



# FAP 800-LB Series

## Long-Bundle Fiber Array Packages

Fiber Array Packages (FAP™) from Coherent are the highest quality fiber-coupled diode lasers in the industry, offering you the simplest way of delivering the output from a diode laser bar to your application.

The FAP 800-LB (long bundle) consists of a 19-element conduction-cooled diode laser bar, lensed and coupled to an 800  $\mu\text{m}$ , multimode fiber bundle array. FAP 800 products deliver the highest efficiency and reliability, by utilizing the highly efficient material structure and proprietary packaging techniques from Coherent. With their high brightness, compact size, and ease of integration, FAP 800 products are the ideal solution for a host of industrial, medical and pumping applications.

The FAP 800-LB provides a fiber bundle – typically 1 meter long – that terminates in a SMA-905 connector. This design provides increased fiber flexibility for tight system design requirements and allows for inclusion of an integrated aiming beam.

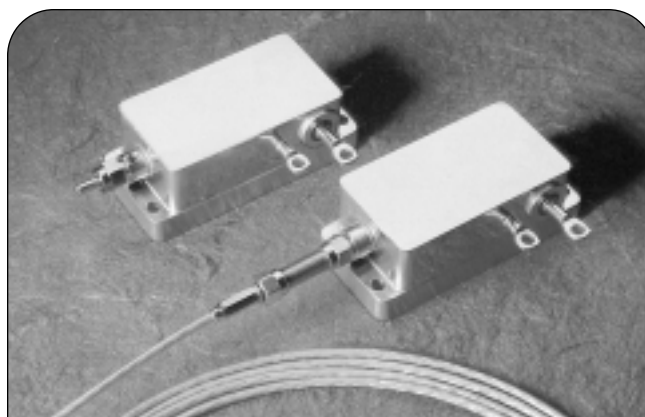
A vertically integrated manufacturer, Coherent is the industry leader in aluminum-free diode lasers and systems for commercial, defense and medical applications. At Coherent, we are a customer-driven company, where you are assured of reliable, high-performance diode lasers manufactured to meet your specific needs. When developing new products, you will benefit from our emphasis on continuous product improvements. And our leading-edge technology will help you keep pace with rapid product changes that occur in your own industry.

### APPLICATIONS

- *Solid-state laser pumping*
- *Medical therapy*
- *Material processing*

### FEATURES

- *High efficiency*
- *High brightness*
- *Rugged construction*



# FAP 800-LB Series

Long-Bundle Fiber Array Packages

## DEVICE SPECIFICATIONS<sup>1</sup>

		FAP 800-LB				
		Symbol	Units	Spec.	808 nm 40W	808 nm 30W
Part Number					1059561	1059559
Description/Model Number					FAP800-LB-40W 805 to 811 nm	FAP800-LB-30W 805 to 811 nm
Optical Characteristics	Center Wavelength <sup>2</sup>	$\lambda_c$	nm	typ.	808	808
	Center Wavelength Tolerance	$\Delta\lambda_c$	nm	typ.	±3	±3
	Spectral Width (FWHM)	$\Delta\lambda$	nm	max.	3.5	3.5
	Wavelength Temperature Coefficient		nm/°C	typ.	0.28	0.28
	Numerical Aperture <sup>3</sup>	NA		max.	0.14	0.14
	Fiber-Bundle Diameter	$\phi_c$	μm	typ.	810 <sup>4</sup>	810 <sup>4</sup>
	Fiber Length	L	m	typ.	1.0	1.0
	Minimum Bend Radius		mm	min.	40	40
	Aiming Beam <sup>4</sup>				Optional	Optional
Electrical Characteristics	CW Output Power <sup>5</sup>	P <sub>op</sub>	W	typ.	40	30
	Threshold Current	I <sub>th</sub>	A	max.	13	11
	Operating Current	I <sub>op</sub>	A	max.	56	46
	Slope Efficiency	$\eta_o = P_{op}/(I_{op}-I_{th})$	W/A	min.	0.9	0.8
	Conversion Efficiency	$\eta = P_{op}/(I_{op}V_{op})$	%	min.	35	35
	Operating Voltage	V <sub>op</sub>	V	max.	2.2	2.1
	Recommended Hookup Wire	gauge		typ.	8-gauge or heavier	10-gauge or heavier
Thermal Characteristics	Thermal Resistance	R <sub>th</sub>	°C/W	typ.	0.7	0.7
	Recommended Case Temp.	T <sub>c</sub>	°C	typ.	25	25
	Operating Temp. Range	T <sub>op</sub>	°C	typ.	-20 to 30	-20 to 30
	Storage Temp. Range	T <sub>st</sub>	°C	typ.	-20 to 60	-20 to 60
Mechanical	Weight		g (oz.)	typ.	300 (10.3)	300 (10.3)
	Dimensions	L x W x H	mm (in.)	typ.	70 x 31.8 x 25.8 (2.76 x 1.25 x 1.02)	70 x 31.8 x 25.8 (2.76 x 1.25 x 1.02)
Measurement Tools	Meter				FieldMaster-GS™	FieldMaster-GS
	Part Number				33-0498-000	33-0498-000
	Sensor				LM-150FS <sup>6</sup>	LM-150FS <sup>6</sup>
	Part Number				337873-000	337873-000

