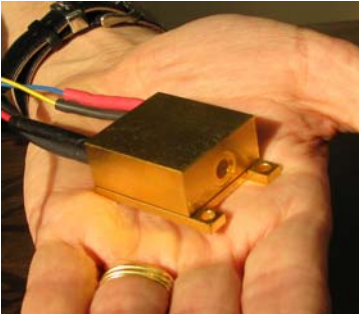




## MK-11

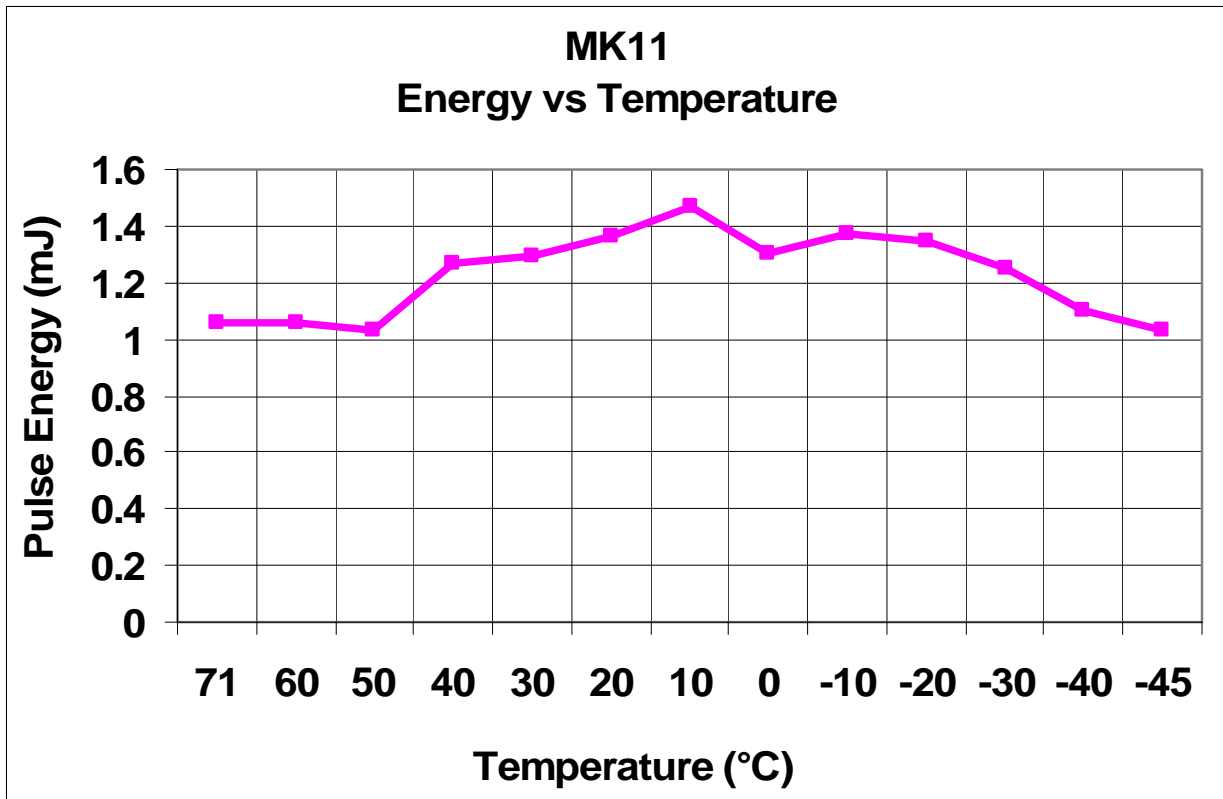
# Diode Pumped Eye-Safe Microlaser

## Diode Pumped Solid State (DPSS) High Efficiency Side Pumped (HESP) Laser



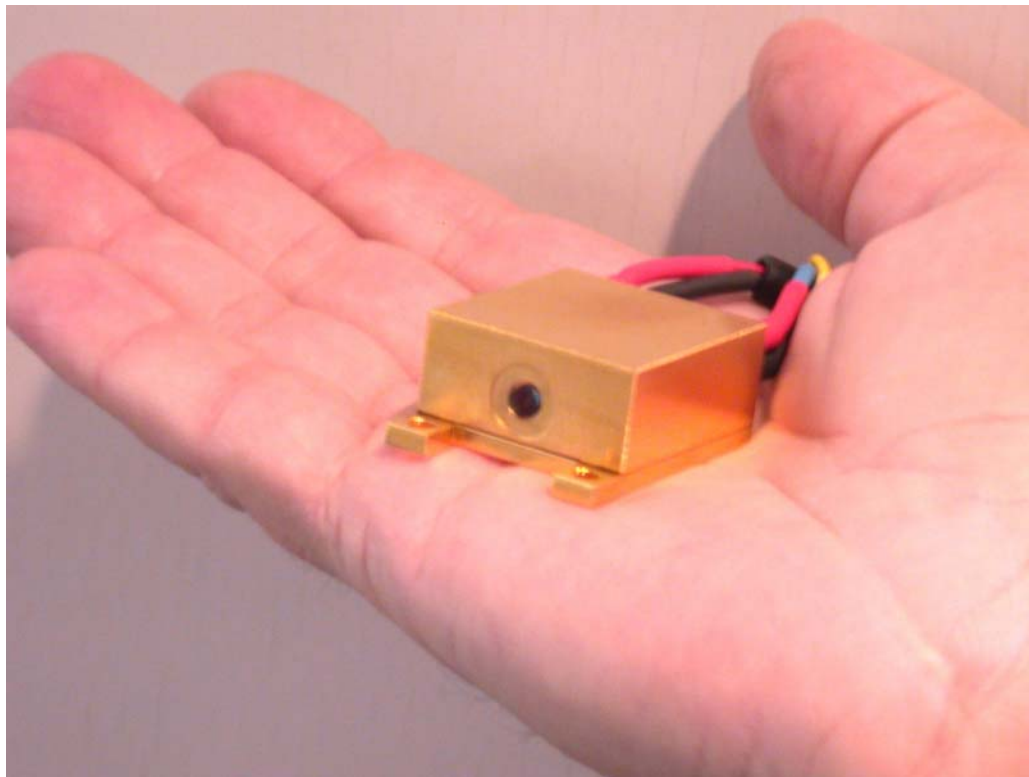
**1Hz, ~ 1mj**  
**~ 6ns, 1534nm**  
**~ 0.6" x 1.2" x 1.8"**

**-45 to +71 Deg. C !!!**





<b>Laser Wavelength</b>	<b>1534 nm</b>
<b>Pump Voltage &amp; Amps</b>	<b>2V, 100+A</b>
<b>MK-81 Output Energy &amp; Mode</b>	<b>0.8mj minimum</b>
<b>Laser Output Pulsewidth</b>	<b>~ 6ns</b>
<b>Raw Beam Diameter</b>	<b>~0.8mm</b>
<b>Beam Divergence</b>	<b>~ 6mrad</b>
<b>Beam Wander</b>	<b>&lt;0.5mrad</b>
<b>Pulse Rep-rate</b>	<b>1 Hz</b>
<b>Laser Head Size</b>	<b>0.65"x 1.2"x 1.8"</b>
<b>Laser Head Weight</b>	<b>~ 100 grams</b>
<b>Conductive Cooling Requirements</b>	<b>~ 0.7 watts*</b>
<b>Operating Temperature Range</b>	<b>-45 to +71 °C</b>
<b>Storage Temperature</b>	<b>-45 to +71°C</b>
<b>* For Continuous Duty Operation</b>	<b>Bandwidth +/-1nm</b>






## **MK-830-PS Laboratory Diode Driver** **(For use with MK-11, 81, 85, 88 & 830 HESP lasers)**

Kigre has developed a new laboratory laser diode driver for use with the MK-830, MK-88, MK-81 and MK-11 laser heads. The driver features precision pulsed current operation and supports the HESP family eye-safe laser diode requirements. A USB cable and software are provided so that the customer may use their computer as a laser controller. The driver operates over an extremely wide AC input voltage range and includes ultra high performance hold-up capacitors for stable pulsed current control up to 140 Amps. Soft-start control, active current limiting, transient filtering, and a mechanical shorting relay provide robust protection for the laser diode even when power is removed.

