

Actuator IA5



IA5 is a high speed AC powered linear actuator designed with stainless steel extension tube, which is suitable for various outdoor industrial applications, such as construction machine, air bridge, mining transportation conveyor...etc. It also features its heavy load capability and low current deviation. Ball screw or ACME spindle is available for users to choose.

Content

Features and Options	3
Performance Data	4
1. ACME type	4
2. Ball screw type	5
Dimensions	6
1. Installation dimension	6
1.1 ACME type	6
1.2 Ball screw type	7
2. Front connector type	8
2.1 ACME type	8
2.2 Ball screw type	8
3. Rear connector type	8
4. Pivot orientation of rear connector	8
Cable with Flying Leads	9
1. Power wiring	9
2. POT wiring	9
Compatibility	10
Certifications	10
Ordering Key	11

Features and Options

- Main applications: Industrial / Agriculture
- Input voltage: 115V AC / 60Hz ; 230V AC / 50Hz
- Max. rated load: 3,500N (ACME) / 7,000N (Ball screw)
- Max. static load: 4,500N (ACME) / 13,600N (Ball screw)
- Max. speed at no load: 52.8mm/sec (Typical value)
- Stroke: 102 / 153 / 203 / 254 / 305 / 457 / 610 mm
- IP level: IP54 (Standard) / IP65 (Option) (Static, non-action)
- Overload protection by clutch
- Extension tube material: Iron (for ACME) / Stainless steel (for Ball screw)
- Color: Black
- Power cord length: 600mm (with tinned wires)
- 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: UL1004-1. CE Marking, EMC Directive 2014/30/EU.
- Positioning: Optional analog and absolute positioning feedback with Potentiometer (POT)
- Optional preset limit switches (LT)

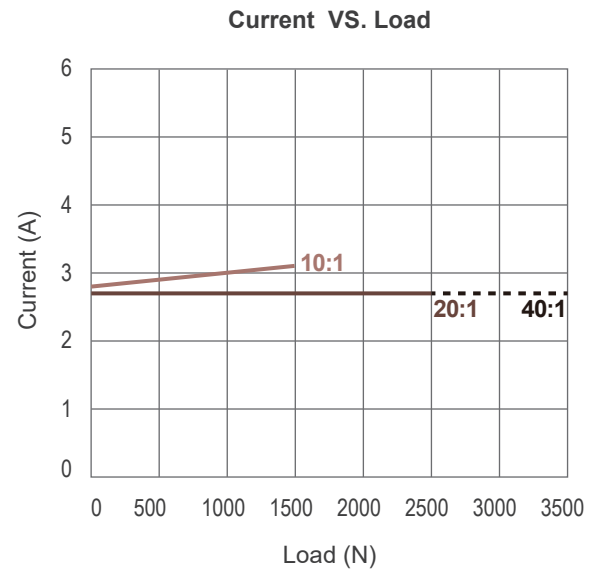
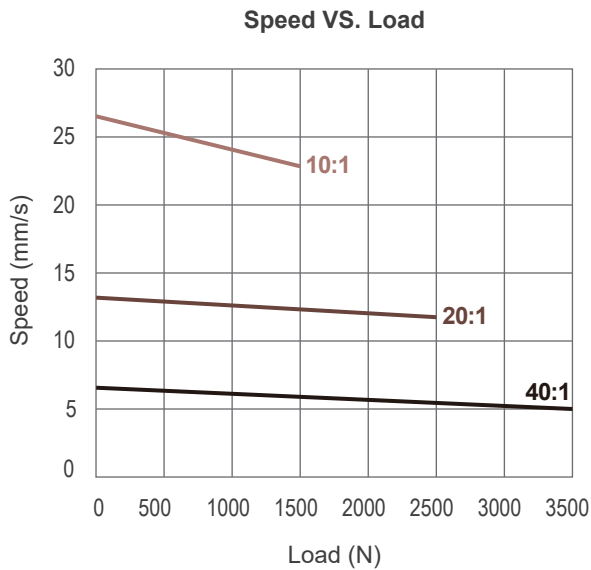


