

Raman Fiber Coupled Laser Source OEM Module Data Sheet

1. Production General Description



The AEO Raman Fiber Coupled Laser Sources OEM Module provide easy coupling and simple control of laser diode driven fiber optics. This 785 nm Spectrum Stabilized Laser OEM Module specifically designed for Raman spectrometer measurement system use, it provides the user an economical solution using this small size OEM module with a Spectrometer module, and Raman probe. It's an ideal for scientific applications including Raman Spectroscopy and illumination.

These laser sources are temperature controlled in full output power range. It comes equipped with a thermo-electric cooler to stabilize the output wavelength stabilizes in 785 nm in whole power from 0~5000mw, especially, it provides wide DC input voltage range from 5.5~9V, this feature is much benefit for using in battery power supply system.

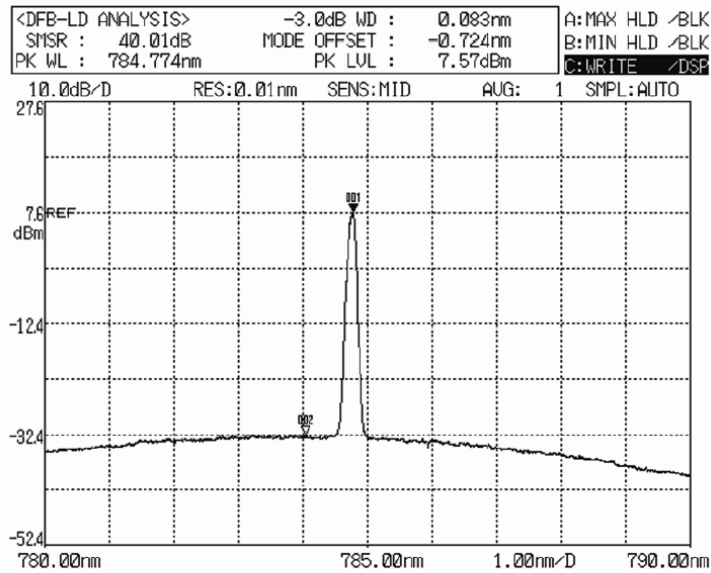
Key performance Features	Application
<ul style="list-style-type: none"> • Narrow Line width < 0.1nm. • High Power Laser Source up to 350 mw. • Excellent wavelength stability ± 0.005 nm. • Excellent power stability $\pm 0.01\%$. • Easy control output power via UART port • Fast laser light emission turns on/ off through external TTL voltage trigger, meanwhile keeping internal temperature control, maximum laser protection. 	<ul style="list-style-type: none"> ❖ Embedded portable Raman spectrometer. ❖ Combine to an economical Raman spectroscopy system. ❖ It provides users an economical solution to create a fully functionality Raman spectroscopy system. ❖ Easy embedded portable Raman spectrometer or spectroscopy system. ❖ Biotechnology application. ❖ Medical diagnostics. ❖ Polymer analysis. ❖ Generally research & development Lab.

2. Specifications

Specifications			
Optical Parameters	Minimum	Typical	Maximum
Wavelength	784.5 nm	785 nm	786 nm
Spectral line width	0.07nm	0.1nm	0.15nm
Laser light output power	0	300 mw	350 mw
Light output stability		15 min:±0.01% 24hr: ±0.05 %	
Adjustment range	0	300 mw	350 mw
Wavelength stability		±0.005 nm	
Fiber type		multimode	
Fiber coupler connector		FC/PC	
Electrical Parameters			
DC Input	5V/2A	5V/2A	9V/1.2A
Power Consumption	1w	5 W	6 W
Communication Interface		UART 3.3V/5V	5.1V
Communication protocols		ASCII code	
External trigger	3.3V	5V TTL Voltage	5.1V
Reliability		Typical	
Storage Temperature		-10~70 °C	

