



# PCO-6131

## Pulsed/CW Laser Diode Driver Module Datasheet



Output Current Range 0 A to 125 A  
 Means Of Adjustment Trimpot mounted on PCB, or external 0-5 V or 0-10 V Analog Voltage, jumper-selectable.

Output Polarity Positive  
 Pulse Rise Time Variable <30 ns to >2.5  $\mu$ s (10%-90%) , user-adjustable trimpot mounted on PCB

Pulse Width <100 ns to DC  
 Pulse Frequency Range Single Shot to 500 KHz  
 Maximum Duty Cycle 100%  
 Output Pulse Ripple/Droop ~2 A, (<2% at 125 A output)  
 Jitter <3 ns First Sigma  
 Efficiency >75% at 50% duty cycle, 125 A output

Output Connector High Current DSUB, PCB-Mounted

### Diode Forward voltage

Amplitude 20 V maximum

### Gate Input

Type Positive Edge Trigger  
 Gate Input +5 V CMOS

### Current Monitor Optional PCA-9155

Current Monitor 1000 A/V terminated into 50  $\Omega$   
 $\pm$ 3% of the actual current  
 Current Monitor Connector BNC

### Control Functions

Output Enable/Disable TTL Input, High = Enabled

### General

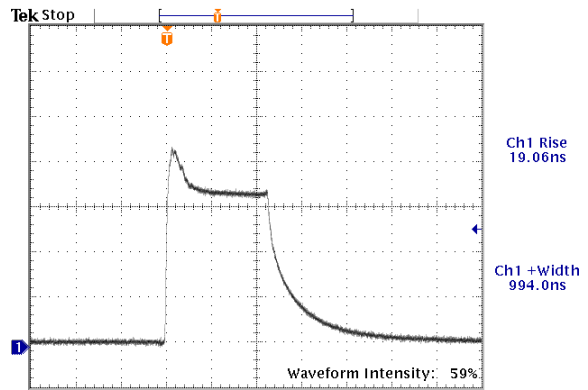
Input Power +24 VDC  $\pm$ 10% unregulated  
 Operating Temperature 0°C to 40°C  
 Cooling Air cooled

Dimensions (H X W X D) 8.4 cm x 20.3 cm x 16.5 cm

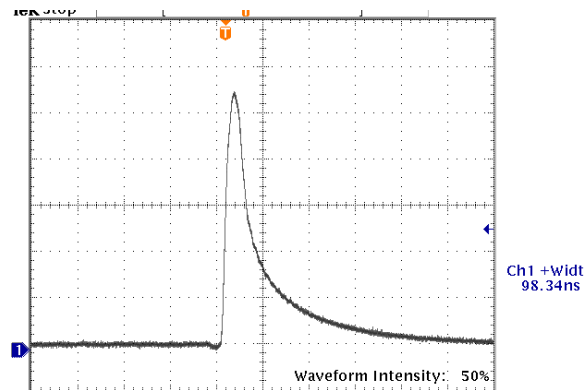
Specifications are subject to change without notice.

\*The idle power consumption (power consumed when the driver is enabled but not pulsing) varies non-linearly with output current, and can be approximated by the formula  $P_{IDLE} = I^2 \times 0.023$  where I is the output current setpoint. When pulsing, the switching losses ( $P_{SW}$ ) are about 30 W. Therefore the 24 VDC power requirements can be approximated by the formula  $P_{SW} + [I_{OUT} V_{OUT} + I_{OUT}^2(0.030)]DutyCycle + P_{IDLE} (1-DutyCycle)$  where  $V_{OUT}$  is the diode forward voltage and DC is the duty cycle. For example, at 40 A output current, 10 V diode voltage and 30% duty cycle, the power consumption is  $30W + [40A \times 10V + 40A^2 \times 0.03] \times 0.3 + [40A^2 \times 0.023] \times (1-.3) = 190W$ . The +24 VDC support power should be sized to provide this average power.

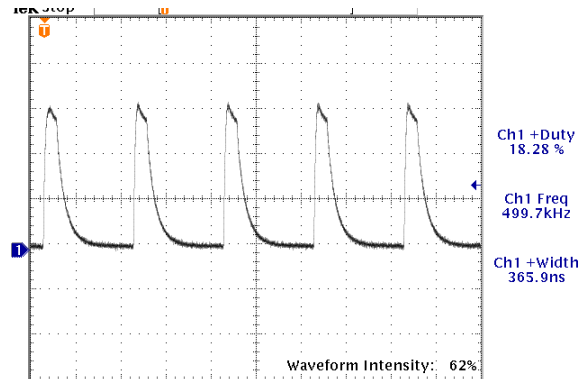
### Pulse Amplitude



<30 ns Rise Time, < 750 ns Fall Time, 120 A Output



<100 ns Minimum Pulse Width, 125 Amps Output



500kHz Frequency, 125 Amps Output