

KELDAN⁺

Advanced Lighting Technology

Underwater Video Light

Keldan Video 8M

Operating Instructions



For Professionals Who Know The Difference.

BEFORE STARTING

- Read operating instructions.
- Keep O-ring clean and grease regularly.
- For storage charge the battery to 30-60%. Storing a fully charged or empty battery is detrimental to the battery's life in the long run.
- Discharge/charge battery at least every 6 months.
- Remove the battery from casing when storing the light.
- Charge the battery before every dive.

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INSTRUCTIONS

1. MAGNETIC SWITCH

Attention: the light uses a magnetic switch so your compass reading may be off when you hold it close (within 5cm or 2") to the black on/off switch.

2. CHARGE OF THE BATTERY

Only use the supplied Li-Ion charger to charge the battery. For best results, the battery should be charged at room temperature. Avoid charging when batteries are still hot after use. Let them cool down before charging.



Important: If battery state of health falls below 75%, always use the included 16.8V to 16.6V Adapter cable when charging.

3. MAINTENANCE OF BATTERY

It is not recommended to discharge the battery after each dive. Complete discharge after every use may reduce life time of battery. We recommend the following service procedures:

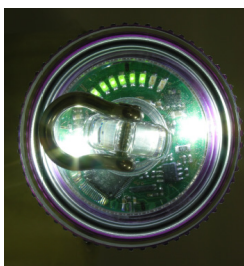
- For storage remove battery from casing.
- Discharge and recharge the battery at least once every 6 months.
- Avoid deep discharge of the battery pack.
- Store battery with approximately a 30-60% partial charge in a dry and cool place.
- Charge fully before each dive.
- The storage of a fully discharged battery may cause permanent damage to the battery.

4. BATTERY PROTECTION CIRCUIT

The integrated protection circuit protects the battery from overload, overcharge and deep discharge.

5. SAFETY LIGHT

The safety light on the rear side of the battery pack can be activated by switching the light into the TEST mode. It is activated as well if the main light is automatically turned off due to low battery voltage.



6. CHARGE LEVEL INDICATOR

The charge level indicator lights displays the available energy by taking into account charge and discharge currents. Over time the battery may not be able to hold 100% of the charge and the effect will be shown on the indicator. If the battery is only capable of holding 80% of its charge, the indicator will only show 80% instead of the full 100% after a full charge. Note that the charge level indicator may be slightly out of synchronization with the effective available charge after a long period of time. A full discharge will synchronize the display.

7. USE IN AIR

The video light can also be used outside water but at low power level only. If the light gets too hot, it slowly and automatically reduces the power to avoid overheating.

8. HOW TO OPEN THE CASING

Remove excess water from the outside before opening. Point the light slightly upward while opening to avoid water from entering the housing.

Friction of the O-ring seal (and therefore force needed to open the cap) increases over storage time. After long and deep dives the friction might increase too. To avoid high friction, regularly grease the O-ring.

9. MAINTENANCE

After each use rinse well with fresh water.

Care should be taken to avoid scratching of the O-ring seals. Keep seals clean of sand, hair, cloth fibers or similar materials at all times. O-rings of the battery screw cap should be regularly inspected and cleaned. Occasionally apply small amounts of silicone grease for lubrication. If not treated, the O-ring will fail to provide proper sealing causing the light to malfunction.

- Do not use sharp tools to remove the O-ring.
- Never use a battery which appears damaged.
- In case of a damaged lamp, contact your nearest KELDAN® dealer.
- Do not remove front glass cover (high operating voltage).
- O-rings need to be replaced by KELDAN® or an authorized dealer every 5 years.

10. STORAGE AND TRANSPORTATION

Battery and casing must be stored apart in a cool and dry place. Maintain battery pack according to our recommendations. Separate battery pack from casing if traveling by air.

11. WARRANTY

The light carries a two-year warranty. Fill out and return warranty card within 14 days of purchase.

