High power fiber laser SPARK–1064 – 1000

1.0 General

The SPARK-1064-1000 is a high power fiber laser. The laser is scalable, and it could reach output power of 5kW by integrating of up to five 1kW laser modules together. This document describes a configuration that includes 1 laser module of 1kW

The SPARK-1064-1000 is composed of four modules: one fiber laser module, an electronic module that contains all the control and driving electronics, a battery module and an optical module transmitting telescope. The fiber laser module and electronic module are mounted in a rack mount. The rack mount is rigid, and it is for outdoor use. It is open to allow air flow for heat removal. Battery module accomplished with a charger from single phase 220V AC 50Hz inlet.

The laser operates in CW mode at full power at periods of up to one minute. A cool down of up to 10 minutes is required after full time operation. The laser controller enables control of the output power.

2.0 Optical Specifications[1]

Parameter	Units	Value
Wavelength	nm	~ 1064nm
Wavelength range	nm	+/- 20
Max peak output power for a single optical module (the peak power is user configurable)	W	1,000
Power adjustment in steps of 10%	[%]	10-100
Mode of operation		CW
Beam divergence	mrad	<0.03

3.0 Electrical Specifications

Parameter	Units	Value
Input voltage	V	AC 220V 50Hz
Power consumption	W	700
Communication and Control		Ethernet, Discretes
Switch's		Power on/off, User ARM on/off
LEDs		Power, ARM, Lasing
Controls and Monitoring		Lase Enable, Power adjustment, Lase timer, System BIT(Temperatures, Laser Current , Battery Voltage,…)

4.0 Environmental Specifications

Parameter	Units	Specification
Operating Temperature Range	°C	5…+35, optional +45
Storage Temperature Range	°C	-5 …+50, optional +70
IP Grade		IP65
Cooling Type		Telescope: Passive, free convection Laser modules, Electronic unit Battery and Charger: Force Air Cooling, Internal Fans

5.0 Mechanical Module Specifications

Parameter	Units	Specification
Rack mount dimensions	Inch	19x30x12U
Laser module dimensions		19x30x4U
Electrical module dimensions		19x30x3U
Battery module dimensions		19x30x3U
Charger module dimensions		19x30x1U
Telescope dimensions, not to exceed	mm	260 x 400 x 500
Output fiber length	m	5

[1] Optical specifications are given over all environmental requirements of section 4.0
Disconnection of cables during operation of laser is forbidden