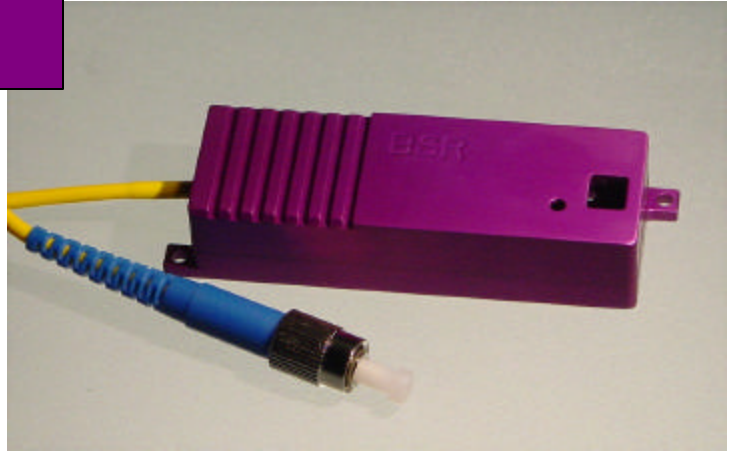


FiberTEC405™

**405nm Laser Module
30mW power output
With
Integrated Drive, Power &
Wavelength Stabilization
Electronics**



Features

The FiberTEC405™ laser module features a temperature stabilized, fiber coupled, high output power 405nm laser diode and integrated drive electronics. The standard module includes a thermo-electric cooler (TEC), and electronics for automatic Power Control (APC) and Automatic Current Control (ACC). The FiberTEC405™ package footprint measures 76x24x16mm, and incorporates a 1-meter, single mode optical fiber output.

Performance

The FiberTEC405™ module can be configured in either ACC or APC mode of operation via a simple jumper connection. Power outputs available include 15mW or 30mW. Laser output via a single mode, 0.12 NA fiber optic pigtail, optimizes beam stability, and provides the flexibility of remote laser beam delivery. In addition, the FiberTEC405™ module includes monitoring, control and protection circuits.

The FiberTEC405™ utilizes a TEC to gain several distinct advantages over traditional Laser Diode Assemblies. The FiberTEC405™ TEC provides stabilized laser power output over widely varying temperatures; variance in power stability is demonstrated to be < 0.75% long term (<24hrs), and <0.25% short term (1hr). Additionally the FiberTEC405™ TEC also eliminates spectral shift with temperature, minimizes laser mode hopping, and simultaneously extends laser lifetime (by maintaining laser operation at one temperature).

Options

Custom configurations are available and include; user controllable temperature settings, various power outputs, and wavelength options. Output options include polarization-maintaining fiber (typical extinction ratio of 100:1). Termination options are bare or connectorized fiber, or collimated beam with diameters of 0.9, 1.5, or 2.0mm.

Applications

- * Spectroscopy
- * Printing
- * Particle scattering/sizing
- * Confocal Microscopy
- * Pointing & Alignment
- * Flow Cytometry



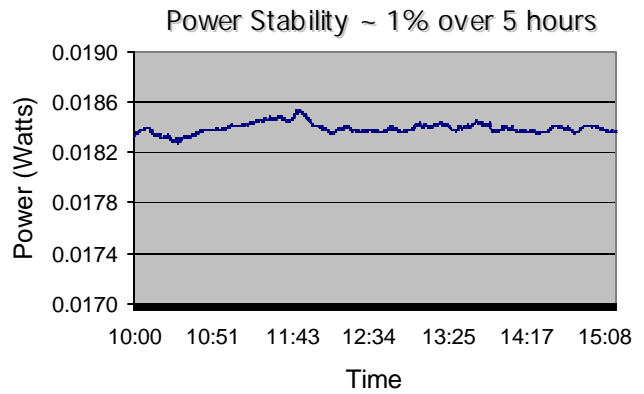
FiberTEC405™

Optical Specifications (T_{A=25}):

