



Motorized laser power attenuators LPA

Main features

- Robust design
- Compatible with high optical powers
- Adjustable polarizer angle ± 2 deg
- Large clear aperture
- External controller included
- User-friendly software
- 175,543 steps in full rotation
- $\pm 0,05$ % laser power accuracy
- Fast adjustment time

Application examples

- Laser machining
- Research
- Laser power control and attenuation

Laser power attenuator LPA is a compact motorized device for laser power control. The LPA is produced in the UV, visible and NIR spectral ranges, from 250 nm to 2000 nm. This device is combined with the unique mechanical design which ensures repeatability and high stability of performance. All optical components of the LPA are made for high LIDT and provide a stable and reliable performance even when using them with high power lasers in industrial applications. A secondary laser beam from the laser power attenuator unit can be rejected to an external beam dump. The beam dump is used for avoiding any thermal effects or stress in the housing of the LPA device.

Standard specifications

MOTORIZED LASER POWER ATTENUATOR SPECIFICATIONS	
Input and output clear aperture	18 mm
Dimensions (H x W x L)	58 x 36 x 74,5 mm 58 x 51,5 x 74,5 mm with beam dump
Control interface	USB and RS232
Controller	External

*Custom design available

Standard products

ITEM MODEL	ATTENUATION RANGE	LIDT	WAVELENGTH	SKU
LPA	0,5 - 95 %	2 J/cm ² (10 ns @ 266 nm)	257 nm	9326
			266 nm	9327
	0,2 - 96 %	3 J/cm ² (10 ns @ 355nm)	343 nm	9264
			355 nm	9263
	0,1 - 98 %	5 J/cm ² (10 ns @ 532 nm)	515 nm	9262
			532 nm	9260
		10 J/cm ² (10 ns @ 1064 nm)	1030 nm	9259
			1064 nm	9258

Accessories for laser power attenuators LPA

RECOMMENDED ACCESSORY	FOR BEAM HEIGHT OF	SKU
Post mounting set	50 mm or 76 mm (2" or 3")	9343
Post mounting set	73 - 125 mm (2,9" - 5")	9344
Dedicated beam dump <6W with coated protective window		9345
Separated beam dump <30W		10141
Separated beam dump <60W		35434
RS232 cable 1,8 m		29317
RS232 cable 5 m		29318
RS232 cable 10 m		29319
DIN35 rail adapter		16919



Advanced motorized laser power attenuators LPA-A

Main features

- Integrated controller
- Absolute encoder - no homing required
- High accuracy - $\pm 0,004$ deg (less than $\pm 0,01$ % of laser power)
- Resolution - 0,002 deg, 7,4 arcsec, 0,035 mrad
- Fast adjustment - less than 0,2 sec (min to max)
- High damage threshold: up to $10\text{J}/\text{cm}^2$ (10 ns @ 1064 nm)
- Adjustable polarizer angle

Application examples

- Precise laser micromachining
- Laser power control and attenuation
- Research

Advanced laser power attenuator LPA-A is a compact motorized device for laser power control with an integrated controller and absolute encoder. The LPA-A is produced in the UV, visible and NIR spectral ranges, from 250 nm to 2000 nm. This device is combined with the unique mechanical design which ensures repeatability and high stability of performance. All optical components of the LPA-A are made for high LIDT and provide a stable and reliable performance even when using them with high power lasers in industrial applications. A secondary laser beam from the laser power attenuator unit can be rejected to an external beam dump. The beam dump is used for avoiding any thermal effects or stress in the housing of the LPA-A device.

Standard specifications

ADVANCED VARIABLE MOTORIZED LASER POWER ATTENUATOR SPECIFICATIONS	
Input and output clear aperture	15 mm
Controller	Integrated
Dimensions (H x W x L)	86 x 47 x 58 mm
Control interface	USB or RS232

