

# High Power 3 $\mu\text{m}$ DPSSL Modules

- . Compact monolithic laser systems
- . Highly efficient diode pumping
- . Fiber-coupled versions available
- . No high-voltage required
- . Reduced waste heat
- . Maintenance free
- . Process variability



## Specifications

	DPM-2 (Er:YAG) free / fiber <sup>(1)</sup>	DPM-25 (Er:YAG) free / fiber <sup>(1)</sup>	DPM-50 (Er:YAG) free / fiber <sup>(1)</sup>
<b>Optical Parameters</b>			
. Wavelength	2940 nm	2940 nm	2940 nm
. Average Output Power (max)	2 / 1.2 W	25 / 16 W	50 / 33 W
. Pulse Energy (max)	20 <sup>(2)</sup> / 13 <sup>(2)</sup> mJ	300 <sup>(2)</sup> / 200 <sup>(2)</sup> mJ	600 <sup>(2)</sup> / 400 <sup>(2)</sup> mJ
. Pulse Repetition Rate	up to 1 kHz	up to 1 kHz	up to 1 kHz
. Pulse Duration	40 to 1000 <sup>(3)</sup> $\mu\text{s}$	40 to 1000 <sup>(3)</sup> $\mu\text{s}$	40 to 1000 <sup>(3)</sup> $\mu\text{s}$
. Average Current (max)	30 A	25 A	25 A
. Mode of Operation	Pulsed	Pulsed	Pulsed
. Efficiency (optical-optical)	> 10 %	> 10 %	> 10 %
. Beam Shape (focus)	top hat like	top hat like	top hat like
. Free Beam Quality	$M^2 < 5$	$M^2 < 25$	$M^2 < 50$
. Free Beam Diameter	0.6 mm	1.6 mm	1.6 mm
. Free Divergence (half angle)	< 25 mrad	< 25 mrad	< 50 mrad
. Fiber Diameter GeO2 <sup>(1)</sup>	$\sim 230 \mu\text{m}$ (NA < 0.2)	$\sim 230 \mu\text{m}$ (NA < 0.2)	$\sim 420 \mu\text{m}$ (NA < 0.2)
<b>Cooling Requirements</b>			
. Coolant	Distilled water with Algaecide and Corrosion Inhibitor	Distilled water with Algaecide and Corrosion Inhibitor	Distilled water with Algaecide and Corrosion Inhibitor
. Coolant Temperature	20 to 35 °C	20 to 25 °C	20 to 25 °C
. Coolant Flow Rate	$\geq 1$ lpm	> 5 lpm	$\geq 6$ lpm
. Coolant Pressure	(1 - 3) bar	(2 - 5) bar	(3 - 5) bar
. Required Cooling Power	$\sim 150$ W @ 25 °C Environment Temperature	$\geq 540$ W @ 25 °C Environment Temperature	$\geq 780$ W @ 25 °C Environment Temperature
<b>Electrical Parameters</b>			
. Diode Forward Voltage	2 V	$\sim 20$ V	$\sim 30$ V
. Diode Forward Current	350 A Pulsed	300 A Pulsed	300 A Pulsed
. Average Power Consumption (max)	< 120 W incl. 2 TECs	< 450 W	< 900 W
<b>Mechanical Dimensions</b>			
. W x D x H	30 x 32 x 25 mm	120 x 96 x 75 mm	120 x 120 x 75 mm
. Weight	60 g	1.5 kg	1.7 kg
. Emission Height	-	47.5 mm	47.5 mm

<sup>(1)</sup> Fiber as specified by Pantec

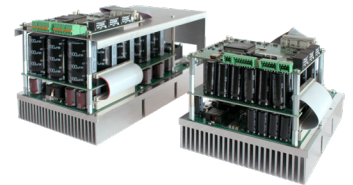
<sup>(2)</sup> For pulse durations > 600  $\mu\text{s}$

<sup>(3)</sup> 600  $\mu\text{s}$  standard, 1000  $\mu\text{s}$  on request

## Laser Diode Drivers

The LDD series are economic QCW laser diode driver modules designed to provide high current pulses to drive 3m.i.k.r.o.n.<sup>TM</sup> modules in various applications. It delivers output currents up to 300 A and pulse widths variable from 50 up to 1000<sup>[3]</sup> μs operation. Up to 1000 W average output power is available with the supplied heatsink and forced air flow. Several safety features are integrated to protect both laser diode and driver.

	DPM-2 (Er:YAG) / DPM-25 (Er:YAG)	DPM-50 (Er:YAG)
Laser Diode Driver	LDD-20300	LDD-30300
• Output Current	up to 300 A	up to 300 A
• Rise Time (10 - 90%)	< 20 μs	< 20 μs
• Mechanical Dimensions (W x D x H)	200 x 150 x 85 mm	200 x 150 x 85 mm
• Additional Features	Safety circuit and communication interface	Safety circuit and communication interface



## Test and Evaluate



The 3m.i.k.r.o.n.<sup>TM</sup> evaluation kits are ready-to-use and straightforward laboratory systems for first feasibility studies in research environment. The evaluation kits are available with three different kind of laser sources (see front page), shortens the development time, enables flexibility and a fast demonstration of feasibility. The test systems are delivered with your requested laser source, a laser control system and a cooling system for laboratory use only.

Please contact us for more information on rental or purchase conditions: [3um@pantec.com](mailto:3um@pantec.com)

## 3m.i.k.r.o.n.<sup>TM</sup> Applications

Medical	Industrial
<ul style="list-style-type: none"> <li>• Aesthetics / Dermatology</li> <li>• Dentistry</li> <li>• ENT</li> <li>• Lithotripsy</li> <li>• Minimally-Invasive Surgery</li> <li>• Orthopedics</li> <li>• etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Material Processing (Drilling, Cutting, Melting, Welding, Evaporation)</li> <li>• Analytics</li> <li>• Security</li> <li>• Defense</li> </ul>

## More Services



Customized laser sources  
Optical and mechanical design  
Contract development and manufacturing  
Medical device consulting (IP research, Medical CE, ...)

