

Actuator ID10 series



Revision	2024.08_V3.0
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Technical changes may be made to improve the product without notice !

Content

1. Important Information	3
2. Installation	4
2.1 Terminology	4
2.2 Mechanical installation	4
3. Restraining Torque	5
4. Manual Drive Connector	5
5. Wiring with Flying Leads	6
5.1 ID10	6
5.2 ID10BT	8
5.3 ID10G	9
5.4 ID10K	11
5.5 ID10P	13

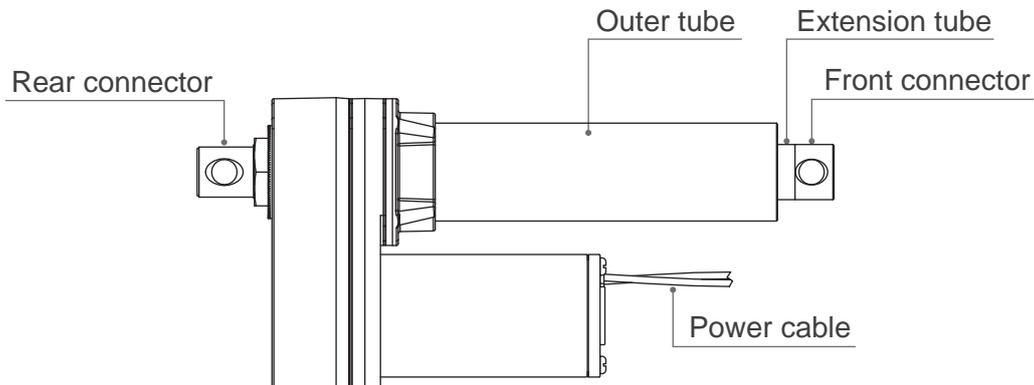
1. Important Information



- Only qualified personnel are allowed to carry out the mechanical and electrical installation of this product. Qualified personnel should be familiar with the mechanical or electrical installation work and have corresponding work qualifications.
- Do not perform mechanical installation when the actuator is powered. Complete the mechanical installation first, and then perform the electrical installation.
- Do not hold the extension tube when the actuator is powered.
- Never disconnect any wires or connectors during operation or when power is applied.
- If you find any malfunction or damage to the actuator, please stop using it immediately and notify qualified personnel to take corrective measures.
- This appliance cannot be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.

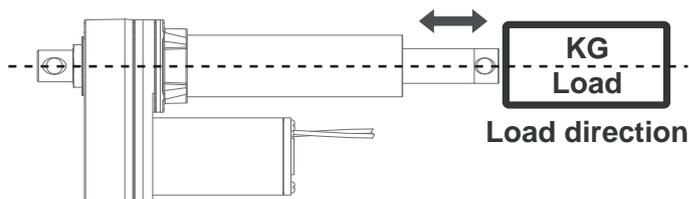
2. Installation

2.1 Terminology

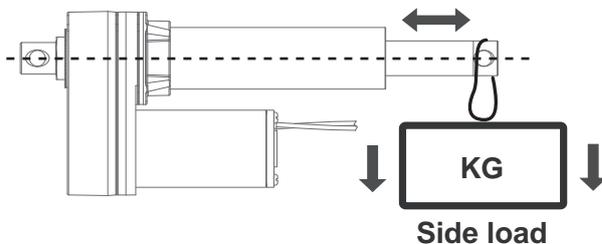


2.2 Mechanical installation

- (1) Be sure that the load acts on the actuator in the axial direction and it isn't recommended to apply side load to the actuator.



