Modulating, Non-Spring Return, 230 V, for DC 2...10 V or 4...20 mA





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Electrical data	Nominal voltage	AC 230 V	
	Nominal voltage frequency	50/60 Hz	
	Transformer sizing	253 VA	
	Current consumption	1.1 A	
	Auxiliary switch	2 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, 1 x 3° / 1 x 87°	
	Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V	
	Electrical Connection	Terminal blocks	
	Overload Protection	thermally protected 135°C cut-out	
	Internal Humidty Control	resistive heating element	
Functional data	Operating range Y	210 V	
	Input Impedance	100 kΩ	
	Position feedback U	210 V	
	Position feedback U note	Max. 0.5 mA	
	Position feedback U variable	VDC variable	
	Direction of motion motor	selectable with switch 0/1	
	Manual override	hand wheel	
	Angle of rotation	90°	
	Running Time (Motor)	22 s	
	Duty cycle value	75%	
	Noise level, motor	45 dB(A)	
	Position indication	top mounted domed indicator	
Safety data	Degree of protection IEC/EN	IP66/67	
	Degree of protection NEMA/UL	NEMA 4X	
	Enclosure	UL Enclosure Type 4X	
	Agency Listing	ISO, CE, cCSAus	
	Quality Standard	ISO 9001	
	Ambient temperature	-22149°F [-3065°C]	
	Storage temperature	-40176°F [-4080°C]	
	Ambient humidity	Max. 100% RH	
	Servicing	maintenance-free	
Materials	Housing material	die cast aluminium	
	Gear train	high alloy steel gear sets, self locking	



Product features

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).

Accessories

Gateways	Description	Туре
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON
Electrical accessories	Description	Туре
	Local electric disconnect for SY412 series actuator, AC 120 V, MFT	HOA-120VMFT
	Service Tool, with ZIP-USB function, for programmable and	ZTH US
	communicative Belimo actuators, VAV controller and HVAC performance devices	
Service tools	Description	Туре
	Connection cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection	ZK4-GEN
	Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

Electrical installation



> INSTALLATION NOTES



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

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



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



🔬 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.

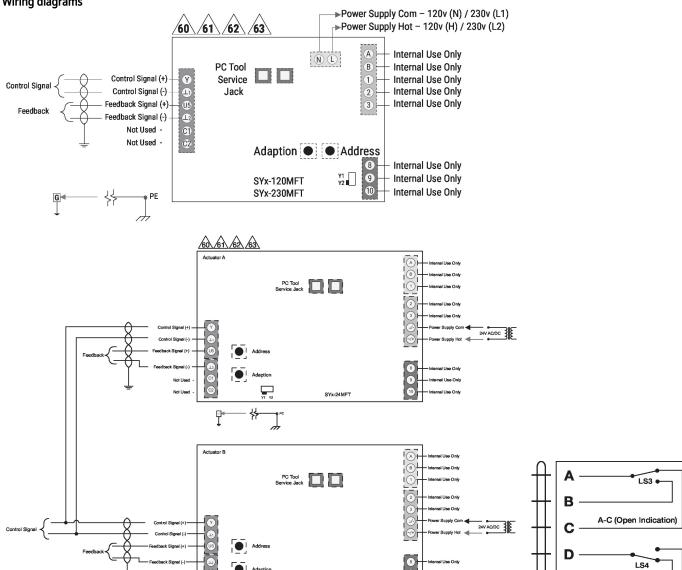


Warning! Live electrical components!

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.



Wiring diagrams



SYx-24MFT

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D-F (Closed Indication) Contact Rating: 5A 250 VAC Max.