

HANDLING, INSTALLATION AND OPERATING GUIDE

Handle parts with care. Do not touch the yellow resin area within the Helieon module as it may cause damage to the light source. If debris contacts the resin area, gently remove it using the tip of a cotton swab soaked in isopropyl alcohol (rubbing alcohol).

Do not touch the resin area during operation. Allow the Helieon module to cool for a sufficient period of time before handling. The resin area may reach elevated temperatures, which can cause burns.

To Mate: rotate module in a clockwise direction until module drops into socket. Electrical and thermal connections have engaged at this point. Continue to turn module in the same direction until physical and audible click. Module is now fully locked into position.

To Un-mate: turn module in counterclockwise direction until physical and audible click. Module will disengage at this point

To power up the Helieon system, three items must be addressed:

1. Mechanical interface
2. Thermal interface
3. Electronic driver

Items 1 and 2 are often combined. It is necessary to mount the Helieon socket to a heat sink surface. A good rule of thumb is to use 10 square inches of surface area for every 1-Watt of power dissipated. To determine the appropriate area, multiply the maximum power for the module (see Maximum Product Ratings) by 10. This area may be provided as a flat plate or via a finned, extruded heat sink to minimize the volume of the thermal management solution.

The heat sink surface should be constructed of material with good thermal conductivity, such as aluminum or copper. In order to ensure good thermal contact with the heat sink, the surface should be clean and flat. It is recommended that the mounting surface of the heat sink be specified to maintain a flatness tolerance of 0.1 mm and a surface roughness tolerance of RMS $\sqrt{16}$. Once the mounting plate or heat sink is selected, holes should be drilled and tapped in accordance with the screw hole pattern of the socket (see Mechanical Specifications).

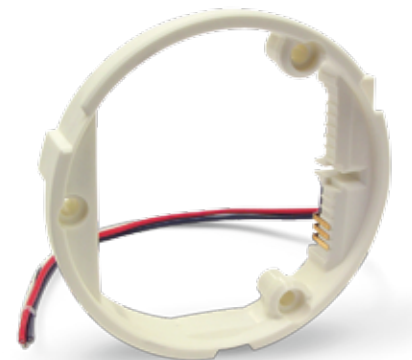
The Helieon system requires a constant-current DC input. This can be supplied either by using a lab-bench power supply or an off-the-shelf LED electronic driver. It is critical to operate the module using constant current, not constant voltage. The driver or power supply should be connected to the socket, and the module should be installed in the socket **before power is applied** to the driver to avoid damage to either the module or the driver.

There are several off-the-shelf drivers that work well with Helieon modules. The list on the next page contains a subset of commercially available drivers that meet the technical requirements necessary to drive the Helieon module, such as output voltage, constant-current output and power requirements. This list is not exhaustive and is for reference only. Bridgelux and Molex do not warrant the use of these drivers. Please check with the supplier for the latest information regarding specifications and availability.

Helieon™ Sustainable Light Module



Helieon Module

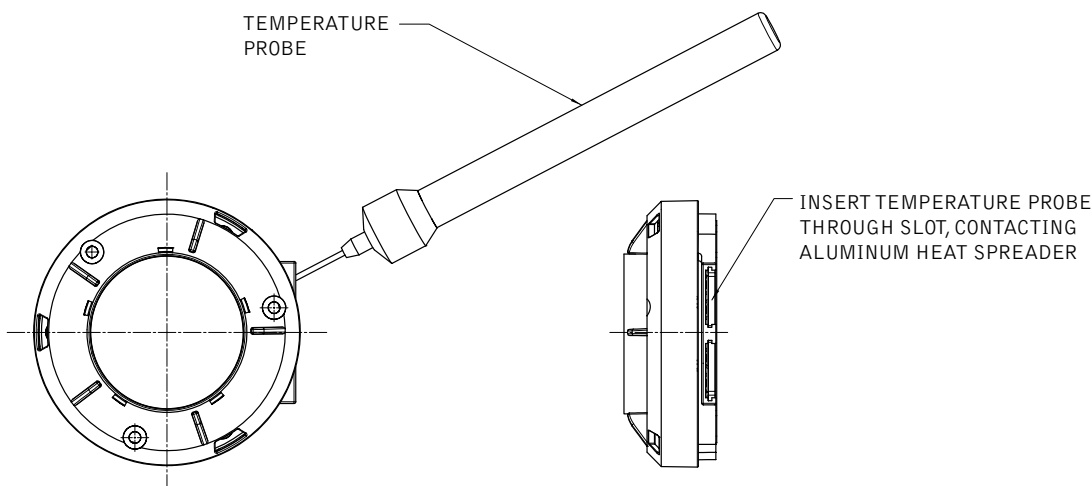


Helieon Socket

COMMERCIALLY AVAILABLE POWER SUPPLY OPTIONS

Supplier	Driver Part Number	V AC In (V)	I out (mA)	Dimming	Efficiency (%)	V DC Out (V)
Harvard Engineering PLC	CL700S-240-B or C	198 to 265	700	YES, Optional	88	9 to 48
Hatch	LCBP018-WJ-UNV	90 to 300 V	700	NO	TBD	3 to 27
LighTech	LED-36-700-120-D	120	700	TRIAC	80	5.6 to 42
LUM0tech	L05016i	120 or 240	700 (Adjustable)	1 to 10V, Pulse Switch, or Potentiometer	85	1 to 20
Meanwell	LPC-35-700	90 to 264	700	NO	85	9 to 48
Advance	LED-120A-0024 -10D	120	1050	0 to 10V	80	10.4 -24.6
Inventronics	EUC-025S105PS(6)	90 to 305	1050	0 to 10V or Potentiometer	82	8 to 24
LighTech	LED-36-1050-120-D	120	1050	TRIAC	80	5.6 to 42
Meanwell	LPC-35-1050	90 to 264	1050	NO	85	9 to 30
Thomas Research	TRC-025S105DS	90 to 305	1050	0 to 10V or Potentiometer	82	8 to 24
Advance	LED120A1400C24F	120	1400	NO	TBD	2.4 to 24
Autec Power Systems	LEDWC-035S140YT -DS	90 to 305	1400	0 to 10V or Potentiometer	87	8 to 24
Inventronics	EUC-035S140DT(6)	90 to 305	1400	0 to 10V or Potentiometer	85	8 to 24
Meanwell	LPC-35-1400	90 to 264	1400	NO	85	9 to 24
Thomas Research	TRC-040S140DS	90 to 305	1400	0 to 10V or Potentiometer	82	10 to 29

HELIEON TEST POINT TEMPERATURE (T_c) MEASUREMENT RECOMMENDATION



The recommended maximum operating test point temperature (T_c) for the Helieon system is 60°C. Maintaining this case temperature in the lighting system will enable 50,000 hours of operation.