The load should be centered on the operating direction



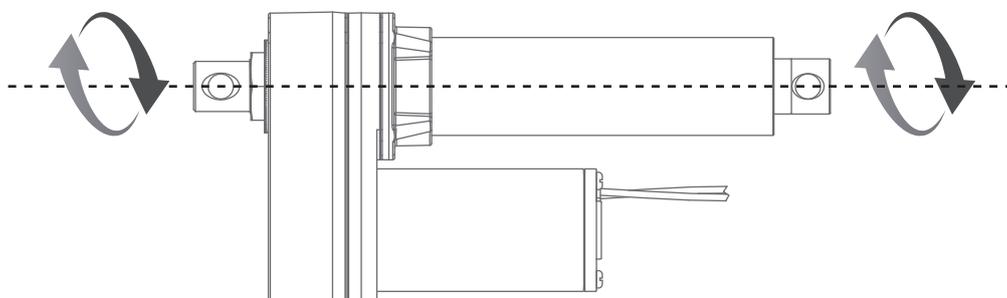
Side load is NOT good for actuators

- (2) If the actuator is jammed by an obstruction or the load is severely overweight, the actuator's clutch protection device will trip and run idly to protect the actuator or the customer's mechanical equipment from damage. Please be careful to avoid obstructions and do not exceed the rated load of the actuator.
- (3) Users are forbidden to open the outer cover of the limit switch so as not to affect the original protection level of the actuator, resulting in the immediate failure of the original factory protection commitment.

3. Restraining Torque



- If the actuator needs to be test run before being installed on the operating frame, the front and rear connectors must be fixed first to limit the rotation of the extension tube. The torque is very large. If the front and rear connectors are not fixed, the extension tube (or the actuator) will rotate instead of moving.
- Please be careful of the rotation force of the extension tube and pay attention to personal safety.



4. Manual Drive Connector

For ID10 only

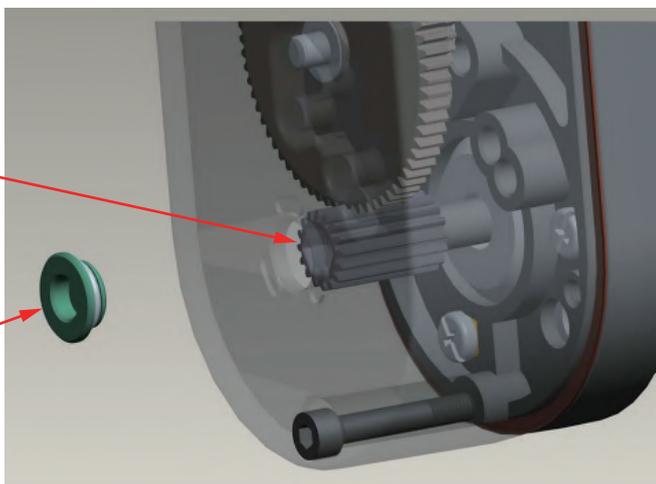
- The MD (manual drive) is an alternative way to drive the motor directly, if the power is not available.
 - Step 1. Remove the plug on the gearbox cover.
 - Step 2. Use a 8.0mm hex bit or electric screwdriver (recommended) to drive the gear directly.
 - Step 3. Insert the plug into the hole, and confirm the plug is installed properly.
- The Max. drive torque is 6kg-cm with 4500N load (Ball screw).



Gear



Plug



5. Wiring with Flying Leads

5.1 ID10

For ID10 actuator, connection rule of power wires varies according to different types and gear ratio(s). Please follow the instructions below.

(1) Basic (Without limit switch nor positioning feedback)

- Gear ratio: 5:1, 10:1, 20:1

	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		

- Gear ratio: 30:1, 40:1

	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		

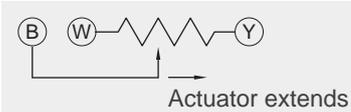
(2) With limit switches

	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		

(3) 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 ($\pm 0.6V$) Low= GND Hall signal data:  Hall effect sensor resolution: 20ppi, 1.27mm/pulse (0.787pulses/mm)
	Blue	GND	

