



R638D50-V00

Applications

- . Fluorescence microscope
- . Hematology analyzer

Specifications				
Product Model	R638D50-V00			
Mechanical Specifications	Conditions	Min	Typ	Max
Width x Height (mm) ⁽¹⁾		-	-	40x40
Length (mm)		-	-	100
Shutter	Manual Operation			
Heat Dissipation	Through Bottom Surface			
Housing Material	Grey Anodized Aluminum			
Optical Specificaitons	Conditions	Min	Typ	Max
Wavelength (nm)	P=50mW	633	638	643
Linewidth (nm)		-	-	2
Maximum Output Power (mW)	Adjustable	0	-	50
RMS Power Stability	$\Delta T \pm 3^{\circ}\text{C}$, 8h	-	-	$\pm 5\%$
Optical Noise (RMS)	20Hz-20MHz	-	-	0.2%
Output Power Mode		CW		
Polarization Extinction Ratio		20dB	-	-
Polarization Orientation	Linear, vertical	-5°	-	+5°
Others	See page 4			

(1) See the dimentions drawing in page 3

(2) Optional 638nm +/-2nm

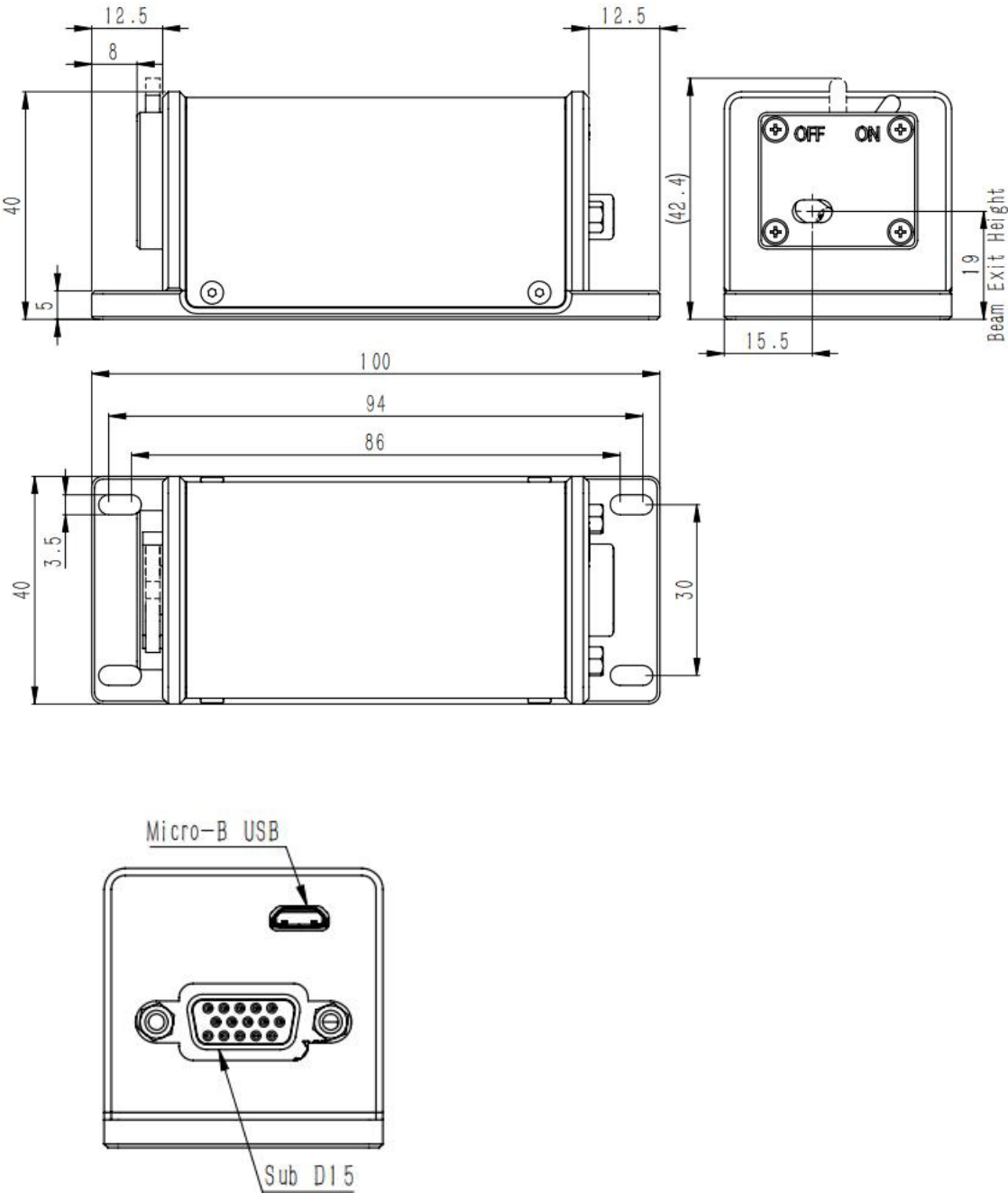
Beam Specifications	Conditions	Min	Typ	Max
Beam Divergence (mrad) ⁽¹⁾	in far field, 1/e ²	-	-	1.6
Beam Diameter (mm) ⁽²⁾	1/e ²	-	-	0.9
Beam Circularity ⁽²⁾		90%	-	-
M ²	TEM ₀₀	-	1.3	-
Beam Exit Height (mm) ⁽³⁾		18.5	19	19.5
Beam Position from Left Side (mm) ⁽³⁾		15	15.5	16
Electrical Specificaitons	Conditions	Min	Typ	Max
Operating Voltage (DC, V) ⁽⁴⁾	DC	5	-	12
Max Power consumption (W)		-	-	10
Power Control Type	CW Mode	ACC		
Interface	RS-232, USB			
Connectors	Sub D15, μUSB	see page 6		
Environmental & Reliability	Conditions	Min	Typ	Max
Laser Head Baseplate Temperature (Max, °C)		10	-	48
Environmental Humidity (RH, %)	Non-condensing	5	-	90
Warm-up Time (minutes) ⁽⁵⁾		-	-	2
Storage Temperature (°C)		0	-	60
Lifetime - Operating (hours)		-	10000	-

