Compact motorized laser beam expanders MEX-V2

Main features

- Highest beam pointing stability (< 0,1 mrad)
- All-in-one design with integrated controller
- Two lens simultaneous SMART movement assuring no misfocus
- Absolute encoder (both lenses)
- Adjustment time <0,7 sec (all magnifications)
- Fused silica optical elements
- No homing after switching on/off
- Diffraction limited performance for all magnifications
- Remotely changing focused beam spot size and its position on Z axis

What's new?

- 30% faster and more stable lens movement (<0,7 sec)
- Optimized for 24/7 usage
- Improved pointing stability <0,1 mrad or <0,3 mrad
- Redesigned Controller with Reverse polarity and Overcurrent protection

Application examples

- Industrial laser micromachining 24/7
- Life sciences
- Research

Motorised laser beam expanders MEX-V2 series are used to increase the laser beam diameter and adjust divergence. Standard or custom-made beam expanders feature a unique mechanical closed-loop sliding-lens design ensuring high pointing stability and minimal dimensions. Improved lens movement speed and pointing stability ensure better control quality. These variable magnification (zoom) beam expanders and reducers are designed for the required wavelength and each type of our beam expanders has motorized divergence adjustability.

What's in the box?

- Motorised laser beam expander MEX-V2
- USB key with software and manual
- Power supply DC 12V
- USB (1,5 m) cable

Standard specifications

MOTORIZED LASER BEAM EXPANDER SPECIFICATIONS		
OPTICAL	Magnification ranges	MEX13 - 1,0x-3,0x; MEX18 - 1,0x-8,0x
	Clear input aperture	11,5 mm
	Clear output aperture	MEX13 - ø23mm; MEX18 - ø38mm; MEX18-ACH- ø23mm
	Optical element number	3 (MEX13, MEX18), 4 (MEX18-ACH)
	LIDT coating	>10 [J/cm²](10 ns @ 1064nm)
	Pointing stability during lens movement	
	Adjustment time MIN to MAX magnification and divergence	
	Available coatings	1064 nm, 1030 nm, 532 nm, 515 nm, 355 nm, 343 nm, custom
MECHANICAL	MEX13 mechanical dimensions	140x 45 x 45 mm
	MEX18 mechanical dimensions	237 x 45 x 45 mm
	MEX18-ACH mechanical dimensions	226 x 45 x 45 mm
	Housing material	Anodized aluminium
Electronic	Communication	Using ASCII commands described in manual
	Software interface	BDS software
	Output voltage	DC 12 V
	Control interface	USB, RS232, Ethernet (using an additional adapter)
	Operating temperature	+10°C ... +40 °C
	Mounting holes	M4 on the bottom side

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Standard products

ITEM MODEL	EXPANSION	CLEAR INPUT APERTURE	CLEAR OUTPUT APERTURE	RECOMMENDED MAX INPUT BEAM DIAMETER (1/E2)	DIMENSIONS (H X W X L)	DESIGN WAVELENGTH	POINTING STABILITY	SKU
MEX13	1.0x - 3.0x continuous	11,5 mm	23 mm	⌀5 mm	45 x 45 x 140 mm	1030-1064 nm	<0,3 mrad	29283
						515-532 nm		29284
						343-355 nm		29285
						1030-1064 + 515-532 nm		29286
						515-532 + 343-355 nm		29287
						760-840 nm		31274
						390-410 nm		31275
						400 + 800 nm		31276
						1030-1064 nm	<0,1 mrad	29288
						515-532 nm		29289
						343-355 nm		29290
						1030-1064 + 515-532 nm		29291
						515-532 + 343-355 nm		29292
						760-840 nm		31277
						390-410 nm		31278
						400 + 800 nm		31279
MEX18	1.0x - 8.0x continuous	11,5 mm	38 mm	⌀3 mm	45 x 45 x 237 mm	1030-1064 nm	<0,3 mrad	29293
						515-532 nm		29294
						343-355 nm		29295
						1030-1064 + 515-532 nm		29297
						515-532 + 343-355 nm		29298
						760-840 nm		31280
						390-410 nm		31281
						400 + 800 nm		31282
						1030-1064 nm	<0,1 mrad	31284
						515-532 nm		31285
						343-355 nm		31286
						1030-1064 + 515-532 nm		31287
						515-532 + 343-355 nm		31288
						760-840 nm		31289
						390-410 nm		31290
						400 + 800 nm		31291
MEX18-ACH	1.0x - 8.0x continuous	11,5 mm	38 mm	⌀2 mm	45 x 45 x 237 mm	350-800 nm	<0,3 mrad	31283

Accessories for motorized expanders compatable with MEX, MEX-HP devices

ITEM MODEL	APPLICATION	SKU
M-STAGE	MEX adjustment	12571
M-STAGE-W	MEX-HP adjustment	29135
CP-MEX	MEX device cooling	
CP-MEXHP	MEXHP device cooling	