(4) With Potentiometer (POT) absolute positioning feedback

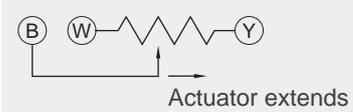
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	Black																		
Signal wires	Yellow	Vin	Input voltage 70V max.																
	Blue	POT output	<p>1. Potentiometer specification:</p> <ul style="list-style-type: none"> - 10K ohm, 10 turns. - Total resistance tolerance $\pm 5\%$ - Independent linearity $\pm 0.25\%$ <p>2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.</p>  <p>3. There are different resolutions according to the stroke length (as table below)</p> <table border="1" data-bbox="678 1041 1412 1411"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (Tolerance: $\pm 0.3K\Omega$)</th> </tr> </thead> <tbody> <tr> <td>102 (4")</td> <td>0.3 ~ 8.1K</td> </tr> <tr> <td>153 (6")</td> <td>0.3 ~ 8.7K</td> </tr> <tr> <td>203 (8")</td> <td>0.3 ~ 9.2K</td> </tr> <tr> <td>254 (10")</td> <td>0.3 ~ 7.4K</td> </tr> <tr> <td>305 (12")</td> <td>0.3 ~ 8.8K</td> </tr> <tr> <td>457 (18")</td> <td>0.3 ~ 9.4K</td> </tr> <tr> <td>610 (24")</td> <td>0.1 ~ 9.9K</td> </tr> </tbody> </table>	Stroke (mm)	Resistance (Tolerance: $\pm 0.3K\Omega$)	102 (4")	0.3 ~ 8.1K	153 (6")	0.3 ~ 8.7K	203 (8")	0.3 ~ 9.2K	254 (10")	0.3 ~ 7.4K	305 (12")	0.3 ~ 8.8K	457 (18")	0.3 ~ 9.4K	610 (24")	0.1 ~ 9.9K
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457 (18")	0.3 ~ 9.4K																		
610 (24")	0.1 ~ 9.9K																		
White	GND																		

5.2 ID10BT

(1) 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		

(2) With Potentiometer (POT) absolute 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	Vin	Input voltage 70V max.														
	Blue	POT output	<p>1. Potentiometer specification:</p> <ul style="list-style-type: none"> - 10K ohm, 10 turns. - Total resistance tolerance $\pm 5\%$ - Independent linearity $\pm 0.25\%$ <p>2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.</p>  <p>3. There are different resolutions according to the stroke length (as table below)</p> <table border="1" data-bbox="676 1357 1417 1682"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (tolerance: $\pm 0.3K\Omega$)</th> </tr> </thead> <tbody> <tr> <td>102 (4")</td> <td>0.3 ~ 8.1K</td> </tr> <tr> <td>153 (6")</td> <td>0.3 ~ 8.7K</td> </tr> <tr> <td>203 (8")</td> <td>0.3 ~ 9.2K</td> </tr> <tr> <td>254 (10")</td> <td>0.3 ~ 7.4K</td> </tr> <tr> <td>305 (12")</td> <td>0.3 ~ 8.8K</td> </tr> <tr> <td>457 (18")</td> <td>0.3 ~ 9.4K</td> </tr> </tbody> </table>	Stroke (mm)	Resistance (tolerance: $\pm 0.3K\Omega$)	102 (4")	0.3 ~ 8.1K	153 (6")	0.3 ~ 8.7K	203 (8")	0.3 ~ 9.2K	254 (10")	0.3 ~ 7.4K	305 (12")	0.3 ~ 8.8K	457 (18")	0.3 ~ 9.4K
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White	GND																

5.3 ID10G

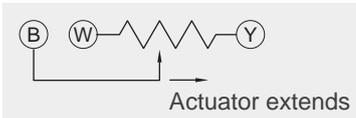
(1) Basic, with limit switches.

	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		

(2) 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	Yellow	Vin	Voltage input range: 5 ~ 20V
	Blue	Hall output	High= Input - 1.2V ($\pm 0.6V$) Low= GND Hall signal data:  Hall effect sensor resolution: 0.5 pulse/mm
	White	GND	

