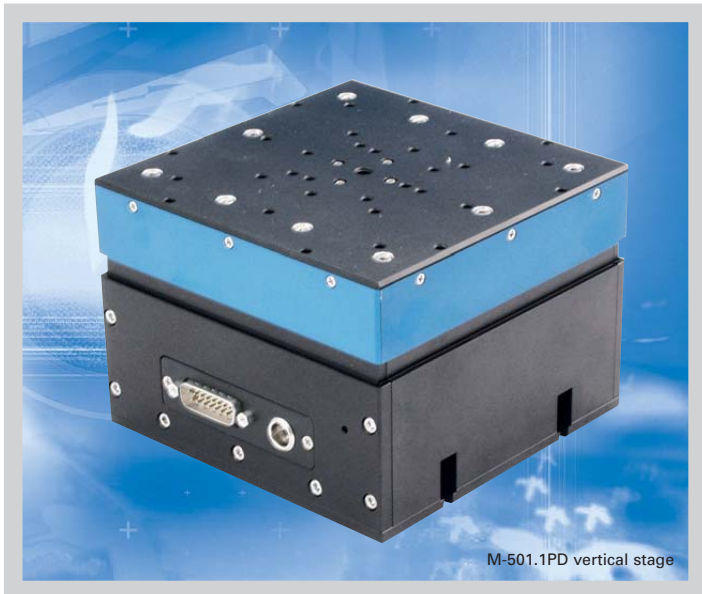


M-501

Vertical Micropositioning Stage

>> Click [http://www.pi.ws/fwd/Micropositioning for the Latest Specs on these Products](http://www.pi.ws/fwd/Micropositioning%20for%20the%20Latest%20Specs%20on%20these%20Products)



M-501.1PD vertical stage

- Travel Range 12.5 mm (1/2")
- Ultra-High-Resolution Encoder
- ActiveDrive™ Motor
- Compatible with Leading Industrial Motion Controllers
- Stress-Relieved Aluminum Stage Base for Highest Stability
- Zero-Backlash Recirculating Ballscrews
- Non-Contact Origin and Limit Switches
- >20,000 Hours MTBF

The M-501 vertical stage is the latest family member of the M-500 series of translation stages. It is ideal for forming compact XYZ combinations together with the low-profile M-511, M-521 and M-531 translation stages. M-501 vertical stages feature a precision-machined base of high-density, stress-relieved aluminum for

exceptional stability and minimum weight. Precision-ground recirculating ballscrews (more accurate than rolled ballscrews) with preloaded nuts provide low-friction, maintenance-free and backlash-free positioning.

Two DC-motor drives are currently available:

Model M-501.1PD features an ultra-high-resolution ball-screw-mounted encoder (40960 counts/rev!) and the ActiveDrive™ motor, providing superior dynamic performance with a minimum incremental motion of better than 100 nanometers (design resolution 24 nm).

The ActiveDrive™ system includes a high-efficiency PWM

servo-amplifier mounted side-by-side with the motor. This design provides several decisive advantages:

- Increased efficiency, by eliminating power losses between the amplifier and motor
- Reduced cost of ownership and improved reliability because no external driver is required
- Elimination of PWM amplifier noise radiation, because amplifier and motor are mounted together in the same electrically shielded case

Model M-501.1DG is equipped with a DC-motor/gearhead drive. A 3-watt DC motor with zero-backlash gearhead and shaft-mounted 2048 counts/rev. optical encoder are used. The gear ratio is 29.6:1, providing a minimum incremental motion of better than 100 nanometers (design resolution 5 nm).

Ordering Information

M-501.1PD
Vertical Stage, 12.5 mm, ActiveDrive™ DC Motor (Includes Power Supply for Servo Amplifier)

M-501.1DG
Vertical Stage, 12.5 mm, DC Motor / Gearhead

Ask about custom designs!

