Actuator
ID10S

ID10S is a robust and powerful actuator with up to 9,000N thrust, which is designed for solar tracker application. It features high load capability, long lifetime, and low power consumption. There are several options available, including Ball screw or ACME screw spindle, and different sensors for positioning feedback.

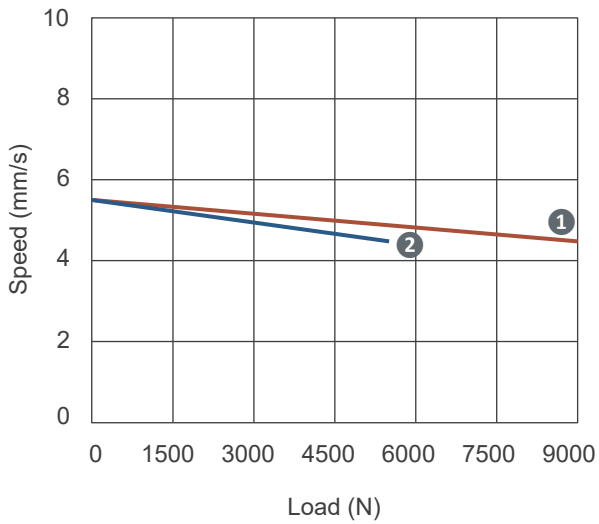
Features and Options

- Main application: Industry, Solar tracker
- Input voltage: 12V DC / 24V DC
- Max. static load: 13,600N (ACME screw) / 17,100N (Ball screw)
- Max. dynamic load: 5,500N (ACME screw) / 9,000N (Ball screw) in push and pull direction
- Max. speed at no load: 5.5mm/sec (Typical value)
- Stroke: 450 / 600 / 900 mm
- IP level: IP65 (Static; non-action)
- Overload protection by clutch
- Built-in limit switches
- Positioning signal feedback: Single Hall effect sensor / Reed sensor / Potentiometer (POT)
- Extension tube: Galvanized steel (Standard) / Stainless steel
- Color: Silver
- Power cord length: 250mm
- Duty cycle: 25%, max. 4 min. continuous operation in 16 min.
- Operating ambient temperature: -25°C ~ +65°C
- Storage ambient temperature: -25°C ~ +65°C
- Certified: CE Marking, EMC Directive 2014/30/EU, UKCA

Performance Data

No.	Model No.	Spindle type	Max. load (N)	* Typical speed (mm/s)		* Typical current (A)			
				No load	Full load	No load		Full load	
						12V	24V	12V	24V
❶	ID10S-XX40-E5B	Ball screw	9,000	5.5	4.4	1.8	0.9	7.2	3.6
❷	ID10S-XX40-E5A	ACME screw	5,500	5.5	4.4	1.8	0.9	7.8	3.9

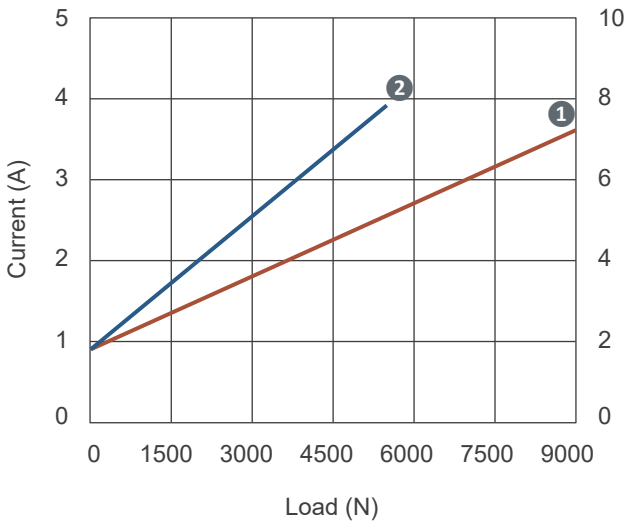
Speed VS. Load



24V DC

Current VS. Load

12V DC



Remarks:

* The typical speed or typical current means the average value neither upper limit nor lower limit, which measured under room temperature and stable power. The performance curves are made with typical values.

- **Inrush current**

- When the actuator starts, an inrush current of about 0.2 seconds will be generated. The starting inrush current of ID10S can reach 3 times of the maximum current under the rated load of the actuator.
- If a circuit board power supply is used, the specifications must be sufficient to handle the inrush current. If batteries are used as the power source, inrush current will not be a problem. Besides, the connectors, switches and relays selected by user must also be able to withstand the inrush current.

