A&A Motion and Control

Actuator
ALD3

ALD3 features its compact design, which is suitable for various applications that require limited installation space, such as window opener, adjustable car driver set and medical equipment.

Feature

- Main applications: Industrial, home care, furniture, medical
- Input voltage: 12V DC / 24V DC
- Max. load: 1000N (Push / Pull)
- Max. static load: 2500N (Push / Pull)
- Typical speed at no load: 43.9 mm/sec
- Typical speed at full load: 5.5 mm/sec (1000N load)
- Stroke: 50 / 100 / 150 / 200 / 250 / 300 mm
- Noise level: Please refer to Performance Data
- IP Protection level: IP65
- Color: Aluminum grey
- Preset limit switches
- Duty cycle: 25%, max. 1 min. continuous operation in 4 min.
- Ambient operation temperature: -25°C ~ +65°C
- Certified: CE Marking, Electromagnetic Compatibility Directive 2014/30/EU (for ALD3 only), Medical Device Directive 93/42/EEC (for ALD3M only)

Option

- Medical version (ALD3M, approved according to EN60601)
- Quiet version (ALD3Q, noise level ≦55dB)
- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Analog positioning feedback with Potentiometer (POT)
- IP Protection level: IP65
- Clamp: Clamp connection is available if rear connector is not preferred *(Fig. 1)*
- Mounting bracket (MB22) *(Fig. 2)*

