

Actuator

MK35

MK35 is an intelligent actuator with PCBA control board inside. Its robust mechanical design can provide up to 10,000N thrust, and meets IP69K waterproof protection. The built-in control circuit board has the protection function of monitoring current and voltage, and there are various control options to suit the user's system. MK35 is truly a favorable choice for applications such as agriculture, construction and industrial automation.



Features

- Main applications: Agriculture, Construction and Industrial Automation.
- Input voltage: 12V DC / 24V DC
- Max. load: 10,000N (Push/Pull)
- Max. static load: 18,000N (Push)
- Speed at no load: 66mm/sec (typical value @1,700N loaded)
- Speed at full load: 8mm/sec (typical value @10,000N loaded)
- Stroke: 100 ~ 1,000mm (the max. stroke is depending on load, refer to Dimensions)
- Manual drive capable by an hexagon socket wrench
- Stainless steel extension tube
- IP level: IP66 (dynamic) and IP67/IP69K (static)
- Built-in stroke limit switches
- Various control options to suit the user's system
- Operating voltage and current monitoring and protection
- Soft start / stop
- Duty cycle: 15 ~ 25%. Refer to Performance Data
- Operating ambient temperature: -40°C ~ +80°C (full performance +5°C ~+40°C)

List of Control Options and Functions

• DXX options

Directly swap the polarity of the input power to control the extension and retraction of the actuator.

	D00	D0L	DPL	DHL	D+L
Potentiometer output ⁽¹⁾	-	-	✓	-	-
Hall signal output ⁽²⁾	-	-	-	✓	✓
EoS signal output ⁽³⁾	-	✓	✓	✓	✓
Over current protection ⁽⁵⁾	✓	✓	✓	✓	✓

• Signal controls

Equipped with an H-bridge circuit to control the extension and retraction of the actuator.

	S0L	SPL	SHL	J00
Control platform	Low current signal	Low current signal	Low current signal	J1939 CAN Bus
H-bridge ⁽⁴⁾	✓	✓	✓	✓
Potentiometer output ⁽¹⁾	-	✓	-	-
Hall signal output ⁽²⁾	-	-	✓	-
EoS signal output ⁽³⁾	✓	✓	✓	-
Soft start/stop	✓	✓	✓	✓
Over current protection ⁽⁵⁾	✓	✓	✓	✓
Over voltage protection ⁽⁶⁾	✓	✓	✓	✓
Temperature monitoring ⁽⁷⁾	✓	✓	✓	✓
Status feedback	-	-	-	✓
Current feedback	-	-	-	✓
Position feedback	-	-	-	✓
Speed/ramp feedback	-	-	-	✓
Error code feedback	-	-	-	✓

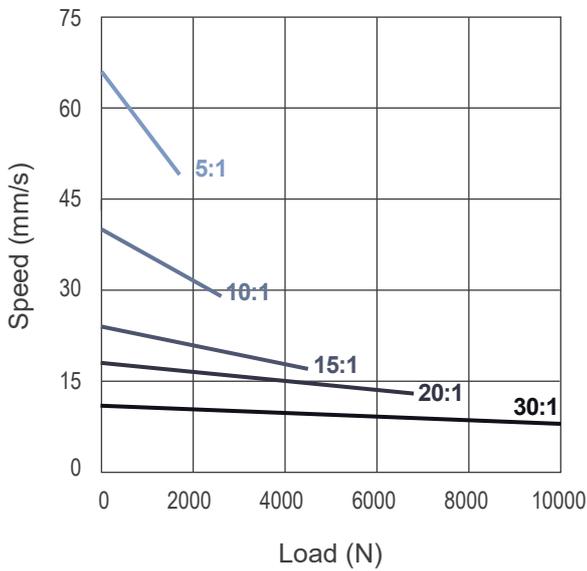
Remarks:

- (1) A wire connection of voltage input (Vin) is required. The recommended voltage is the same as motor power V+, maximum 32V DC.
- (2) The Hall feedback circuit of DHL and SHL options is NPN type; the Hall feedback circuit of D+L option is PNP type.
- (3) End of stroke signal output is not potential free. An external 5~24V power and pull-up resistor are required.
- (4) The polarity of input DC power for the signal control options must be fixed and cannot be switched.
- (5) Over current setting: 25Amax. @12V DC; 12.5Amax. @24V DC
- (6) Over voltage setting: 9~16V @12V DC; 18~32V @24V DC
- (7) When it is detected that the temperature is lower than 0°C, the overcurrent protection setting value will be automatically increased by 30%, which will reduce the frequent protection action caused by low temperature, and will not affect the normal use of the product.

