

EX-NL938-XX-XX 1550nm High Power Narrow Linewidth Laser Module

REV 003

Description

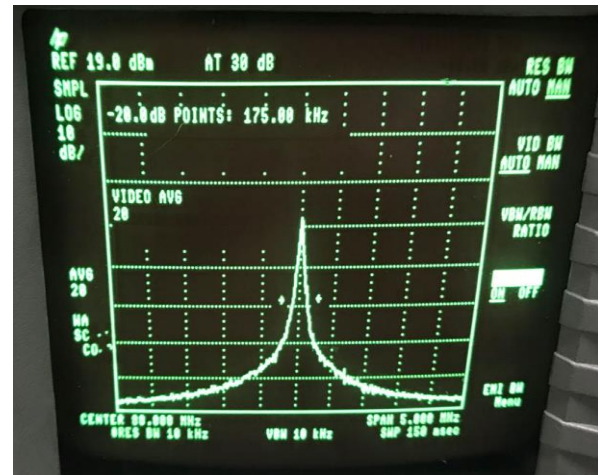
The **EX-NL938-XX-XX** laser module features ultra narrow linewidth, high optical power, low Relative Intensity Noise (RIN), polarization maintaining output, excellent output stability over a wide temperature range. **EX-NL938-XX-XX** combines EX-Q938 laser module and low noise current/temperature controller board in various form factors. With a single 5 V power supply, the control board provides up to 600 mA to LD and 1.7 A to TEC. It is interfaced in RS232 with flexible setting change and powerful monitoring.

Key features

- ☐ High optical output power (up to 100mW)
- ☐ Narrow linewidth (lower to 30 KHz)
- ☐ Low Relative Intensity Noise
- ☐ Polarization maintaining fiber output
- ☐ Low noise current/temperature controller board
- ☐ Telcordia GR-468 compliant
- ☐ RoHS compliancy

Applications

- ☐ Coherent LiDAR
- ☐ Optical Sensing
- ☐ Coherent Communication
- ☐ Hydrophone
- ☐ Atomic Physics
- ☐ Seed Laser
- ☐ Laser Spectroscopy



Absolute Maximum Rating:

Parameter	Symbol	Condition	Min	Max	Unit
Storage Temperature	T_{stg}	--	-40	85	°C
Operating Case Temperature	T_c	$I=I_{op}$	-15	65	°C
Voltage Supply	V_{cc}	--	-4.7	5.5	V
Power Adjust Voltage	V_{pa}	--	0	3.5	V
Laser Reverse Bias	V_r	--	--	2	V
Photodiode Reverse Bias	V_{rpd}	--	--	V_{cc}	V
TEC Current	I_{TEC}	--	--	1.7	A
TEC Voltage	V_{TEC}	--	--	5	V

ExOptronics, Inc. reserves the right to make changes in design, specifications without prior notice.

Module electro-Optical Characteristics ($T_c=25^\circ\text{C}$, unless stated otherwise)

Parameter	Symbol	Condition	Min	Typical	Max	Units
Operating Case Temperature	T_c	$I=I_{op}$	-20	25	65	$^\circ\text{C}$
Threshold Current	I_{th}	$T_c=25^\circ\text{C}$	-	20	50	mA
Output Power	P_f	$I_F=I_{op}$	See options			mW
Laser Drive Current	I_{op}	CW	-	-	550	mA
Laser Drive Voltage	V_{op}	CW	-	-	3.0	V
Center Wavelength	λ_c	$I=I_{op}$	See options			nm
Side-mode Suppression ratio	SMSR	$I=I_{op}$	40	50	-	dB
Monitor Current response	I_m/P_{LD}	-	3		200	$\mu\text{A/mW}$
Relative intensity noise	RIN	50MHz-20GHz		-155	-150	dB/Hz
Linewidth	ν	$I=I_{op}$	See options			KHz
Wavelength tuning with Case Temp	λ	$-15^\circ\text{C}<T_c<65^\circ\text{C}$	-	-	0.09	nm/ $^\circ\text{C}$
Thermistor Resistance	R_{TH}	$T_{op}=25^\circ\text{C}$	9.5	10	10.5	K Ω
Optical return loss	ORL	-	40	-	-	dB
Optical Isolation	ISO	-	30	40	-	dB
Polarization Extinction Ratio	PER	E-field along slow axis	18	23	-	dB

Line width is measured by in-house Self-heterodyne Linewidth Measurement setup

Module controller board Specs:

PARAMETERS	Min	Typical	Max	Unit
Laser Temperature Range	15	25	40	$^\circ\text{C}$
Laser Temperature Stability	0.003	0.008	0.01	$^\circ\text{C}$
TEC output Current	-1.7		1.7	A
TEC output Voltage	-5		5	V
Laser Current Range	1		600	mA
Power Supplies DC +5V			3	A

- Temperature set = 25°C is on 10 k Ω thermistor
- 5V/6A DC power supply is included
- Heatsink is optional

Control interface:

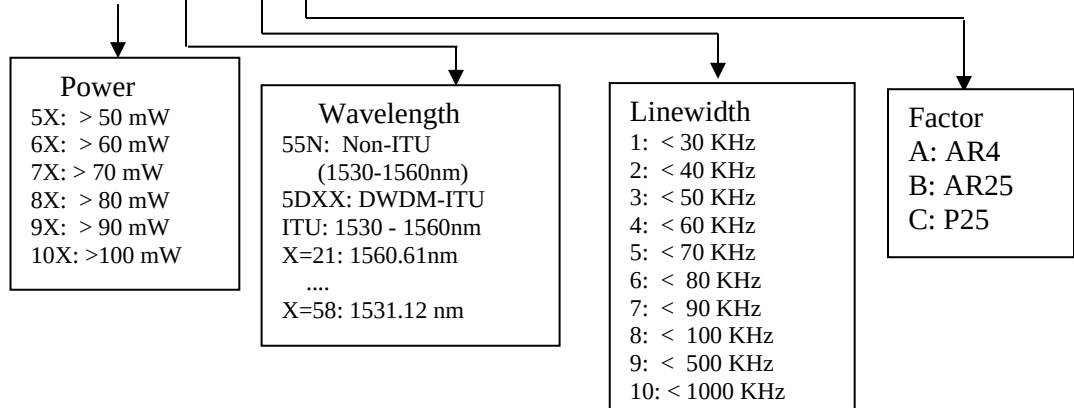
AR4 control interface

AR25/P25 control interface

1. All forms are preset to the default setting once 5V is applied without software control.
2. All forms support RS232 communication interfacing, flexible setting can be applied.
3. RS232 communication code are provided, controller software is provided upon the request.
4. Interfacing power & RS232 convertor cable are provided.

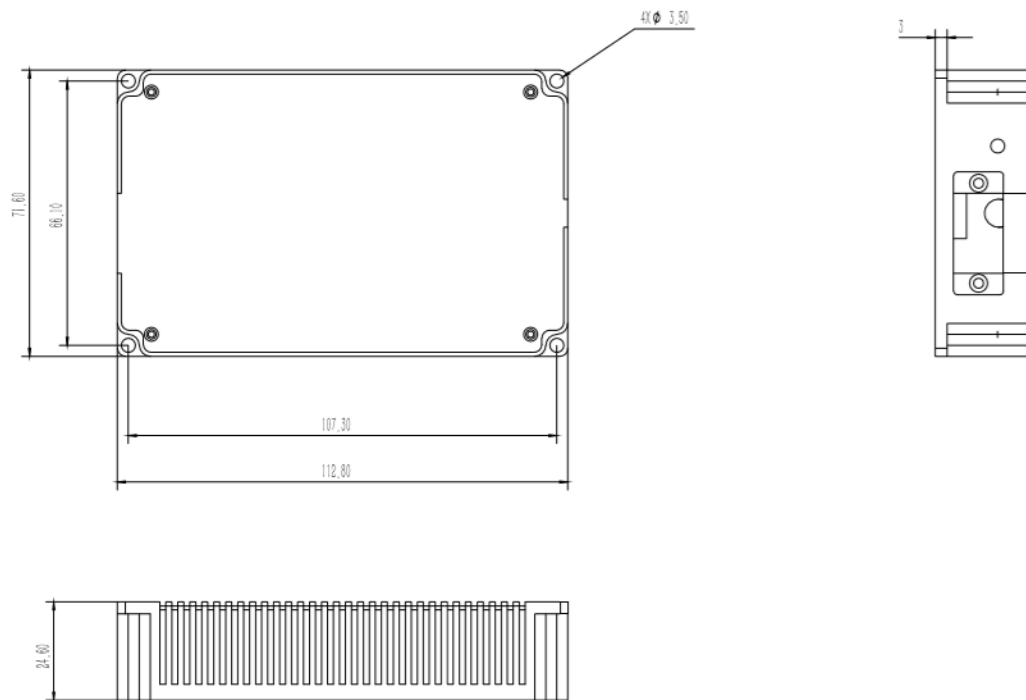
Ordering Options: (FC/APC connector is standard fiber connector)

