Product Data Sheet

Actuator
01DS20

FD20 is a compact and quiet actuator designed for use in furniture, home care and fitness equipment. To meet various application needs, there are several models with different speed and load for customer to choose. It is able to connect with hand control and power supply to make up a simple system without control box.

Features and Options

Main applications: Furniture, Home care, Fitness equipment

Standard features:

- Input voltage: 24V DC
- Max. load: 2000N (Push/Pull)
- Max. speed at no load: 33.3mm/sec (Typical value)
- Speed at full load: 5.6mm/sec (Typical value @2000N Loaded)
- Stroke: 50 ~ 300mm
- Noise level: ≦53dB
- IP level: IP42 (Static; non-action)
- Preset limit switches
- Duty cycle: 10%, max. 2 min. continuous operation in 20 min.
- Operating ambient temperature: -20°C ~ +65°C
- Certified: UL 962 Standard for Household and Commercial Furnishings
- Compliant with CE Marking, EMC Directive 2014/30/EU

Options:

- Positioning signal feedback with Hall effect sensor x 1
- Positioning signal feedback with Hall effect sensor x 2
- Mechanical push only extension tube
- Mechanical brake

Compatibility

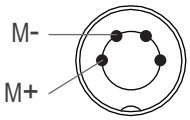
Product	Model	FD20 spec
Control box	T-control, CS1, CS2, CB3T, CB4M, CBT2	• Without positioning feedback • With Moteck F-type 4-pin DIN plug
	CF11H, CF12H	• Without positioning feedback • With Moteck L3-type minifit 6-pin plug
	CB3T-SY, CB4M-S, CB4M-B	• With dual Hall effect sensors for positioning • With Moteck F-type 6-pin DIN plug
	CF11S, CF12S	• With dual Hall effect sensors for positioning • With Moteck L3-type minifit 6-pin plug
	TX2A	• With Moteck direct-cut power cable DL1
Hand control	Depend on control box	• Powered by control box
	HS15	• With Moteck S-type DIN 41529 male plug (1)
	HB, TPSL, HS02, HZ02, HZ03, HZ04, HZ05, HZ06	• With Moteck direct-cut power cable DL1 (2)
Accessory	Power adapter: DPA-58-2920-C8 (formerly TSW1), DPA-87-2930-C6 (formerly TSW3), WPA-29-2910-SR (formerly TSW4), DPA-87-2930-C8	• With Moteck direct-cut power cable DL1

Remarks:
(1) The S-type DIN 41529 plug of the actuator is connected to the HS15 hand control directly, no control box.
(2) The actuator is connected to the hand control through the DL1 cable directly, no control box.

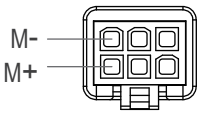
Cable Plug

A. Connecting control devices that provide power

● Without positioning feedback



With Moetck F-type 4-pin DIN plug

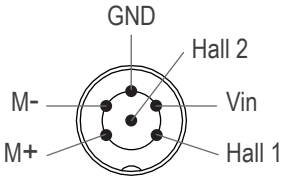


With Moetck L3-type Minifit 6-pin plug

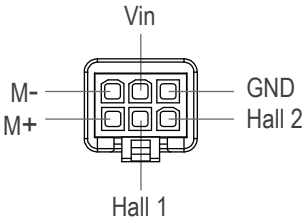
F-type plug

L3-type plug

● Positioning feedback with dual Hall effect sensors

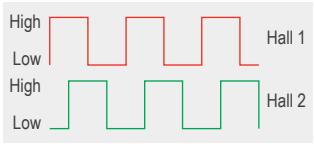
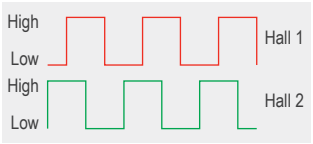