Performance Data

Gear ratio	Push / Pull Max. (N)	* Typical speed (mm/s)		* Typical current (A)				Duty cycle
		No load	Full load	No load		Full load		
				24V	12V	24V	12V	
5:1	1,700	66	49	1.5	3.0	9	18	25%
10:1	2,600	40	29	1.5	3.0	9	18	25%
15:1	4,500	24	17	1.5	3.0	9	18	25%
20:1	6,800	18	13	1.5	3.0	10	20	25%
30:1	10,000	11	8	1.5	3.0	9	18	15%

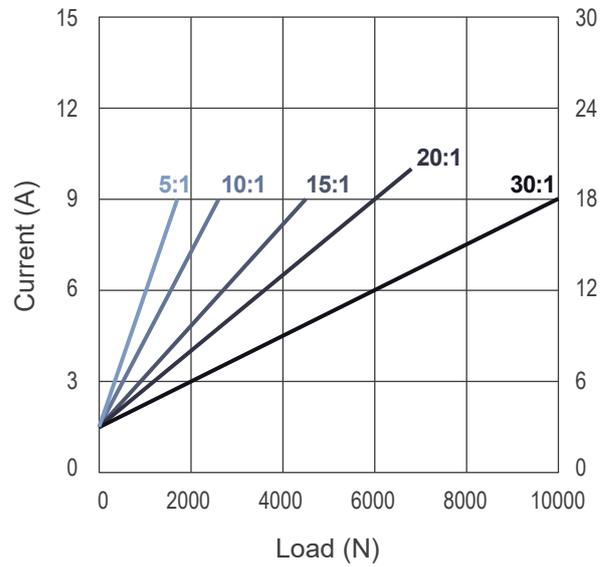
Speed vs. Load



24V DC

Current vs. Load

12V DC



*** Remarks:**

1. The typical speed or typical current refers to an average value that is neither the upper limit nor the lower limit. The performance curves are made with typical values.
2. Only signal control options "SOL, SPL, SHL, J00" have stand-by current <math><20\text{mA}</math> (12/24V DC).

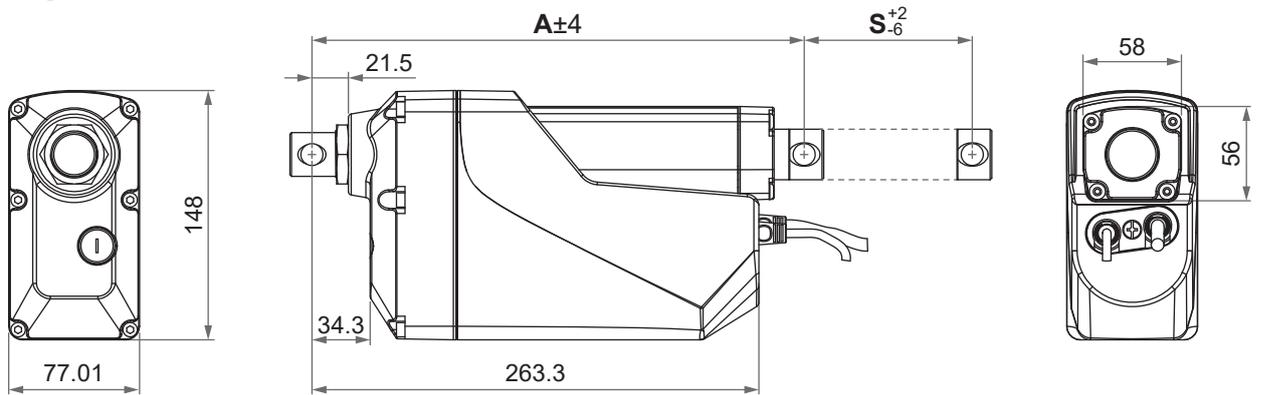
Dimensions

● Installation dimension (A)

Gear type	Solid connector	Slot connector	* Available stroke (S)	Max. load
05	$A \geq S+190 (\pm 4\text{mm})$	$A \geq S+199 (\pm 4\text{mm})$	100~1000 (+2/-6mm)	$\leq 1,700\text{N}$
10				$\leq 2,600\text{N}$
15			100~800 (+2/-6mm)	$\leq 4,500\text{N}$
20			100~600 (+2/-6mm)	$\leq 6,800\text{N}$
30	$A \geq S+220 (\pm 4\text{mm})$	$A \geq S+229 (\pm 4\text{mm})$	100~500 (+2/-6mm)	$\leq 10,000\text{N}$