The warranty is limited to material defects which occur when correctly handling the product. The warranty does not cover the battery.

KELDAN® warranty coverage is void for defects as a result of improper use.

12. LIABILITY

KELDAN® declines all responsibility for damages arising from any improper use of the Keldan Video 8M light or as incurred by a third person.

HOW TO CHANGE AN LED MODULE

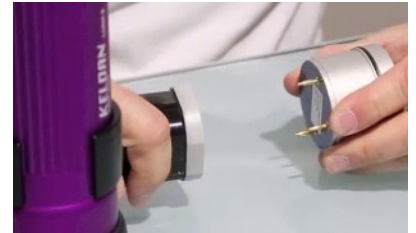
1. Unscrew the reflector from the housing and put the housing with the LED module on a flat, clean surface with LED module facing down.



2. Unscrew the reflector from the housing and put the housing with the LED module on a flat, clean surface with LED module facing down.



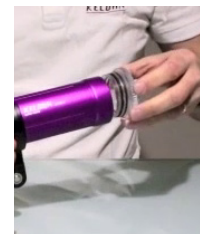
3. Pull out the LED module and battery through the front of the body. To unplug the LED module, pull straight, careful not to bend the pins.



4. Pay attention to the correct orientation when inserting the module. Do not touch the LED when pushing the LED module. Push only at the edge of the aluminum housing.



5. Screw the reflector on the housing before inserting the battery.



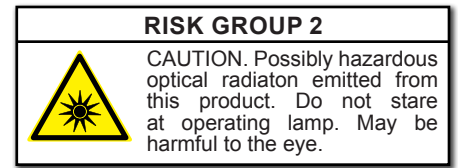
ATTENTION

- Do not touch the LED when pushing the LED module. Push only at the edge of the aluminum housing!
- ALWAYS screw reflector on the housing before inserting the battery. Inserting the battery without mounted reflector may push out the LED module!

SAFETY INSTRUCTIONS

The Keldan Video 8M light produces an extremely powerful and intense light.

- Never point directly at a person at close distance.
- Never stare directly into the light.



SAFETY INSTRUCTIONS WHEN USING UV LIGHT

Special care has to be taken for the UV radiation since most of the energy is emitted by invisible radiation at 400nm. Although the UV light does not appear like an intense light source, it is a VERY INTENSE UV light source. Brief your dive partner not to stare into the light at any time.

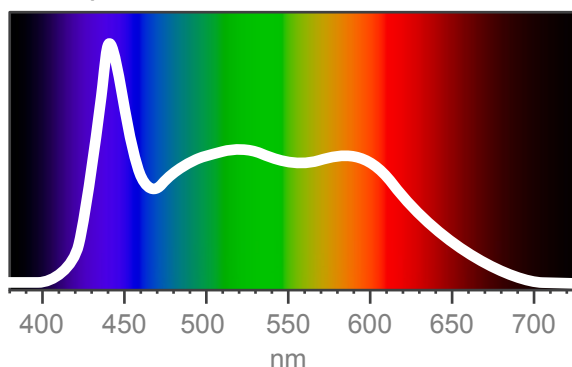
MODULES

LED MODULE: CRI

This LED module is optimized for best color rendering. Unlike with standard white LED, this LED module provides enhanced spectral power in the red and cyan color. The excellent color rendering index is equivalent to the best available studio lighting. Use daylight setting or on site white balancing for best results.