Performance Data

1. ACME type

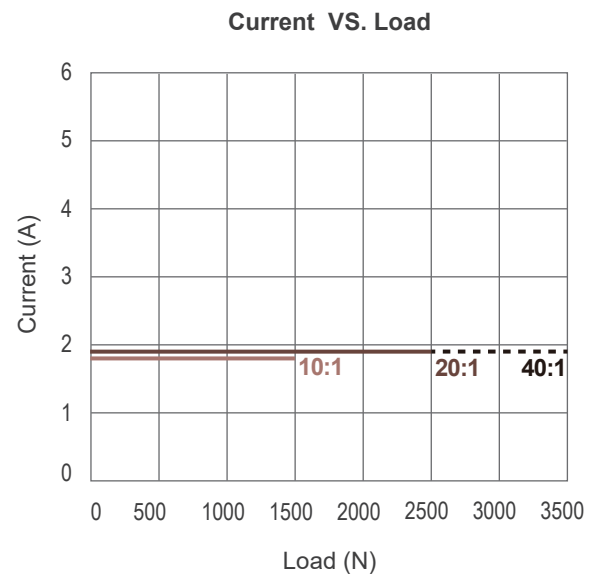
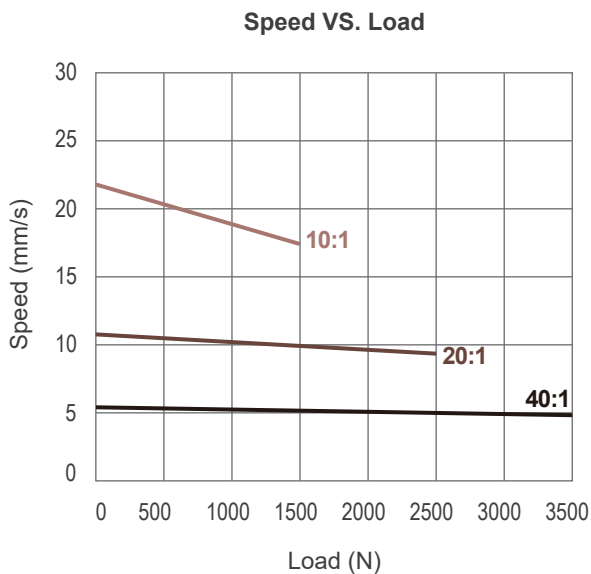
• 115V AC motor

Model No.	Gear ratio	Push / Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
IA5-115-10-A-XXX	10:1	1500	26.5	22.9	2.8	3.1
IA5-115-20-A-XXX	20:1	2500	13.1	11.8	2.7	2.7
IA5-115-40-A-XXX	40:1	3500	6.6	6.0	2.7	2.7



• 230V AC motor

Model No.	Gear ratio	Push / Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
IA5-230-10-A-XXX	10:1	1500	21.8	17.5	1.8	1.8
IA5-230-20-A-XXX	20:1	2500	10.8	9.3	1.9	1.9
IA5-230-40-A-XXX	40:1	3500	5.4	4.9	1.9	1.9



Remarks:

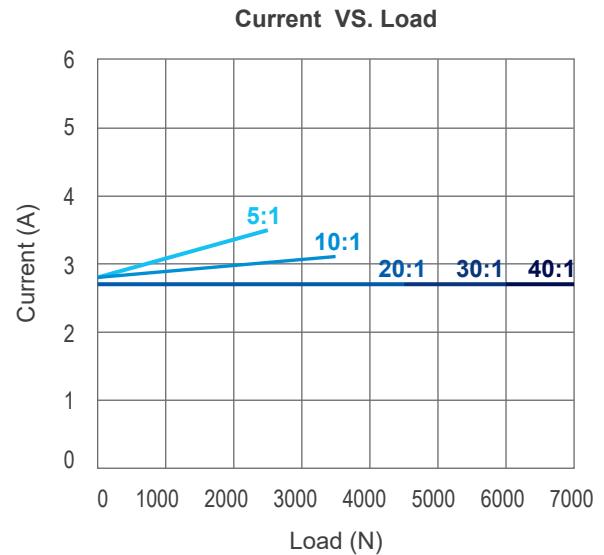
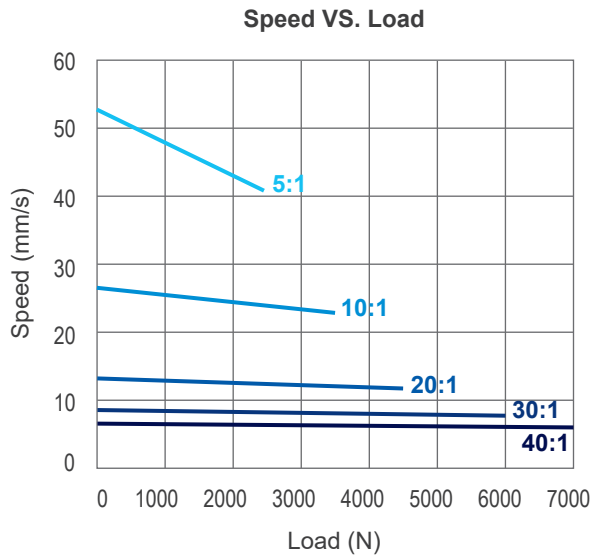
- * The typical speed or typical current means the average value neither upper limit nor lower limit. The performance curves are made with typical values.



2. Ball screw type

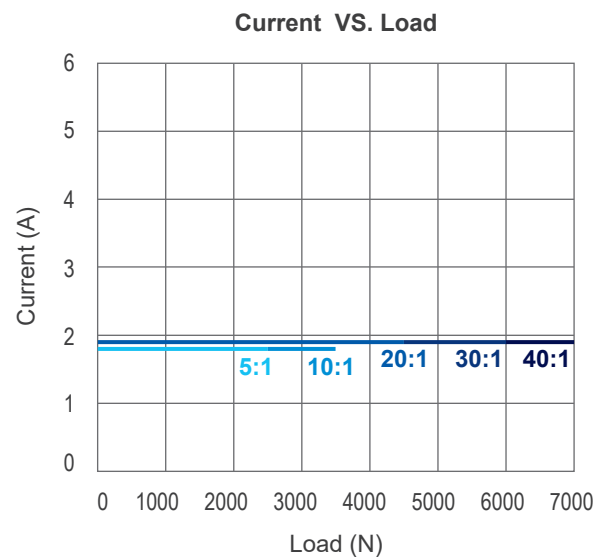
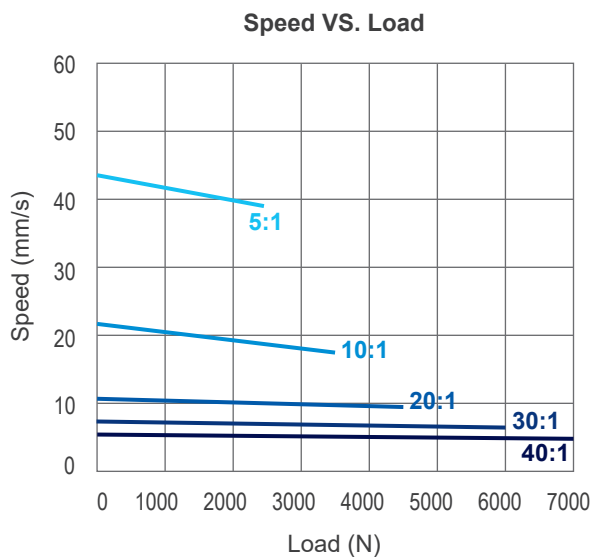
• 115V AC motor

