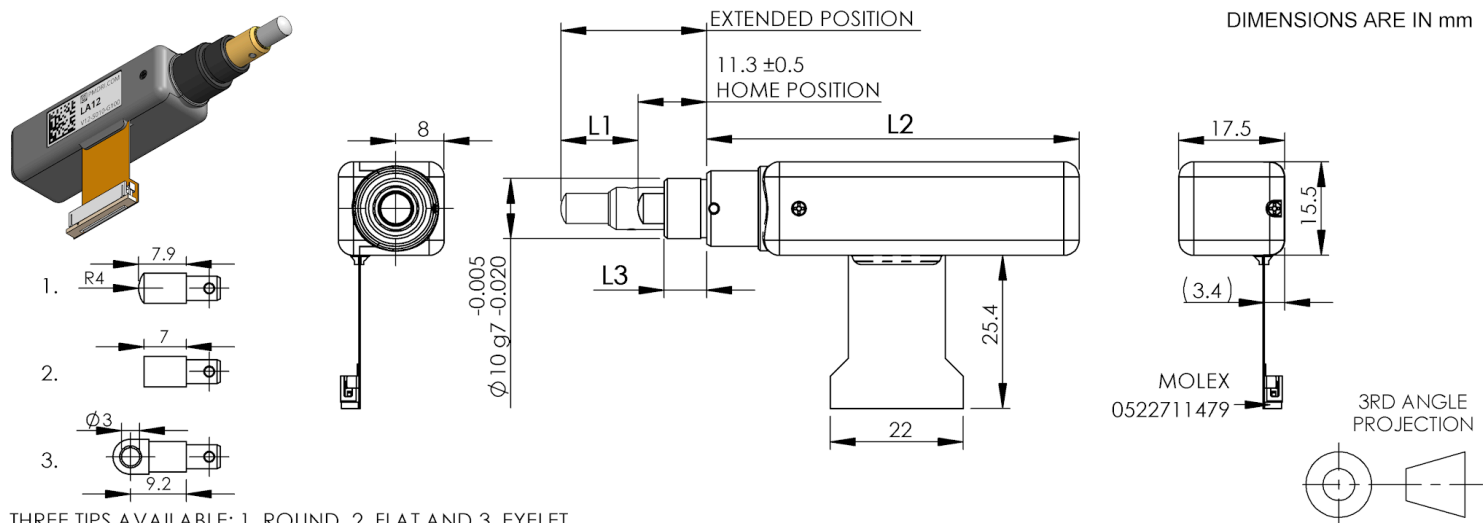


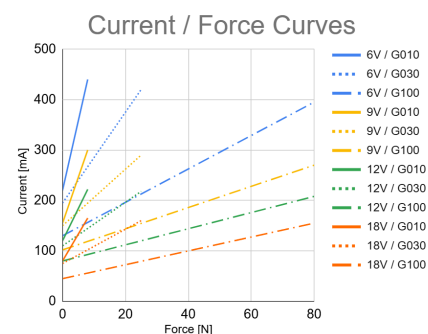
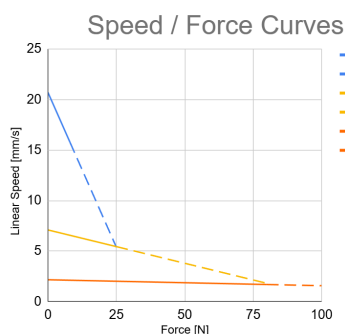
LA12 Linear Actuator Brushed (precious metal brushes)