Spectral Power Distribution: CRI

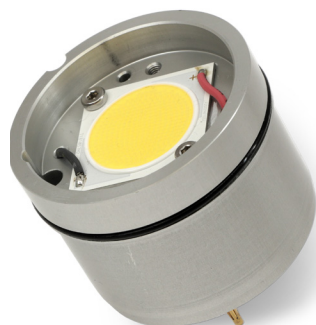


Electrical power, 5 power levels	28- 105 watts
Luminous flux w/90° reflector*	2700 - 8000 lumen
Color temperature (CCT)	5600 kelvin
Color rendering index	96 CRI (Ra)

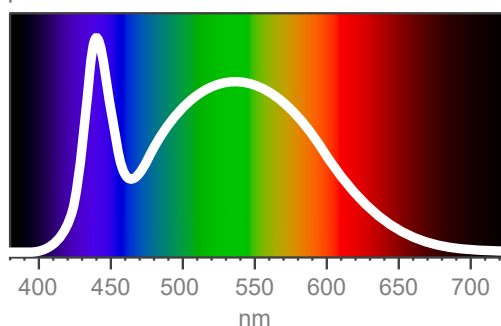
* Taking into account 80% transmission of 90° reflector.

LED MODULE: 1100lm CRI82

This LED module is optimized for maximum brightness. The color temperature is adjusted to 5600K. Use daylight setting or on site white balancing for best results.



Spectral Power Distribution: 11000lm CRI82



Electrical power, 5 power levels	4 - 105 watts
Luminous flux w/90° reflector*	200 - 11000 lumen
Color temperature (CCT)	5600 kelvin
Color rendering index	82 CRI (Ra)

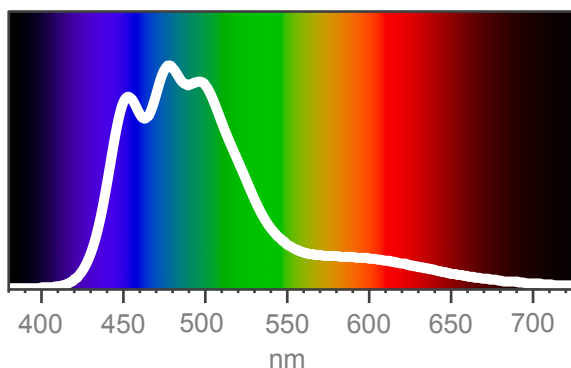
* Taking into account 80% transmission of 90° reflector.

LED MODULE: CYAN

The CYAN LED module produces the same color temperature as at a depth of about 5m. It is intended to be used if you white balance the camera to the ambient light.



Spectral Power Distribution: CYAN



Electrical power, 5 power levels	25 - 95 watts
Luminous flux w/90° reflector*	1200 - 4000 lumen
Color temperature (CCT)	30'000 kelvin

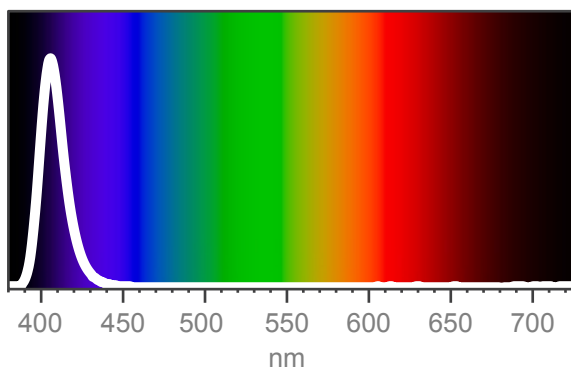
* Taking into account 80% transmission of 90° reflector.

LED MODULE: UV 365nm

This module can be used for fluorescence imaging. Since the major part of the radiation of the UV light is invisible no yellow filter is required.



Spectral Power Distribution: UV



Electrical power, 5 power levels	11 - 45 watts
Wavelength	400 nm
Radiated Power	2 - 6 watts
Available radiated power w/90° reflector*	1,5 - 5 watts

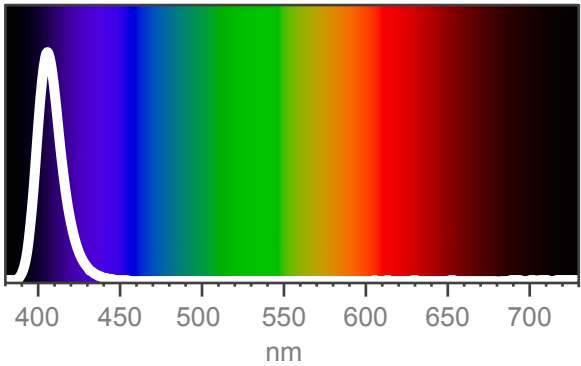
* Taking into account 80% transmission of 90° reflector.