MK-830-PS computer laser control software provides a ready-made repetition rate generator with burst and shot count features.

<b>Power Input</b>	<b>100 – 240 VAC</b>
<b>Pump Pulsewidth</b>	<b>3.6 ms</b>
<b>Output Current Range</b>	<b>5 - 140A +/-0.5A</b>
<b>Pulse Repetition Rate</b>	<b>0 – 60Hz</b>
<b>External Fire Input Signal</b>	<b>+5 V TTL</b>
<b>Photodiode (To) Output Signal</b>	<b>+5 V Pulse</b>
<b>Size (W x D x H)</b>	<b>12"x 10" x 5"</b>

-  Use the cursor or keyboard to set the proper repetition rate for your laser.
-  Use the cursor or keyboard to set the proper number of shots (burst count) for your application.
-  Select START to begin firing the laser and STOP to stop firing the laser. You may stop firing the laser during a burst count-down at any time by pressing the stop button. The software provides a count-down of the remaining number of shots in the burst.

# Kigre HESP Laser Power Supply Information

AC input voltage:	90-250 Volts AC (Auto-switching)
AC input frequency:	50-60 Hz (Auto-switching)
AC input current:	6A (Slo-Blo 5 x 20mm fuse located on rear panel)
Pump diode current range:	1A – 140A +/- 0.5A
Frequency range:	0.1 – 30 Hz
Laser diode forward voltage range:	0.7 – 16 Volts
External trigger input:	4.5 – 5.5 V, 1.0 – 10mS
Power Supply Weight	4.2Kg (9.3 pounds)
Power Supply Size (H x W x L)	300x261x135 mm (11.8 x 10.3 x 5.3 inches)
Power Inlet with Fuseholder:	Qualtek Electronics # 723W-X2/04 (IEC 320 - C14)
Laser connector:	Amphenol # 77TWA7W2S, Female Combo D-sub
Mate to Laser connector:	Amphenol # 717TWA7W2P, Male Combo D-sub
Control connector:	USB 2.0 (backwards compatible to 1.0)



## OUTPUT PULSE TIMING JITTER PHOTODIODE FEEDBACK DEVICE

Due to the passive Q-switch design, the laser output pulse will have up to 300uS of jitter with respect to the fire input Command. A high speed InGaAs photodiode is installed in the HESP lasers. The power supply uses this feedback to control the pulse width of the pump diodes to insure stable, single-pulse laser output. Kigre recommends using a laser output pickoff detector if timing of the output pulse is critical to your application.

# Kigre HESP Laser Power Supply Information

## Display Screen Shown For Laser Driver Software Version 1.1.b



## HESP LASER Amperage Setting Conversion Table Kigre 120 Amp. Power Supply

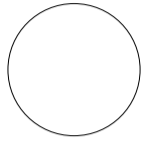
<u>DISPLAY ONLY</u>	<u>DISPLAY ONLY</u>					<u>Actual Pump Amps</u>
<b>Ver. 1.1.b</b>	<b>Ver. 1.3.1</b>					
15 A	23%					60
21 A	31%					70
28 A	39%					80
34 A	47%	MK-81	MK-85	MK-88	MK-830	90
40 A	55%	MK-11				100
48 A	63%					110
55 A	71%					120



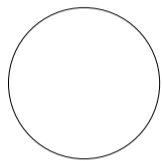
KIGRE, INC.

