

# LED PORTABLE LIGHTING INDEX

(for in-air and underwater maintenance and refueling services)

**Area Lights** 

**Cavity/SFP Floodlights** 

**CoreLites** 

**Small Diameter PenciLite** 

The Master-Lee Engineered Products (MEPI) LED Helios-75K AreaLite is our most versatile product, engineered to operate in the extremes.



Master-Lee would like to introduce our most versatile model of the Helios-75K line, the Helios 75K<sup>TM</sup>

AreaLite. Designed to be as powerful as a large floodlight, but compact and rugged enough to play the role of an area light, the Helios 75K<sup>TM</sup>

AreaLite shines brightly in any environment. In-air or underwater, this dimmable LED light offers more than enough light for illuminating large areas.

LED Helios-75K AreaLite P/N #D3346

Providing up to 78,000 lumens of dispersed, white light using the latest LED technology, the Helios 75KTM AreaLite is best suited for lighting the reactor core in support of fuel movement and video inspection services operations. The Helios 75KTM AreaLite has been engineered to be compact, lightweight, rugged, and is equipped with a detachable cable for simple storage. The ease of positioning the light and its intense light output permits fewer moves during critical path times, ultimately saving time. Designed to operate at depths to 100-ft and within close proximity to irradiated fuel assemblies, the Helios 75KTM AreaLite is the ideal solution to illuminate reactor cores. Providing a bright, reliable light source gives our customers the flexibility to do more with less, as the Helios 75KTM AreaLite can provide the illumination of two or more traditional (tungsten/quartz halogen) lights. Additionally, incorporating LED lighting technology provides thousands of operating hours, reducing your re-lamp, installation, and removal times. Maintenance is limited to replacement of the lens as required due to radiation exposure.



The Helios 75K AreaLite
weighs just 15 pounds (5
pounds in water) for easy,
manual
installation/removal by its
strain-relief detachable
cable.



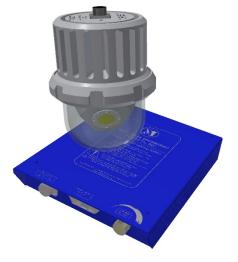
For additional information contact MEPI at: 800/537 6007-724/537 6002 FAX 724/805 0079 MEPI 5631 Route 981 Latrobe, PA 15650 www.masterlee.com Mepi-sales@masterlee.com





### LED Helios 75K AreaLite Technical Specifications

### Part Number D3346 – Helios 75K AreaLite System



Physical –Light Head	
Part Number	D3347
Length	9 in
Diameter	7 in
Width	3 in
Weight	15 lb
Material	Hardcoat anodized aluminum
Lens Material	Polycarbonate

Physical – Detachable Cable	
Length	100-ft
Shielded	Yes
Water resistance	Yes; to 2500 PSI
Jacket Material	Polyurethane, low-
	smoke, zero-
	halogen

Lighting/Electrical		
Operating Voltage	90~305 VAC, 50~60Hz	
Current @ 100% Power	Up to 5.0 Amps	
Size/Weight (Power Console)	13" x 11" x 3"; 12 lb	
Light Output	Up to 78,000 Lumens	
Light Color Temperature	5000K (white light)	
LED Life	50,000 hours (>70% lumen output)	
Radiation tolerance	Approved for extended use in Reactor Core & near fuel assemblies	
Waterproof depth rating	100-ft	
Dimming	100-10% manual; 100-40% auto (temperature based)	
Light Panel positions	Vertical hanging	
Operating temperature (°F)	165 (max. in-air); ~135 (in water)	
Power Factor %	98	
LED Efficacy (@ 85C)	152 lumens/watt	
LED Flux (@85C)	70,900 lumens	
FME Equipped	Yes	
Protection	Thermal Overload; Short Circuit; Over Voltage; Fuse	
Warranty	2-Year; Limited; Parts replacement	



The Master-Lee Engineered Products (MEPI) LED Floodlight - Apollo 100K



LED Floodlight – Apollo 100K P/N #D2959

Master-Lee would like to introduce our brightest, most powerful LED light across our product line, the Apollo 100K. Versatility was the core design intent with focus on efficient operability submerged in water as well as in open air environments. The Apollo 100K has been designed to operate across numerous industrial applications, such as: commercial nuclear power, marine, sub-sea, transportation, construction, etc.