LED MODULE: UV 385nm

This module can be used for fluorescence imaging. Since the major part of the radiation of the UV light is invisible no yellow filter is required.



Spectral Power Distribution: UV



Electrical power, 5 power levels	11 - 45 watts
Wavelength	400 nm
Radiated Power	2 - 6 watts
Available radiated power w/90° reflector*	1,5 - 5 watts

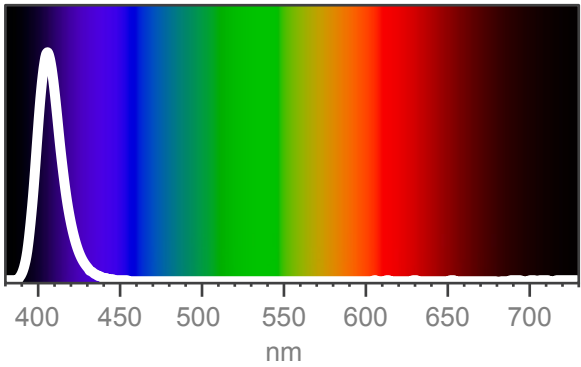
* Taking into account 80% transmission of 90° reflector.

LED MODULE: UV 405nm

This module can be used for fluorescence imaging. Since the major part of the radiation of the UV light is invisible no yellow filter is required.



Spectral Power Distribution: UV



Electrical power, 5 power levels	11 - 45 watts
Wavelength	400 nm
Radiated Power	2 - 6 watts
Available radiated power w/90° reflector*	1,5 - 5 watts

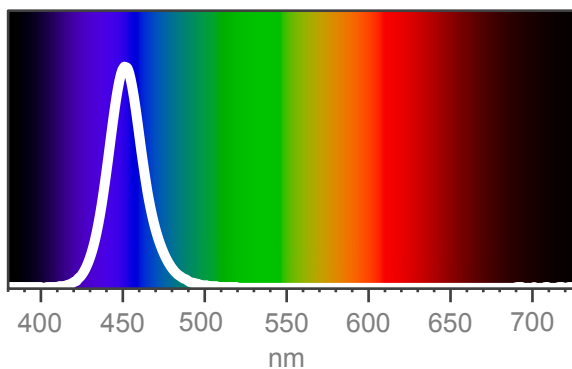
* Taking into account 80% transmission of 90° reflector.

LED MODULE: BLUE 450nm

This LED module can be used for fluorescence imaging. It produces a very intense blue light at 450nm. Yellow filter is recommended to filter off the intense blue content.



Spectral Power Distribution: BLUE

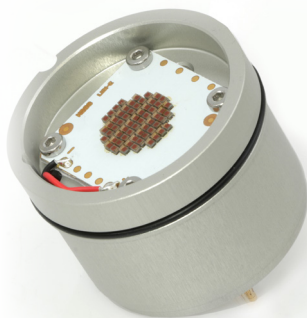


Electrical power, 5 power levels	25 - 95 watts
Wavelength	450 nm
Radiated Power	10 - 35 watts
Available radiated power w/90° reflector*	8 - 28 watts

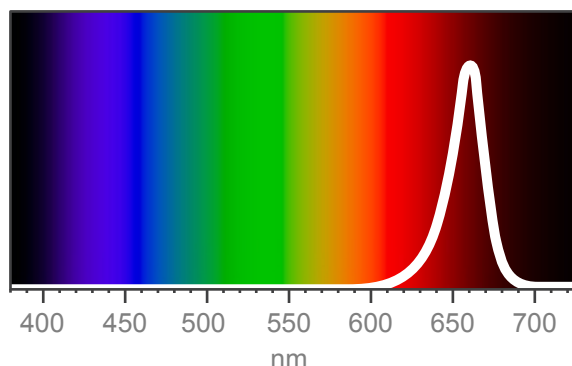
* Taking into account 80% transmission of 90° reflector.