Model No.	Gear ratio	Push / Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
IA5-115-05-B-XXX	5:1	2500	52.8	40.8	2.8	3.5
IA5-115-10-B-XXX	10:1	3500	26.5	22.9	2.8	3.1
IA5-115-20-B-XXX	20:1	4500	13.1	11.8	2.7	2.7
IA5-115-30-B-XXX	30:1	6000	8.7	7.9	2.7	2.7
IA5-115-40-B-XXX	40:1	7000	6.6	6.0	2.7	2.7



• 230V AC motor

Model No.	Gear ratio	Push / Pull Max. (N)	* Typical Speed (mm/s)		* Typical Current (A)	
			No load	Full load	No load	Full load
IA5-230-05-B-XXX	5:1	2500	43.5	29.0	1.8	1.8
IA5-230-10-B-XXX	10:1	3500	21.8	17.5	1.8	1.8
IA5-230-20-B-XXX	20:1	4500	10.8	9.3	1.9	1.9
IA5-230-30-B-XXX	30:1	6000	7.2	6.3	1.9	1.9
IA5-230-40-B-XXX	40:1	7000	5.4	4.9	1.9	1.9



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

1. Installation dimension

1.1 ACME type

- Retracted length (A)

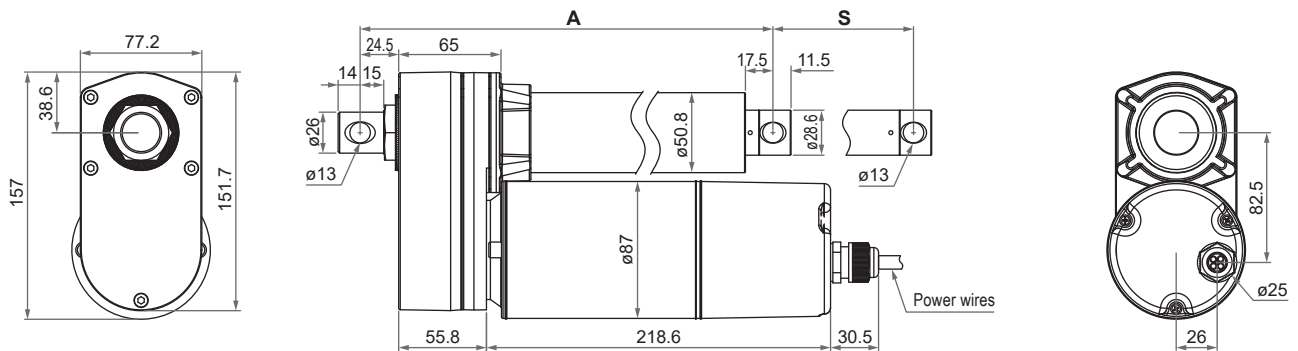
	Option	Stroke (S)						
		102 (4")	153 (6")	203 (8")	254 (10")	305 (12")	457 (18")	610 (24")
Retracted length (A)	Basic	262	313	364	414	465	668	821
	POT	302	353	404	454	505	708	861
	LT or LT+POT	359	410	460	511	613	765	918

(Tolerance: $\pm 5\text{mm}$)