⁽¹⁾ Full Angle

⁽²⁾ 50mm from aperture

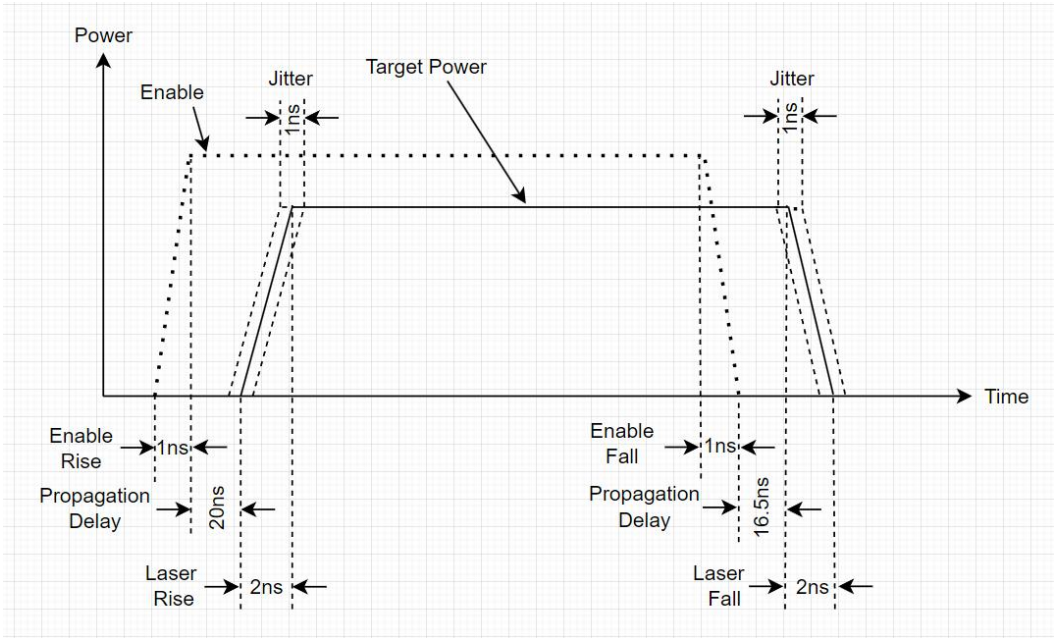
⁽³⁾ See mechanical drawings for exit beam location in page 3

