638nm 1W

PRODUCT SPECIFICATION SHEET



SPECIFICATIONS

Module series:	Single Diode
Model Nr.:	M-638LM-1k
Optical power:	1 W
Laser class according to IEC 60825-1 standard:	4
Center wavelength:	638 nm
Center wavelength tolerance:	± 5 nm
Spectral width:	< 2 nm
Center wavelength thermal drift:	2 nm / 10°C
Beam size (1/e²):	5 x 5 mm
Beam divergence (full angle):	1.2 x 0.2 mrad
Linear polarization:	Y
Polarization ratio:	100:1
Polarization azimuth tolerance:	± 5°
Mode structure:	Multi-mode
M² (horizontal/vertical):	TBD
Power stability (over 1 hour, CW operation, after warm-up and ±3°C):	< 0.5 %
Pointing stability (over 1 hour, CW operation, after warm-up and ±3°C):	< ±100 µrad
Output window beam centering:	< ±1 mm
Beam perpendicularity:	< ±1°
Warm-up time:	< 5 min
Laser power control modes:	Analog, TTL, USB, potentiometer
Analog input signal:	0–5V (0.5–4.5V with TCCO on)
TTL input signal:	0–0.8V: low; 2–5V: high
Bandwidth (analog input, 3 dB cut-off frequency):	240 kHz (252 kHz TCCO off)

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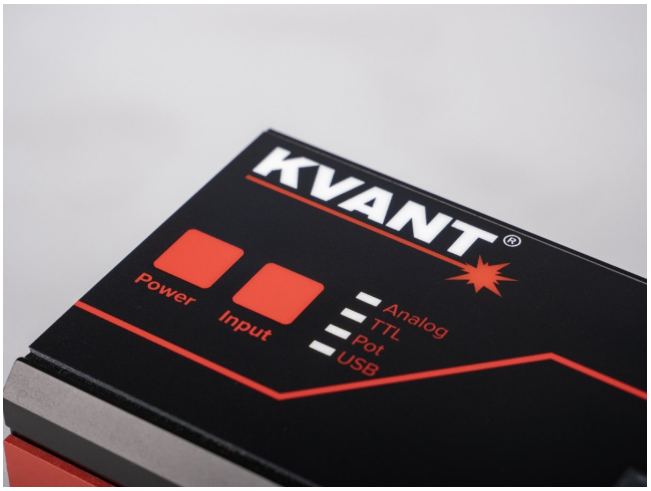
Rise time (10% - 90%):	700–900 ns
Fall time (90% - 10%):	1–2 µs
Phase shift:	0.6–4 µs
Analog/TTL input impedance:	5 kΩ
Connection cable (laser head to control box):	HDMI 1.4+, max 1m
Communication with PC:	USB-C (control box only)
Interlock:	Shorted: enabled (3.3V, 10kΩ); Opened: disabled
Operating base plate temperature range:	< 50°C
Operating ambient temperature range:	5–40°C (heat sink dep.)
Storage temperature range:	(-10)–80°C
Ingress protection (laser head only):	IP64
Power consumption:	typ. 20W; max. 50W
Input voltage:	min. 20V (Type PD)
Input voltage connector type:	USB-C (laser head)
Laser head dimensions (LxWxH):	70(84) × 120 × 46 mm
Laser head weight:	0.7 kg
Control box dimensions (LxWxH):	53 × 29 × 36 (w/o connectors)
Control box weight:	40 g
Expected lifetime:	> 10 000 h

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GALLERY











DIMENSIONS (mm)