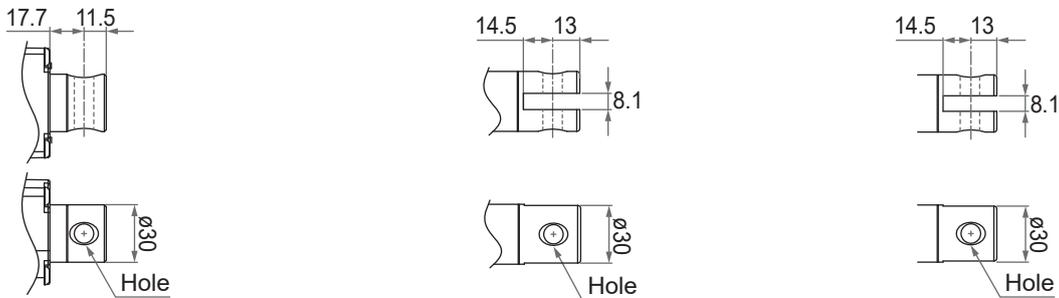
* Remarks: One step in every 50mm

● Drawing



Unit: mm

● Front connector

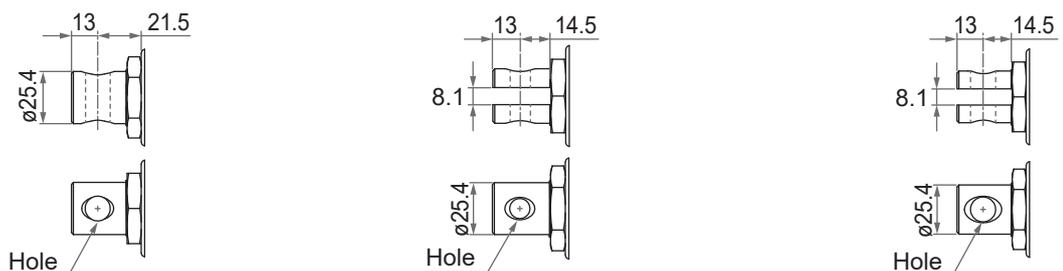


1 : Metal solid, hole $\phi 12.2\text{mm}$
3 : Metal solid, hole $\phi 13\text{mm}$

2 : Metal slot, hole $\phi 12.2\text{mm}$
4 : Metal slot, hole $\phi 13\text{mm}$

6 : SUS304 slot, hole $\phi 12.2\text{mm}$
8 : SUS304 slot, hole $\phi 13\text{mm}$

● Rear connector

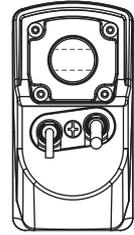
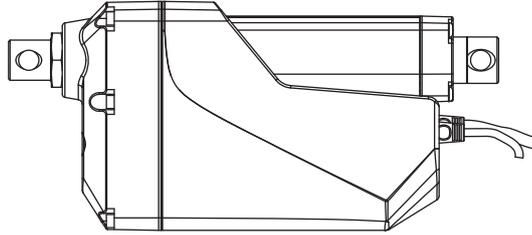
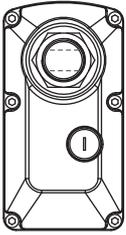


1 : Metal solid, hole $\phi 12.2\text{mm}$
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2 : Metal slot, hole $\phi 12.2\text{mm}$
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6 : SUS304 slot, hole $\phi 12.2\text{mm}$
8 : SUS304 slot, hole $\phi 13\text{mm}$

- Connector orientation



Note: Front and rear connectors shown in standard 0°

Ordering Key

		MK35	-	24	-	G5B	-	30	-	XXXX	-	J00	-	1	1	0	0	0	1
Input voltage		12 : 12V DC 24 : 24V DC																	
Motor and spindle type		G5B : 4500rpm / 5mm pitch / Ball Screw																	
Gear ratio		05 : 5:1 10 : 10:1 15 : 15:1 20 : 20:1 30 : 30:1																	
Stroke		XXXX : 0100~1000mm (one step in every 50mm)																	
Control options		D00 : DC control, without positioning feedback. D0L : DC control + EoS DPL : DC control + Potentiometer + EoS DHL : DC control + Dual Hall effect sensors (NPN) + EoS D+L : DC control + Dual Hall effect sensors (PNP) + EoS S0L : Low current signal control + EoS SPL : Low current signal control + Potentiometer + EoS SHL : Low current signal control + Dual Hall effect sensors (NPN) + EoS J00 : J1939 CAN Bus																	
Front connector		1 : Metal solid, hole ø12.2mm 6 : SUS304 slot, hole ø12.2mm 2 : Metal slot, hole ø12.2mm 8 : SUS304 slot, hole ø13mm 3 : Metal solid, hole ø13mm 4 : Metal slot, hole ø13mm																	
Rear connector		1 : Metal solid, hole ø12.2mm 6 : SUS304 slot, hole ø12.2mm 2 : Metal slot, hole ø12.2mm 8 : SUS304 slot, hole ø13mm 3 : Metal solid, hole ø13mm 4 : Metal slot, hole ø13mm																	
Connector orientation		0 : 0° (standard) 9 : 90° (Front and rear connectors shown in standard 0°)																	
Reserved		0																	
Reserved		0																	
Cable length		1 : 500mm straight 5 : 1500mm straight 7 : 3000mm straight																	



For more information about installation and use, please refer to < MK35 Manual > on Moteck official website.