LED MODULE: DEEP RED 655nm

This deep red light source can be used as infrared light for observing fish at night. In general, Fish do not see light at wavelength above 570nm. The deep red LED module is emitting light at the wavelength of 655nm, this is well in the non visible range for the fish but still visible for human and for the camera sensor.



Spectral Power Distribution: DEEP RED

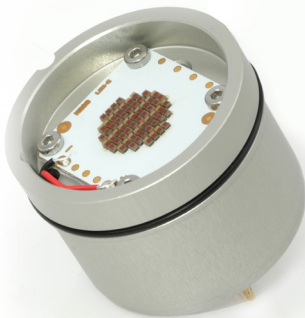


Electrical power, 5 power levels	25 - 95 watts
Wavelength	655 nm
Radiated Power	7 - 30 watts
Available radiated power w/90° reflector*	5 - 25 watts

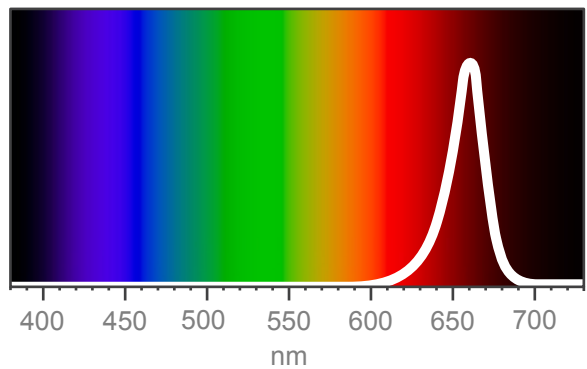
* Taking into account 80% transmission of 90° reflector.

LED MODULE: DEEP RED 730nm

This deep red light source can be used as infrared light for observing fish at night. In general, Fish do not see light at wavelength above 570nm. The deep red LED module is emitting light at the wavelength of 655nm, this is well in the non visible range for the fish but still visible for human and for the camera sensor.



Spectral Power Distribution: DEEP RED



Electrical power, 5 power levels	25 - 95 watts
Wavelength	655 nm
Radiated Power	7 - 30 watts
Available radiated power w/90° reflector*	5 - 25 watts

* Taking into account 80% transmission of 90° reflector.

REFLECTORS

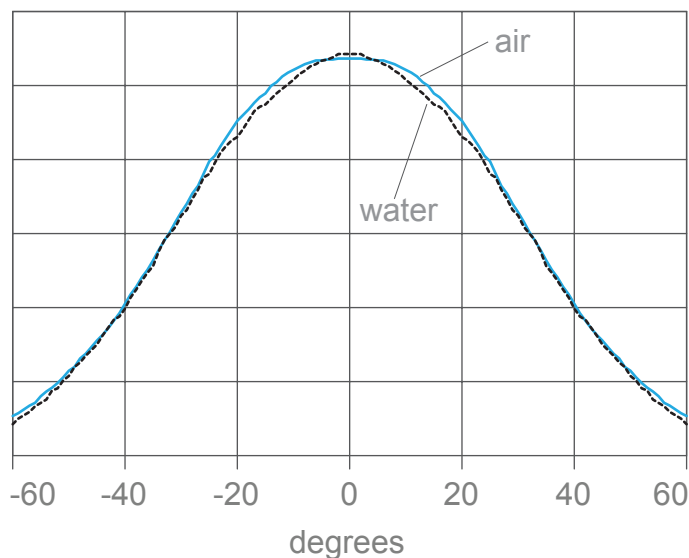
90° REFLECTOR

This reflector is optimized for a very wide, smooth and speckle free beam pattern. Thanks to its dome lens window it maintains its very wide beam angle even when immersed in water.

