1.1.2.8.1 Helios

50W to 12,000W

Features

- No water cooling, up to 12000W
- Profinet / EtherNet/IP and RS232 interface
- Remote actuated protective cover

The Helios measures high power industrial lasers of up to 12kW by measuring the energy of a short time exposure to this power. The laser is set to a pulse of from 0.3 to several seconds. The Helios measures the energy and exposure time of this sample of the power, and from this calculates the power. By keeping the pulse energy under 5 kJ, there is no need for water cooling and the sensor can be kept to a compact size. The sensor is housed in a dust-resistant industrial body to keep the Helios in clean working order even under harsh factory conditions. Its protective cover can be opened and closed remotely to protect the sensor when not in use. Its protective window is antireflection coated to reduce back reflection of the high power beam. The Helios has two versions of communications: Profinet and RS232 or EtherNet/IP and RS232. The Helios comes with a simple PC application for easier integration into the customer's system. It is equipped with two power and two RJ45 ports for easy integration into existing line or ring topologies as well as an RS232 connection.

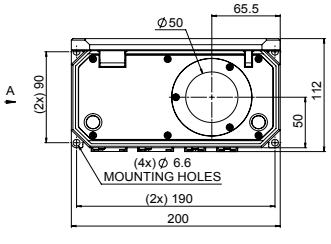
Model	**Helios-Profinet / Helios-EtherNet/IP**
Use	**High power industrial laser measurement**
Absorber Type	LP2, absorption ~94%
Power Range	50W - 12kW
Energy Range	100J - 5kJ
Exposure Time (see table below)	0.3- 4s [a]
Wavelength	860 - 1100nm [b]
Aperture	ø50mm
Max Beam Diameter	35mm
Maximum Energy Density	4kJ/cm^2
Accuracy	±3% [c]
Linearity with Energy	±1.5% [d]
Reproducibility	±1%
Response Time	3s
Waiting Time for Next Measurement	12s
Maximum Exposure Before Cooling Down is Necessary	Maximum operating temperature of 60degC will be reached after exposure to 30kJ (e.g. 6 shots at 5000W, 1s). Cooling down time before another 5kJ shot, 3min.
Power Supply	24 VDC ±5%, max 5 A (for daisy-chaining)
Power Consumption	24 VDC ±5%, max 2 A
Communication	Profinet, RS232 / EtherNet/IP, RS232
Dimensions	(L x W x H) 200 x 100 x 84 mm (closed); 200 x 123 x 144 (open)
Position of Mounting Holes	6.6 mm holes spaced at 90x190 mm
Weight	2.5kg
Operating Temperature	10-60ºC
Humidity	10-80%

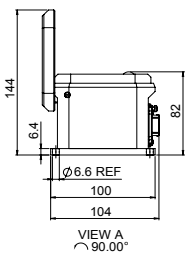
Recommended exposure times and 1/e^2 Gaussian beam diameters	Laser Power W	Recommended Exposure s	Min 1/e^2 beam dia. mm	Laser Power W	Recommended Exposure s	Min 1/e^2 beam dia. mm
	50	2	9	2000	1	12
	100	2	9	5000	1	18
	500	2	9	10000	0.3	22
	1000	1	9	12000	0.3	25

Connections	2x RJ45 Industrial Ethernet connectors, 2x Han PushPull Power Metal 24V power connection[e], 1x DB9 RS232 connection, 7x indicator LEDs
Cover	Motor driven cover opens sideways
Accessories Supplied with Helios	1. Power Supply Cable (P/N 7Z10458A), 2. Profinet/EtherNet/IP Plug RJ45 IP67 5m Cable (P/N 7E01298/7E01299)
Additional Accessories	1. D9F to D9M Shielded 10m RS232 Cable (P/N 7E01209), 2. Helios Window Replacement Kit (P/N 7Z08332)
Compliance	CE, China RoHS
Part number	**7Z02768 / 7Z02789**

Notes: (a) Repetitive pulses can also be measured as long as the total exposure time is within this range.
(b) Lasers down to 780nm can be measured with an additional 2% error.
(c) The power is calculated by measuring the energy and exposure time. The laser pulse is assumed to be rectangular for this calculation.
(d) For pulse widths in the range 0.3 – 4s.
(e) External power supply should be connected to the right-hand power jack. The left power connector can be used to connect power to another device (in a ring or line topology). If left unconnected, a plug is provided to keep the connector clean.

Helios with Cover Open





Helios with Cover Closed