<sup>1</sup> All values measured at case temperature (T<sub>c</sub>) = 25°C.  
<sup>2</sup> Custom center wavelengths are available. Consult your Coherent representative.  
<sup>3</sup> The numerical aperture of the output beam is defined as the sine of the half-angle of the divergence that encircles 90% of the energy.  
<sup>4</sup> Fiber-bundle diameter including aiming beam is 830 μm.  
<sup>5</sup> Minimum CW output power at I<sub>op</sub>.  
<sup>6</sup> Add an SMA Adapter for connecting the output fiber directly to the detector (P/N 33-1413-000, \$85.00).

# FAP 800-LB Series

Long-Bundle Fiber Array Packages

## DEVICE SPECIFICATIONS<sup>1</sup>

		Low NA FAP 800-LB				
		Symbol	Units	Spec.	940 nm 40W	980 nm 40W
Part Number					1082408	1082412
Description/Model Number					FAP800-LB-40W 930 to 950 nm	FAP800-LB-40W 970 to 990 nm
Optical Characteristics	Center Wavelength <sup>2</sup>	$\lambda_c$	nm	typ.	940	980
	Center Wavelength Tolerance	$\Delta\lambda_c$	nm	typ.	±10	±10
	Spectral Width (FWHM)	$\Delta\lambda$	nm	max.	6.0	6.0
	Wavelength Temperature Coefficient		nm/°C	typ.	0.28	0.28
	Numerical Aperture <sup>3</sup>	NA		max.	0.11	0.11
	Fiber-Bundle Diameter	$\phi_c$	μm	typ.	810 <sup>4</sup>	810 <sup>4</sup>
	Fiber Length	L	m	typ.	1.0	1.0
	Minimum Bend Radius		mm	min.	40	40
	Aiming Beam <sup>4</sup>				Optional	Optional
Electrical Characteristics	CW Output Power <sup>5</sup>	P <sub>op</sub>	W	typ.	40	40
	Threshold Current	I <sub>th</sub>	A	max.	8	7
	Operating Current	I <sub>op</sub>	A	max.	54	54
	Slope Efficiency	$\eta_o = P_{op}/(I_{op}-I_{th})$	W/A	min.	0.8	0.8
	Conversion Efficiency	$\eta = P_{op}/(I_{op}V_{op})$	%	min.	50	50
	Operating Voltage	V <sub>op</sub>	V	max.	1.7	1.7
	Recommended Hookup Wire	gauge		typ.	8-gauge or heavier	10-gauge or heavier
Thermal Characteristics	Thermal Resistance	R <sub>th</sub>	°C/W	typ.	0.7	0.7
	Recommended Case Temp.	T <sub>c</sub>	°C	typ.	25	25
	Operating Temp. Range	T <sub>op</sub>	°C	typ.	-20 to 30	-20 to 30
	Storage Temp. Range	T <sub>st</sub>	°C	typ.	-20 to 60	-20 to 60
Mechanical	Weight		g (oz.)	typ.	300 (10.3)	300 (10.3)
	Dimensions	L x W x H	mm	typ.	70 x 31.8 x 25.8 (2.76 x 1.25 x 1.02)	70 x 31.8 x 25.8 (2.76 x 1.25 x 1.02)
Measurement Tools	Meter				FieldMaster-GS™	FieldMaster-GS
	Part Number				33-0498-000	33-0498-000
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<sup>5</sup> Minimum CW output power at I<sub>op</sub>.  
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## OPERATING NOTES

