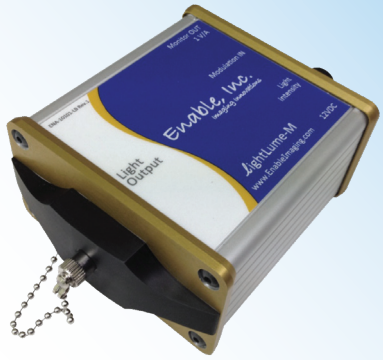
DATA SHEET

lightLume™-M; LED-based, fiber-coupled light source.



introduction:

The lightLume™ series of fiber coupled LED light sources employ the latest high-power LED technologies to achieve maximum optical output power.

Optical output is coupled into a fiber or a bundle of fibers through a standard SMA fiber adaptor port (SMA fiber patch cords are sold separately). This port is compatible with all minnieCam™ and minnieScopeTM products.

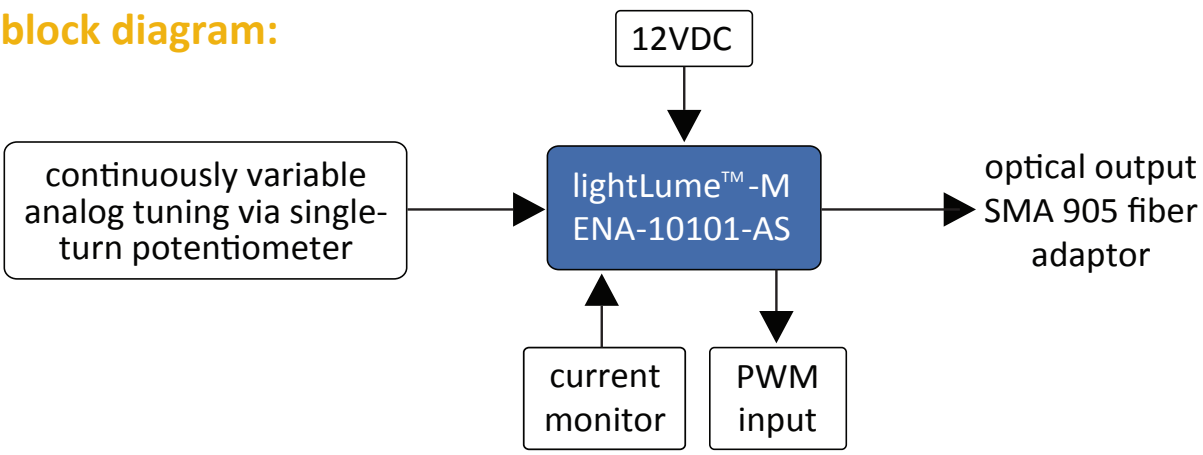
The LED driver is incorporated in the housing and offers a PWM modulation input, current monitoring port, as well as means of varying the output power (analog modulation) continuously from 0% to 100% manually with the top slider.

The one-piece machined housing features multiple mounting holes. A mounting plate for convenient mounting onto optical tables is also available (sold separately).

product features:

- high output power. Up to a maximum of 25-30 lumens through some minneScope™ -L models.
- broad wavelength selection.
- SMA port for up to 2.5mm OD multimode fiber.
- PWM modulation input.
- current monitor output.
- interchangeable fiber patch cords.
- compact metal housing with integrated heatsink.

block diagram:



product specifications: ENA-10101-AS lightLume™-M

electrical/optical characteristics:

recommended input voltage[1] (2.1mm x 5.5mm receptacle): male center positive	DC 12V typ. 6V min / 12V typ. / 36V max
power current consumption	400mA max at 12V
output optical port[2]	SMA 905[3]
LED current monitor	SMA: "Monitor OUT" 1.00 V = 1.00 A
LED current drive	0A to 1.2 A max[4]

modulation:

analogue modulation (0% -100% continuous manual)	[5]through single turn potentiometer
PWM modulation	SMA: "Modulation IN" 15V max

PWM dimming and ON/OFF control:

