

G4 Pulsed Fiber Laser Specification

20 W, Air-cooled RM-Z Laser

Part Number	Beam Type	Optical Connector	Optical Cable Length	Visible Pilot Laser
SP-020P-A-RM-Z-A-Y	Divergent, collimator accessories available	ILLK	2 m	Yes (Class 3R)
SP-020P-A-RM-Z-A-N	Divergent, collimator accessories available	ILLK	2 m	No
SP-020P-A-RM-Z-B-Y	Divergent, collimator accessories available	ILLK	3 m	Yes (Class 3R)
SP-020P-A-RM-Z-B-N	Divergent, collimator accessories available	ILLK	3 m	No
SP-020P-A-RM-Z-F-Y	Collimated, beam diameter 7.5 mm	ILOC	3 m	Yes (Class 1)



G4 Laser with ILLK (type A1)



G4 Laser with ILOC (type A4)

Laser Characteristics

All parameters specified for waveform 0 at rated power, PRF₀ (pulse repetition frequency providing maximum pulse energy at rated power) and over full operating temperature range, unless otherwise stated.

Parameter	Unit	SP-020P-A-RM-Z-[AB]-Y	SP-020P-A-RM-Z-F-Y
Rated average output power	W	20	
Output power stability	% p-p	< 5	
Maximum pulse energy	mJ	> 1.0	
Maximum peak power	kW	> 10	
Pulse duration range (see pulse waveform table)	ns	26 - 250	
Pulse-to-Pulse energy stability (at stable temperature)	% rms	< 3	
Pulse repetition frequency range (PRF)	kHz	1 - 500	
CW mode		NO	
Central emission wavelength, λ_0	nm	1059 - 1065	
Emission bandwidth	nm	< 10	
Fraction of power within $\lambda_0 \pm 20$ nm	%	> 80	
M ² (averaged over x, y axes)		≤ 1.6	
Collimated beam diameter, 2 nd moment	mm	n/a	6.0 - 9.0
Full angle divergence / collimated divergence, 2 nd moment	mrad	80 - 120	≤ 0.5
Beam offset	mm	≤ 0.1	≤ 1
Pointing error	mrad	≤ 10	≤ 2.15
Circularity	%	> 90	> 85
Astigmatism	Z _R	< 0.3	
Degree of polarization	%	< 20	

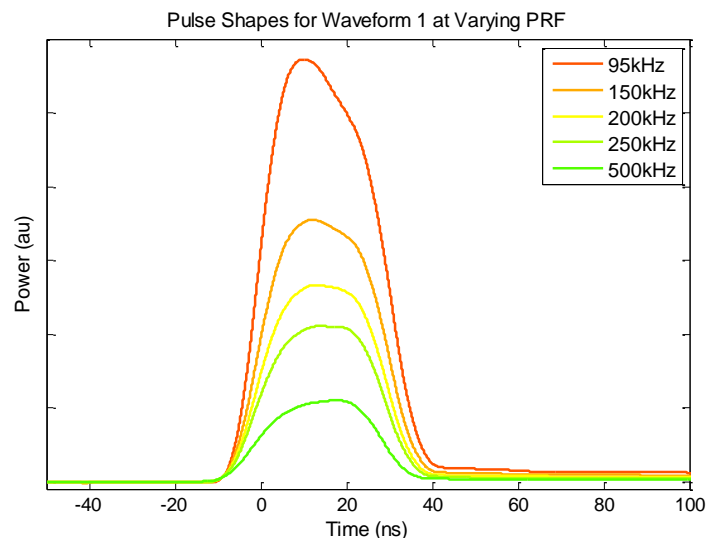
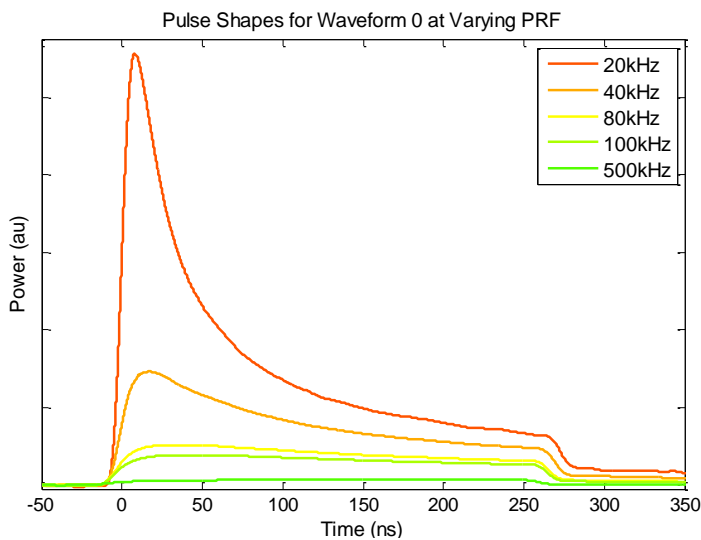
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Related Documents

Document Number	Description
SM-S00227	OEM Safety and System Integration Manual: Modules Type A1, A4
SM-S00360	V8 Control Interface Manual
SM-S00220	G4 Accessories (including beam collimator options)

Pulse Waveform Table

Waveform	PRF ₀ (kHz)	PRF _{max} (kHz)	Max. pulse energy, E _{max} (mJ)	Typ. FWHM pulse duration at E _{max} (ns)	Pulse duration at 10% (ns)	Typ. peak power at E _{max} (kW)
0	20	500	1.00	38	250	13
1	95	500	0.21	26	40	8



System Integration Details

Parameter	Unit	Range
Laser module type		A1, A4
Laser module dimensions	mm	347.2 x 201 x 95
Control interface version		V8
Power supply voltage	V DC	24 ± 2
Logic power supply requirement	W	50
Laser diode power supply requirement	W	200
Operating temperature range	°C	0 to +45
Storage temperature range	°C	-10 to +60

INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER DEVICE

Wavelength 1040 – 1200 nm
Pulsed output - Max average power < 60W
Max pulse energy < 2.0mJ
Repetition freq. 1–1000kHz
Pulse duration 1ns – 500ns

CW Output power < 60W
IEC EN 60825-1:2014

Component for Incorporation

This device is intended as a component for incorporation into a laser product, and as such requires additional features for Laser Safety and to comply with IEC EN 60825-1 and 21CFR1040.10

VISIBLE LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER DEVICE
(ALIGNMENT PURPOSES ONLY)

Wavelength 630-670nm
OUTPUT < 5mW CW
IEC EN 60825-1:2014