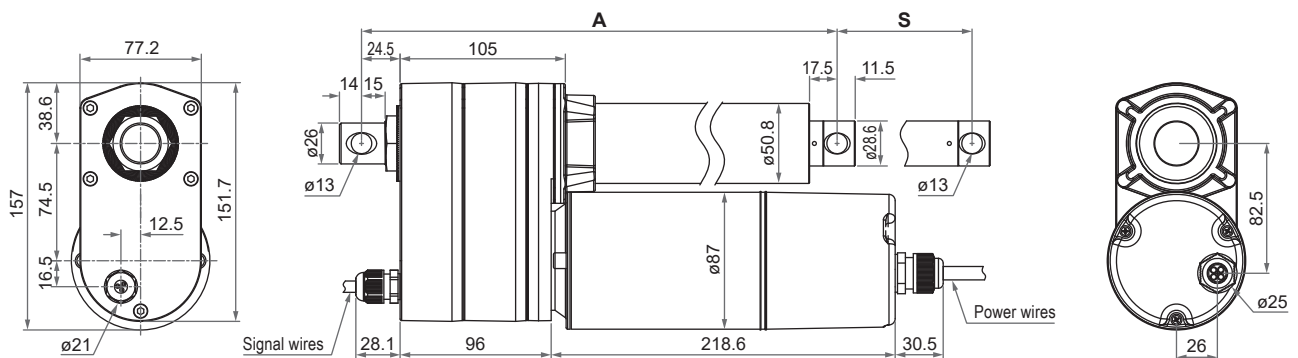
- Extended length = Retracted length (A) + Stroke (S)

- Drawing

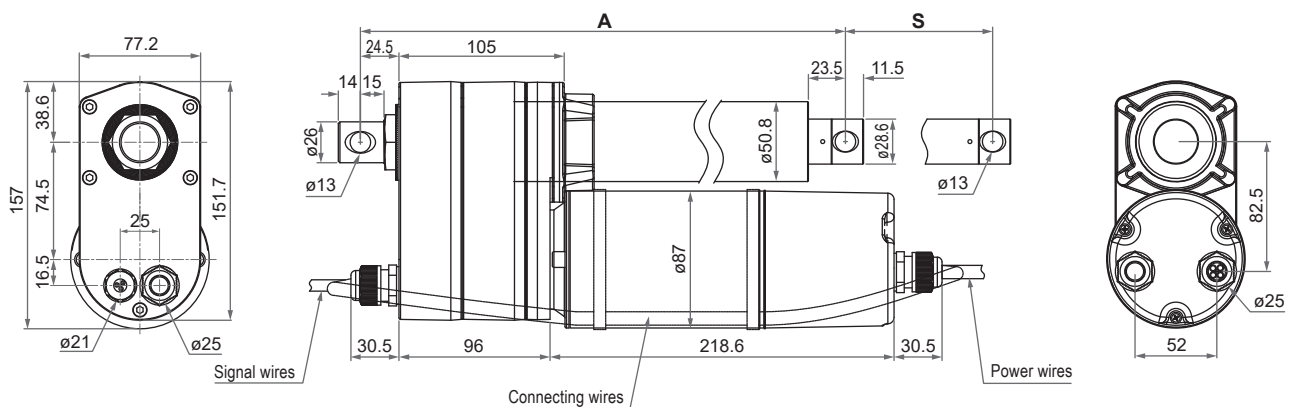
- Basic (Without limit switch nor positioning feedback)



- With Potentiometer (POT)



- With limit switches (LT) or with both limit switches (LT) and Potentiometer (POT)



Unit: mm



1.2 Ball screw type

- Retracted length (A)

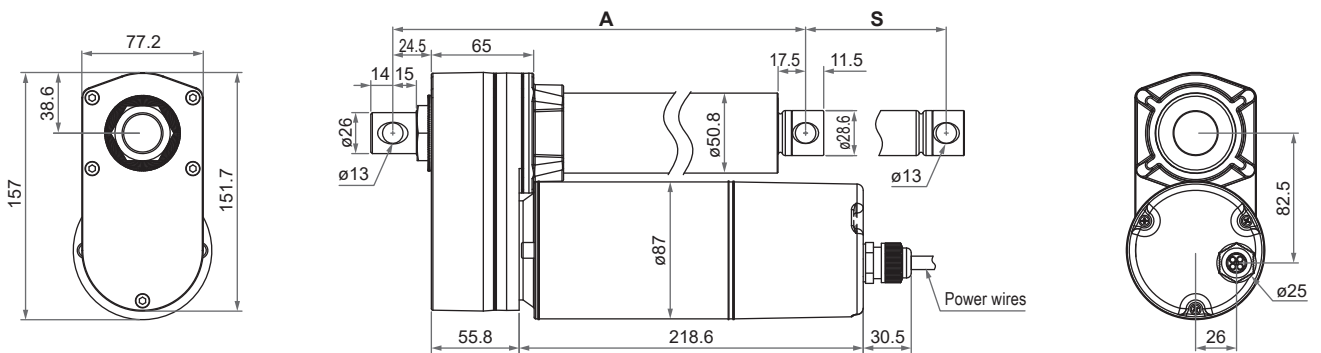
	Option	Stroke (S)						
		102 (4")	153 (6")	203 (8")	254 (10")	305 (12")	457 (18")	610 (24")
Retracted length (A)	Basic	302	353	404	455	506	735	888
	POT	342	393	444	495	546	775	928
	LT or LT+POT	399	450	501	552	680	832	985