ON/OFF threshold values	
ON	0V < V <0.8V
OFF	2.2V < V <15V
PWM drive current	@ V = 5V, 1mA max
maximum PWM frequency (measured 10%-90% dimming)	linear operation 20 - 250Hz maximum Frequency 2,000Hz

1 A 12VDC wall-plug transformer with NEMA 1-15P input connector is also shipped with this module.

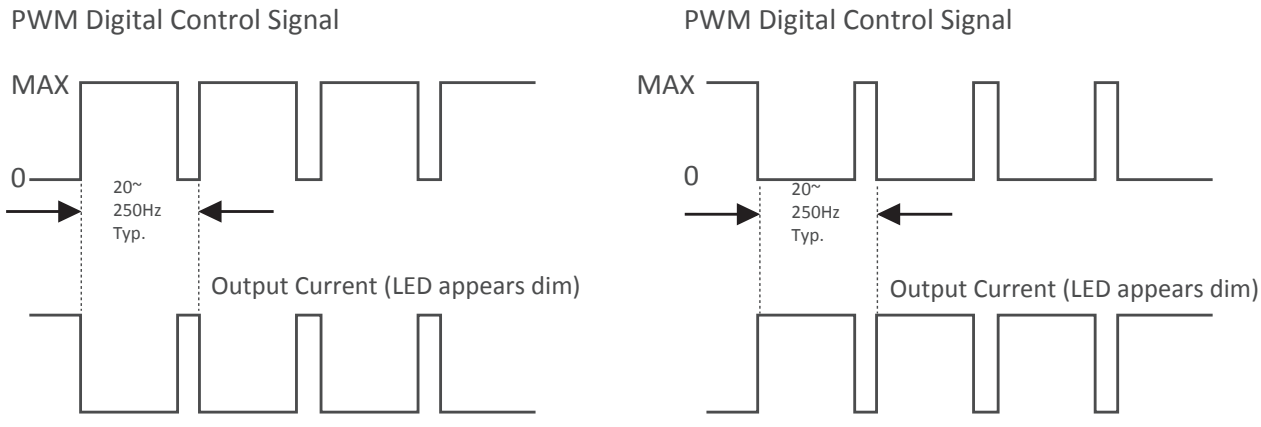
2 Up to 30 lumens through some of Enable's minnieScope™-L constructs can be achieved. Different LED choices and fiber patch cords will produce different results. Contact us to discuss your illumination needs directly.

3 Compatible with the optical connector of any minnieScope™ model. Either from the (-XS) or (-L) family of sensors.

4 Factory limits are set for different types of LEDs. The standard product uses LEDs with 1.0A max current. The driver can drive up to 1.2A max.