Available control cables compatable with MEX13, MEX18, MEX18-ACH devices

CABLE TYPE	CABLE LENGTH	SKU
RS232-MEX-V2	1,8 m	29317
RS232-MEX-V2	5 m	29318
RS232-MEX-V2	10 m	29319
USB-MEX-V2	3 m	29320

High-power motorized beam expanders MEX-HP-V2

Main features

- High power optical design (up to 200 W @ 1030 nm, 500 fs, 1 Mhz)
- No internal reflections on optical elements
- All-in-one design with an integrated controller
- Two lens simultaneous movement assuring no misfocus
- Absolute encoder (both lenses)
- Fused silica optical elements
- Adjustment time <0,7 sec (all magnifications)
- Diffraction limited performance for all magnifications
- Remotely changing focused beam spot size and its position on Z axis

What's new?

- 30% faster and more stable lens movement (<0,7 sec)
- Optimized for 24/7 usage
- Improved pointing stability <0,1 mrad or <0,3 mrad
- Redesigned Controller with Reverse polarity and Overcurrent protection

Application examples

- Industrial laser micromachining 24/7
- Precise laser micromachining
- High power laser beam management
- Research

High power motorised laser beam expanders MEX-HP-V2 series are used to increase the laser beam diameter and adjust divergence. The optical design is dedicated for high power ultrafast femtosecond laser applications. Improved lens movement speed and pointing stability ensure better control quality.
These magnification (zoom) beam expanders are designed for the required wavelength and each type of our beam expanders has motorized divergence adjustability. Standard or custom-made beam expanders feature a unique mechanical closed-loop sliding-lens design ensuring high pointing stability and minimal dimensions.

What's in the box?

- Motorised laser beam expander MEX-HP
- USB key with software and manual
- Power supply DC 12V
- USB (1,5 m) cable

Standard specifications

HIGH POWER MOTORIZED LASER BEAM EXPANDER SPECIFICATIONS	
Adjustment	Motorized
Divergence	Adjustable
Lens material	UVFS
Transmission	>97% (MEX13-HP), >95% (MEX15-HP)
Control interface	USB or RS232
Controller	Integrated
Housing material	Black anodized aluminum
Max. laser power	Up to 200 W @ 1030 nm, 500 fs, 1 MHz
LIDT	10 J/cm² (10 ns @ 1064 nm)

*Custom design available

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Standard products

ITEM MODEL	EXPANSION	CLEAR INPUT APERTURE	CLEAR OUTPUT APERTURE	RECOMMENDED MAX INPUT BEAM DIAMETER (1/E2)	DIMENSIONS (H X W X L)	DESIGN WAVELENGTH	POINTING STABILITY	SKU
MEX13-HP-V2	1.0x - 3.0x continuous	11,5 mm	28 mm	ø7 mm (1x) - ø6 mm (3x)	60 x 60 x 215 mm	1030-1064 nm	<0,5 mrad	31007
						515-532 nm		31011
						343-355 nm		31015
						1030-1064 + 515-532 nm		31009
						515-532 + 343-355 nm		31013
						257-266 nm		31258
						760-840 nm		31259
						390-410 nm		31260
						400 + 800 nm		31261
						1030-1064 nm	<0,2 mrad	31006
						515-532 nm		31010
						343-355 nm		31014
						1030-1064 + 515-532 nm		31008
						515-532 + 343-355 nm		31012
						257-266 nm		31262
						760-840 nm		31263
						390-410 nm		31264
						400 + 800 nm		31265
MEX15-HP-V2	1.0x - 5.0x continuous	11,5 mm	24 mm	ø7 mm (1x) - ø3,3 mm (5x)	65 x 65 x 250 mm	1030-1064 nm	<0,5 mrad	31017
						515-532 nm		31021
						343-355 nm		31025
						1030-1064 + 515-532 nm		31019
						515-532 + 343-355 nm		31023
						257-266 nm		31266
						760-840 nm		31267
						390-410 nm		31268
						400 + 800 nm		31269
						1030-1064 nm	<0,2 mrad	31016
						515-532 nm		31020
						343-355 nm		31024
						1030-1064 + 515-532 nm		31018
						515-532 + 343-355 nm		31022
						257-266 nm		31270
						760-840 nm		31271
						390-410 nm		31272
						400 + 800 nm		31273

Cables compatable with MEX-HP

ADDITIONAL CABLES	CABLE LENGTH	SKU
RS232-MEX13-HP RS232-MEX15-HP	1,8 m	38028 38027
RS232-MEX13-HP RS232-MEX15-HP	3 m	38032 38033
RS232-MEX13-HP RS232-MEX15-HP	5 m	38028 38029
RS232-MEX13-HP RS232-MEX15-HP	10 m	38030 38031

Mounting options for high-power motorized beam expanders MEX-HP

MOUNTING OPTION	FOR BEAM HEIGHT OF	SKU
Manual 4 axis translation stage M-STAGE-W	27 mm (±2 mm travel)	29135