Standard products

ITEM MODEL	ATTENUATION RANGE	LIDT	WAVELENGTH	SKU
LPA-Av2	0,5 - 95 %	2 J/cm^2 (10 ns @ 266 nm)	257 nm	11809
		5 J/cm^2 (10 ns @ 532 nm)	266 nm	11810
	0,2 - 96 %	3 J/cm^2 (10 ns @ 355nm)	515-1030 nm	14898
		5 J/cm^2 (10 ns @ 532 nm)	343 nm	11808
	0,1 - 98 %	5 J/cm^2 (10 ns @ 532 nm)	355 nm	11805
			515 nm	11807
		10 J/cm^2 (10 ns @ 1064 nm)	532 nm	11806
			1030 nm	11804
			1064 nm	11708

Accessories for laser power attenuators LPA-A

MOUNTING OPTION	FOR BEAM HEIGHT OF	SKU
Post mounting set	76,2 - 100 mm (3" - 4")	9346
Post mounting set	57 - 65 mm (2,2" - 2,6")	9347
Dedicated beam dump with protective window	-	9345
Separated beam dump <30W		10141
Separated beam dump <60W		35434
RS232 cable 1,8 m		29317
RS232 cable 5 m		29318
RS232 cable 10 m		29319
DIN35 rail adapter		16919



Manual laser power attenuators LPA-M

Main features

- Industrial robust design
- Wide wavelength adoption 240 nm - 2 μ m
- Cost effective

Application examples

- Laser micromachining
- Laser power attenuation
- Research

Manual laser power attenuator LPA-M is a mechanically operated device used for precise laser power control. The LPA-M is used in the UV, visible, and NIR spectral ranges, from 240 nm to 2000 nm. All optical elements of these laser power attenuators are made for high LIDT and provide a stable and reliable performance even when using them with high power lasers in industrial applications.

What's in the box?

- Manual laser power attenuator
- Software
- Power supply DC 12V
- USB (1,5 m) cable

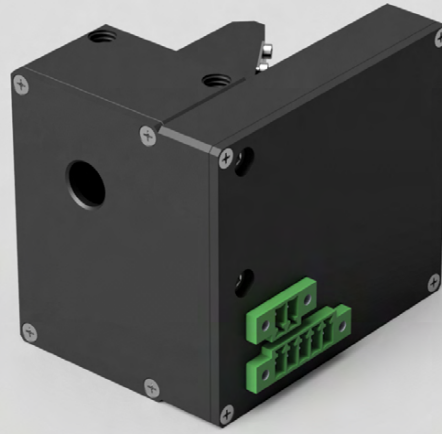
Standard specifications

VARIABLE MANUAL LASER POWER ATTENUATOR SPECIFICATIONS	
Adjustment	Manual
Input and output clear aperture	8 mm
Beam dump dissipation	<6W
Dimensions (H x W x L)	57 x 72 x 105 mm

*Custom design available

Standard products

MODEL	LIDT	WAVELENGTH	SKU	
		350-2300 nm	18783	
0,5-95 %	2 J/cm ² (10 ns @ 266 nm)	257 nm	7896	
		266 nm	7887	
0,2-96 %	3 J/cm ² (10 ns @ 355nm)	343 nm	7885	
		355 nm	7886	
		515 nm	7673	
0,1-98 %	5 J/cm ² (10 ns @ 532 nm)	532 nm	7672	
		10 J/cm ² (10 ns @ 1064 nm)	1030 nm	7671
			1064 nm	7670



OEM laser power attenuator LPA-OEM

Main features

- Compact, cost-effective design
- Detachable controller for better integration
- 175,543 μ steps in full rotation
- ± 10 μ steps accuracy ($\pm 0,02$ deg, less than $\pm 0,05$ % of laser power)
- Fast adjustment - less than 0,2 sec (min to max)
- High damage threshold up to 10 J/cm² (10 ns @ 1064 nm)
- Adjustable polariser angle for highest contrast

Application examples

- Precise laser micromachining
- Laser power control and attenuation
- Research
- Laser integration

OEM Laser power attenuator (LPA-OEM) is a compact, cost-effective motorised laser power control unit designed for integration. The LPA-OEM is produced in the UV, visible and NIR spectral ranges, from 250 nm to 2000 nm. This device is combined with the unique mechanical design which ensures repeatability and high stability of performance. All optical components of the LPA are made for high LIDT and provide stable and reliable performance even using them with high power lasers in industrial applications.

