Compact motorized laser beam expanders MEX

Main features

- Highest beam pointing stability (< 0,3 mrad)
- All-in-one design with integrated controller
- Two lens simultaneous SMART movement assuring no misfocus
- Absolute encoder (both lenses)
- Adjustment time <1 sec (all magnifications)
- Fused silica optical elements
- No homing after switching on/off
- Diffraction limited performance for all magnifications

Application examples

- Industrial laser micromachining
- Life sciences
- Research

Motorized laser beam expanders MEX 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. These variable magnification (zoom) beam expanders and reducers are designed for required wavelength and each type of our beam expanders have motorized divergence adjustability.

Standard specifications

MOTORIZED BEAM EXPANDERS SPECIFICATIONS	
Adjustment	Motorized
Divergence	Adjustable
Clear input aperture	11,5 mm
Transmission	>97%
Optical element number	3 (MEX13, MEX18), 4 (MEX18-ACH)
Lens material	UVFS
Control interface	USB or RS232
Housing material	Black anodized aluminum
LIDT	3 J/cm² (10 ns @ 355 nm) 5 J/cm² (10 ns @ 532 nm) 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	1.0x - 3.0x continuous	11,5 mm	23 mm	ø7 mm (1x) - ø6 mm (3x)	45 x 45 x 140 mm	1030-1064 nm	<0,5 mrad	6825
						515-532 nm		6833
						343-355 nm		6838
						1030-1064 + 515-532 nm		6836
						515-532 + 343-355 nm		6131
						760-840 nm		31223
						390-410 nm		31224
						400 + 800 nm		31225
						1030-1064 nm	<0,2 mrad	6855
						515-532 nm		6856
						343-355 nm		6857
						1030-1064 + 515-532 nm		6927
						515-532 + 343-355 nm		6928
						760-840 nm		31226
						390-410 nm		31227
						400 + 800 nm		31228
MEX18	1.0x - 8.0x continuous	11,5 mm	38 mm	ø7 mm (1x) - ø5mm (5x) mm - ø3 mm (8x)	45 x 45 x 237 mm	1030-1064 nm	<0,5 mrad	6841
						515-532 nm		6842
						343-355 nm		6121
						1030-1064 + 515-532 nm		6843
						515-532 + 343-355 nm		6844
						760-840 nm		31229
						390-410 nm		31230
						400 + 800 nm		31231
						1030-1064 nm	<0,2 mrad	31232
						515-532 nm		31233
						343-355 nm		31234
						1030-1064 + 515-532 nm		31235
						515-532 + 343-355 nm		31236
						760-840 nm		31237
						390-410 nm		31238
						400 + 800 nm		31239
MEX18-ACH	1.0x - 8.0x continuous	11,5 mm	38 mm	ø7 mm (1x) - ø5mm (5x) mm - ø3 mm (8x)	45 x 45 x 237 mm	300-750 nm	<0,5 mrad	9235

Mounting options for motorized beam expanders MEX

MOUNTING OPTION	FOR BEAM HEIGHT OF	SKU
Manual 4 axis translation stage M-STAGE	27 mm (±2 mm travel)	12571

High-power motorized beam expanders MEX-HP

Main features

- High power optical design (up to 200 W @ 1030 nm, 500 fs, 1 MHz)
- No internal reflections on optical elements
- Highest beam pointing stability < 0,2 mrad
- All-in-one design with an integrated controller
- Two lens simultaneous movement assuring no misfocus
- Absolute encoder (both lenses)
- Fused silica optical elements
- Diffraction limited performance for all magnifications

Application examples

- Precise laser micromachining
- High power laser beam management
- Research

High power motorized laser beam expanders MEX series are used to increase the laser beam diameter and adjust divergence. The optical design is dedicated for high power ultrafast femtosecond laser applications. These magnification (zoom) beam expanders are designed for required wavelength and each type of 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.