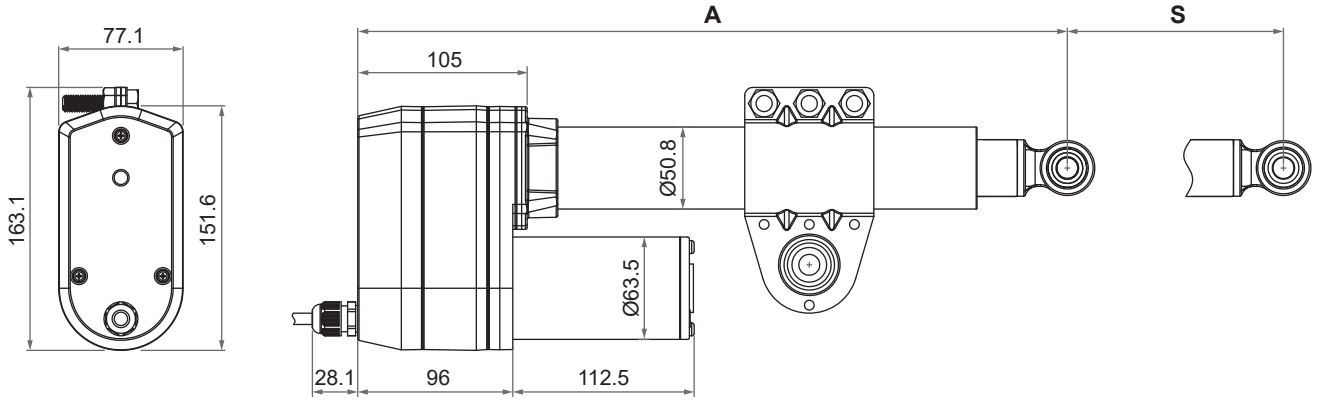
Dimensions

- **Retracted length (A)**

Model No.	Spindle type	Stroke (S)	Retracted length (A)
ID10S-XX40-E5B-**450**-XXX1S5X	Ball screw	450mm	810mm
ID10S-XX40-E5B-**600**-XXX1S5X	Ball screw	600mm	963mm
ID10S-XX40-E5B-**900**-XXX1S5X	Ball screw	900mm	1315mm
ID10S-XX40-E5A-**450**-XXX1S5X	ACME screw	450mm	764mm
ID10S-XX40-E5A-**600**-XXX1S5X	ACME screw	600mm	917mm
ID10S-XX40-E5A-**900**-XXX1S5X	ACME screw	900mm	1269mm

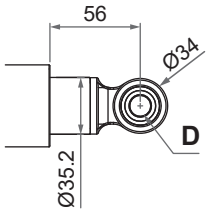
Remarks: The tolerance for stroke length is -0~+15mm, fully retracted length is ±5mm.

- **Drawing**



Unit: mm

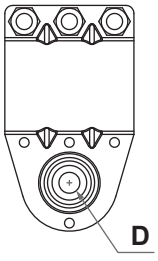
- **Front connector**



Spherical rod eye

Diameter code	Diameter of pivot (D)
0	Ø13mm (standard)
1	Ø12mm
2	Ø12.7mm (1/2”)
3	Ø16mm

- **Rear connector**



Tube clamp with spherical rod eye

Diameter code	Diameter of pivot (D)
0	Ø13mm (standard)
3	Ø16mm

Cable with Flying Leads

- **Basic (Without positioning feedback)**

	Wire color	Definition	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

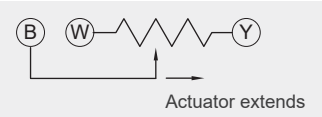
- **With single Hall effect sensor positioning feedback**

	Wire color	Definition	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		
Signal wires	White	Vin	Voltage input range: 5 ~ 20V
	Yellow	Hall output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Resolution: 0.787pulses/mm (20PPI, 1.27mm/pulse)
	Blue	GND	

- **With reed sensor positioning feedback**

	Wire color	Definition	Descriptions
Power wires	Red	DC power	Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		
Signal wires	Yellow	Data	Resolution: 1.18pulses/mm (30PPI, 0.847mm/pulse)
	White	GND	

● **With Potentiometer (POT) absolute positioning feedback**

<table>
<tr><th></th><th>Wire color</th><th>Definition</th><th>Descriptions</th></tr>
<tr><td rowspan="2">Power wires</td><td>Red</td><td rowspan="2">DC power</td><td rowspan="2">Connect red wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.</td></tr>
<tr><td>Black</td></tr>
<tr><td rowspan="3">Signal wires</td><td>Yellow</td><td>Vin</td><td>Input voltage 70V max.</td></tr>
<tr><td>Blue</td><td>POT output</td><td>1. Potentiometer specification:
- 10K ohm, 10 turns.
- Tolerance ±5%
2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.
 

3. There are different resolutions according to the stroke length (as table below)
<table><tr><th>Stroke (mm)</th><th>Resistance (tolerance: ±0.3KΩ)</th></tr><tr><td>450</td><td>0.3 ~ 8.8K</td></tr><tr><td>600</td><td>0.3 ~ 9.4K</td></tr><tr><td>900</td><td>0.3 ~ 9.2K</td></tr></table></td></tr>
<tr><td>White</td><td>GND</td><td></td></tr>
</table>

Certifications

ID10S actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN 61000-6-3:2007+A1:2011	EN 61000-6-1:2007 EN 61000-4-2:2009 EN 61000-4-3:2006+A1:2008+A2:2010 EN 61000-4-8:2010

Ordering Key

ID10S - 24 40 - E 5A - 450 - 0 0 H 1 S 5 0

Input voltage	**12**: 12V DC **24**: 24V DC
Gear ratio	**40**: 40:1
Motor code	**E**: Standard motor (2900rpm)
Spindle type	**5A**: ACME screw / 5.08mm pitch **5B**: Ball screw / 5.08mm pitch
Stroke	**450**: 450mm **600**: 600mm **900**: 900mm
Front connector (Refer to Page 3)	Diameter of pivot spherical rod eye **0**: Ø13mm (Standard) **1**: Ø12mm **2**: Ø12.7mm (1/2") **3**: Ø16mm
Rear connector (Refer to Page 3)	Diameter of pivot tube clamp with spherical rod eye **0**: Ø13mm (Standard) **3**: Ø16mm
Positioning feedback	**H**: Hall effect sensor x 1 **R**: Reed sensor **P**: Potentiometer **0**: None
Cable	**1**: Bare wires / 250mm / Black
Color	**S**: Silver
IP level	**5**: IP65
Extension tube	**0**: Galvanized steel (Standard) **2**: Stainless steel

More information about installation and usage is provided in ID10S User Guide, which can be downloaded from Moteck website.