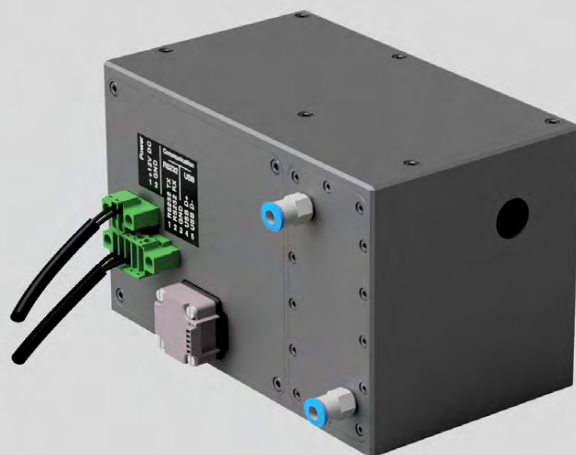
Standard specifications

LASER POWER ATTENUATOR LPA-OEM SPECIFICATIONS	
Input and output clear aperture	$\varnothing 8$ mm
Power attenuation range	<0,1% to >98%
LIDT coating	>10 J/cm ² (10 ns @ 1064 nm)
Close to open time	<0,2 sec
Resolution	175,543 μ steps in full rotation 21,943 μ steps in min/max rotation (0,002 deg, 7,2 arcsec, 0,035 mrad)
Accuracy	± 10 μ steps ($\pm 0,02$ deg, less than $\pm 0,035$ %)
Dimensions (H x W x L)	58 x 36 x 57 mm LPA-OEM 58 x 50 x 67 mm LPA-OEM with beam controller 58 x 67 x 67 mm detached controller

*Custom design available

Standard products

ITEM MODEL	ATTENUATION RANGE	LIDT (COATING)	DESIGN WAVELENGTH	SKU
LPA-OEM	0,5 - 95%	2 J/cm ² (10 ns @ 266 nm)	257 nm	20051
	0,5 - 95%	2 J/cm ² (10 ns @ 266 nm)	266 nm	20052
	0,2 - 96%	3 J/cm ² (10 ns @ 355 nm)	343 nm	20053
	0,2 - 96%	3 J/cm ² (10 ns @ 355 nm)	355 nm	20054
	0,1 - 98%	5 J/cm ² (10 ns @ 532 nm)	515 nm	20055
	0,1 - 98%	5 J/cm ² (10 ns @ 532 nm)	532 nm	20056
	0,5 - 95%	5 J/cm ² (10 ns @ 532 nm)	515+1030 nm	20059
	0,1 - 98%	10 J/cm ² (10 ns @ 1064 nm)	1030 nm	20057
	0,1 - 98%	10 J/cm ² (10 ns @ 1064 nm)	1064 nm	20058



Unpolarized beam motorized laser power attenuators LPA-U

Main features

- Designed for unpolarised laser beam
- Compatible with high power regimes
- Beam offset compensated
- Integrated controller
- Absolute position encoder - no homing required
- High accuracy $\pm 0,005$ deg
- Robust design with water-cooling
- Clear aperture - $\phi 12$ mm
- Fast adjustment - less than 0,5 sec (min to max)
- High damage threshold: up to $10\text{J}/\text{cm}^2$ (10 ns @ 1064 nm)

Application examples

- Precise laser micromachining
- Laser power stabilization
- Research

Advanced motorised laser power attenuator LPA-U is a unique device designed for unpolarised laser power control with integrated controller and absolute position encoder.

All optical components of the LPA-U are made for high LIDT and provide stable and reliable performance even using them with high power lasers in industrial applications.

A secondary laser beam from laser power attenuator unit is rejected to an internal beam dump. Water and air-cooling is used for avoiding any thermal effects or stress in the housing of the LPA-U device.

Standard specifications

UNPOLARIZED BEAM MOTORIZED LASER POWER ATTENUATOR LPA-U SPECIFICATIONS

Input and output clear aperture	12 mm
Controller	Integrated
Dimensions (H x W x L)	85 x 115 x 135 mm
Control interface	USB or RS232

Standard products

ITEM MODEL	ATTENUATION RANGE	DIMENSIONS (H x W x L)	DESIGN WAVELENGTH	SKU
LPA-U	2 - 95%	85 x 93,5 x 135 mm	1070 nm	21710


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