(3) With Potentiometer (POT) absolute 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	Vin	Input voltage 70V max.																
	Blue	POT output	<p>1. Potentiometer specification:</p> <ul style="list-style-type: none"> - 10K ohm, 10 turns. - Total resistance tolerance $\pm 5\%$ - Independent linearity $\pm 0.25\%$ <p>2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.</p>  <p>3. There are different resolutions according to the stroke length (as table below)</p> <table border="1" data-bbox="675 1043 1417 1415"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (Tolerance: $\pm 0.3K\Omega$)</th> </tr> </thead> <tbody> <tr> <td>102 (4")</td> <td>0.3 ~ 5.2K</td> </tr> <tr> <td>153 (6")</td> <td>0.3 ~ 5.5K</td> </tr> <tr> <td>203 (8")</td> <td>0.3 ~ 5.9K</td> </tr> <tr> <td>254 (10")</td> <td>0.3 ~ 7.3K</td> </tr> <tr> <td>305 (12")</td> <td>0.3 ~ 5.6K</td> </tr> <tr> <td>457 (18")</td> <td>0.3 ~ 6.0K</td> </tr> <tr> <td>610 (24")</td> <td>0.3 ~ 6.4K</td> </tr> </tbody> </table>	Stroke (mm)	Resistance (Tolerance: $\pm 0.3K\Omega$)	102 (4")	0.3 ~ 5.2K	153 (6")	0.3 ~ 5.5K	203 (8")	0.3 ~ 5.9K	254 (10")	0.3 ~ 7.3K	305 (12")	0.3 ~ 5.6K	457 (18")	0.3 ~ 6.0K	610 (24")	0.3 ~ 6.4K
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457 (18")	0.3 ~ 6.0K																		
610 (24")	0.3 ~ 6.4K																		
White	GND																		

5.4 ID10K

For ID10K actuator, connection rule of power wires varies according to different types and gear ratio(s). Please follow the instructions below.

(1) Basic (Without limit switch nor positioning feedback)

- Gear ratio: 20:1

	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		

- Gear ratio: 40:1

	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		

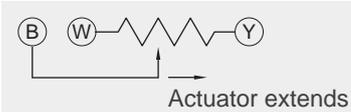
(2) With limit switches

	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		

(3) 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	Yellow	Vin	Voltage input range: 5 ~ 20V
	Blue	Hall output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Hall effect sensor resolution: 1.0 pulse/mm
	White	GND	

(4) With Potentiometer (POT) absolute positioning feedback

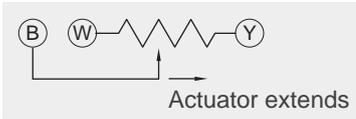
	Wire color	Definition	Descriptions																
Power wires	Red	DC power	Connect red wire to "Vdc +" & black wire to "Vdc -" of DC power to extend the actuator. Switch the polarity of DC input to retract it.																
	Black																		
Signal wires	Yellow	Vin	Input voltage 70V max.																
	Blue	POT output	<p>1. Potentiometer specification:</p> <ul style="list-style-type: none"> - 10K ohm, 10 turns. - Total resistance tolerance $\pm 5\%$ - Independent linearity $\pm 0.25\%$ <p>2. Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.</p>  <p>3. There are different resolutions according to the stroke length (as table below)</p> <table border="1" data-bbox="678 1041 1412 1411"> <thead> <tr> <th>Stroke (mm)</th> <th>Resistance (Tolerance: $\pm 0.3K\Omega$)</th> </tr> </thead> <tbody> <tr> <td>102 (4")</td> <td>0.3 ~ 7.3K</td> </tr> <tr> <td>153 (6")</td> <td>0.3 ~ 8.7K</td> </tr> <tr> <td>203 (8")</td> <td>0.3 ~ 7.3K</td> </tr> <tr> <td>254 (10")</td> <td>0.3 ~ 9.1K</td> </tr> <tr> <td>305 (12")</td> <td>0.3 ~ 7.9K</td> </tr> <tr> <td>457 (18")</td> <td>0.3 ~ 9.4K</td> </tr> <tr> <td>610 (24")</td> <td>0.3 ~ 8.2K</td> </tr> </tbody> </table>	Stroke (mm)	Resistance (Tolerance: $\pm 0.3K\Omega$)	102 (4")	0.3 ~ 7.3K	153 (6")	0.3 ~ 8.7K	203 (8")	0.3 ~ 7.3K	254 (10")	0.3 ~ 9.1K	305 (12")	0.3 ~ 7.9K	457 (18")	0.3 ~ 9.4K	610 (24")	0.3 ~ 8.2K
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610 (24")	0.3 ~ 8.2K																		
White	GND																		

5.5 ID10P

(1) Basic, with limit switches.

	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		

(2) With Potentiometer (POT) absolute 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	Vin	Input voltage 70V max.								
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