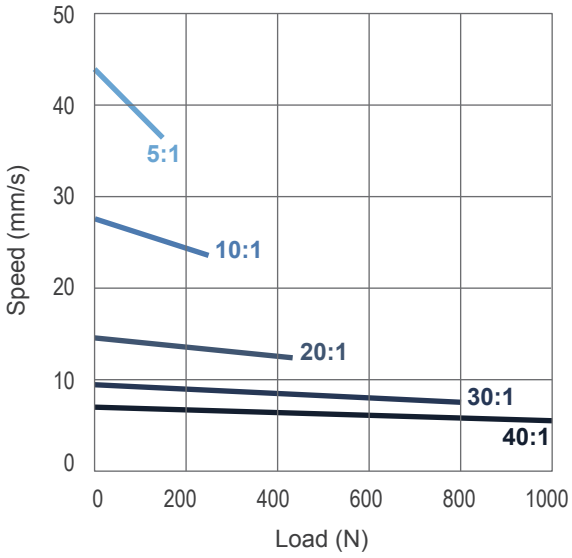
Fig. 1

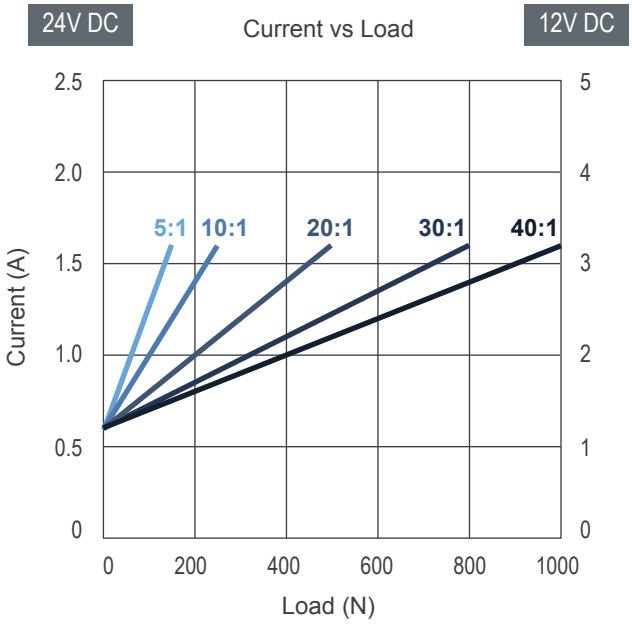
Fig. 2

Performance Data

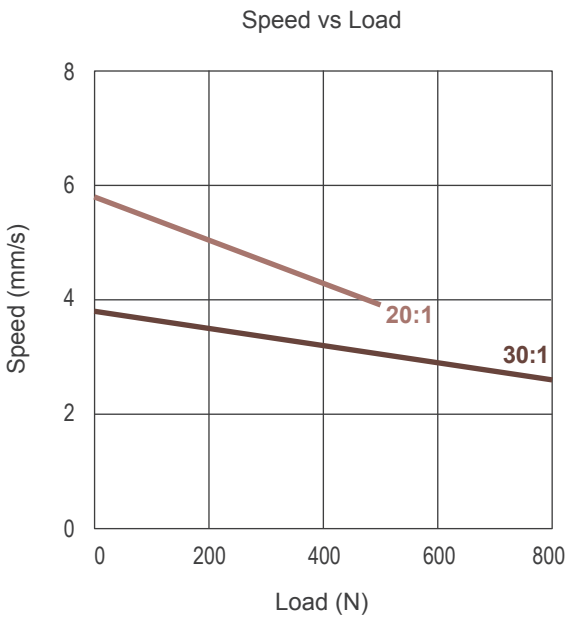
Model No.	Gear Ratio	Push / Pull Max. (N)	Self-locking force Max. (N)	*Typical Speed (mm/s)		*Typical Current (A)				Noise Level (dB)
				No Load	Full Load	No Load		Full Load		
						24V	12V	24V	12V	
ALD3-XX-05-K3...	5:1	150	2500	43.9	36.5	0.6	1.2	1.6	3.2	≦70
ALD3-XX-10-K3...	10:1	250	2500	27.6	23.5	0.6	1.2	1.6	3.2	≦70
ALD3-XX-20-K3...	20:1	500	2500	14.6	12.3	0.6	1.2	1.6	3.2	≦70
ALD3-XX-30-K3...	30:1	800	2500	9.5	7.5	0.6	1.2	1.6	3.2	≦70
ALD3-XX-40-K3...	40:1	1000	2500	7.0	5.5	0.6	1.2	1.6	3.2	≦70
ALD3Q-XX-20-D3...	20:1	500	2500	5.8	3.9	0.1	0.2	0.5	1.0	≦55
ALD3Q-XX-30-D3...	30:1	800	2500	3.8	2.6	0.1	0.2	0.6	1.2	≦55

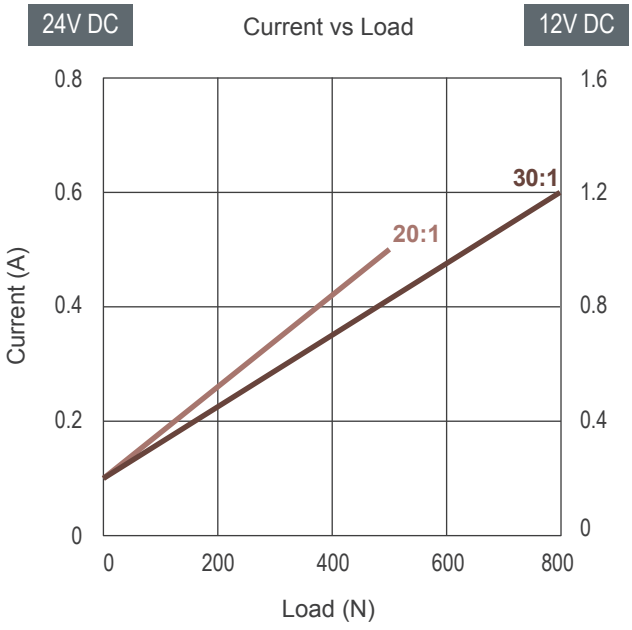
ALD3 & ALD3M





ALD3Q





Remarks:

* The typical speed or typical current means the average value neither upper limit nor lower limit.
The performance curves are made with typical values.

Dimensions

Extended length (B) = Retracted lengt (A) + Stroke (S)
Retracted length (A)

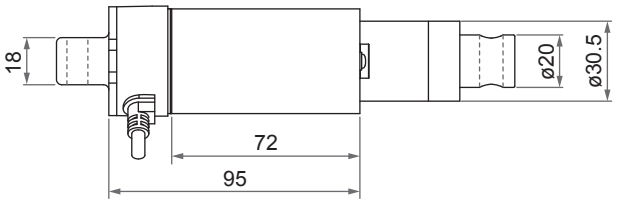
Option	Front connector code	Stroke					
		50	100	150	200	250	300
Standard or hall sensor	1	158	209	260	311	362	413
POT	1	195	246	297	348	399	450

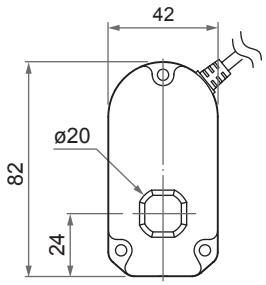
(tolerance: ±3mm)

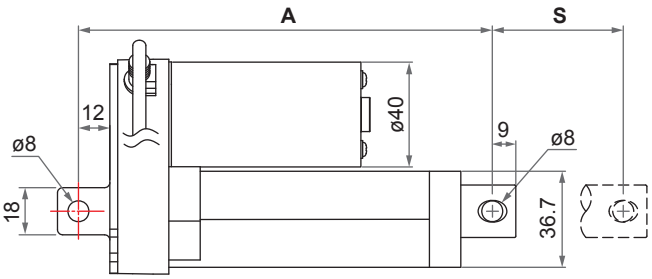
Note: The dimension "A" is shown in page 4 & 5, as indicated in the figure below.

