

Prizmatix

FC3-LED and FC5-LED High Power Fiber Coupled Multi-Wavelength LED Light Sources

Introduction

The new fiber-coupled high power UV, Violet, Blue, Green and Red LED Multi wavelength light source modules are effective replacements of lasers and lamps in many applications, such as spectroscopy, illumination and curing.

These 3 and 5 LED modules provide high power CW or pulsed power at fiber output. The LED current controller supports CW operation mode with precise power control of each



channel. The external TTL inputs enable external triggering of each LED. 3-LED and 5-LED are ideal for use with various fiber optic spectrometers in continuous, strobe or external triggering measurement mode.

Currently the 3-LED and 5-LED products can include any combination of following wavelengths: 365nm, 385nm, 390nm, 395nm, 400nm, 405nm, 410nm, 415nm, 420nm, 425nm, 430nm, 435nm, 440nm, 445nm, 455nm, 460nm, 465nm, 470nm, 480nm, 495nm, 500nm, 505nm, 515nm, 535nm, 540nm, 595nm, 630nm and White.

Features

- High Power (>20mW at most wavelengths with 1500micron core POF fibers)
- Reciprocal SMA fiber connection
- Precisely adjustable power by 10 turns potentiometer with dial
- Independently controlled power of each LED
- Speckle free
- Long life (no lamp replacement required)
- TTL external modulation input for each wavelength
- LED Analog modulation - optional
- USB link for LED power computer control - optional
- Replacement of multi wavelength lasers

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Specifications:

Power output:

3-LED and 5-LED power output is limited by the reciprocal fiber characteristics. Larger core and higher NA will increase maximum power output, and vice versa. Please contact us for power data for specific wavelength and fiber.

The table below shows an example of the CW output power at three sample wavelengths for 1500µm core POF fiber:

Fiber brand	Fiber type ^{*1}	Output @ 365 nm Power Typ. ^{*2}	Output @ 405 nm Power Typ. ^{*2}	Output @ 515 nm Power Typ. ^{*2}
Mitsubishi Rayon SH6001 Super Eska	POF	50 mW	30 mW	10 mW

*1: POF – Polymer Optical Fiber. NA=0.5, Core diameter=1500µm, Fiber length ~ 1m.

*2: Measurements were performed by Ophir Nova II power meter with PD300-UV head. The wavelength was set to 365nm, 405 nm and 515 nm for each wavelength separately.

TTL input frequency: DC – 10 kHz

Analog input modulation frequency: DC – 10 kHz (Optional)

Connector for TTL / Analog input: BNC

Input power supply: 24 VDC, 1 A

Power adaptor input: 100-240 VAC, 1 A, 47-63 Hz

Dimensions:

3-LED: 174mm x 130mm x 197mm (W x H x D) without extrusions.

5-LED: 241mm x 130mm x 197mm (W x H x D) without extrusions.

Power adaptor: 60mm x 35mm x 100mm (W x H x L)



Optional Accessories:

Fiber patch cords:

Various fiber optic patch cords are available for use with the 3-LED or 5-LED products. Most popular patch cords are 1000 / 1500 / 2000 micron core diameter Polymer Optical Fibers (POF) terminated by optical SMA connectors on both sides. Prizmatix can provide Stainless Steel tube at one end of the patch cord instead of the SMA connector. This configuration is more convenient in some applications.

Fiber Bundles:

To combine outputs of multiple LEDs a Y-shaped fiber bundle with two or more input branches can be used. Prizmatix can help to configure and build custom fiber bundles for specific applications.

Special Bundles:

For spectroscopy application special fiber optic bundles are very important. Special care must be addressed to eliminate possible cross link between the excitation and the collection fibers.

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