Standard specifications

HIGH POWER MOTORIZED LASER BEAM EXPANDERS 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	3 J/cm² (10 ns @ 355nm) 5 J/cm² (10 ns @ 532 nm) 10 J/cm² (10 ns @ 1064 nm)

*Custom design available

sales@optogama.com

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	1.0x - 3.0x continuous	11,5 mm	28 mm	ø7 mm (1x) - ø6 mm (3x)	60 x 60 x 207 mm	1030-1064 nm	<0,5 mrad	9238
						515-532 nm		9240
						343-355 nm		9242
						1030-1064 + 515-532 nm		9244
						515-532 + 343-355 nm		9246
						257-266 nm		31243
						760-840 nm		31240
						390-410 nm		31241
						400 + 800 nm		31242
						1030-1064 nm	<0,2 mrad	9239
						515-532 nm		9241
						343-355 nm		9243
						1030-1064 + 515-532 nm		9245
						515-532 + 343-355 nm		9247
						257-266 nm		31244
						760-840 nm		31245
						390-410 nm		31246
						400 + 800 nm		31247
MEX15-HP	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	9248
						515-532 nm		9250
						343-355 nm		9252
						1030-1064 + 515-532 nm		9254
						515-532 + 343-355 nm		9256
						257-266 nm		31251
						760-840 nm		31248
						390-410 nm		31249
						400 + 800 nm		31250
						1030-1064 nm	<0,2 mrad	22062
						515-532 nm		22063
						343-355 nm		22064
						1030-1064 + 515-532 nm		22065
						515-532 + 343-355 nm		22066
						257-266 nm		31252
						760-840 nm		31253
						390-410 nm		31254
						400 + 800 nm		31255

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

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

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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 207 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

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

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

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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-V2	1.0x - 3.0x continuous	11,5 mm	23 mm	ø7 mm (1x) - ø6 mm (3x)	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-V2	1.0x - 8.0x continuous	11,5 mm	38 mm	ø7 mm (1x) - ø5mm (5x) mm - ø3 mm (8x)	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-V2	1.0x - 8.0x continuous	11,5 mm	38 mm	ø7 mm (1x) - ø5mm (5x) mm - ø3 mm (8x)	45 x 45 x 237 mm	350-800 nm	<0,3 mrad	31283

Mounting options for motorized beam expanders MEX

MOUNTING OPTION	FOR BEAM HEIGHT OF	SKU
Manual 4 axis translation stage M-STAGE	27 mm (±2 mm travel)	12571

Vertical motorized laser beam expander MEX-V

Main features

- High power optical design (up to 200 W @ 1030 nm, 500 fs, 1 Mhz)
- No internal reflections on optical elements
- High beam pointing stability <0,2 mrad
- All-in-one design with integrated controller
- Two lens simultaneous movement assuring no misfocus
- Absolute encoder (both lenses)
- Adjustment time <4 sec (all magnifications)
- Fused silica optical elements
- Diffraction limited performance for all magnifications
- No mounting limitations

Application examples

- Precise laser micromachining
- High power laser beam management
- Research

Vertical motorized laser beam expanders MEX-V series are used to increase the laser beam diameter and adjust divergence. The optical design is dedicated for high power ultrafast femtosecond laser applications. Slower and more stable lens control combines the advantages of a high-power model with the ability to be mounted vertically for greater functionality.
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-V
- USB key with software and manual
- Power supply DC 12V
- USB (1,5 m) cable

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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
MEX15-V	1.0x - 5.0x continuous	11 mm	24 mm	⌀7 mm (1x) - ⌀3,3 mm (5x)	80 x 80 x 245 mm	1030-1064 nm	<0,5 mrad	31165
						515-532 nm		31167
						343-355 nm		31169
						1030-1064 + 515-532 nm		31166
						515-532 + 343-355 nm		31168
						257-266 nm		31257
						760-840 nm		31170
						390-410 nm		31171
						400 + 800 nm		31172
						1030-1064 nm	<0,2 mrad	31157
						515-532 nm		31159
						343-355 nm		31161
						1030-1064 + 515-532 nm		31158
						515-532 + 343-355 nm		31160
						257-266 nm		31256
						760-840 nm		31162
						390-410 nm		31163
						400 + 800 nm		31164