Regular version (ALD3) & Quiet version (ALD3Q)

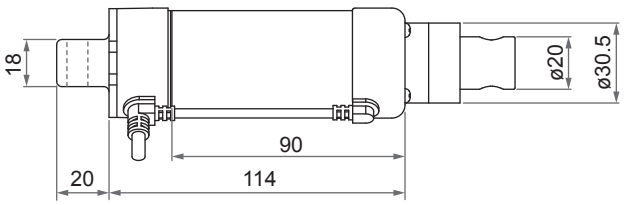
- **Basic**

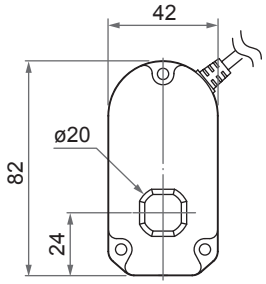


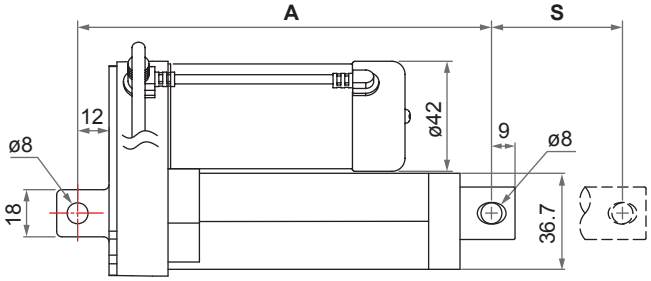




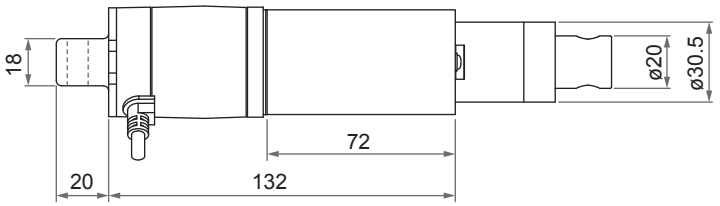
- **With Hall effect sensor**

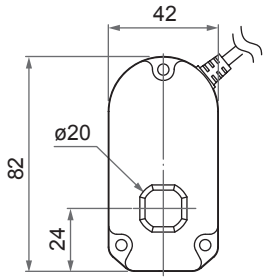


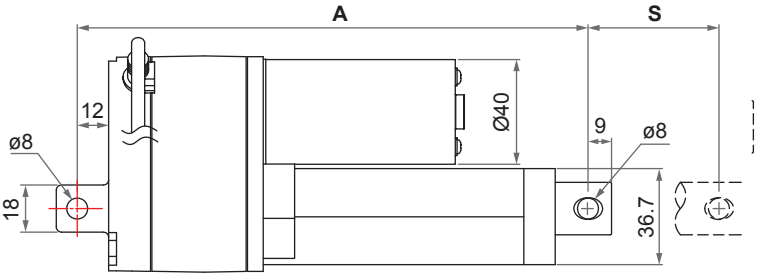




● With Potentiometer

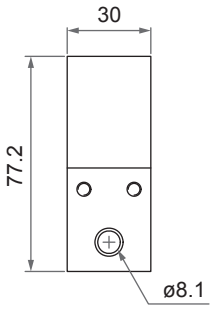


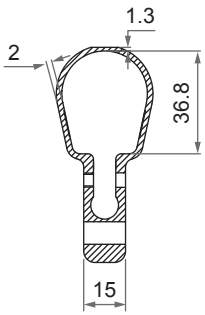




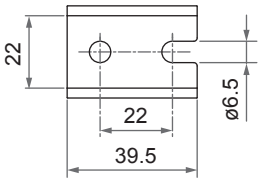
Note: As an example in 0° orientation for rear connector.

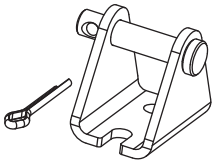
● Clamp

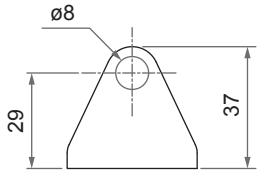


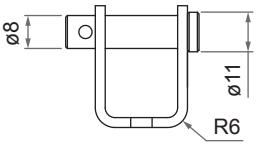


● Mounting bracket (MB22)









Compatibility

Product	Model	ALD3 spec
Control box	CI10	- 24V motor - With limit switches option - Without positioning sensor feedback
	CIS1	- 2 Actuator synchronisation - 24V motor - With single Hall effect sensor for positioning
	CIS2	- 2 Actuator synchronisation - 12V motor - With single Hall effect sensor for positioning
Power limit control - adjustable	GS24-5MO	24 Vdc motor < 5 ampere
	GS12-10MO	12 Vdc motor < 10 ampere
	GS12-5MO	12 Vdc motor < 5 ampere

Wiring

Wire definitions:

● Without positioning sensor feedback

Power	
Red	Black
M+	M-

Note:
1. Connect Red (M+) to '+' & Black (M-) to '-' of DC power, the actuator will extend.