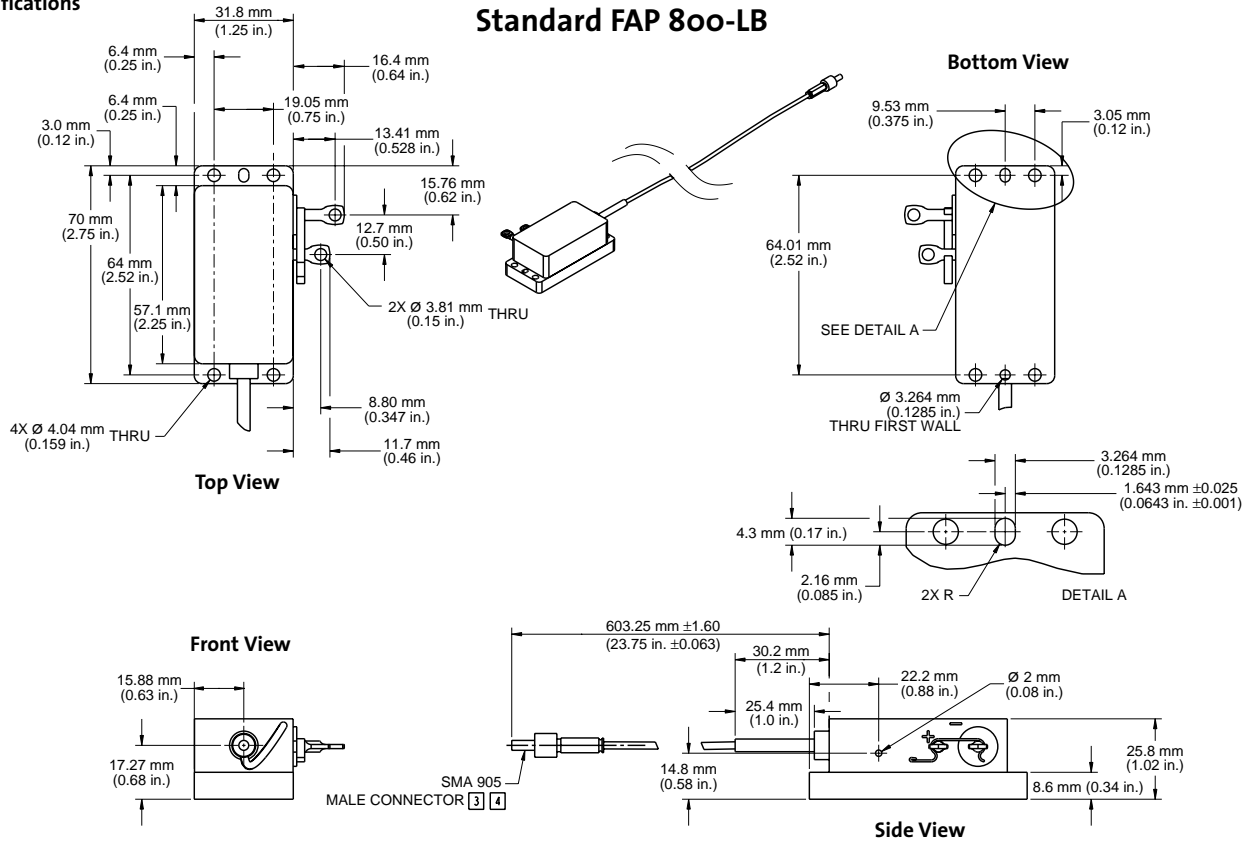
- ESD precautions must be taken when handling unit.
- Negative current transients greater than 25 μA, and/or reverse voltages >3V, can destroy the unit.
- Unit requires an adequate heat sink. Failure to use an adequate heat sink will destroy the unit.
- Recommended heat sink flatness ≤50 μm.
- A dry environment should be provided when storing or operating this device at temperatures below the ambient dew point. Failure to do so will cause condensation on the unit and can destroy it.
- Output powers in excess of specification will accelerate device aging.
- Operation at higher temperatures will accelerate device aging, increase threshold current and lower slope efficiency.
- Care should be taken to avoid back-reflections into the device. Failure to do so can destroy the unit.