With Moetck F-type 6-pin DIN plug



With Moetck L3-type Minifit 6-pin plug

Note: Pin definition

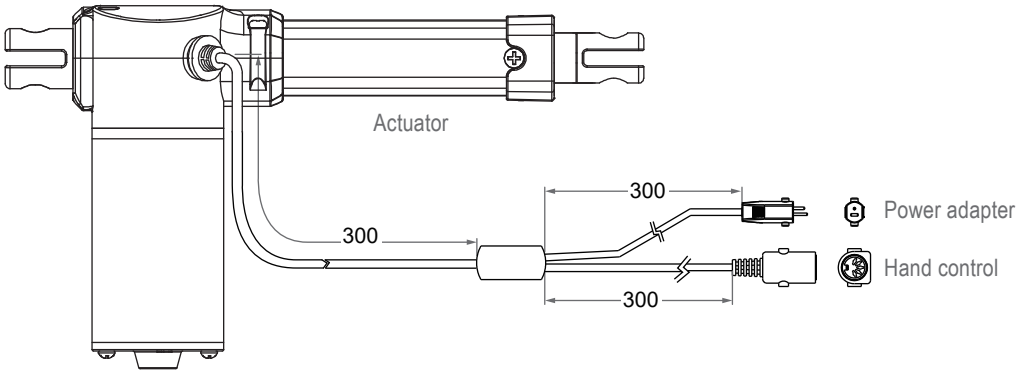
	Definition	Descriptions
Power	M+	Connect M+ to “Vdc +” & M- to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	M-	
Signal	Vin	Voltage input range: 5 ~ 20V
	Hall 1 output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Actuator extends  Actuator retracts Hall effect sensor resolution:
	Hall 2 output	
	GND	

Model No.	Resolution (Pulses/mm)
FD20-24-A3-XXX.XXX-CXX-**HSX**	10.00
FD20-24-A4-XXX.XXX-CXX-**HSX**	7.50
FD20-24-A8-XXX.XXX-CXX-**HSX**	3.75
FD20-24-AC-XXX.XXX-CXX-**HSX**	2.50
FD20-24-K4-XXX.XXX-CXX-**HSX**	7.50
FD20-24-K8-XXX.XXX-CXX-**HSX**	3.75
FD20-24-KC-XXX.XXX-CXX-**HSX**	2.50
FD20-24-N6-XXX.XXX-CXX-**HSX**	5.00
FD20-24-W6-XXX.XXX-CXX-**HSX**	5.00

B. Connecting control devices that DO NOT provide power

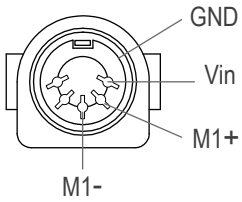
1. Cable solution

- With direct-cut power cable DL1



2. Hand control connector: Moteck U-type DIN 5-pin female connector

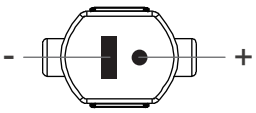
- 1 drive



Note: Connect M1+ to “Vdc +” & M1- to “Vdc -“ of DC power to extend the M1 actuator. Switch the polarity of DC input to retract it.

U-type
female connector

3. Power connector: Moteck S-type DIN 41529 2-pin male plug



S-type
male plug

Cable with Flying Leads

● **Basic, without positioning feedback.**

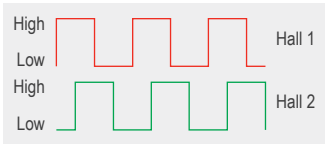
	Wire color	Definition	Descriptions
Power wires	White	DC Power	Connect white wire to “Vdc +” & black wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Black		

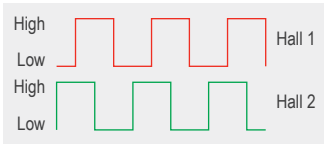
● **With single Hall effect sensor for positioning**

	Wire color	Definitions	Descriptions
Power wires	Blue	DC Power	Connect blue wire to “Vdc +” & brown wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.
	Brown		
Signal wires	Yellow	Vin	Voltage input range: 5 ~ 20V
	Red	Hall output	High= Input - 1.2V (±0.6V) Low= GND Hall signal data:  Hall effect sensor resolution:
	Black	GND	