● With Hall effect sensor x 1

Power		Signal		
Red	Black	White	Yellow	Blue
M+	M-	GND	VCC	DATA

Note:
1. Connect Red (M+) to '+' & Black (M-) to '-' of DC power, the actuator will extend.
2. Hall effect sensor resolution

Gear ratio	Resolution (pulses/mm)
5:1	2.27
10:1	3.62
20:1	6.86
30.1	11.0
40:1	14.5

3. Voltage input range (VCC): 3.5~20V
4. Output voltage of signal (Data) = Input voltage of VCC
5. Hall signal data

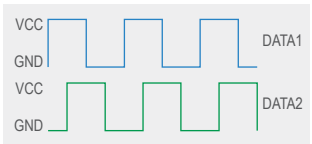
● With Hall effect sensor x 2

Power		Signal			
Red	Black	White	Yellow	Blue	Green
M+	M-	GND	VCC	DATA1	DATA2

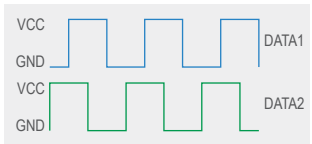
Note:
1. Connect Red (M+) to '+' & Black (M-) to '-' of DC power, the actuator will extend.
2. Hall effect sensor resolution

Gear ratio	Resolution (pulses/mm)
5:1	2.27
10:1	3.62
20:1	6.86
30.1	11.0
40:1	14.5

3. Voltage input range (VCC): 3.5~20V
4. Output voltage of signal (Data) = Input voltage of VCC
5. Hall signal data



Actuator extends



Actuator retracts

● With Potentiometer (POT)

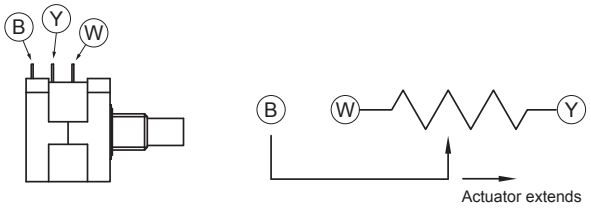
Power		Signal		
Red	Black	White	Yellow	Blue
M+	M-	GND	VCC	Data

Note:

1. Connect Red (M+) to '+' & Black (M-) to '-' of DC power, the actuator will extend.
2. The resistance between blue and white wires increases when the actuator extends, and decreases when it retracts.
3. Potentiometer resistance

Stroke (mm)	Resistance (tolerance: ±0.3KΩ)
50	0.3 ~ 9.3K
100	0.3 ~ 9.7K
150	0.3 ~ 8.6K
200	0.3 ~ 9.6K
250	0.3 ~ 9.3K
300	0.3 ~ 9.3K

4. Voltage input range (VCC): 70V/0.007A(10K)
5. Output voltage of signal (Data) = Input voltage of VCC
6. Potentiometer data



Ordering Key

Regular version

ALD3 - 24 - 10 - 100 - HS2 - 65

Input voltage	**12**: 12V DC **24**: 24V DC
Gear ratio	**05, 10, 20, 30, 40** (Refer to Performance Data)
Stroke	**050**: 50 mm **100**: 100 mm **150**: 150 mm **200**: 200 mm **250**: 250 mm **300**: 300 mm
Positioning feedback	**Blank**: None **HS1**: Hall effect sensor x 1 **HS2**: Hall effect sensor x 2 **POT**: Potentiometer
IP Protection level	**54**: IP54 (standard) **65**: IP65

Quiet version

ALD3Q - 24 - 10 - 100 - HS2 - 65

Input voltage	**12**: 12V DC **24**: 24V DC
Gear ratio	**20,30** (Refer to Performance Data)
Stroke	**050**: 50 mm **100**: 100 mm **150**: 150 mm **200**: 200 mm **250**: 250 mm **300**: 300 mm
Positioning feedback	**Blank**: None **HS1**: Hall effect sensor x 1 **HS2**: Hall effect sensor x 2
IP Protection level	**65**: IP65

Certifications

Regular version

The ALD3 actuctor is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN 55014-1:2006+A1:2009+A2:2011	EN 55014-2:1997+A1:2001+A2+:2008 Catagory I

Medical version

The ALD3M actuctor is compliant with the following regulations, in terms of the essential conformity requirements of MDD Directive of 93/42/EEC.

Emission	Immunity
EN 60601-1-2:2015 CISPR 11:2009+A1:2010 GROUP I CLASS B	EN 60601-1:2006+A1:2013

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