The **Apollo 100K** provides up to 110,000 lumens of dispersed, white light using the latest in LED technology. With a wide beam array of light, positioning the **Apollo 100K** just below the water's surface is all that's required to illuminate large surfaces for underwater video inspections/monitoring, reactor service and fuel pool work, or general area lighting. Such a high light output gives our customers the flexibility to do more with less, as the **Apollo 100K** can **provide the illumination of two or more traditional (tungsten/quartz halogen) lights.** Incorporating LED lighting technology provides thousands of maintenance-free operating hours, reducing your re-lamp, installation, and removal times.

Fully dimmable from 100% output to 10% power gives the end user total control allowing the light to perform exactly as needed. If it's not the user adjusting light output based on conditions, it's the conditions adjusting light output. The Apollo 100K incorporates a unique safety feature, Auto-Dimming, to protect itself from thermal overload. When the Apollo 100K is removed from water, its primary cooling medium, its operating temperature begins to rise. As this occurs, it senses the temperature increase and begins to lower its light output to maintain a safe operating level.

The Apollo 100K has an adjustable (0-45 degrees) mounting bracket and weighs under 50 pounds (15 pounds in water) for easy, manual installation/removal.





For additional information contact MEPI at: 800/537 6007-724/537 6002 FAX 724/805 0079 MEPI 5631 Route 981 Latrobe, PA 15650 www.masterlee.com Mepi-sales@masterlee.com

### LED Floodlight – Apollo 100K Technical Specifications

#### Part Number D2959 - Apollo 100K Light and Power Supply Package



Physical – Panel Light	
Part Number	D2960
Length	18 in
Height	12 in
Width	3 in
Weight	36 lb
Cable Length	Up to 100 ft
	Aluminum; Stainless
Material	steel protective lens
	cover
Lens Material	Polycarbonate

Physical – Panel Mounting Bracket		
Length	6 in	
Width	4 in	
Height	12 in	
Weight	5 lb	
Material	Aluminum	

I :=\din=/\Pl=-dni=-1		
Lighting/Electrical		
Operating Voltage	100~240 VAC, 50~60Hz	
Current @ 100% Power	Up to 7.0 Amps	
Light Output	Up to 110,000 Lumens	
Light Color Temperature	5000K (white light)	
LED Life	50,000 hours (>70% lumen output)	
Radiation tolerance	Not approved for high-radiation exposure (See Helios product line)	
Waterproof depth rating	IP68; 30-ft	
Dimming	100-10% manual; 100-50% auto (temperature based)	
Light Panel positions	0-45 degrees (down from horizontal)	
Operating temperature (°F)	165 (max. in-air); ~135 (in water)	
Power Factor %	98	
LED Efficacy (@ 85C)	159 lumens/watt	
LED Flux (@85C)	100,300 lumens	
FME Equipped	Yes	
Protection	GFCI; Thermal Overload; Short Circuit; Over Voltage	
Warranty	2-Year; Limited; Parts replacement	
Cable Material	Polyethylene; Water resistent	

The Master-Lee Engineered Products (MEPI) LED Floodlight – Helios 100K

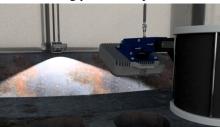


Master-Lee would like to introduce our brightest, highradiation tolerant LED light across our product line, the Helios 100KTM. Versatility was the core design trait with focus on efficient operability submerged in water as well as in open air environments. The Helios 100K<sup>TM</sup> has been designed to operate across numerous industrial applications, such as: commercial nuclear power, marine, sub-sea, transportation, construction, etc.

