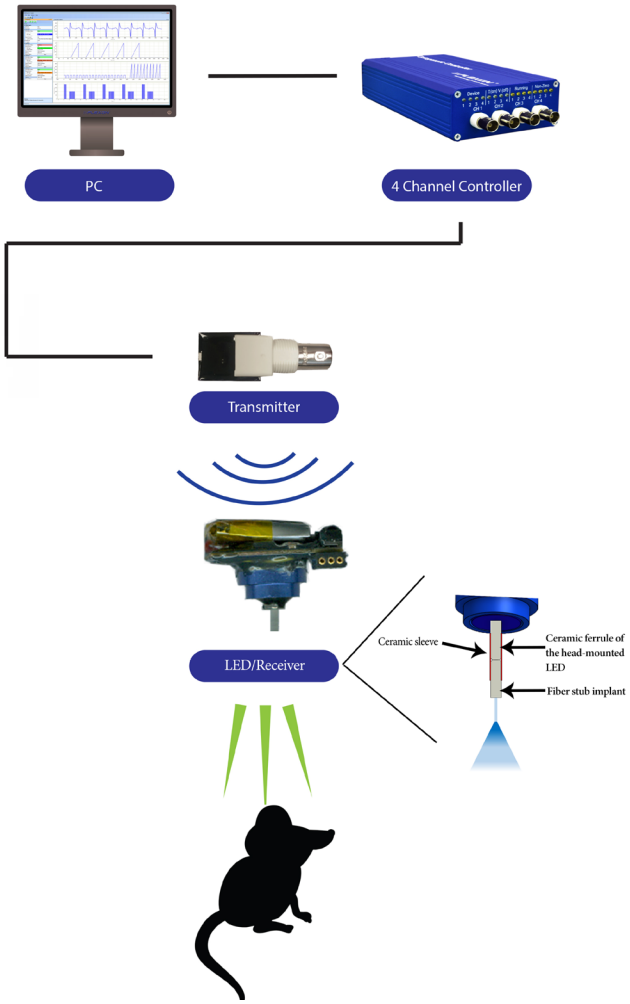
PLEXON
Neurotechnology Research Systems

HELIOS®

Head-mounted Extra Light Infrared Optogenetic Stimulation

The HELIOS® system is Plexon's newest innovation in optogenetic technology which provides a wireless, lightweight, and reusable solution for high power pulsed optogenetic stimulation in freely moving small animals.



Features

- LIGHTWEIGHT modules can be used with mice and rats without impeding behavior
- INFRARED communication, controlled by the PlexBright 4 Channel Controller or TTL device, eliminates the need for patch cables
- CHARGE and RE-USE the LED module repeatedly in multiple subjects

Calculate Battery Life

$$estimated\ battery\ life\ = \frac{IR\ HMLED\ (mWh)}{Pulse\ amplitude\ (mW) * duty\ cycle}$$

Duty cycle is the percentage of time the LED light output is on relative to the total time the receiver is turned on

Example:

How long will the battery last on a Blue HELIOS LED module if you deliver 15mW pulses with a 5% duty cycle?

$$3\ hours = \frac{2.3mWh}{15\text{mW} * .05}$$

HELIOS LED Modules	Measured Output	Available Light Output
Color (Wavelength/Max Current)	At the LED Module using 1ms pulses with 1% duty cycle	Per charge; Based on minimum power outputs
Blue (465nm/300mA)	55mW	2.3mWh
Green (525nm/300mA)	15mW	0.63mWh
Lime (550nm/500mA)	24mW	1.0mWh
Orange (620nm/250mA)	22mW	0.92mWh

Technical Specifications and Options	
Weight	2.8 grams (includes battery)
Dimensions	20 x 15 x 20 mm
Battery Life	Dependent on pulse intensity and duty cycle (see equation)
Transmission Range	2 feet (single transmitter; multiple transmitters can be purchased for larger arenas)
Ferrule Options	LC or FC
Charging Time (via USB)	15 minutes: 70% charged 1 hour: 90% charged
Pattern Source	PlexBright 4 Channel Controller or TTL device