Mechanical Specifications

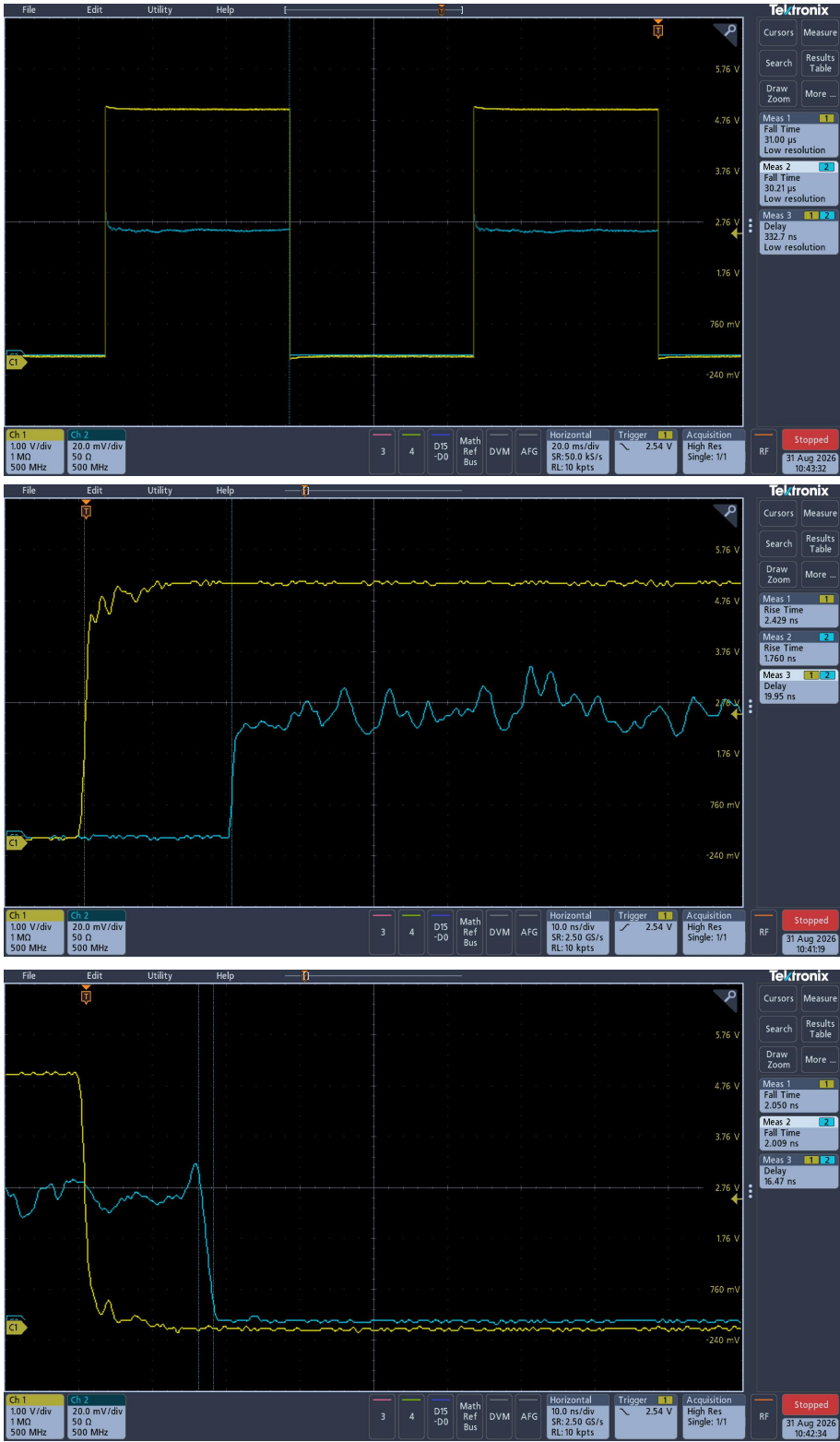


Other Optical Specifications

Description	Unit	Min	Max	Note
TTL Enable (Digital Modulation)				Test conditions (adapted for single-shot exposure of hundreds of milliseconds): Repetition frequency: 10 Hz, 50 % duty cycle
Enable Propagation Delay(Rise)	ns		20	1.Enable Rise 1ns 2.Fixed delay from enable rising edge to the onset of laser output
Propagation Delay(Fall)	ns		16.5	1.Enable Fall 1ns 2.Fixed delay from enable falling edge to the onset of laser turn-off
Jitter	ns		1	Random time fluctuation of laser edge arrival time. Analogy: expected arrival at 7 o'clock, actual arrival varies earlier or later; this time uncertainty is jitter.
Laser Rise	ns		2	Time for laser power to rise from 0 to target power
Laser Fall	ns		2	Time for laser power to fall from target power to 0



Other Optical Specifications



Electrical and Interface

- Connector (DB 15): back and front side



- Micro-B USB: back and front side



Datasheet Revision History

Revision	Effective Date	Requirements changed
V00	07/09/2026	