



PYROIS
TECH

COB-series User Manual

Fiber coupled
LED light source
UV-VIS-NIR



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The specifications indicated in this manual are subject to change without prior notice.

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0. Introduction

Thank you for purchasing this COB light source from Pyroistech.SL. This document describes the COB light source and provides you with instructions for its correct operation. Please do not hesitate to contact us through **info@pyroistech.com** if you have any questions or doubts about this manual.

The COB series comprises high power LED light sources with peak wavelengths that range from UV to NIR (270 – 1050 nm). They are conceived as user friendly, compact and silent tools, being ideal for fluorescence, spectroscopy and general optical fiber illumination applications.

These light sources have been designed to obtain a high coupling efficiency to optical fiber through a selectable SMA/FC connector. In addition, they can be operated either in continuous (CW) or pulsed modes.

1. Technical Specifications

Optical characteristics

| Reference | λ (nm) | Power ¹ (mW) | FWHM (nm) | Reference | λ (nm) | Power ¹ (mW) | FWHM (nm) |
|-----------|-------------------|----------------------------|--------------|-------------------|-------------------|----------------------------|--------------|
| COB-270 | 270 | 0.12 | 15 | COB-590 | 590 | 2.0 | 15 |
| COB-280 | 280 | 0.11 | 15 | COB-623 | 623 | 10.3 | 17 |
| COB-310 | 310 | 0.50 | 15 | COB-660 | 660 | 10.6 | 18 |
| COB-365 | 365 | 11.8 | 12 | COB-740 | 740 | 7.3 | 18 |
| COB-385 | 385 | 10.6 | 12.5 | COB-840 | 840 | 13.1 | 33 |
| COB-395 | 395 | 11.0 | 16 | COB-940 | 940 | 29.0 | 40 |
| COB-405 | 405 | 11.4 | 20 | COB-1050 | 1050 | 58.1 ² | 55 |
| COB-457 | 457 | 13.2 | 20 | COB-EX White | - | 0.75 | - |
| COB-460 | 460 | 10.7 | 24 | COB-3000 White | - | 2.4 | - |
| COB-523 | 523 | 4.8 | 36 | COB-6500 White | - | 16.5 | - |

(1) Typical output power measured with an optical fiber with core diameter 600 μm and 0.22 NA, and a Si photodiode (OPHIR™)

(2) Typical output power measured with a VIS-NIR optical fiber with core diameter 1000 μm and 0.5 NA, and a Si photodiode (OPHIR™)

Electrical characteristics

| | | |
|------------------------------|----------------|-----------------|
| Power input | V_{IN} | 10 - 18 V |
| | I_{IN} | 1.5 A max |
| | Connector type | DC female 2.1mm |
| Signal input for pulsed mode | V_{IN} | 5V |
| | I_{IN} | 5 mA typ. |
| | Connector type | SMA female |

Other characteristics

| | |
|---------------------|--------------------|
| Output connector | SMA 905 or FC |
| Working T | 0 - 50 °C |
| Humidity | < 80% RH |
| Equipment Surface T | 40 °C |
| Stabilization time | 25 min typ. |
| Size | 10.5 x 11.5 x 8 cm |
| Weight | 500 g |

2. Operation

2.1 Package Content

- Requested COB light source
- Power source: input 100 - 240 V~, 50 - 60 Hz; output 18 V, 2 A; 99 x50 x33 cm, cord length 1.5 m.
- Power cord 1.85 m long
- User's manual

Inspect carefully the devices and make sure there is no damage. On the contrary, do not employ the light source and please contact us through info@pyroistech.com for repair or replacement information.

2.2 Before use

Insert the plug of the power cord into the power supply and connect the power cord to the power outlet. Then, introduce the plug of the power supply into the light source power input (DC female type).

Unscrew the cap of the SMA 905/FC connector on the front face of the light source and connect the fiber cable. Always do this step before turning on the light source. Now, the COB light source is ready to be used.

The COB source is designed to have intensity control in continuous and modulation modes. The easy user interface permits to select the desired mode (see section **2.4**).

2.3 Maintenance

The output connector of the light source should be periodically cleaned employing compressed air to remove the dust. It is recommended to have the output connector with the cap on it whenever the light source is not being used. The connector of the fiber used with the light source also has to be clean to ensure the best possible performance.

