

High-Load Linear Actuator

Dynamic, High-Resolution Precision Drive with DC or Stepper Motor



L-239

- High drive force up to 300 N
- Travel range 52 mm (2")
- Minimum incremental motion 0.1 μm
- Velocity to 50 mm/s
- Preloaded, low-friction ball screw

Product overview

High-resolution high-load linear actuator. Stepper motor for high torque. Highly dynamic, closed-loop DC and BLDC motors for high velocities. Robust design for industrial environments.

High-quality components

- Ground ball screw for high velocities
- Low-friction output shaft bearing can handle lateral forces to 100N
- Nonrotating tip for uniform motion prevents wobble, torque, and wear at the point of contact
- Contactless limit switches protect the mechanics, a direction-sensing reference switch simplifies automation tasks
- Optional on request and at additional charge: Increase of drive force to 1000 N.

Application fields

Research. Automation. Optical alignment.

Motion	Unit		L-239.033232	L-239.035232	L-239.50AD	L-239.50SD
Active axes			X	X	X	X
Travel range in X	mm		52	52	52	52
Maximum velocity in X, unloaded	mm/s		50	50	50	25

Positioning	Unit	Tolerance	L-239.033232	L-239.035232	L-239.50AD	L-239.50SD
Minimum incremental motion in X	μm	Typ.	0.2	0.2	0.2	0.1
Unidirectional repeatability in X	μm	Typ.	± 0.1	± 0.1	± 0.1	± 0.05
Bidirectional repeatability in X	μm	Typ.	2	2	2	2
Reference switch			Hall effect, N/C contact, 5 V, NPN	Hall effect, N/C contact, 5 V, NPN	Hall effect, N/C contact, 5 V, TTL	Hall effect, N/C contact, 5 V, NPN
Limit switches			Hall effect, N/C contact, 5 V, NPN	Hall effect, N/C contact, 5 V, NPN	Hall effect, N/C contact, 5 V, TTL	Hall effect, N/C contact, 5 V, NPN
Integrated sensor			Incremental rotary encoder	Incremental rotary encoder	Incremental rotary encoder	—
Sensor signal			A/B quadrature, RS-422	A/B quadrature, RS-422	A/B quadrature, RS-422	—
Sensor resolution	Cts./rev.		20000	20000	20000	—

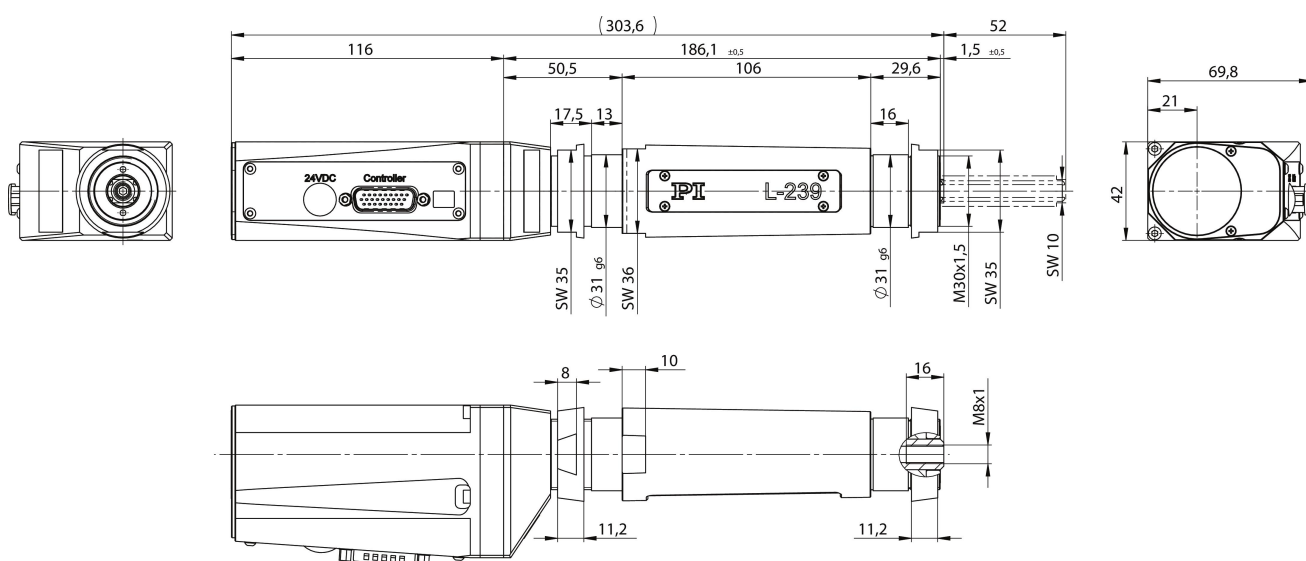
Drive properties	Unit	Tolerance	L-239.033232	L-239.035232	L-239.50AD	L-239.50SD
Drive type			DC motor	Brushless DC motor	DC motor with ActiveDrive	2-phase stepper motor
Nominal voltage	V		24	24	24	24
Motor resolution	Full steps/ rev.		—	—	—	200
Drive force in positive direction of motion in X	N	Typ.	300	300	300	300
Drive force in negative direction of motion in X	N	Typ.	300	300	300	300