EX-NL938-XX-XX-X-X

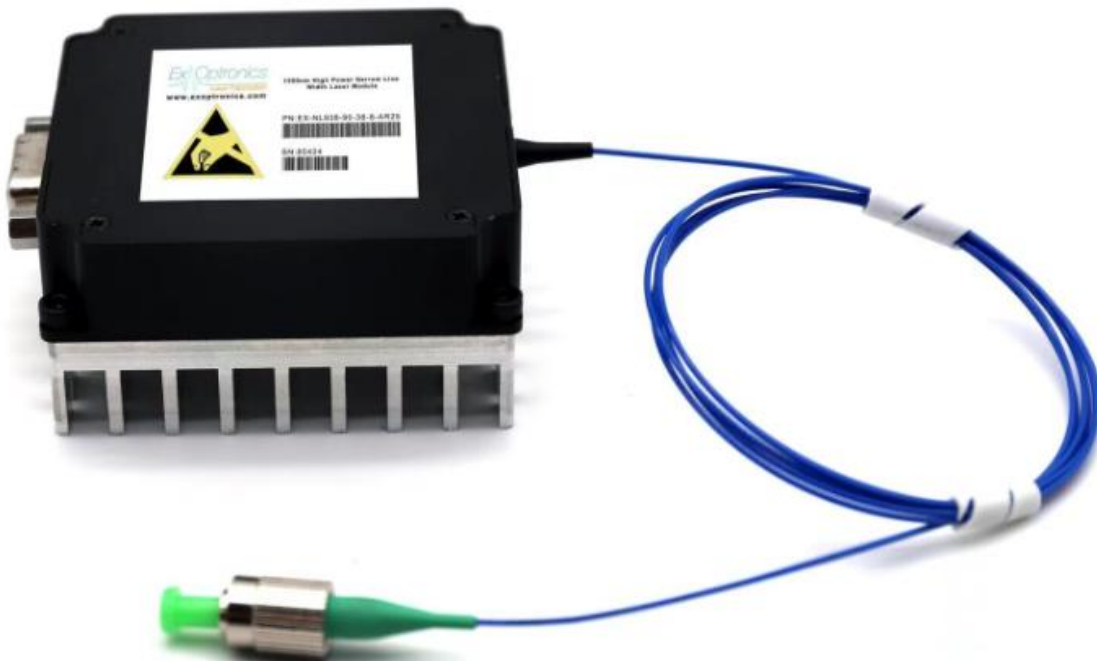
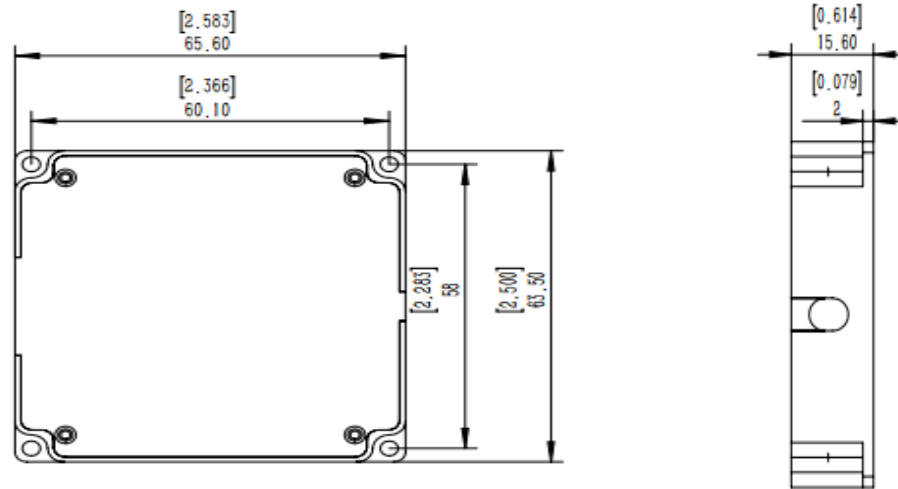


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AR4 outline Drawing - Unit: mm



AR25 outline Drawing - Unit: (in) mm



- Heat sink for AR25 is available

P25 outline Drawing - Unit: mm (heat sink only)