Efficiency 80%



90° Beam Angle



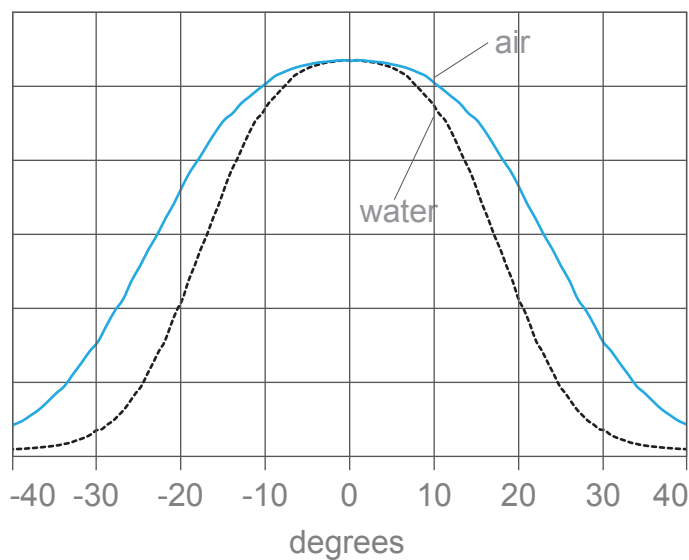
50° REFLECTOR

This reflector is designed to deliver a maximum brightness at the object if a beam angle of 50° is acceptable. The 50° beam is also very well suited to enhance objects and to keep the background dark.

Efficiency 75%



50° Beam Angle

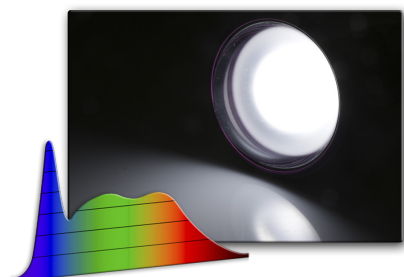


TECHNICAL DATA

Common Specifications:

Battery (Li-Ion)	14,4V / 6,9Ah (99Wh)
Charging time	3-4 hours
Diameter / Length	12/29 cm
Weight (in water)	1,10 (0,14) kg (with 90° reflector)
Maximum depth	200 m

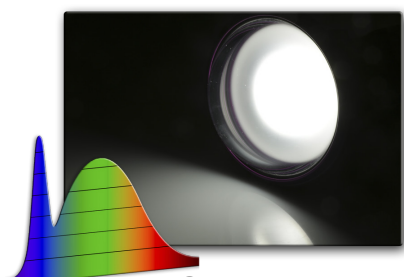
Keldan Video 8M CRI



CRI 96

Luminous Flux	Candlepower	Burn Time	Electrical Power
8000 lumen	5400 candela	50 min	105 watts
6700 lumen	4500 candela	65 min	80 watts
4900 lumen	3300 candela	90 min	55 watts
3500 lumen	2300 candela	150 min	35 watts
2700 lumen	1800 candela	190 min	28 watts

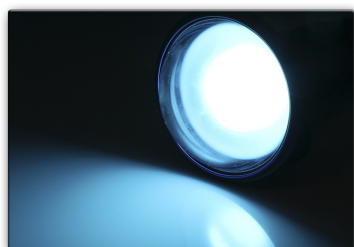
Keldan Video 8M 11000lm CRI82



CRI 83

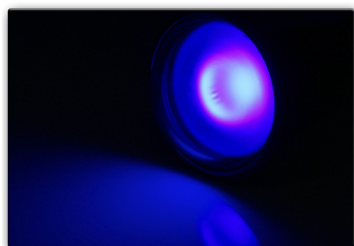
Luminous Flux	Candlepower	Burn Time	Electrical Power
11000 lumen	7600 candela	50 min	105 watts
4000 lumen	2800 candela	180 min	30 watts
1500 lumen	1000 candela	360 min	15 watts
500 lumen	380 candela	800 min	7 watts
200 lumen	140 candela	1400 min	4 watts