Non-Contact Limit and Origin Switches

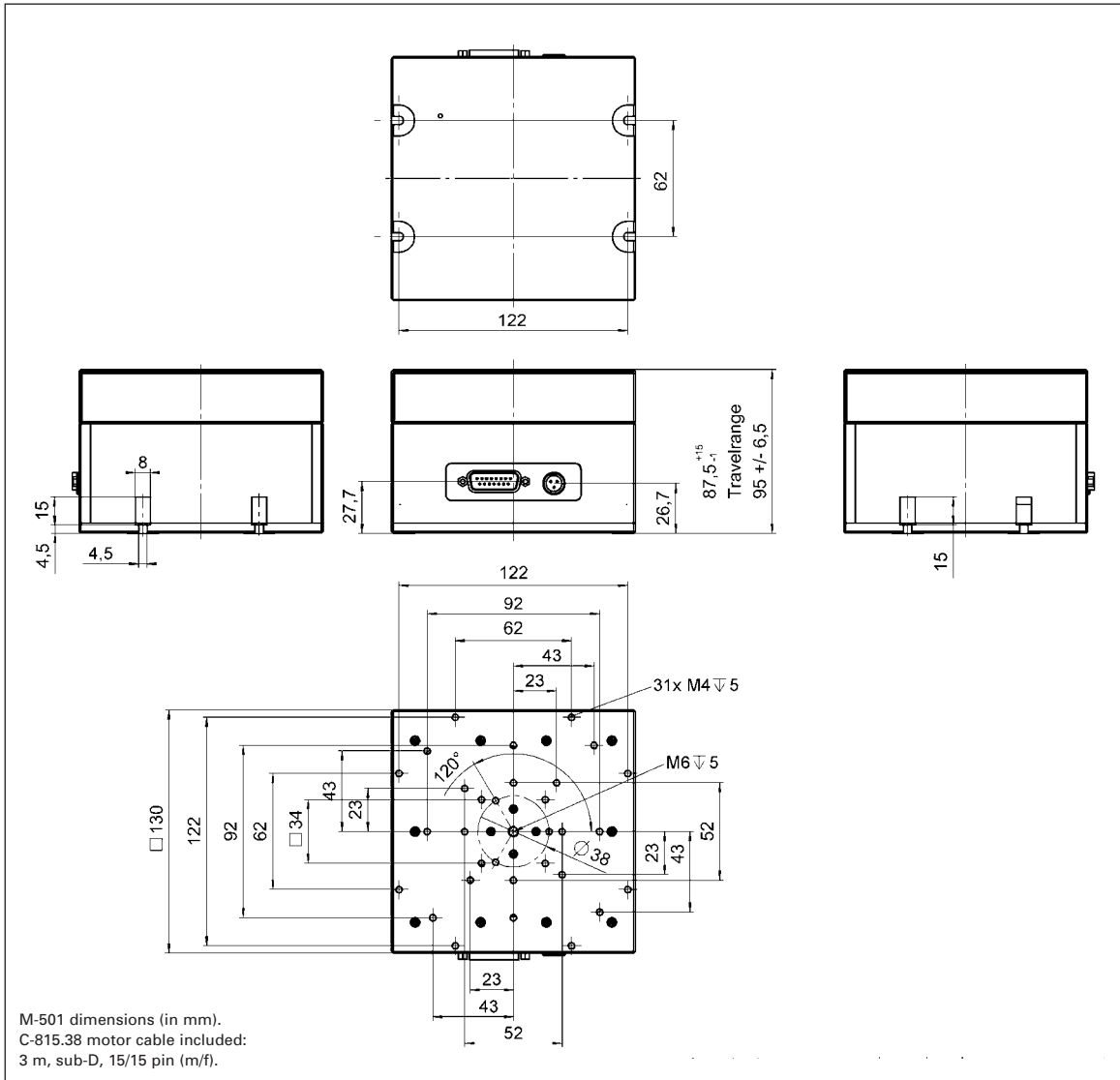
Integrated, high-precision, non-contact Hall-effect origin and limit switches protect your equipment and increase versatility in automation applications.

Notes

See "Accessories", page 7-92 ff. for adapters, brackets, etc.



XYZ combination of M-521.DD (204 mm), M-511.DD (102 mm) and M-501.1PD vertical stage



Technical Data

Models	M-501.1PD	M-501.1DG	Units	Notes see page 7-106
Travel range	12.5	12.5	mm	
Design resolution	0.024	0.005	μm	A3
Min. incremental motion	<0.1	<0.1	μm	A4
Unidirectional repeatability	0.1	0.1	μm	
Max. velocity	12	1	mm/s	
Max. load capacity	5	10	kg	B1
Max. holding force (motor off)	20	100	N	B2
Encoder resolution	40960*	2048	Counts/rev.	
Ballscrew pitch	1	1	mm/rev.	
Gear ratio	80/26 (belt drive)	80/26 (belt drive); (28/12)4 : 1 \approx 29.6:1 gearhead		
Nominal motor power	17 **	3	W	
Motor voltage	24	12	V	
Body material	Al	Al		L
Recommended motor controller	C-843, C-848, C-862	C-843, C-848, C-862		D2

* Ballscrew-mounted, ultra-high-resolution encoder;
** ActiveDrive™ (integrated PWM servo-amplifier), 24 V power supply included

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