

MFT/programmable, Non fail-safe, 230 V



2-year warranty

Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 207...253 V
	Transformer sizing	506 VA
	Current consumption	2.2 A
	Auxiliary switch	2x SPDT, 1 mA...5 A (3 A inductive), DC 5 V...AC 250 V, 1x 3° / 1x 87°
	Switching capacity auxiliary switch	1 mA...5 A (3 A inductive), DC 5 V...AC 250 V
	Electrical Connection	Terminal blocks
	Overload Protection	thermally protected 135°C cut-out
Functional data	Internal Humidity Control	resistive heating element
	Torque motor	3000 Nm
	Operating range Y	2...10 V
	Input impedance	100 kΩ
	Position feedback U	2...10 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)	61 s
	Duty cycle value	50%
	Noise level, motor	45 dB(A)
Safety data	Position indication	top mounted domed indicator
	Degree of protection IEC/EN	IP66/67
	Degree of protection NEMA/UL	NEMA 4X
	Enclosure	UL Enclosure Type 4X
	Agency Listing	ISO, cCSAus
	Quality Standard	ISO 9001
	Ambient humidity	Max. 100% RH
	Ambient temperature	-22...149°F [-30...65°C]
	Storage temperature	-40...176°F [-40...80°C]
Weight	Servicing	maintenance-free
	Weight	150 lb [70 kg]

Technical data

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	Type
		Gateway MP to BACnet MS/TP Gateway MP to Modbus RTU Gateway MP to LonWorks	UK24BAC UK24MOD UK24LON
	Electrical accessories	Description	Type
		Local electric disconnect for SY4...12 series actuator, AC 120 V, MFT Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices Battery backup system for SY7...12 series actuator, AC 120 V, on/off	HOA-120VMFT ZTH US EXT-NSV-B05-120
	Tools	Description	Type
		Connecting cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZK4-GEN ZTH US

Electrical installation

INSTALLATION NOTES

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

The diagram illustrates the SYx-24MFT system, showing two identical units, Actuator A and Actuator B, connected to a central control system. Each actuator has a 'PC Tool Service Jack' and a 'SYx-24MFT' label. The control system includes a 'Control Signal (+)' and 'Control Signal (-)' input, a 'Feedback' input, and a 'Not Used' input. The actuators are connected to a power supply via a transformer labeled '24V AC/DC'. The diagram also shows a 'PE' (Protective Earth) connection and a 'Y1 Y2' label.