# FAP 800-LB Series

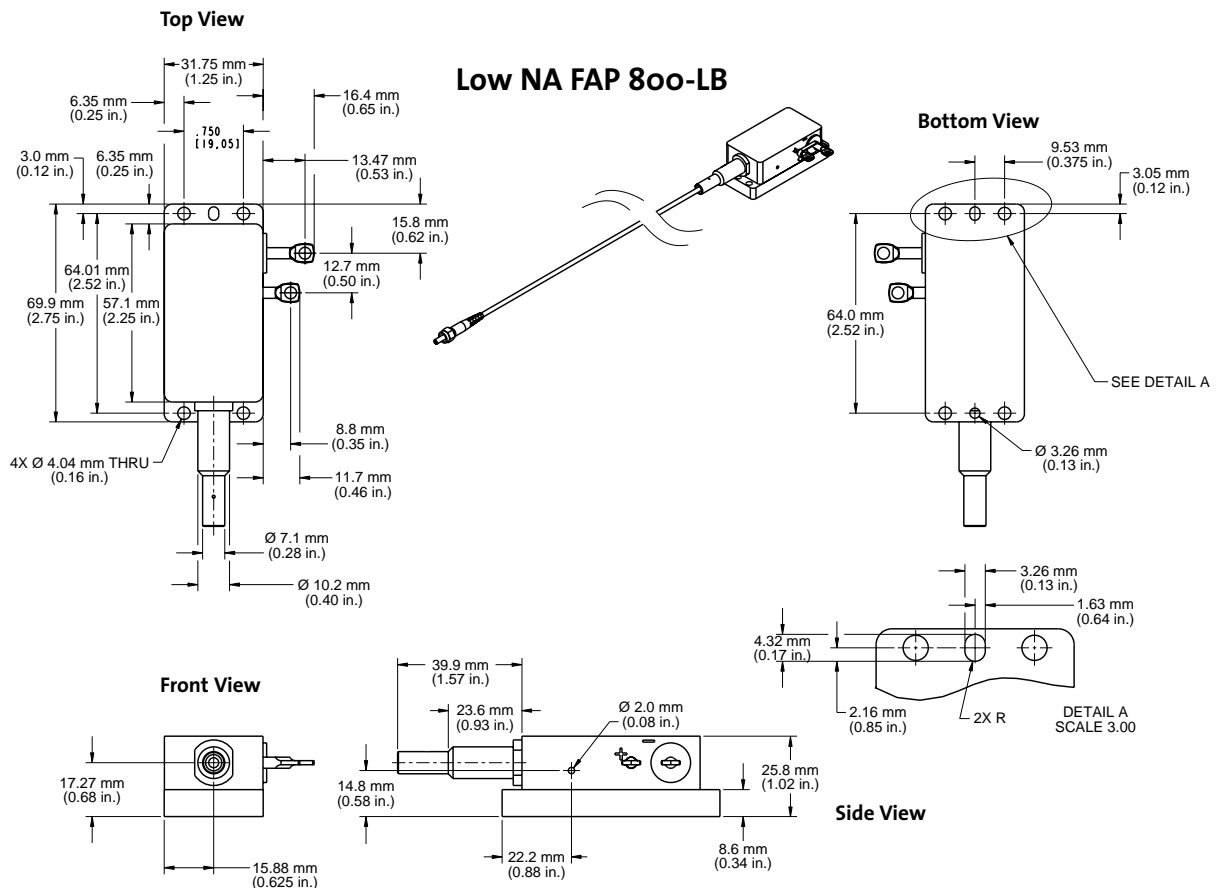
Long-Bundle Fiber Array Packages

## Mechanical Specifications

### Standard FAP 800-LB



### Low NA FAP 800-LB

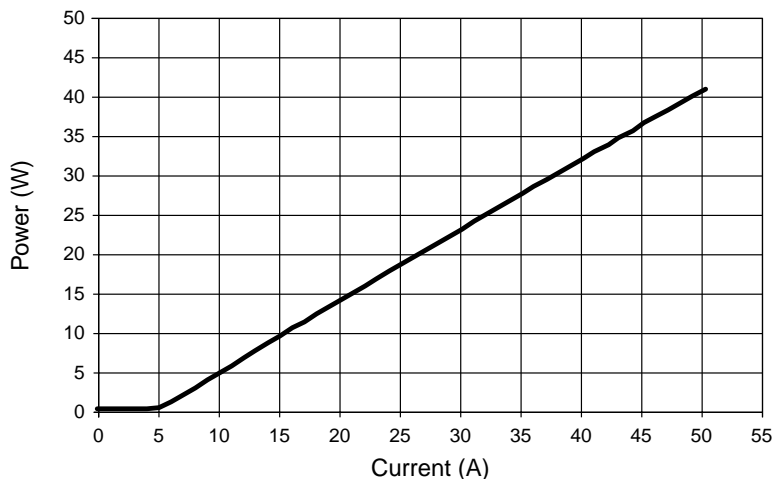


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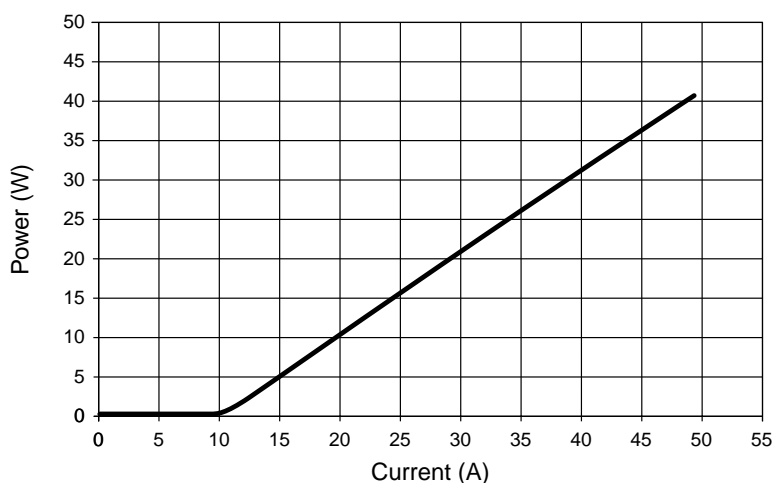
Long-Bundle Fiber Array Packages

## Power-Current Characteristics

Typical P-I  
40W, 980 nm, 800  $\mu$ m FAP (1082412)  
 $T_c = 25^\circ\text{C}$



Typical P-I  
40W, 808 nm, 800  $\mu$ m FAP (1059561)  
 $T_c = 25^\circ\text{C}$



### COHERENT, INC.

5100 Patrick Henry Drive

Santa Clara, CA 95054

phone (800) 527-3786

(408) 764-4983

fax (800) 362-1170

(408) 988-6838

e-mail [tech.sales@Coherent.com](mailto:tech.sales@Coherent.com)

web [www.Coherent.com](http://www.Coherent.com)

Japan +81 (3) 5635 8700

Benelux +31 (30) 280 6060

France +33 (1) 6985 5145

Germany +49 (6071) 9680

Italy +39 (02) 34 530 214

UK +44 (1353) 658 833

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

These components do not comply with the Federal Regulations (21 CFR Subchapter 1) as administered by the Center for Devices and Radiological Health. Purchaser acknowledges that his/her products must comply with these regulations before they can be sold to a customer.

Coherent offers a limited warranty on its diode laser devices. For full details on warranty coverage, please refer to the Service section at [www.Coherent.com](http://www.Coherent.com), or contact your local Sales or Service Representative.