LED Floodlight – Helios 100K P/N #D3010

Providing up to 110,000 lumens of dispersed, white light using the latest in LED technology, the Helios 100KTM is best suited for lighting large underwater areas, such as reactor cores and spent fuel pools, or in-air areas such as refueling cavities. Designed to operate at depths to 100-ft and within close proximity to irradiated fuel assemblies, the Helios 100KTM is the ideal solution to illuminate reactor cores for video inspections or fuel movement. Used in conjunction with our Guide Stud Mounting Kits, two Helios 100KTM systems will brightly illuminate a reactor core all the way to the core plate. Such a high light output gives our customers the flexibility to do more with less, as the Helios 100K<sup>TM</sup> can provide the illumination of two or more traditional (tungsten/quartz halogen) lights. This not only reduces the amount of required electrical outlets, as two Helios **100K™** lights operate on one 15-Amp circuit, but also the amount of time spent positioning lights within the core is reduced. Additionally, incorporating LED lighting technology provides thousands of maintenance-free operating hours, reducing your re-lamp,

installation, and removal times.



The Helios 100K has an adjustable (0-45 degrees) mounting bracket and weighs under 25 pounds (10 pounds in water) for easy, manual installation/removal.





For additional information contact MEPI at:

800/537 6007-724/537 6002 FAX 724/805 0079

MEPI 5631 Route 981 Latrobe, PA 15650

Mepi-sales@masterlee.com





### LED Floodlight – Helios 100K Technical Specifications

#### Part Number D3010 - Helios 100K Light and Power Console Package



Physical – Panel Light	
Part Number	D3010
Length	12 in
Height	12 in
Width	3 in
Weight	25 lb
	Hardcoat anodized
Material	aluminum; Stainless steel
	protective lens cover
Lens Material	Polycarbonate

Physical – Detachable Cable	
Length	100-ft
Shielded	Yes
Water resistance	Yes; to 2500 PSI
Jacket Material	Polyurethane, low-
	smoke, zero-
	halogen

Physical – Guide Stud Mount	
Length	17 in
Width	9 in
Height	12 in
Weight	9 lb
Material	Aluminum; nylon

Lighting/Electrical		
Operating Voltage	90~305 VAC, 50~60Hz	
Size/Weight (Power Console)	13" x 11" x 3"; 12 lb	
Current @ 100% Power	Up to 7.0 Amps	
Light Output	Up to 110,000 Lumens	
Light Color Temperature	5000K (white light)	
LED Life	50,000 hours (>70% lumen output)	
Radiation tolerance	Approved for extended use in Reactor Core & near fuel assemblies	
Waterproof depth rating	100-ft	
Dimming	100-10% manual; 100-50% auto (temperature based)	
Light Panel positions	0-90 degrees (down from horizontal)	
Operating temperature (°F)	165 (max. in-air); ~135 (in water)	
Power Factor %	98	
LED Efficacy (@ 85C)	159 lumens/watt	
LED Flux (@85C)	100,300 lumens	
FME Equipped	Yes	
Protection	Thermal Overload; Short Circuit; Over Voltage; Fuse	
Warranty	2-Year; Limited; Parts replacement	





The Master-Lee Engineered Products (MEPI) LED Drop Floodlight - Helios 75K



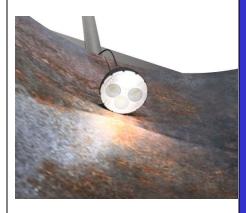
LED Drop Floodlight – Helios 75K P/N #D3183

Master-Lee would like to introduce our **brightest "drop-style" LED light** across our product line, the **Helios 75K<sup>TM</sup>**. Designed to be as powerful as a large floodlight but compact and rugged enough to play the role of an area drop light, the **Helios 75K<sup>TM</sup>** shines brightly in any environment. **In-air or underwater**, this **dimmable** LED light offers more than enough light for illuminating large areas.

