

Moving Magnet Actuator MI – FFA series

The moving magnet MI-FFA series actuators are a line of actuators designed to be a true alternative for pneumatic cylinders. The actuators incorporate an ISO 6432 interface identical to their pneumatic counterparts. With this interface customers can choose from a variety of widely available mechanic adaptors such as mounting brackets, rod eyes, clevis brackets etc.

The MI-FFA series actuators are single phase actuators which means that there is no need for complex current commutation. This makes the actuators suitable to be operated in open loop mode. The required peripheral control electronics are therefore kept to a minimum. Simply attach a power supply to both actuator terminals and it will move, reverse the polarity and it will move in the opposite direction.

Application areas:

- Production automation
- Packaging equipment
- Test stands
- Pick and place applications

Key features:

- Fast actuating direct drive
- Single phase moving magnet
- Simple control
- Robust and reliable



Technical Data

Model	stroke [mm]	Peak Force [N]	Continuous Force [N]	Kf [N/A]	moving mass [kg]	R [Ohm]	Steepness [N ² /W]	L [mH]	R _{TH} [°C/W]	τ _{TH} [min]	Voltage @ Peak Force [V]	Current @ Peak Force [A]
		[1][2]	[2]	[3]		[3]	[3]				[2]	[2]
FFA 25-25	25	33.0	10.5	4.39	0.13	1.25	15.4	0.46	8.0	20	13.2	7.5
FFA 25-40	40	34.7	11.0	4.63	0.19	1.81	11.8	0.97	5.6	20	19.1	7.5
FFA 25-50	50	35.4	11.2	4.71	0.22	2.16	10.3	1.37	4.7	20	22.7	7.5
FFA 25-80	80	35.2	11.1	4.78	0.31	3.28	7.0	3.16	3.2	20	33.9	7.4
FFA 25-100	100	34.7	11.0	4.82	0.37	4.00	5.8	4.70	2.8	20	40.3	7.2
FFA 25-125	125	33.9	10.7	4.83	0.44	4.93	4.7	7.15	2.4	20	48.5	7.0

Notes:

[General] The maximum allowed operating voltage is 48VDC. All specifications are ±10%.

[1] Applicable at a force duty cycle of 10%. With lower duty cycles higher forces are possible.

[2] Defined at T_{ambient}=40°C, T_{coil}=120°C and in the center position

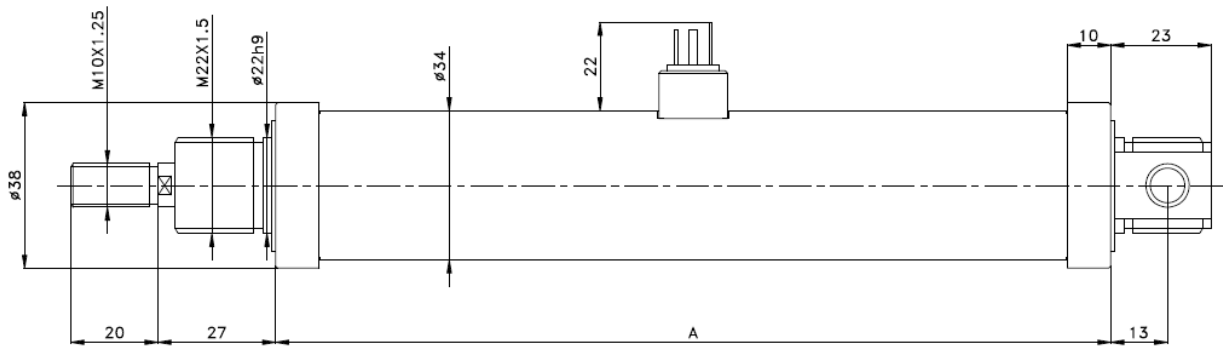
[3] Where applicable defined at 20°C and in the center position

Important notice: This datasheet is preliminary and subject to change without notice.