Mechanical properties	Unit	Tolerance	L-239.033232	L-239.035232	L-239.50AD	L-239.50SD
Permissible push force in Y	N	Max.	10	10	10	10
Holding force in X, passive	N		40	40	40	80
Moved mass in X, unloaded	g		155	155	155	155
Drive screw type			Ball screw	Ball screw	Ball screw	Ball screw
Drive screw pitch	mm		1	1	1	1
Guide			Recirculating ball bearing guide	Recirculating ball bearing guide	Recirculating ball bearing guide	Recirculating ball bearing guide
Overall mass	g		1750	1750	1720	1650
Material			Aluminum, stainless steel	Aluminum, stainless steel	Aluminum, stainless steel	Aluminum, stainless steel

Miscellaneous	Unit		L-239.033232	L-239.035232	L-239.50AD	L-239.50SD
Operating temperature range	°C		5 to 40	5 to 40	5 to 40	5 to 40
Connector			HD D-sub 26 (m)	HD D-sub 26 (m)	D-sub 15 (m)	HD D-sub 26 (m)
Connector for supply voltage			—	—	M8 4-pole (m)	—
Recommended controllers/drivers			C-863 C-885 with C-863.20C885 C-884 Modular ACS controller	C-891 C-885 with C-891.11C885 Modular ACS controller	C-863 C-885 with C-863.20C885 C-884	C-663.12 C-885 with C-663.12C885 Modular ACS controller

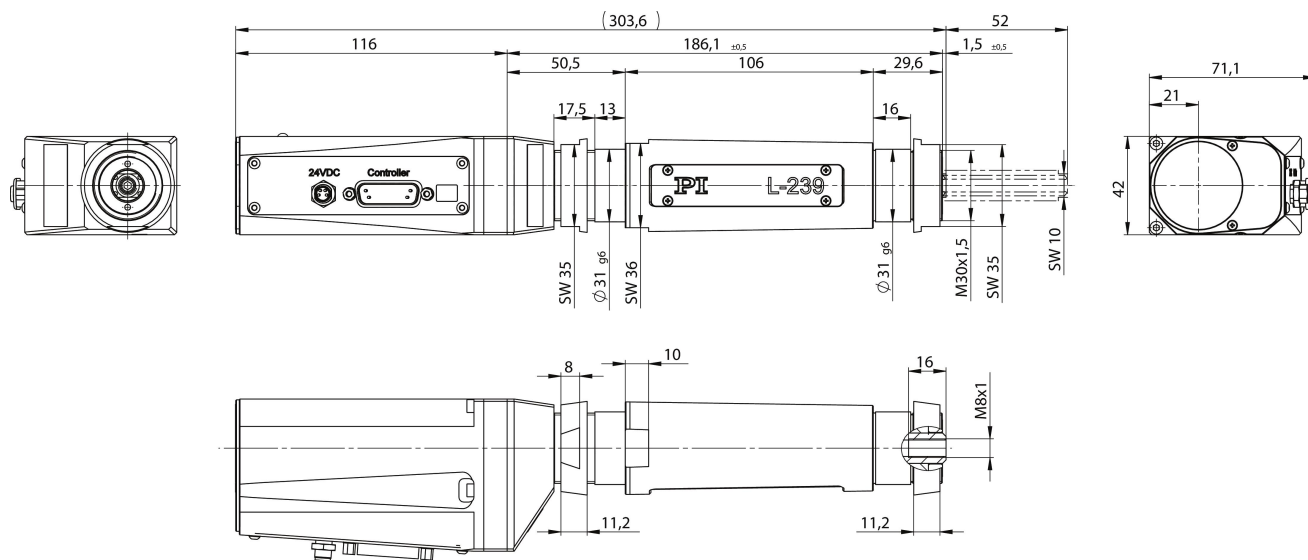
At PI, technical data is specified at 22 ±3 °C. Unless otherwise stated, the values are for unloaded conditions. Some properties are interdependent. The designation "typ." indicates a statistical average for a property; it does not indicate a guaranteed value for every product supplied. During the final 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