Providing up to 78,000 lumens of dispersed, white light using the latest in LED technology, the Helios 75KTM is best suited for lighting large underwater areas, such as reactor cores and spent fuel pools, or in-air areas such as refueling cavities. The Helios 75KTM has been engineered to be compact, lightweight, rugged, yet versatile to be quickly deployed to nearly any working environment underwater or in open air to compete with it's big brother, the Helios 100KTM Floodlight, for center stage. Designed to operate at depths to 150ft and within close proximity to irradiated fuel assemblies, the Helios **75KTM** is the ideal solution to **illuminate reactor cores** for video inspections or fuel movement. Such a high light output gives our customers the flexibility to do more with less, as the Helios 75KTM can provide the illumination of two or more traditional (tungsten/quartz halogen) lights. This not only reduces the amount of required electrical outlets, as two Helios 75KTM lights operate on one 15-Amp circuit, but also the amount of time spent positioning lights within the core is reduced. Additionally, incorporating LED lighting technology provides thousands of maintenance-free operating hours, reducing your re-lamp, installation, and removal times.

The Helios 75K weighs
under 15 pounds (5
pounds in water) for easy,
manual
installation/removal by its
strain-relief detachable
cable.





For additional information contact MEPI at:

800/537 6007-724/537 6002 FAX 724/805 0079

MEPI 5631 Route 981 Latrobe, PA 15650

Mepi-sales@masterlee.com





#### LED Drop Floodlight – Helios 75K Technical Specifications

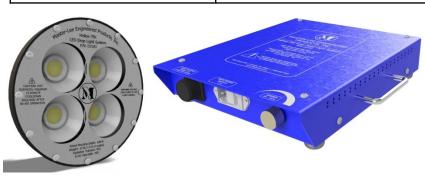
#### Part Number D3183 – Helios 75K Light and Power Console Package



Physical – Panel Light	
Part Number	D3183
Length	12 in
Height	12 in
Width	3 in
Weight	13 lb
Material	Aluminum; Stainless steel protective lens cover
Lens Material	Polycarbonate

Physical – Detachable Cable	
Length	100-ft
Shielded	Yes
Water resistance	Yes; to 2500 PSI
Jacket Material	Polyurethane, low-
	smoke, zero-
	halogen

Lighting/Electrical	
Operating Voltage	90~305 VAC, 50~60Hz
Current @ 100% Power	Up to 5.0 Amps
Size/Weight (Power Console)	13" x 11" x 3"; 12 lb
Light Output	Up to 78,000 Lumens
Light Color Temperature	5000K (white light)
LED Life	50,000 hours (>70% lumen output)
Radiation tolerance	Approved for extended use in Reactor Core & near fuel assemblies
Waterproof depth rating	100-ft
Dimming	100-10% manual; 100-30% auto (temperature based)
Light Panel positions	Vertical hanging (custom brackets available)
Operating temperature (°F)	165 (max. in-air); ~135 (in water)
Power Factor %	98
LED Efficacy (@ 85C)	152 lumens/watt
LED Flux (@85C)	70,900 lumens
FME Equipped	Yes
Protection	Thermal Overload; Short Circuit; Over Voltage; Fuse
Warranty	2-Year; Limited; Parts replacement



The Master-Lee Engineered Products (MEPI) LED Helios-75K CoreLite



LED Helios-75K CoreLite P/N #D3242 Master-Lee would like to introduce our brightest area "drop-style" LED light across our product line, the Helios 75KTM CoreLite. Designed to be as powerful as a large floodlight, but compact and rugged enough to play the role of an area drop light, the Helios 75KTM CoreLite shines brightly in any environment. In-air or underwater, this dimmable LED light offers more than enough light for illuminating large areas.