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www.magneticinnovations.com

Dimensions



Model	A [mm]	Stroke [mm]	Remarks
FFA 25-25	79	25	
FFA 25-40	108	40	
FFA 25-50	130	50	
FFA 25-80	192	80	
FFA 25-100	232	100	
FFA 25-125	282	125	

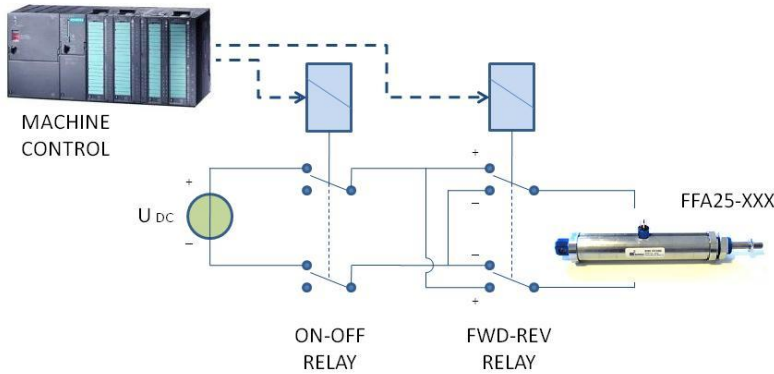
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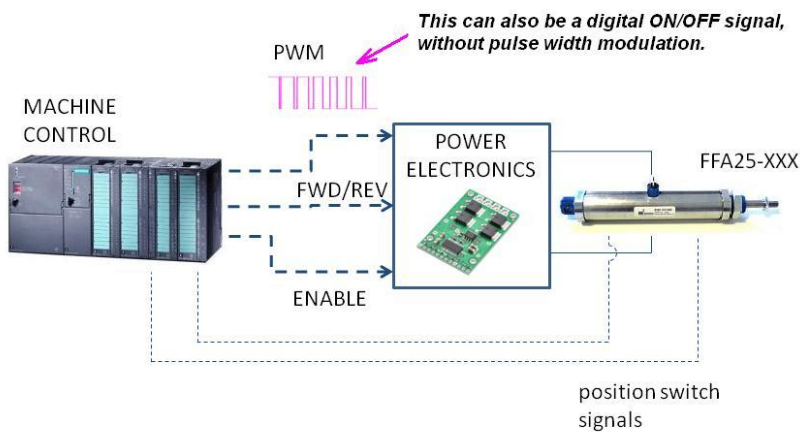
Control Examples

simplest form



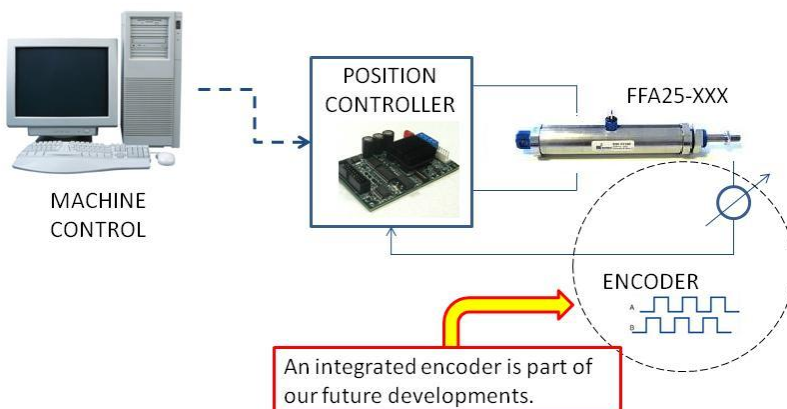
This is the easiest and most cost efficient way to control the FFA actuator, using only 2 relays and a power supply.

open loop PWM



For tighter control of the actuating force you can use inexpensive power electronics and a PWM control signal. Note that also control of the simplest form (depicted above) can be realized with this hardware setup.

closed loop SERVO



For state-of-the-art controllability of the FFA actuator it can be incorporated in a closed loop servo system as described here.

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