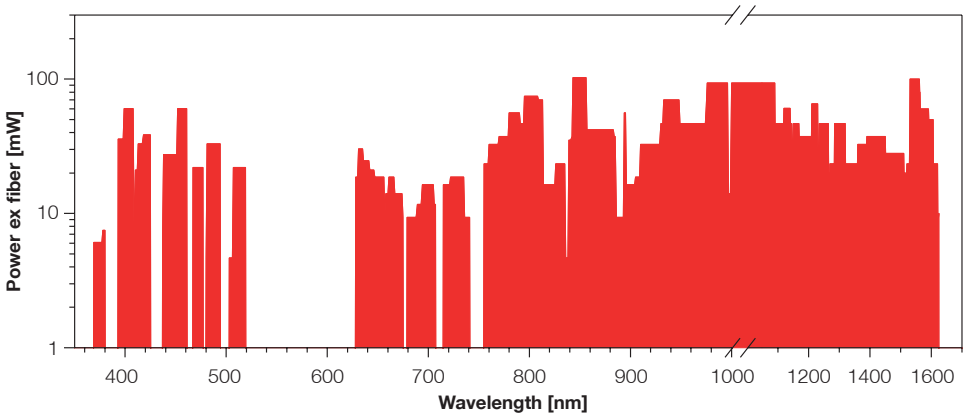
MDL pro

Tunable ECDLs for rack integration

The MDL pro combines up to four narrow-linewidth tunable diode lasers in one compact sub-rack. This solves many problems of modern atomic optics: It simplifies complex operations because all integrated lasers are controlled using only one unified interface. Furthermore, it clears optical tables and stows away the lasers in a 19'' standard subrack. This enables researchers to focus on their experiment instead of the laser system. The MDL pro is also transportable which fulfills the need of next-generation AMO systems and supports further compactification and mobilization of state-of-the-art lab-based experiments.

The MDL pro is a 2U 19'' rack element that integrates up to four tunable single-mode laser modules at wavelengths between 369 and 1625 nm. They achieve the ultimate performance of TOPTICA's established DL pro or DFB pro series including an unprecedented passive stability, unique locking solutions and narrow linewidth. Each laser is fiber-coupled independently to allow for flexible integration into existing setups. A drawer slide design enables quick access and easy service.

The laser modules of the MDL pro are controlled with TOPTICA's digital laser controller DLC pro. With a touch screen, knobs and buttons this 3U laser controller enables a unique user convenience, combined with a low-noise operation and intelligent locking functions due to its digital architecture. It also enables a remote control of the integrated laser modules.



Applications

- Quantum Computing
- Optical Clocks
- Laser Cooling of Atoms & Ions
- Transportable AMO Systems

Key Features

- For T-RACK or 19'' Standard Rack
- Narrow Linewidth
- Tunable & Frequency Lock
- Light Provided by Single Mode PM Fibers
- Digital Control DLC pro for Best Performance
- Remote Control via Ethernet
- Python support: www.toptica.com/laser-sdk
- More information: www.toptica.com/MDL

TOPTICA PHOTONICS

MDL pro

Class 3B Laser Product EN 60825-1:2014.
Visible and invisible laser radiation. Avoid direct exposure to beam.

TopSeller: Pre-configured Systems

	DLC MDL pro Ca^+				DLC MDL pro Yb^+			
Application	Ion cooling	1st ionization step	Repump A	Repump B	Ion cooling	1st ionization step	Repump A	Repump B
Wavelength (nm)	396.959	422.792	854.444	866.452	369.524	398.912	935.186	760.073
Power ex fiber (mW)	35	38	60	8	7	11	8	17
Linewidth (kHz at 5 µs)	150	150	3000	3000	150	150	3000	3000

Each TopSeller includes 2 DL pro HP lasers, 2 DFB pro lasers (repumps) and 2 DLC pro digital laser controllers.

Configurable Systems

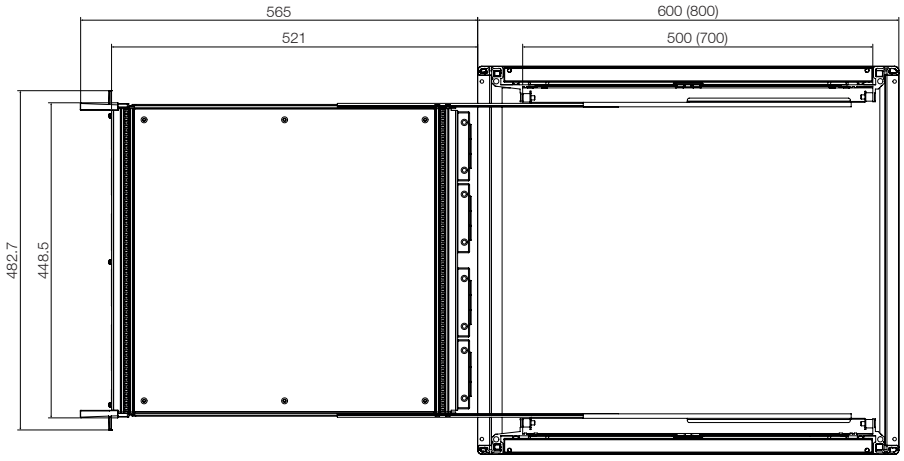
Pre-configured TopSeller Laser Modules*

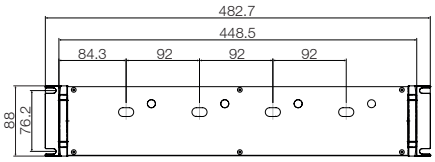
	HP 369	HP 397	HP 399	HP 420	HP 461	633	HP 637	670	780	850
Typical applications	Yb ion cooling	Ca ion cooling	Yb cooling	Ca cooling, Sr ion cooling, Rb Rydberg	Sr cooling, Cs Rydberg	HeNe laser wavelength	NV center, Yb ion clear out laser	Li cooling	Rb cooling, K cooling	Cs cooling, Ca ion repump
Wavelength interval (nm)	369.2-370.2	396.5-398.5	398.5-401	420-423	457-461	631-635	635-639	660-673	765-805	840-875
Power ex fiber (mW)	7	35	11	38	90	17	24	13	55	38
Linewidth (kHz at 5 µs)	150	150	150	150	150	200	500	200	50	100

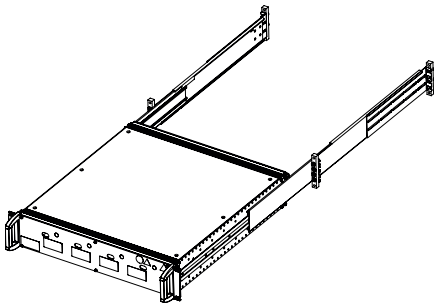
Configurable Laser Modules*

	Based on **DL pro**	Based on **DL pro HP**	Based on **DFB pro**
Wavelength interval (nm)	369..1625	369..641	633..1625
Power ex fiber (mW)	6..160	7..60	1..80
Linewidth (kHz at 5 µs)	50..300	150..500	500..3000

*Free combination of up to 4 laser modules. Includes a DLC pro; if 3 or 4 laser modules are configured a second DLC pro is included.
Pre-configured laser modules include DL pro or DL pro HP.
For available laser diode visit www.laser-diodes.com.







All dimensions given in mm.

The drawing shows the MDL pro with the drawer mechanism extended.
The MDL pro as well as the DLC pro may be mounted in standard 19'' racks. The rack is not included in the product.
A regular 4-post rack with post separation between 500 mm and 700 mm is required. For details please contact TOPTICA.

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