Providing up to 78,000 lumens of dispersed, white light using the latest LED technology, the Helios 75KTM CoreLite is best suited for lighting the reactor core in support of fuel movement and video inspection services operations. The Helios 75KTM CoreLite has been engineered to be compact, lightweight, rugged, and is specially equipped with a custom mounting pin to position itself securely in a flow hole of the reactor vessel core plate. The ease of positioning the light and its intense light output permits fewer moves during critical path times, ultimately saving time. Designed to operate at depths to 100-ft and within close proximity to irradiated fuel assemblies, the Helios 75KTM CoreLite is the ideal solution to illuminate reactor cores. Providing a bright, reliable light source gives our customers the flexibility to do more with less, as the Helios 75KTM CoreLite can provide the illumination of two or more traditional (tungsten/quartz halogen) lights. Additionally, incorporating LED lighting technology provides thousands of operating hours, reducing your re-lamp, installation, and removal times. Maintenance is limited to replacement of the lens as required due to radiation exposure.



The Helios 75K
CoreLite weighs just 10
pounds (5 pounds in
water) for easy, manual
installation/removal by its
strain-relief detachable
cable.





For additional information contact MEPI at:

800/537 6007-724/537 6002 FAX 724/805 0079

MEPI 5631 Route 981 Latrobe, PA 15650

Mepi-sales@masterlee.com





#### LED Helios 75K CoreLite Technical Specifications

#### Part Number D3242 - Helios 75K CoreLite System



Physical –Light Head	
Part Number	D3245
Length	19 in
Diameter	4 in
Width	n/a
Weight	10 lb
Material	Aluminum (hard
Materiai	anodized)
Lens Material	Polycarbonate

Physical – Detachable Cable	
Length	100-ft
Shielded	Yes
Water resistance	Yes; to 2500 PSI
Jacket Material	Polyurethane, low-
	smoke, zero-
	halogen

Lighting/Electrical	
Operating Voltage	90~305 VAC, 50~60Hz
Current @ 100% Power	Up to 5.0 Amps
Size/Weight (Power Console)	13" x 11" x 3"; 12 lb
Light Output	Up to 78,000 Lumens
Light Color Temperature	5000K (white light)
LED Life	50,000 hours (>70% lumen output)
Radiation tolerance	Approved for extended use in Reactor Core & near fuel assemblies
Waterproof depth rating	100-ft
Dimming	100-10% manual; 100-30% auto (temperature based)
Light Head positions	Vertical hanging; Core plate flow hole mounting
Operating temperature (°F)	165 (max. in-air); ~135 (in water)
Power Factor %	98
LED Efficacy (@ 85C)	152 lumens/watt
LED Flux (@85C)	70,900 lumens
FME Equipped	Yes
Protection	Thermal Overload; Short Circuit; Over Voltage; Fuse
Warranty	2-Year; Limited; Parts replacement





The Master-Lee Engineered Products (MEPI) LED Area Drop Light is built to serve industries worldwide.



LED Area Drop Light - Part# D2742

Durable, reliable, and extremely bright (42,000 lumens with 4000K color temperature) - best describes the MEPI LED Area Drop Light. The machined body of the light is constructed of hard coat anodized aluminum. The frosted globe is made of high strength polycarbonate.

The MEPI LED Area Drop Light is an addition to our popular underwater lighting options which are commonly used throughout the nuclear industry for fuel movement, fuel inspection, reactor cavity and spent fuel pool temporary lighting, or wherever localized underwater illumination is needed.

This particular **LED Area Drop Light** is designed and manufactured to conform with the standards for products sold within the European Economic Area (EEA). This product bears the CE marking as it has been tested to all applicable EC directives. Using LED technology coupled to a highly efficient heatsink, it can be energized both underwater (100% output @ 42,000 lumens) or out of the water (~20% Output @ 10,000 lumens).

The standard, permanently attached 100-ft neoprene power cord is equipped with strain reliefs for added strength and durability.