(Tolerance: $\pm 5\text{mm}$)

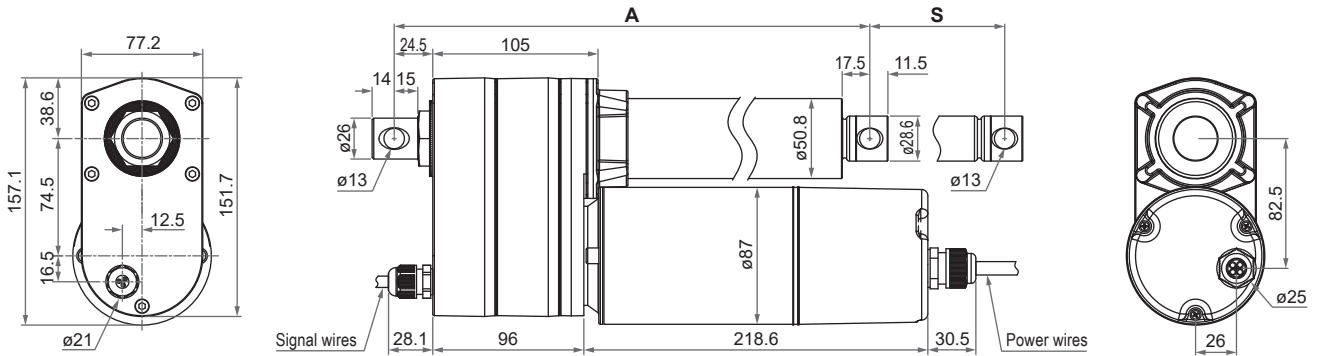
- Extended length = Retracted length (A) + Stroke (S)

- Drawing

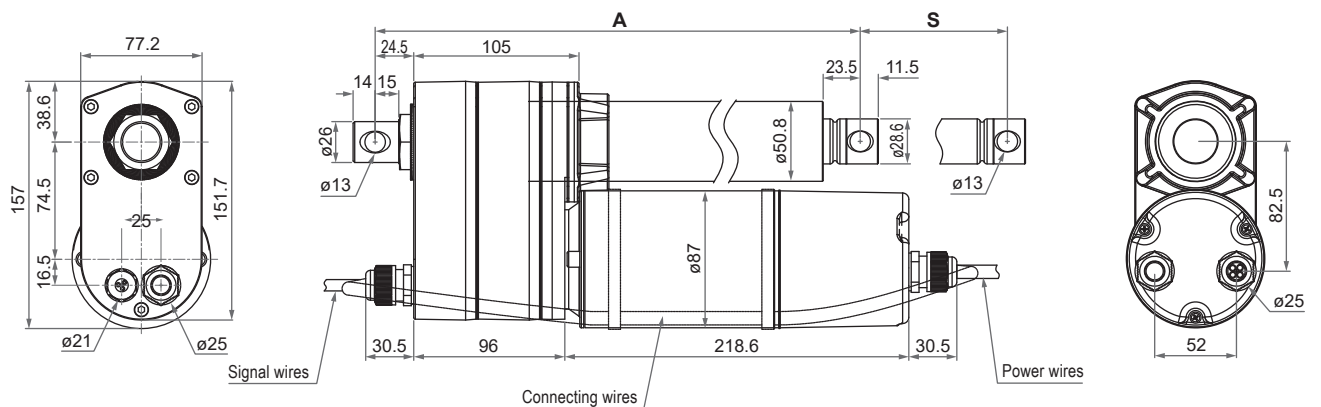
- Basic (Without limit switch nor positioning feedback)