Model No.	Resolution (Pulses/mm)
FD20-24-A3-XXX.XXX-CXX-**HS1**	10.00
FD20-24-A4-XXX.XXX-CXX-**HS1**	7.50
FD20-24-A8-XXX.XXX-CXX-**HS1**	3.75
FD20-24-AC-XXX.XXX-CXX-**HS1**	2.50
FD20-24-K4-XXX.XXX-CXX-**HS1**	7.50
FD20-24-K8-XXX.XXX-CXX-**HS1**	3.75
FD20-24-KC-XXX.XXX-CXX-**HS1**	2.50
FD20-24-N6-XXX.XXX-CXX-**HS1**	5.00
FD20-24-W6-XXX.XXX-CXX-**HS1**	5.00

● **With dual Hall effect sensors for positioning**

<table>
<tr><th></th><th>Wire color</th><th>Definitions</th><th>Descriptions</th></tr>
<tr><td rowspan="2">Power wires</td><td>Blue
Brown</td><td>DC Power</td><td>Connect blue wire to “Vdc +” & brown wire to “Vdc -“ of DC power to extend the actuator. Switch the polarity of DC input to retract it.</td></tr>
<tr><td rowspan="4">Signal wires</td><td>Yellow</td><td>Vin</td><td>Voltage input range:5 ~ 20V</td></tr>
<tr><td>Red</td><td>Hall 1 output</td><td rowspan="3">High= Input - 1.2V (±0.6V)
Low= GND
Hall signal data:
 

Actuator extends
 

Actuator retracts

Hall effect sensor resolution:
<table><tr><th>Model No.</th><th>Resolution (Pulses/mm)</th></tr><tr><td>FD20-24-A3-XXX.XXX-CXX-HS2</td><td>10.00</td></tr><tr><td>FD20-24-A4-XXX.XXX-CXX-HS2</td><td>7.50</td></tr><tr><td>FD20-24-A8-XXX.XXX-CXX-HS2</td><td>3.75</td></tr><tr><td>FD20-24-AC-XXX.XXX-CXX-HS2</td><td>2.50</td></tr><tr><td>FD20-24-K4-XXX.XXX-CXX-HS2</td><td>7.50</td></tr><tr><td>FD20-24-K8-XXX.XXX-CXX-HS2</td><td>3.75</td></tr><tr><td>FD20-24-KC-XXX.XXX-CXX-HS2</td><td>2.50</td></tr><tr><td>FD20-24-N6-XXX.XXX-CXX-HS2</td><td>5.00</td></tr><tr><td>FD20-24-W6-XXX.XXX-CXX-HS2</td><td>5.00</td></tr></table></td></tr>
<tr><td>Green</td><td>Hall 2 output</td></tr>
<tr><td>Black</td><td>GND</td><td></td></tr>
</table>

Ordering Key

FD20- 24 - A4 - 230 . 330 - C 2 1 - HS2 - PO-BK - 0

Input voltage	**24**: 24V DC
Motor and spindle type	**A3**: 2500rpm / 3mm pitch **A4**: 2500rpm / 4mm pitch **A8**: 2500rpm / 8mm pitch **AC**: 2500rpm / 12mm pitch **K4**: 2500rpm / 4mm pitch **K8**: 2500rpm / 8mm pitch **KC**: 2500rpm / 12mm pitch **N6**: 4500rpm / 6mm pitch **W6**: 6000rpm / 6mm pitch
Retracted length (Refer to Page 4)	**XXX**
Extended length (Refer to Page 4)	**XXX**
Front connector (Refer to Page 5)	**2**: Drilled hole **3**: Metal slot **4**: Plastic solid **6**: Plastic slot
Rear connector (Refer to Page 5)	**1**: Plastic solid, square type **2**: Metal slot **4**: Plastic solid, round type
Positioning feedback	**Blank**: None **HS1**: Hall effect sensor x 1 **HS2**: Hall effect sensor x 2
Option (Note: Multiple choice is allowed)	**Blank**: None **PO**: Mechanical push only extension tube **BK**: Mechanical brake
Cable length	**0**: 300mm straight **1**: 1000mm straight **2**: 450mm with 300mm coiled **A**: Direct-cut power cable DL1 (Refer to Page 8)