

## **J.BAUER Electronics**

### ***LaserBee 2.5 Watt USB*** **2.5 Watt USB only HOBBYIST LASER POWER METER**

The **LaserBee 2.5 Watt (2500mW) USB only** Laser Power Meter was designed to enable the hobbyist technician to test higher power lasers and laser diodes. It was designed for people like ourselves that needed to know the output power of the numerous lasers we had in the shop. It needed to check a wide range of lasers up to 2500mW.

We didn't want to spend \$500.00 to \$3,000.00 to get a commercial Laser Power Meter. We just wanted to know which laser was stronger than another and needed to know approximately how many milliwatts of output power each laser had.

With the emergence of the Green DPSS Modules/Lasers and the newer Blu-Ray and 445nm Laser Diodes, in the past few years, we needed to check these as well.

We also needed a way of testing different Laser Wavelengths without needing to use a Correction Factor chart for optical correction.

In addition we needed to be able to Data Log (record) the readings over time. The new LaserBee 2.5W USB has that feature available. The LaserBee 2.5W USB's Data Logging feature Software comes on a CD with the User Instructions and drivers.

The LaserBee 2.5W USB LPM uses a Thermopile Sensor and Microcontroller electronics that are pre-calibrated against a Newport Model 1825-C LPM using a Newport 818T-10 Thermopile sensor head. The output of the LaserBee 2.5W USB is shown on your computer's screen .

Just install the PC Data Logging Interface Software onto your computer then plug the USB Cable into your computers USB port and shine your Laser's beam on the Thermopile Sensor to get readings in 1 mW increments. The LaserBee 2.5W USB LPM is powered from the computer's USB port.

The readings of the LaserBee 2.5W USB LPM starts at 1mW and goes to 2500mW.

For consistent readings, make sure that all measurements are taken at the same distance between the Sensor and the Laser being tested. (6" to 12") and that the entire Laser beam falls on the Sensor of the LaserBee 2.5Watt USB LPM.

**It is very important NOT to collimate the laser beam to a pin point as this will damage the Thermopile coating using higher powered Lasers.** We have tested these sensors to 2600mW with a beam diameter of 3.0mm and the sensor's coating showed no sign of degradation or damage.

It is also important to note that the entire laser beam should fall on the Sensor and the Laser's beam should be adjusted accordingly (an acceptable/usable beam diameter would be **3.0mm to 7.0mm**, the larger, the better).

**DO NOT USE A BEAM DIAMETER OF LESS THAN 3.0mm with high powered Lasers**

## **User Instructions**

You must first install the PC Data Logging Interface onto your computer according to the instructions in the Soft Install Instructions PDF file.

The LaserBee 2.5W USB LPM is very easy to use. Plug the Thermopile Sensor cable to the LaserBee 2.5W enclosure.

Plug the Enclosure's USB cable to a free USB port on your computer as described in the Soft Install Instructions.

Set the PC Data Logging screen's Comport to the Comport that your computer assigned to the USB cable. (check your computer's Hardware Manager)

**After you have taken a Laser reading and removed the Beam from the Sensor you may not take another reading before the on screen display drops to Zero on its own and you wait an additional 30 seconds.**

## **DATA LOGGING FEATURE**

Once you have read the entire LaserBee 2.5W USB instructions supplied on the CD, install the PC Data Logging Interface software found on the same CD. Configure the PC Interface Software to the Communications Port (Com Port) that your computer uses. (See your Windows Device Manager for the Port being used). The Interface Software is self explanatory and easy to use.

## **NOTE:**

**DO NOT TOUCH THE SENSOR SURFACE AT ANY TIME FOR ANY REASON !!!**

The Thermopile Sensor detects heat on its surface. Since it requires time to heat and cool the Sensor... when taking a power reading you must wait for the reading on the computer's screen to stabilize. Once stabilized a reading can be taken. At 1000mW the stabilized reading time is approx.40-60 seconds.

The Thermopile Sensor is very sensitive to heat. It can pickup the heat of your hands. The testing area should be free of high intensity lights giving off heat. The testing area should also be free of air currents that may be detected by the Sensor. Just gently blowing on the sensor will change its temperature and therefore its output.

For the most accurate readings let the Thermopile Sensor acclimate to the test area's ambient temperature before taking any readings.

After taking a high power reading and the sensors reading has reached zero, wait an additional 20-30 seconds before taking another reading. This ensures accurate readings.

**DO NOT** mount the Thermopile Sensor into an enclosure... doing so will not allow the Thermopile radiator to dissipate the laser beam's heat properly. We are dealing with very small heat differential values.

When physically adjusting the position of the Thermopile Sensor, care must be taken to **NOT touch the Thermopile's Heat Sink directly with your fingers** as this will transfer your finger's heat to the Heatsink and create variations and errors in the readings.

Use a non heat conducting tool, when/if changing the Thermopile's position. Plastic or wooden tools are good.

The actual Sensor surface (the small 15mm x 15mm block) should **NEVER EVER** be touched with your fingers or any chemicals. The oil from your fingers will cause the sensor to reflect more of the lasers beam and re-coating and/or re-calibration may become necessary. Cleaning of the Sensor should only be done by gently blowing *dry* air over its surface. Remember, your breath is *very moist*...

Store your Thermopile in a dust free environment when not in use...

## **Specifications**

Power Supply:	USB Powered
USB Cable Length	22"
Sensor Type:	Thermopile (J.BAUER Electronics)
Sensor Area:	15.0mm x 15.0mm (225 square mm)
Response Time @1000mW	40-50 Seconds
Sensor Cable Length:	18"
Thermopile Dimensions:	1.65" x 1.50" x 1.00"
Power Range:	1mW to 2500mW
Power consumption:	55 milliamps @ USB Port
Total Dimensions:	3.75" x 2.37" x 1.00"
PC Interface Software:	on CD

## **Calibration**

The LaserBee 2.5W USB only LPM comes shop calibrated to the Thermopile Sensor included.

You must contact us if you feel that you need re-calibration. You can not calibrate this LPM yourself.

Recoating of the Thermopile Sensor .....	\$30.00
Re-Calibration of the Laserbee 2.5W USB .....	\$50.00

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