2.4 COB-series diagrams

| | |
|---|---|
| 1 | Intensity regulator (20% - 100%) in CW mode |
| 2 | LED indicator |
| 3 | Switch (ON-OFF-PWM) |
| 4 | PWM input (5V max) |
| 5 | Power input (10 – 18 V, 1.5 A max) |
| 6 | SMA 905/FC output connector |



2.5 Operation Modes

The controls feature a three way switch (3) to select the operation mode: continuous, pulsed or off. A second control (1) is used to manually adjust the drive current in continuous mode. A connector allows (4) to introduce a control signal in the PWM mode.

• OFF mode

The switch (3) on the right of the frontal face of the light source has to be on the middle position ('OFF'). It is suggested to have the switch in this position when connecting the power supply to the light source through (5).

• CW mode

To select the continuous mode, please move the switch (3) to the left position ('ON'). In this mode, the left knob (1) controls the intensity. The intensity can be adjusted between 20% (fully counter-clockwise) and 100% (fully clockwise) of maximum intensity.

• PULSED mode

To work in pulsed mode, please move the switch (3) to the right position (pulsed signal drawing). In this mode, the intensity can be adjusted between 0% and 100% of maximum intensity changing the duty cycle of the PWM signal introduced through the PWM input connector (4) of SMA female type.

The PWM signal must vary between 0 and 5 V. Voltages out of this range can damage the PWM input and disable the PWM mode. Voltages below 1.5 V will be recognized as low level while tensions above 2.8 V will be considered high level. A pulsed frequency of 500 Hz or lower is recommended to achieve the maximum resolution. However, higher frequencies, up to 100 kHz, can also be used.

Whenever the LED is on, either in CW mode or in pulsed mode; the green LED indicator (2) located on the front face of the light source will be on. In case of being in pulsed mode, the LED indicator will blink in the same way as the light source.

The light comes out through a connector (6) that can be SMA 905 or FC depending on the customer's choice and that has been specially designed to ensure that the optical fiber can be correctly screwed to the light source.

3. Important Notes

Before operation

- Do not remove or alter any installed safety device on this equipment. Doing so will cancel your warranty and create an unsafe operating environment.
- There are NO user serviceable parts inside. Dangerous currents are present in this device. Only allow qualified personnel to service this unit.
- Inspect this unit and its power supply before using it for the first time. Do not use the unit if it is damaged in any way. Contact us for repair or replacement information.

During operation

- Do not cover the source or obstruct the air flow for its refrigeration. Avoid exposure to direct sun light. A rise in the light source's temperature could affect its operation or even damage its components.
- The output connector of the light source may get hot during operation. After its employment, allow enough time to cool down before handling.
- The equipment should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the equipment should be observed to verify normal operation in the configuration in which it will be used.

Eye safety

- Optical radiation can damage your eyes. Do NOT stare directly at the light beam.



CAUTION !

Do NOT stare directly at the light beam

- Proper protective eyewear must be worn when using light sources that emit UV radiation (COB-270, COB-280, COB-310, COB-365, COB-385, COB-395, COB-405). Avoid exposure to the beam. It is hazardous to skin and eyes, and may cause cancer.



WARNING ! UV LEDs

Avoid eye and skin exposure to the emitted UV light

- COB-840 and COB-940 emit non visible infrared light, which can be hazardous depending on total system configuration (including, but not limited to optics, drive current and temperature). Observe safety precaution given in IEC 62471 when operating these light sources.

Electromagnetic Compatibility

- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of this equipment. Otherwise, degradation of the performance of this equipment could result.
- The use of cables, power supplies, transformers and accessories other than those specified by Pyroistech S.L., in addition to not being covered by the warranty, may lead to increased emissions and/or decreased electromagnetic compatibility.

4. Warranty

Pyroistech's general warranty for a product has a 1 year duration.

This warranty includes repairs and replacement of damaged parts due to a malfunction of the source, as long as said malfunction can be attributed to errors made in the manufacture of it by Pyroistech SL, not to a punctual misuse of the source or to a continued incorrect employment of it by the user, whether conscious or unconscious, due to not having followed the operation recommendations indicated by Pyroistech SL

There is the possibility of extending this guarantee. For more information, contact Pyroistech S.L.

5. Compliance

This device complies the following standards:



EMC 2014/30/EU
RoHS-compliant



Federal
Communications
Commision

Contact Pyroistech S.L. if you require more information about the electromagnetic compatibility of the product.



WEEE
Compliance

If you consider that the product has reached the end of its useful life and you want to dispose of it, you can contact Pyroistech S.L. so that it is in charge of its management.

| Version | Date | Description |
|----------------|------------------|--------------------|
| 1.0 | 9 September 2020 | First Document |

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