The MEPI LED Area Drop Light was tested at Pennsylvania State University (Breazeale Nuclear Reactor) for 8 months prior to receiving approval for field use, accumulating a total of 35.91 Mrad without failure.

MEPI's Underwater LED Area Drop Light is the logical and practical solution to your underwater lighting requirements.





For additional information contact MEPI at:

800/537 6007-724/537 6002 FAX 724/805 0079

> MEPI 5631 Route 981 Latrobe, PA 15650

Mepi-sales@masterlee.com





#### LED Area Drop Light

#### Part Number D2742 - LED Light and Power Supply Package





#### **Physical - Light**

Part Number	D2743
Length	11.5 in
Outside Diameter	7.25 in
Weight	16 lb
Cord Length	95 ft

#### **Physical – Power Supply Enclosure**

Part Number	D2744
Length	16 in
Width	13.25 in
Height	3.5 in
Weight	15.5 lb
Cord Length	6.0 ft

#### Lighting

Туре	LED
100% Power Light	42,000 Lumens
Output	
~20% Power Light	10,000 Lumens
Output – For use "In	
Air"	
Color Temperature	5000K
Beam Angle	115-deg
Color Rendering Index	80
(CRI)	

#### **Electrical**

100-230V, 50/60Hz,
9.5A
300 Watts
2.5 Amps
60 Watts
0.5 Amp
15 Amps
600 Volts
2

#### Material

Body / Heatsinks /	Hard Coat Anodized
Collar / Back	Aluminum
Rods	Stainless Steel
Globe	Polycarbonate -
(Part Number – D2834)	Frosted
Globe O-Ring Seals	Buna-N
Power Supply Enclosure	Aluminum

#### **CE Compliance**

Fully complies with all applicable European Union Directives including:

Low Voltage – 2014/35/EU EMC Directive – 2014/30/EU

ROHS2 Directive - 2014/65/EU (by exemption)

# IJ R W E R $\mathbf{L}$ E D E N

## MASTER-LEE ENGINEERED PRODUCTS INC.

The Master-Lee Engineered Products (MEPI) Dimmable Underwater LED PenciLite



With its small size and extremely bright output (20,000 lumens), MEPI's Dimmable Underwater LED PenciLite is designed to meet our customers high standards. The machined body is constructed of

6061-T6 aluminum with a hard coat blue anodize. The 100' neoprene power cord is firmly connected to the body by a strain relief, which ensures strength and durability. The frosted globe is made of high strength shatter resistant polycarbonate.

MEPI's family of underwater lights is commonly used throughout the nuclear industry. The Dimmable Underwater LED PenciLite is ideal for shroud inspections, internals inspections, invessel video inspections (IVVI) and can be used for many other applications where space and lighting is limited.

This long-life lightweight compact design provides greatly improved lighting over the shortlived incandescent lights. Please refer to our specification sheet for more information. MEPI's Dimmable Underwater LED PenciLite is the solution where lighting and space is limited.





For additional information contact MEPI at:

800/662-4493-724/539-8060

FAX 724/532-5501

MEPI

5631 Route 981

Latrobe, PA 15650

www.masterlee.com

Mepi-sales@masterlee.com

### Underwater, Dimmable LED PenciLite

Physical – Light	
Part Number	D2893
Length	10 in
Outside Diameter	1.75 in
Weight	1 lb.
Cable Length	100 ft.
Body Material	Aluminum
Globe Material	Polycarbonate
O-Ring Seal	Silicone



Physical –Power Supply Console	
Part Number	D2894
Length	13.25 in
Width	6.5 in
Height	2 in
Weight	4.5 lbs.
Cord Length	6 ft.
Material	Aluminum



Lighting/Electrical	
Operating Voltage	100~230 VAC, 50~60Hz
Current @ 100% Power	1.15 Amps
100% Power Light Output	20,000 Lumens