- With Potentiometer (POT)



- With limit switches (LT) or with both limit switches (LT) and Potentiometer (POT)



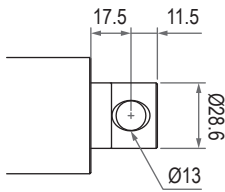
Unit: mm



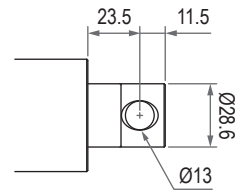
2. Front connector type

2.1 ACME type

- Basic or with Potentiometer (POT)

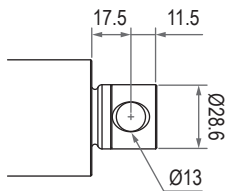


- With limit switches (LT) or with both limit switches (LT) and Potentiometer (POT)

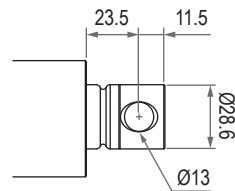


2.2 Ball screw type

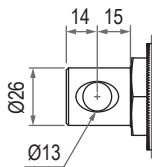
- Basic or with Potentiometer (POT)



- With limit switches (LT) or with both limit switches (LT) and Potentiometer (POT)

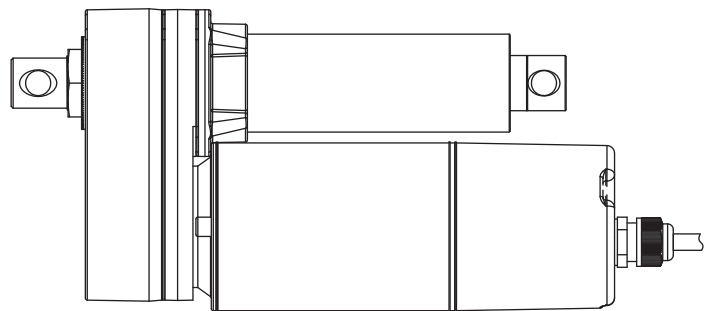
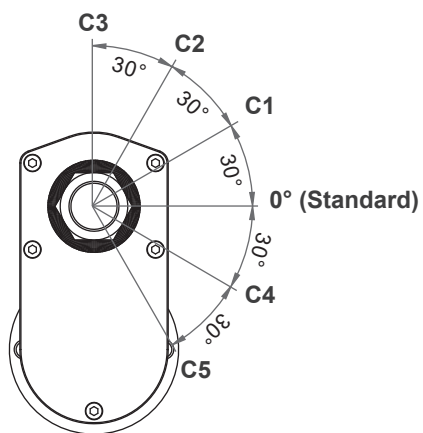


3. Rear connector type



Unit: mm

4. Pivot orientation of rear connector



Note: As an example in 0° orientation.



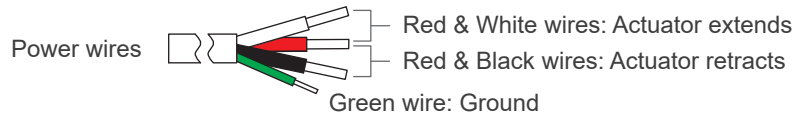
Cable with Flying Leads

1. Power wiring

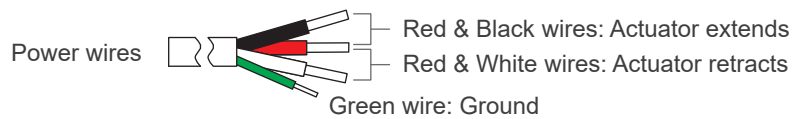
For IA5 actuators, connection rule of power wires varies according to different types and gear ratio(s). Please follow the instructions below.