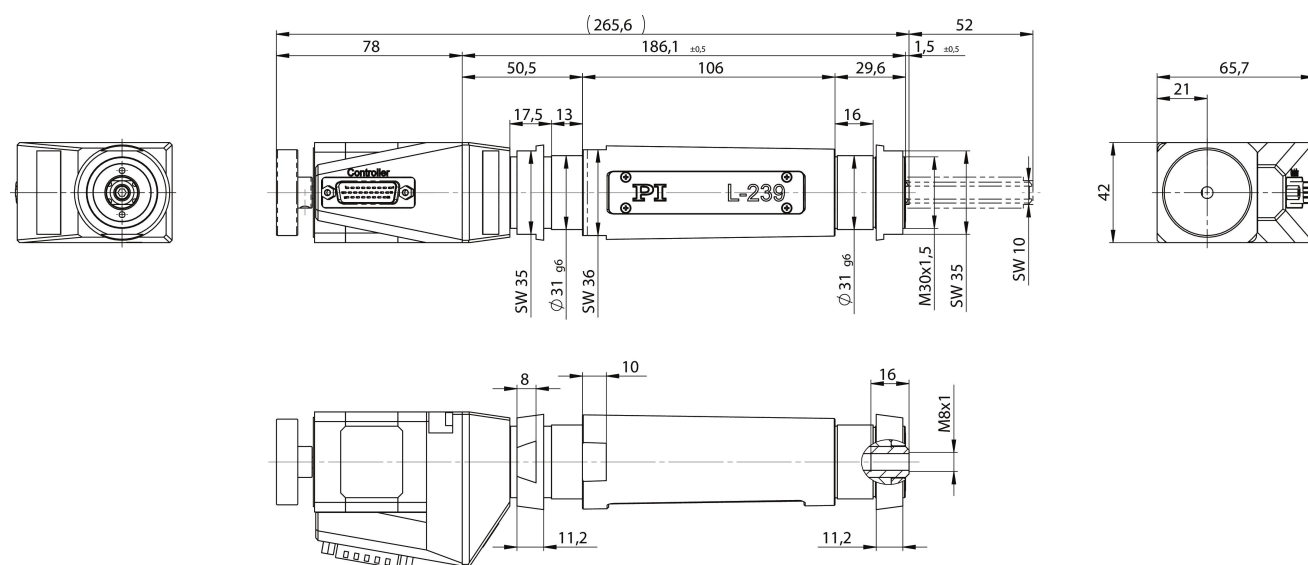


L-239.03x232, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Drawings / Images



L-239.50AD, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.



L-239.50SD, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.

Order Information

L-239.033232

High-load linear actuator; DC motor; 52 mm travel range; 300 N feed force; 50 mm/s maximum velocity; ball screw; incremental rotary encoder, 20000 counts/rev. sensor resolution, A/B quadrature, RS-422; limit switches: Hall effect, opener, 5 V, NPN

L-239.035232

High-load linear actuator; brushless DC motor; 52 mm travel range; 300 N feed force; 50 mm/s maximum velocity; ball screw; incremental rotary encoder, 20000 counts/rev. sensor resolution, A/B quadrature, RS-422; limit switches: Hall effect, opener, 5 V, NPN

L-239.50AD

High-load linear actuator; DC motor with ActiveDrive; 52 mm travel range; 300 N feed force; 50 mm/s maximum velocity; ball screw; incremental rotary encoder, 20000 counts/rev. sensor resolution, A/B quadrature, RS-422; limit switches: Hall effect, opener, 5 V, TTL

L-239.50SD

High-load linear actuator; 2-phase stepper motor; 52 mm travel range; 300 N feed force; 25 mm/s maximum velocity; ball screw; limit switches: Hall effect, opener, 5 V, NPN