5 Potentiometer will also set the maximum output of PWM.

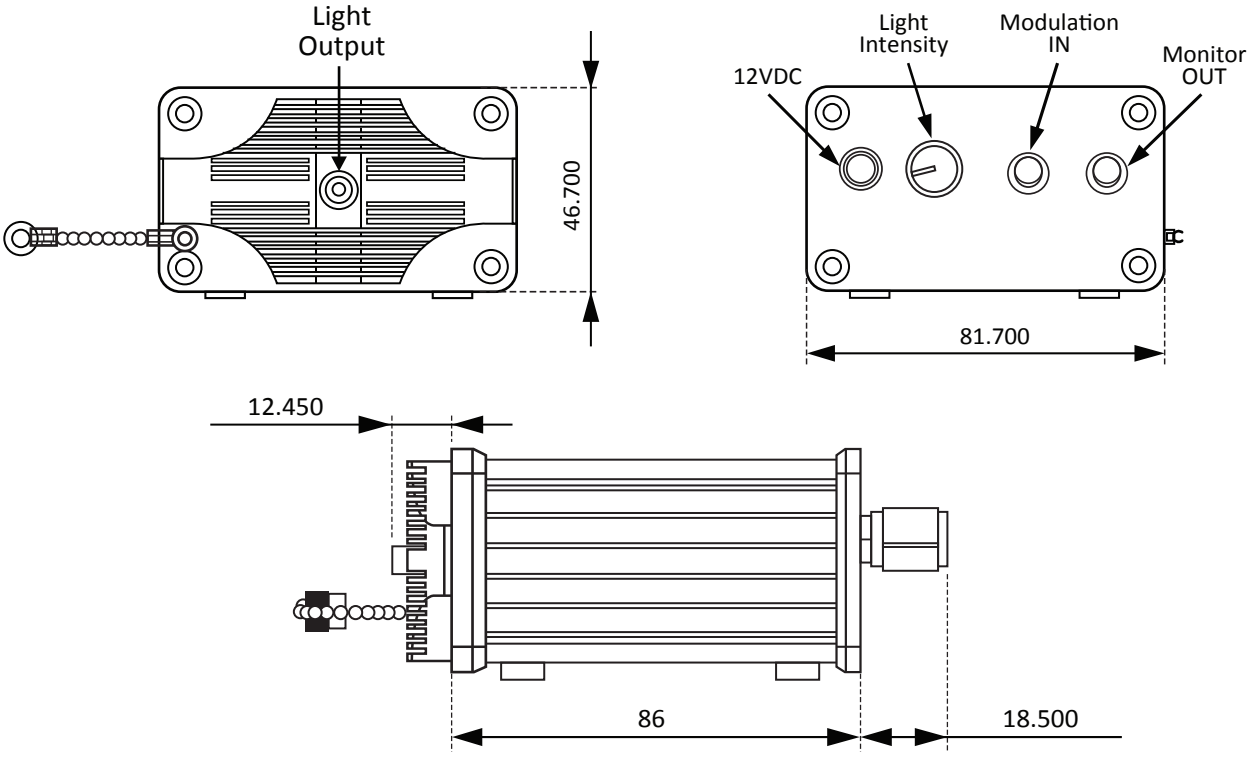
digital dimming: FIGURE 1



The peak output current level is controlled by the analogue single-turn potentiometer.

mechanical dimensions (all dimensions in mm):

ENA-10101-AS: lightLume™ -M



operating instructions:

1. Connect the optical connector of any minnieCam™ or minnieScope™ product or any other SMA fiber patch cord to the "**Light Output**" SMA 905 optical port of the lightLume™ -M light source.

2. Apply power to the "**12VDC**" input with the wall-plug transformer provided with the lightLume™ -M.

3. Rotating the single turn potentiometer ("**Light Intensity**" knob on the side of the chassis) will continuously vary the drive current to the LED from 0A to 1A max.

NOTE: The driver can achieve up to 1.2A max drive current. The potentiometer also sets the maximum current achieved by the "**Modulation IN**" SMA input port.

NOTE: The 1A limit on the current drive is a factory setting to be compatible with the standard LED's sold with this product. The driver can be customized to drive different LED's. Contact us to see if the driver can be customized for your specific needs.

4. Connect a SMA cable (**not provided**) to the "**Modulation IN**" port. It provides for **P**ulse **W**idth **M**odulation (PWM) of the current to the LED. Leave this port unplugged (OPEN) when not used. Any voltage can be applied in the range between 0V to 15V max. The polarity of the modulation signal is reversed so that a high voltage turns the current to the LED OFF, while a low voltage turns current to the LED ON (see also Figure 1). As noted in the product specifications section, any voltage below 0.8V will turn the current to the LED ON (max current set by the single-turn potentiometer). Any voltage above 2.2V (but <15 V) will turn the current to the LED OFF. Dimming of the LED can be achieved with PWM by adjusting the duty cycle of the "**Modulation IN**" signal (see again Figure 1).

5. The current to the LED can be monitored by plugging in another SMA cable (**not provided**) to the "**Monitor OUT**" SMA port in the side of the lightLume™ -M chassis (transfer function: 1V/A).

part number and configuration ordering information:

lightLume™ -M ordering Part Number: ENA-10101-AS

configuration: WV - □□□

wavelength code

For example when you order ENA-10101-AS with configuration WV-057, it correspond to: lightLume™ -M with 5,700K chromaticity white LED.

➔ Indicates the standard product configuration.

wavelength code	peak wavelength (nm)
057	5700 K
050	5000 K
➔ 040	4000 K ➔
035	3500 K
030	3000 K

[1] Single color LEDs can be made available upon request.