SY4-120MFT
Modulating, Non-Spring Return, 120 V, for 2 to 10VDC or 4 to 20 mA

BELIMO®

2 YEAR WARRANTY

Application

SY Series actuators are fractional horsepower devices, and utilize full-wave power supplies. Observe wire sizing and transformer sizing requirements. Proportional models CANNOT be connected to Belimo direct coupled (AF, AM, GM…etc) actuator power supplies or any type of half-wave device. You MUST use a separate, dedicated transformer or power supply to power the SY actuator. Please do not connect other automation equipment to the dedicated SY supply source. You MUST use four wires (plus a ground) to control a proportional control SY actuator (See SY Wiring Section).

Technical Data	
Power Supply	120 VAC, ±10%, 50/60 Hz
Transformer sizing	253 VA
Current consumption	2.1 A
Electrical Connection	terminal blocks
Overload Protection	thermally protected 135°C cut-out
Operating Range	DC 2...10 V (default), ,
Input Impedance	100 kΩ
Position Feedback	DC 2...10 V
Angle of rotation	90°
Torque motor	3540 in-lbs [400 Nm]
Duty cycle	75%
direction of rotation motor	reversible with built-in switch
Position indication	top mounted domed indicator
Manual override	hand wheel
Running time motor	24 sec
Internal Humidty Control	resistive heating element
Ambient humidity	5 to 95% RH non-condensing
Ambient temperature	-22...150 °F [-30...65 °C]
Non-operating temperature	-40...176 °F [-40...80 °C]
Degree of Protection	IP66/67, NEMA 4X, UL Enclosure Type 4X
Housing material	die cast aluminum alloy
Gear train	high alloy steel gear sets, self locking
Agency Listing	ISO, CE, cCSAus
Noise level, motor	<45 dB (A)
Maintenance	maintenance free
Quality Standard	ISO 9001
Weight	48.5 lb [22 kg]
Auxiliary switch	2 x SPDT, 3A resistive (0.5A inductive) @ 250 VAC, one set at 10°, one set at 85°

Wiring Diagrams

⚒ INSTALLATION NOTES

60 Do not change sensitivity or dip switch setting with power applied.

61 Power supply Common/Neutral and Control Signal "-"wiring to a common is prohibited. Terminals 4 and 6 need to be wired separately.

62 Isolation relays must be used in parallel connection of multiple actuators using a common control signal inputs. The relays should be DPDT.

63 Isolation relays are required in parallel applications. The reason parallel applications need isolation relays is that the motor uses two sets of windings, one for each direction. When one is energized to turn the actuator in a specific direction a voltage is generated in the other due to the magnetic field created from the first. It's called back EMF. This is not an issue with one actuator because the voltage generated in the second winding isn't connected to anything so there is no flow. On parallel applications without isolation, this EMF voltage energizes the winding it is connected to on the other actuators in the system, the actuators are tying to turn in both directions at once. The EMF voltage is always less than the supply voltage due to the resistance of the windings, so while the actuator still turns in the commanded direction, the drag from the other reduces the torque output and causes overheating.

⚠ WARNING! LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.