- Basic or with Potentiometer type

(1) If the gear ratio 5:1 / 10:1 / 20:1, the green wire is ground wire; connect red & white wires to AC power for extension but red & black wires for retraction.

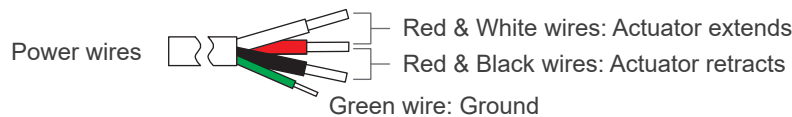


(2) If the gear ratio 30:1 / 40:1, the green wire is ground wire; connect red & black wires to AC power for extension but red & white wires for retraction.



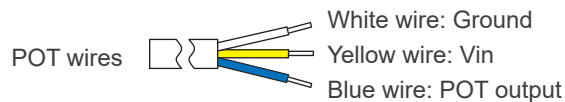
- With limit switches or with both limit switches and Potentiometer type

Regardless of gear ratio, the green wire is ground wire; connect red & white wires to AC power for extension but red & black wires for retraction.

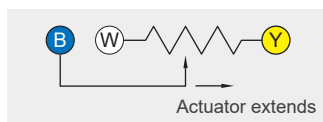


2. POT wiring

White, yellow and blue wires are signal wires.



- Vin: Input voltage 70V max.
- Potentiometer specification: 10K ohm, 10 turns. Tolerance $\pm 5\%$
- Output voltage: The voltage (resistance) between blue and white increases linearly from about 0 when the actuator extends, and decreases when it retracts.



- There are different resolutions according to the stroke length (as table below)

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



Compatibility

Product	Model	IA5 spec
Accessory	MB30 mounting bracket 	<ul style="list-style-type: none"> • Standard, mounting hole \varnothing13mm.

Certifications

IA5 actuator is compliant with the following regulations, in terms of the essential conformity requirements of EMC Directive of 2014/30/EU.

Emission	Immunity
EN IEC 61000-6-3:2021 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A1:2019	EN IEC 61000-6-1:2019 IEC 61000-4-2:2008 IEC 61000-4-3:2020 IEC 61000-4-4:2012 IEC 61000-4-5:2017 IEC 61000-4-6:2013 IEC 61000-4-8:2009 IEC 61000-4-11:2020



Ordering Key

		IA5	230	20	B	102	POT	LT		2	
Input voltage	115: 115V AC 230: 230V AC										
Gear ratio	05: 5:1 (Ball screw only) 10: 10:1 20: 20:1 30: 30:1 (Ball screw only) 40: 40:1										
Spindle type	A: ACME B: Ball screw										
Stroke	102: 102 mm (4") 153: 153 mm (6") 203: 203 mm (8") 254: 254 mm (10") 305: 305 mm (12") 457: 457 mm (18") 610: 610 mm (24")										
Positioning feedback	Blank: None POT: Potentiometer										
Limit switches	Blank: None LT: Limit switches										
IP level	Blank: IP54 (Standard) IP65: IP65										
Pivot orientation of Rear connector (Refer to Page 8)	Blank: 0° (Standard) C1: 30° C2: 60° C3: 90° C5: 120° C4: 150°										
Cable length	2: 600mm straight										



More information about installation and usage is provided in IA5 User Guide, which can be downloaded from Moteck website.

Terms of Use

The user is responsible for application suitability of Moteck products. As ongoing improvement process continues, products listed on the Moteck website are subject to change without prior notice. Moteck reserves the right to terminate the sales or remove any product displayed on the website, or listed in its catalogues.