Power Output (P _{out}):	15mW, 30mW
Wavelength,	405nm +10 / -5 nm
Polarization	Random
Power Stability	1hr, <0.25%
	24hrs, <0.75%
Noise: RMS, 20Hz – 20MHz	< 0.2%
: P-P, 20Hz – 20MHz	< 0.5%
Beam Stability	<5urad (8 hrs)
M2	<1.1
Fiber Type	SM, 125um clad, 3mm buffering
Fiber NA	0.12
Mode field Dia.	3.3 +/- 0.5 um Typ.
Fiber connector	FC/PC, (SC optional)

Typical Performance Curves:

Long Term Laser Stability in APC mode
% Change P_{out} vs. Time



Electrical Specifications

Laser Driver	6.5Vdc +/- 5% @ 200mA
TEC Driver	3.3Vdc +/- 5% @ 2A

Environmental Specifications

Cooling:	TEC
Operating Temp:	0-40° C
Storage Temp:	0 to 70° C

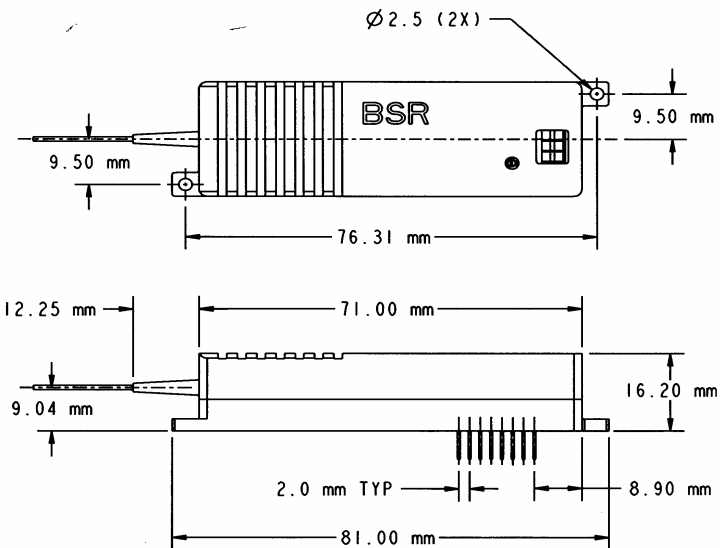
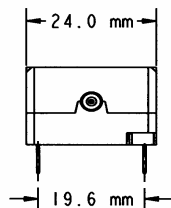
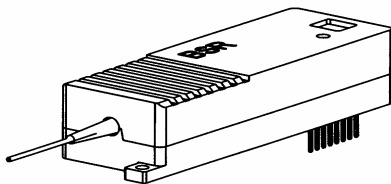
Options:

Beam collimators:	1, 1.5, 2.0
Beam Divergence (full angle):	
0.9 & 1.5 collimator =	1mrad
2.0 collimator =	0.7 mrad

PM fiber: 50:1 with connector

PCB mounting pins

Mechanical Layout



Note: Mounting hole size= M2
Electrical Pin dia=0.45um= +/- 0.1

**BLUE SKY
RESEARCH**

Contact Information:

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FiberTEC405 Rev. 7/12/2004

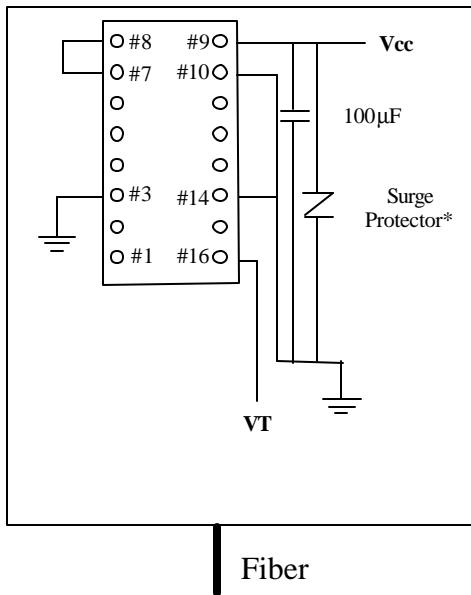
FiberTEC405™

Electrical Pin Out

Pin No.	Name	Type	Description
1	NC	Passive	No connection
2	NC	Passive	No connection
3	GND	Active	Ground
4	Set	Analog input	Constant current or constant power setting, Max 2.5V
5	VTEC	Analog Output	Indicates Relative Voltage Across TEC, 1.5V correspond to 0V across TEC, 3.0V indicates Max.
6	APC	Active	Connect to Pin 8, Automatic Power Control.
7	ACC	Active	Connect to Pin 8, Constant Current Control.
8	CC	Active	Control common
9	Vcc	Power	+6.5 V +/- 5% Laser Driver Voltage
10	GND	Active	Ground
11	Temp. Set	Active	Temperature Setting Input (option).
12	TempRange	Digital Output	Indicates when Thermistor Temperature is within +/-0.1C of Target Temperature.
13	Alarm	Digital Output	Indicate OPEN OR Short Circuit from the Thermistor.
14	GND	Active	TEC Ground
15	NC	Passive	No connection
16	VT	Active	+3.3V +/-10% TEC Voltage

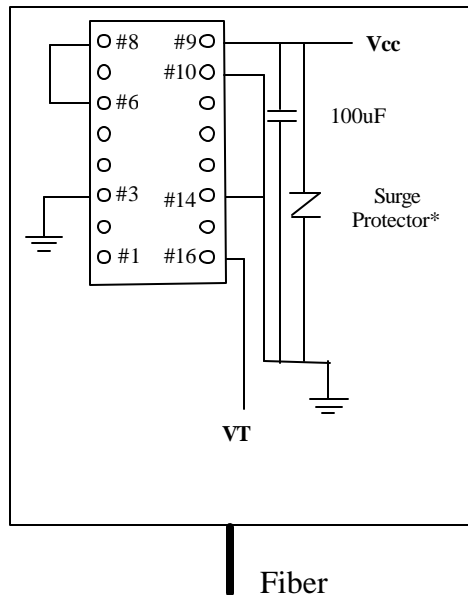
Electrical Configurations

ACC CONNECTIONS



Bottom View

APC CONNECTIONS



Bottom View

* Panasonic ERZ-V0D180



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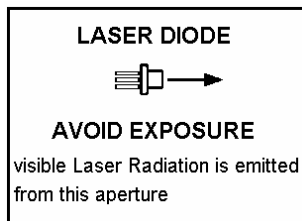
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FiberTEC405™

FTEC405 ORDERING INFORMATION

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Product Family	
Wavelength, (nm)	
0405	
PinOut Configuration	
O = no pins on bottom	
P = PCB pins	
Power Output (mW)	
15, 30	
Fiber Type	
S = single mode	
P = polarization maintaining	
Fiber Connector	
FC/PC = F FC/APC = A SC/PC = S SC/APC = G	
Collimator	
None = 0	
1mm = M	
1.5mm = N	
2.0mm = P**	
4.0mm = Q	

Example: FTEC-0405-P15-P-F0, FiberTEC405™ laser module with 405nm Laser diode, PCB pins on bottom of package, 15mW power output, single mode polarization maintaining fiber, FC/PC fiber connector, and no collimation beam output optics



This component does not comply with the Federal Regulations (21 CFR Subchapter1) 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. The output light from laser diodes is harmful to a human body even if it is invisible. Avoid looking at the output light of a FiberTEC™ directly or even indirectly through a lens during operation. Observance of operation should be through a TV camera or related equipment. Refer to IEC 825-1 and 21 CFR 1040.10-1040.11 as a radiation safety standard for laser products.

Blue Sky Research follows a policy of continuous improvement. Specifications are subject to change without notice.



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