Keldan Video 8M CYAN



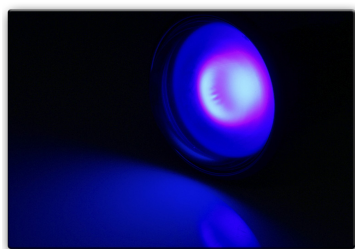
Luminous Flux	Candlepower	Burn Time	Electrical Power
4000 lumen	2700 candela	55 min	95 watts
3600 lumen	2500 candela	70 min	77 watts
2600 lumen	1800 candela	100 min	52 watts
1700 lumen	1100 candela	160 min	33 watts
1300 lumen	900 candela	220 min	25 watts

Keldan Video 8M UV 365nm



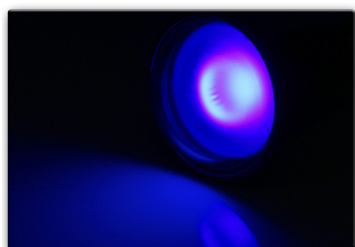
Radiated Power	Burn Time	Electrical Power
5 watts	110 min	45 watts
4,5 watts	165 min	32 watts
3,5 watts	240 min	22 watts
2 watts	370 min	14 watts
1,5 watts	470 min	11 watts

Keldan Video 8M UV 385nm



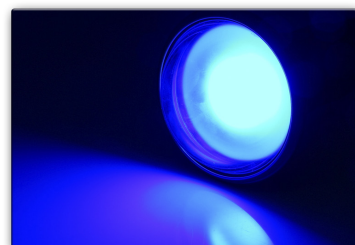
Radiated Power	Burn Time	Electrical Power
5 watts	110 min	45 watts
4,5 watts	165 min	32 watts
3,5 watts	240 min	22 watts
2 watts	370 min	14 watts
1,5 watts	470 min	11 watts

Keldan Video 8M UV 405nm



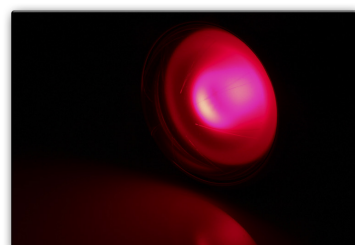
Radiated Power	Burn Time	Electrical Power
5 watts	110 min	45 watts
4,5 watts	165 min	32 watts
3,5 watts	240 min	22 watts
2 watts	370 min	14 watts
1,5 watts	470 min	11 watts

Keldan Video 8M BLUE 450nm



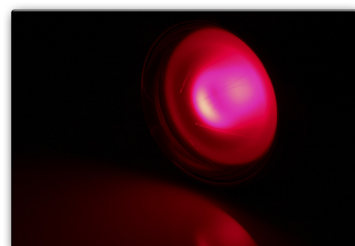
Radiated Power	Burn Time	Electrical Power
28 watts	55 min	95 watts
25 watts	65 min	77 watts
18 watts	100 min	52 watts
12 watts	170 min	33 watts
9 watts	220 min	25 watts

Keldan Video 8M DEEP RED 655nm



Radiated Power	Burn Time	Electrical Power
25 watts	55 min	95 watts
22 watts	65 min	77 watts
16 watts	100 min	52 watts
11 watts	170 min	33 watts
8 watts	220 min	25 watts

Keldan Video 8M DEEP RED 730nm



Radiated Power	Burn Time	Electrical Power
25 watts	55 min	95 watts
22 watts	65 min	77 watts
16 watts	100 min	52 watts
11 watts	170 min	33 watts
8 watts	220 min	25 watts

KELDAN⁺

Advanced Lighting Technology

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