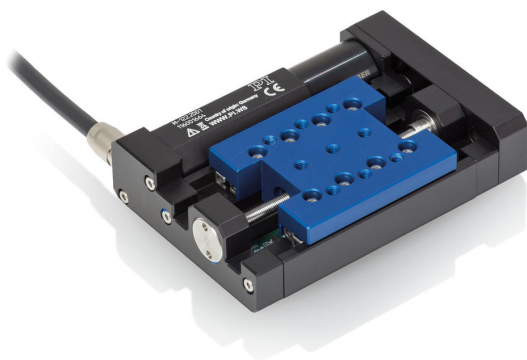


Microtranslation Stage

Compact Linear Stage with Direct Position Measuring



M-122.2DD1

- Travel range 25 mm
- Integrated linear encoder for maximum accuracy with 0.1 μm resolution
- Minimum incremental motion 0.2 μm
- Max. Velocity 20 mm/s
- Recirculating ball screw provides high velocity and long lifetime

Highly accurate position measuring with incremental linear encoder

Noncontact optical linear encoders measure the position directly at the platform with the greatest accuracy. Nonlinearity, mechanical play or elastic deformation have no influence on the measurement.

Application fields

Optical alignment. Precision automation.

Motion	Unit	Tolerance	M-122.2DD1
Active axes			X
Travel range in X	mm		25
Maximum velocity in X, unloaded	mm/s		20
Angular error around Y (pitch)	μrad	Typ.	± 150
Angular error around Z (yaw)	μrad	Typ.	± 150

Positioning	Unit	Tolerance	M-122.2DD1
Minimum incremental motion in X	μm	Typ.	0.2
Unidirectional repeatability in X	μm	Typ.	± 0.075
Bidirectional repeatability in X	μm	Max.	0.4
Backlash in X	μm	Typ.	0.2
Reference switch			Hall effect
Reference switch repeatability	μm		1
Limit switches			Hall effect
Integrated sensor			Incremental linear encoder
Sensor signal			A/B quadrature, RS-422
Sensor resolution	nm		100

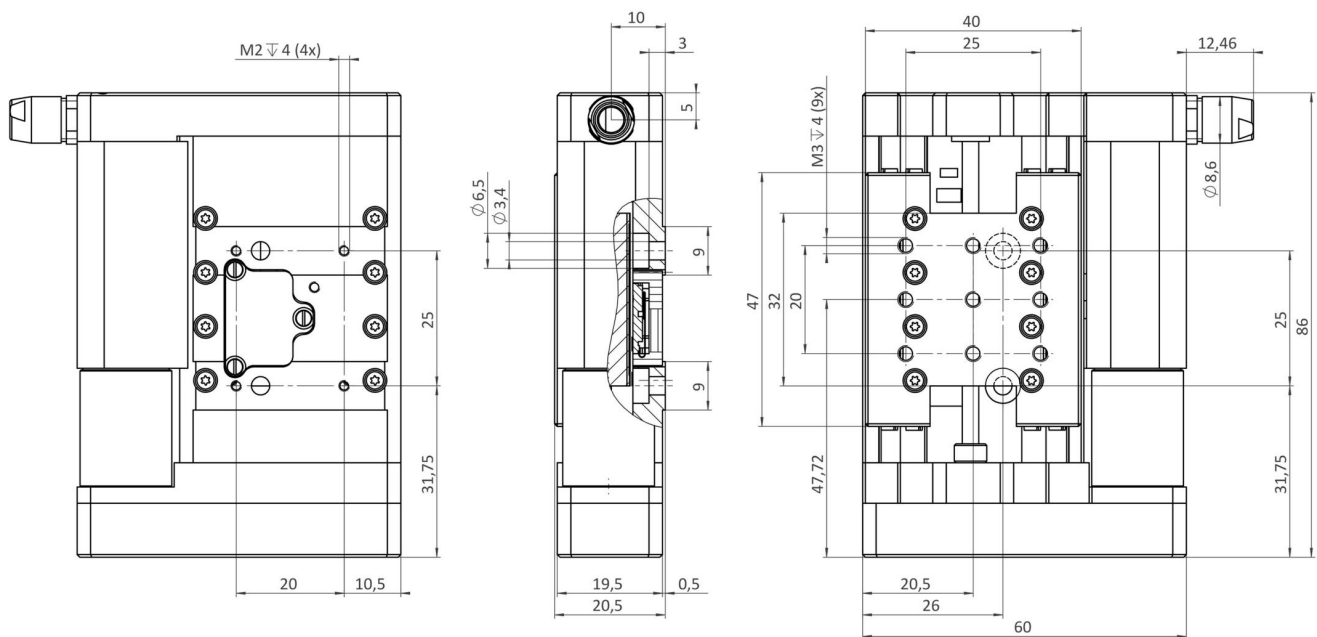
Drive Properties	Unit	Tolerance	M-122.2DD1
Drive type			DC motor
Nominal voltage	V		12
Nominal current, RMS	A	Typ.	0.188
Peak current, RMS	A	Typ.	0.45
Maximum power consumption	W		2.25
Drive force in positive direction of motion in X	N	Typ.	20
Drive force in negative direction of motion in X	N	Typ.	20
Torque constant	N·m/A	Typ.	0.0136
Time constant	ms		9
Resistance phase-phase	Ω	Typ.	13.8
Inductance phase-phase	mH		0.32
Number of pole pairs			1

Mechanical Properties	Unit	Tolerance	M-122.2DD1
Stiffness in X	N/μm		0.25
Permissible push force in Y	N	Max.	25
Permissible push force in Z	N	Max.	50
Permissible torque in θX	N·m	Max.	0.15
Permissible torque in θY	N·m	Max.	0.15
Permissible torque in θZ	N·m	Max.	0.15
Moved mass in X, unloaded	g		50
Drive screw type			Ball screw
Drive screw pitch	mm		0.5
Guide			Ball guide
Overall mass	g		220
Material			Aluminum, steel

Miscellaneous	Unit		M-122.2DD1
Operating temperature range	°C		10 to 50
Connector			D-sub 15 (m)
Cable length	m		0.5
Minimum bend radius cable, one-time bending	mm		13.80
Minimum bend radius cable, repeated bending	mm		32.20
Recommended controllers/drivers			C-863 C-884

At PI, technical data is specified at 22 ±3 °C. Unless otherwise stated, the values are for unloaded conditions. Some properties are interdependent. The designation "typ." indicates a statistical average for a property; it does not indicate a guaranteed value for every product supplied. During the final inspection of a product, only selected properties are analyzed, not all. Please note that some product characteristics may deteriorate with increasing operating time.

Drawings / Images



M-122.2DD1, dimensions in mm. Note that a comma is used in the drawing instead of a decimal point.

Order Information

M-122.2DD1

Microtranslation stage; DC motor; 25 mm travel range; 50 N load capacity; 20 mm/s maximum velocity; ball screw; incremental linear encoder, 100 nm sensor resolution, A/B quadrature, RS-422; 0.5 m cable length