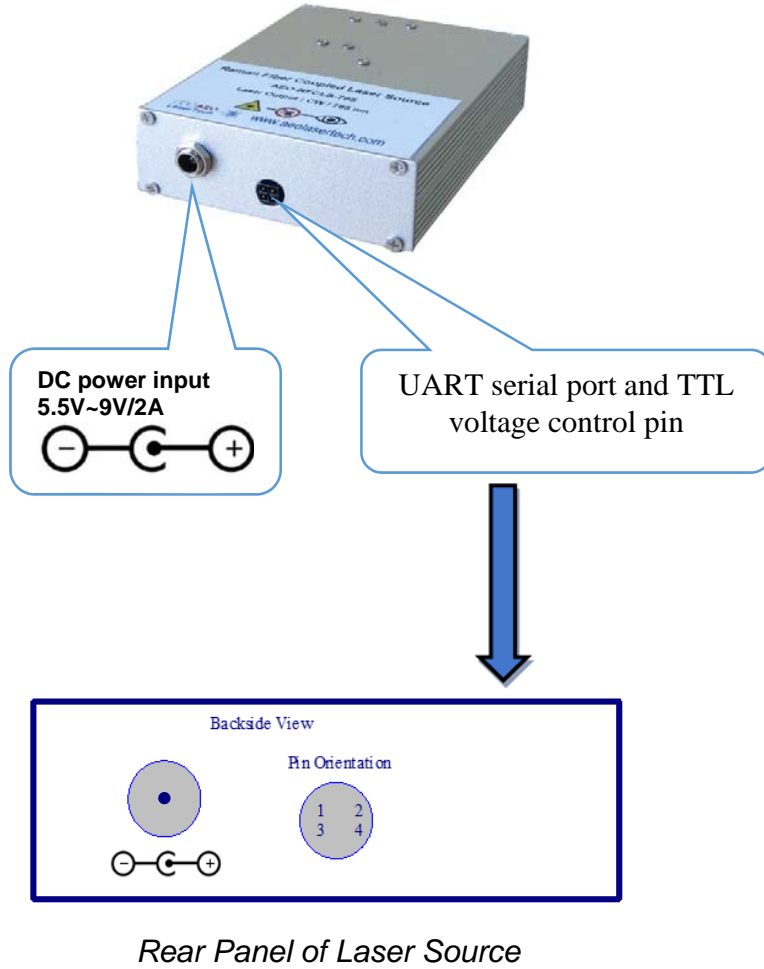
Operating Temperature		0~50 °C	
Mechanical parameters			
Dimension		100 x 78 x 26 mm	
Weight		0.2KG	

2.1 Laser Spectrum



Typical 785 nm SS Laser Spectrum (SMSR > 40 dB)

Rear Panel Function and Overview



Pin #	Description	Voltage	Input / Output	Function
1	UART Rx	0~5V	Input	Receive signal
2	UART Tx	0~5V	Output	Transmit signal
3	External rising and falling trigger	0~5V	Input	VL = Laser Turn off
		0~5V		VH = Laser Turn on

4	GND	0V		GND
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Rear Panel Pin function definition Table

3. Control Communication Protocol:

3.1 Serial Port Setting

Serial communication with 115200 baud rate, 8 data bits, 1 stop bit, no parity, no handshake

3.2 Command Structure

3.2.1 Command Definition:

Control Communication Protocol			
Command Syntax	<p><Command><=><VALUE><&> <Command> are ten ASCII character. <=> is a separator to separate variable and value. <VALUE> is several decimal numbers in ASCII. There are no space in the Data (Stream). <&> is a separator, which indicate the end of one data structure.</p>		
Serial Port Setting	115200 Baud rate, 8 data bits, 1 stop bit, no parity, no handshake		
Command Summary			
Command	Command Syntax	Function	Note
LdMode_Set	LdMode_Set=1&	Serial Port Control	
	LdMode_Set=0&	External Trigger Control on/off	
LD_Turn_ON	LD_Turn_ON=1&	Laser emission Turn On	
	LD_Turn_ON=0&	Laser emission Turn Off	
LdWk_I_Set	LdWk_I_Set=xxx&	Output laser light power setting(mA)	Internal has maximum limit
	Ex: LdWk_I_Set=300&	Output laser light power = 300mA	

4. Safety Requirement

4.1 User Responsibility

The AEO-LD785 series laser source are Class 3 laser products with laser emission at 785nm and output power levels exceeding 350mW. Extreme care should be taken when operating this unit to avoid potentially hazardous exposure to both eyes and skin. Users should wear eye protection when operating this unit and should avoid exposure to the output beam.



LASER RADIATION
AVOID EXPOSURE TO THE BEAM
CLASS 3 LASER PRODUCT >300 mW



5. Warranty:

AEO Lasertech guarantees its products to be free of defects for one year from the date of shipment. During the warranty period, AEO Lasertech will, at its option, either repair or replace products, which prove to be defective. Opening, modification will cause warranty void. This is in lieu of all other guarantees, expressed or implied, and does not cover incidental or consequential loss. Warranty does not cover Catastrophic Optical Damage (COD) caused by 100% retro-reflection of the laser light. If retro-reflection of this magnitude is expected, then an optical isolator is required.