, current inverter system and less capacity batteries are not necessary.



FEATURES

- *Virtual light focus adapted to Fresnel glass or other material lenses.*
- *Three version of the MLL: 300 W, 150 W and 75 W.*
- *Up to 100,000 hours average life time.*
- *Energy saving up to 60% during the service life of the lamp.*
- *Luminous range reached over 26 nautical miles ($T = 0,74$).*
- *Null impact by a magnifying-glass effect.*
- *Voltage source for on both alternating current (110 V / 230 V) and direct current (24 V), allowing installation in lighthouses supplied by solar or wind energy.*
- *Conventional thermal management for the 75 W model, and by active refrigeration system for 150 and 300 W models; with average life up to 200,000 hours (without moving parts).*
- *High-performance LED power driver, with current regulation and power adjustable by PWM*
- *Null maintenance.*

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Optical features

- Matrix high-power LED diode (service life up to 100,000 hours).
- NBK7 condenser lens.
- Hyperbolic mirror of unalterable stainless-steel.
- 4000 K colour temperature.

Mechanical features

- Triple point anodized aluminium radiator.
- Electronic cooling system of 200,000 service-life hours (MLL 150, 300 W version).
- Anti-condensation valve.
- Anodized marine aluminium protecting housing.
- Adjustable alignment support system.
- Focussing accessory.

LED Power Driver features

Current type	Alternating current	Direct current
Supply voltage:	100 - 240 V a.c.	20 - 36 V d.c.
Frequency:	50 - 60 Hz	-
LED power driver efficiency:	94%	96%
Protections:	Short-circuit, over-voltage and over-temperature.	

Options

- Different colour temperatures.
- Power supply panel with protections, a.c version or d.c version available.
- Automatic Control Unit with alarm outputs, configurable by customer.

MLL1000 Intensities charts

ROTATING LENS FOCAL DISTANCE 250 mm I ₀ = 256,667 Cd						
RPM	0.5	1	2	3	4	5
I _e	210,000	177,693	135,883	110,000	92,400	79,655
Td	0.900	0.450	0.225	0.150	0.113	0.090
RANGE	22	21	21	20	20	19

ROTATING LENS FOCAL DISTANCE 300 mm I ₀ = 373,333 Cd						
RPM	0.5	1	2	3	4	5
I _e	292,174	240,000	176,842	140,000	115,862	98,823
Td	0.720	0.360	0.180	0.120	0.090	0.072
RANGE	22	22	21	21	20	20

ROTATING LENS FOCAL DISTANCE 500 mm I ₀ = 1,015,030 Cd						
RPM	0.5	1	2	3	4	5
I _e	696,172	529,757	358,407	270,812	217,625	181,900
Td	0.437	0.218	0.109	0.073	0.055	0.044
RANGE	25	24	23	22	22	21

ROTATING LENS FOCAL DISTANCE 700 mm I ₀ = 1,986,923 Cd						
RPM	0.5	1	2	3	4	5
I _e	1,212,797	872,761	559,194	411,389	325,385	269,122
Td	0.313	0.157	0.078	0.052	0.039	0.031
RANGE	26	25	24	23	23	22

HORIZON OPTICS Power 150 W				
FOCAL	250 mm	500 mm	700 mm	900 mm
I ₀ max (Cd)	13,200	27,000	37,500	48,000
RANGE	15	17	17	18

NOTE: Glazing losses included in the calculations.

Specifications subject to change without previous notice.