Ø12mm motor body / integrated driver

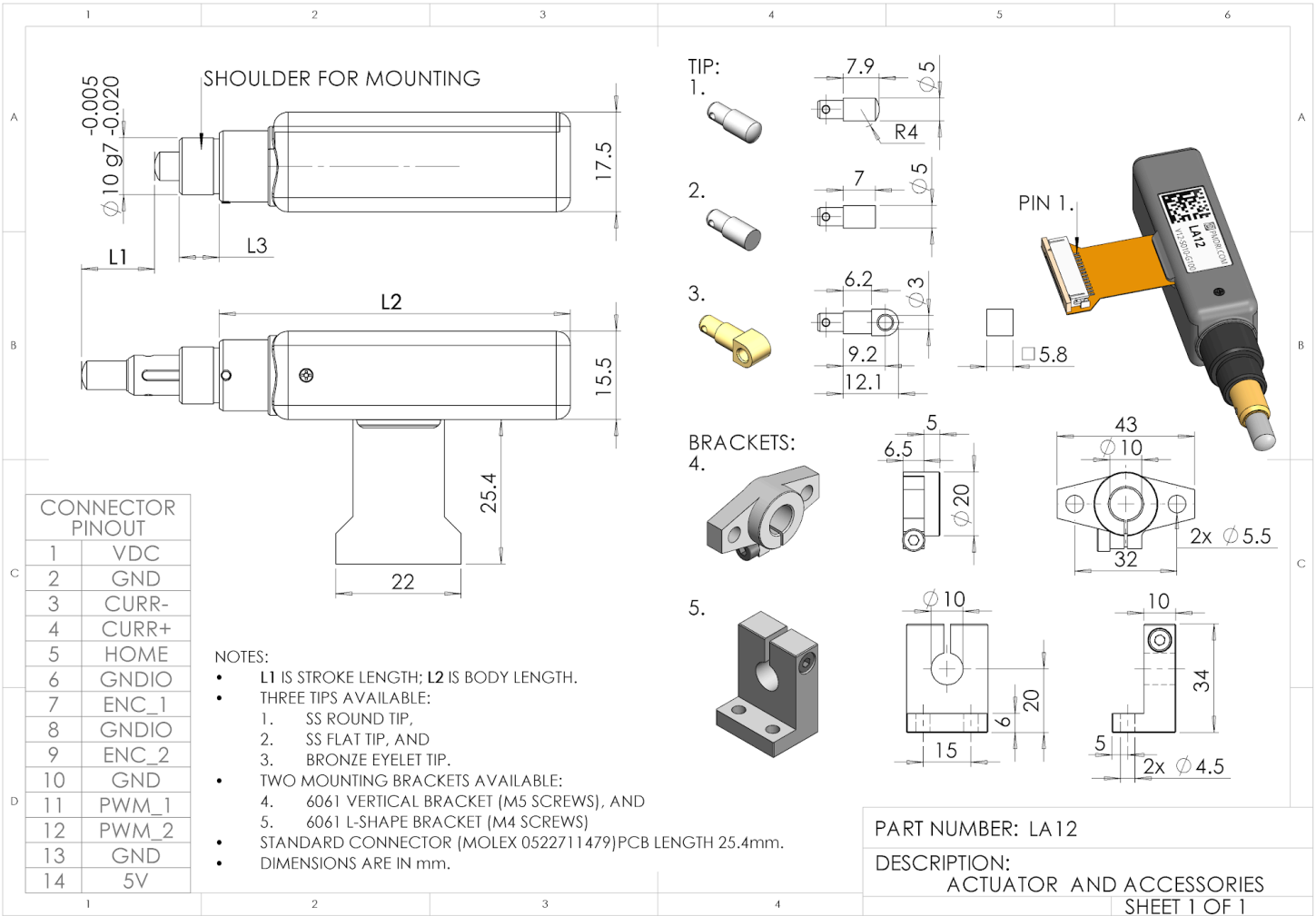


Design and accessories		Units	Custom design			
A	Availability		Stocked design			8 weeks
B	Motor Type		Brushed			Brushed / brushless
C	Commutation		Precious metal brush			To requirement
D	Motor body diameter	mm	12.0			12.0
E	Control method		2x PWM			
F	Encoder counts / turn (at motor shaft)		12			To requirement
G	Connections		Molex 0522711479			
H	Cable		25mm FPCB			Please contact support@pmdri.com
I	Body Material		Anodized aluminium alloy			
J	Enclosure Housing		Polypropylene			
Voltage option			V18	V12	V09	V06
1	Nominal voltage	V	18	12	9	6
2	Terminal resistance	Ω	31.6	11.3	7.5	3.2
3	Terminal inductance	mH	5.24	2.20	1.25	0.60
4	No load current	A	0.060	0.105	0.140	0.185
5	Nominal current	A	0.160	0.215	0.285	0.415
6	Stall current	A	0.550	0.750	0.900	1.100
Stroke option (L1)			S010	S030	S050	
7	Stroke (L1)	mm	10	30	50	
8	Body length (L2)	mm	61.6	82.2	102.8	
9	Mounting length (L3)	mm	7.0	7.0	9.0	
10	Weight	g	38	50	63	
11	Max. radial load (extended)	N	50	40	30	
Gearing option			G010	G030	G100	
12	Max. speed (no load)	mm/s	20.7	7.10	2.20	
13	Nominal force	N	8	25	80	
14	Nominal speed (at nominal force)	mm/s	15.8	5.45	1.70	
15	Backdrive force	N	No backdrive	No backdrive	No backdrive	
16	Encoder linear resolution	um/count	4.306	1.414	0.421	
17	Repeatability	um	80	20	10	

Motor body characteristics		Operating range (based on ambient 25°C)			
18	Home sensor position	Fully retracted			
19	Home sensor technology	Magnetic			
20	Encoder technology	Magnetic			
21	Ambient temperature min.	°C	-10		
22	Ambient temperature max.	°C	+50		
23	Axial play at axial load	mm	0.2 max		
24	Max. axial load (dynamic)	N	80		



LA12 Linear Actuator Brushed (precious metal brushes)
Ø12mm motor body / integrated driver



Accessories

A range of tips and mounting brackets are available for the actuator, to enable better integration into the end product and fast prototyping and testing



Actuator driving

The actuator operates in PWM control mode. When running the actuator below 100% duty, during PWM off time, the actuator can either be set to:

- Coast - fast decay mode
- Brake - slow decay mode

Slow decay mode is typically used as it offers more linearity of actuator speed versus driving voltage, and in some cases improved efficiency

Actuator features

The actuator PCBA is equipped with the following features:

- Rotary incremental encoder
- Current monitor
- Home sensor

Rotary incremental encoder
The actuator contains a two-channel, hall-sensor based incremental encoder. The encoder is fitted on the motor body (before gearbox reduction) for increased resolution, and produces a quadrature output. In the extending direction, encoder channel 1 leads channel 2

Current monitor
CURR+ / CURR- provide a differential signal proportional to the current flowing through the driver H-bridge. The conversion factor is 1 mA / mV e.g. a voltage output of 50mV corresponds to a motor current of 50mA

Home sensor
The Home sensor triggers low when the actuator is in the fully retracted position. The Home sensor comprises of a neodymium magnet and high sensitivity Hall sensor, allowing it to achieve high repeatability

PWM_1	PWM_2	OUT1	OUT2	DESCRIPTION
0	0	Hi-Z	Hi-Z	Coast (H-Bridge Hi-Z)
0	1	L	H	Reverse
1	0	H	L	Forward
1	1	L	L	Brake (Low-side slow decay)