MK830-PS

LASER  
ARMED

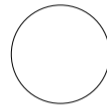


POWER  
ON

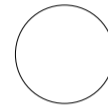


OFF

EXT. FIRE  
INPUT



LASER SYNC  
OUTPUT



LASER

AC INPUT  
90-250 VAC  
50-60 Hz  
6AMP FUSE

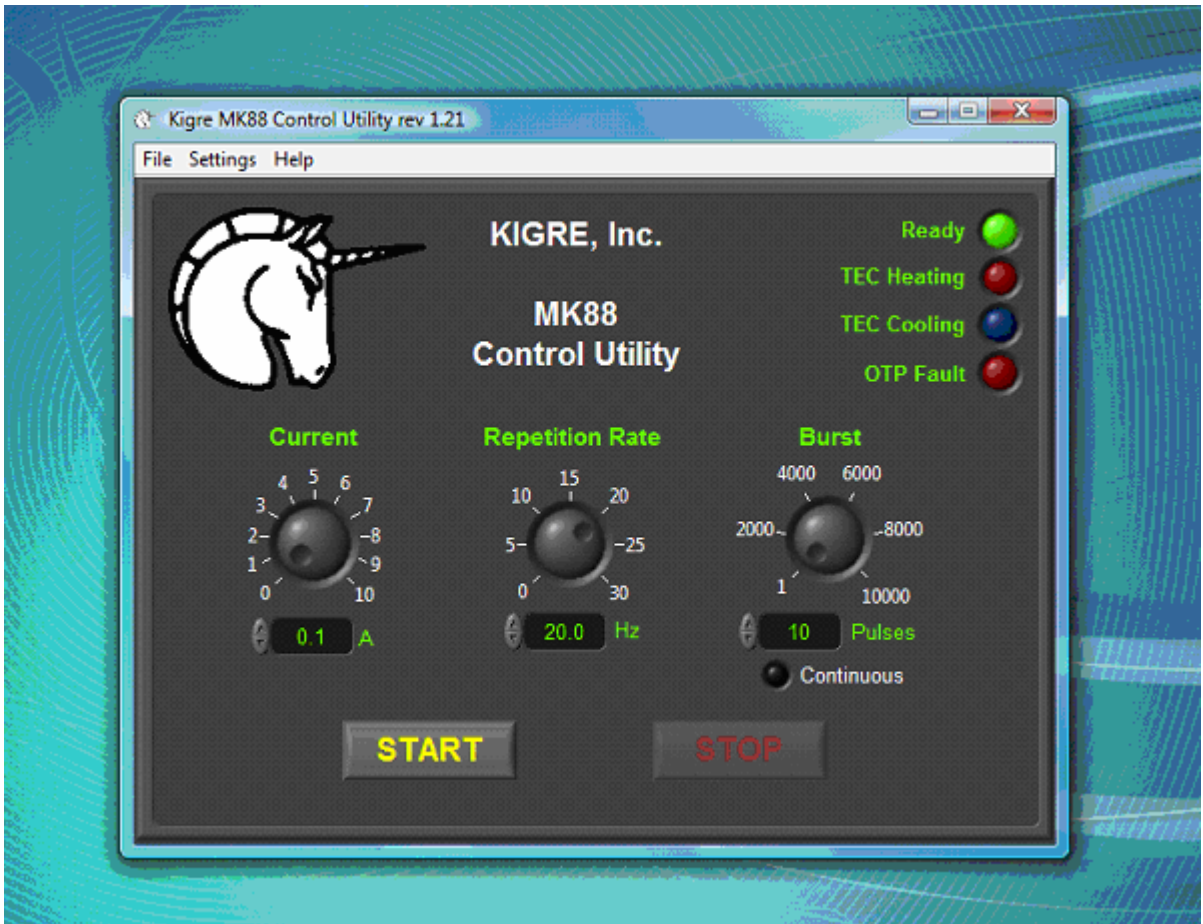


USB



DO NOT BLOCK SIDE PANEL VENTS

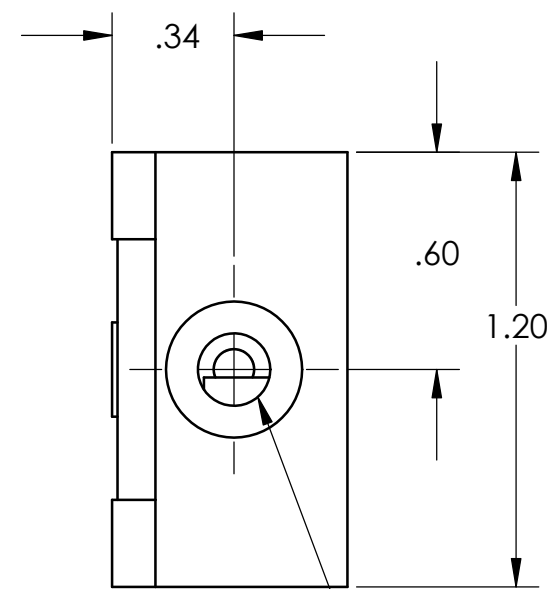
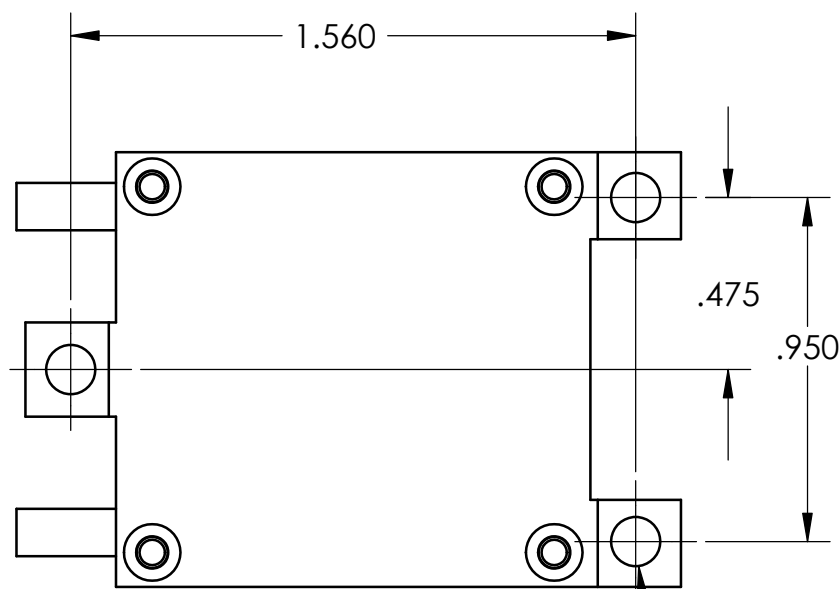
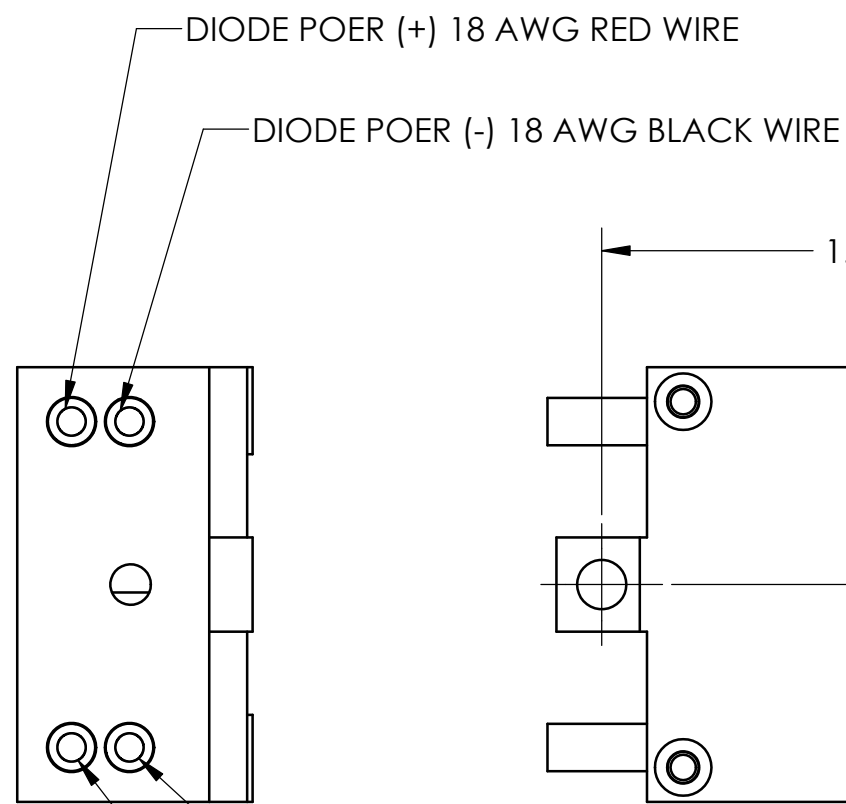
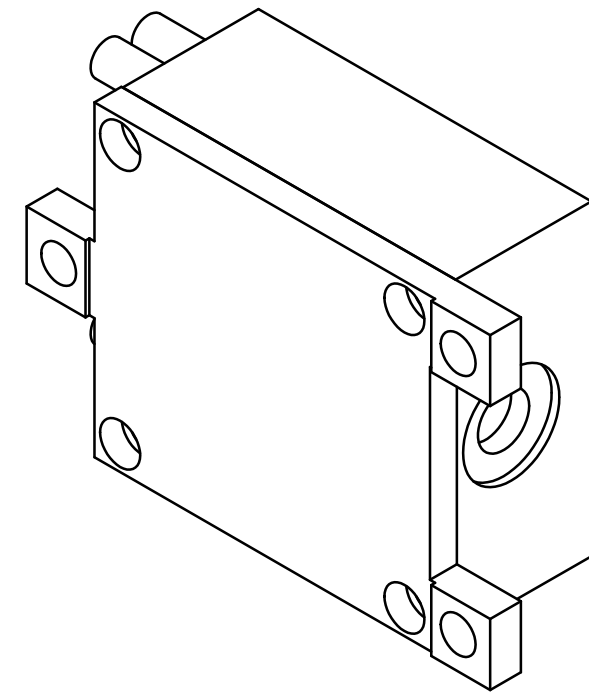
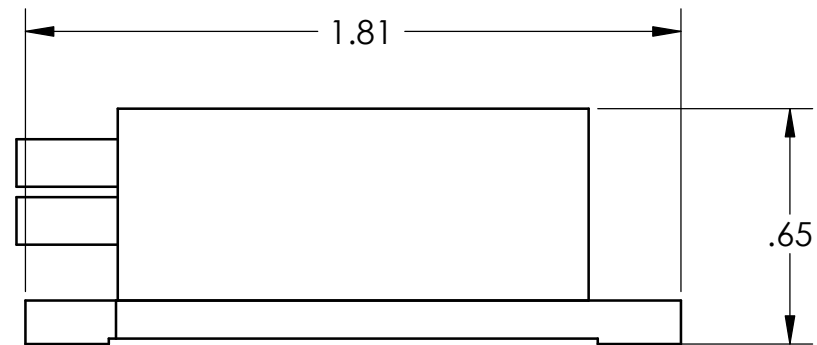
The MK-830-PS computer control software may be operated at any pulse repetition rate setting from 1 Hz to 30 Hz. The software allows for both pulse rep-rate and current adjustment. With the pull down menu, the current scale is adjusted to a maximum of 140 amps.



- ✓ The MK-830-PS laser driver requires a computer for laser operation.
- ✓ Kigre **does not** supply a computer with the MK-830-PS laser driver.

8 7 6 5 4 3 2 1

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



3X  $\phi$ .136THRU MOUNTING HOLE

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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL $\pm$
		ANGULAR: MACH $\pm$ BEND $\pm$
		TWO PLACE DECIMAL $\pm$ .01
		THREE PLACE DECIMAL $\pm$ .003
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		FINISH --
NEXT ASSY	USED ON	
APPLICATION		

NAME	DATE
DRAWN BP	3/10/09
CHECKED	
ENG APPR.	
MFG APPR.	
Q.A.	
COMMENTS:	



LASER HEAD OUTLINE, MK11

SIZE <b>B</b>	DWG. NO. B1538	REV <b>A</b>
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SCALE: 2:1 WEIGHT: SHEET 1 OF 1

8 7 6 5 4 3 2 1