


2-year warranty

## Technical data

| Electrical data | Nominal voltage | AC 120 V |
| :---: | :---: | :---: |
|  | Nominal voltage frequency | $50 / 60 \mathrm{~Hz}$ |
|  | Transformer sizing | 360 VA |
|  | Current consumption | 3 A |
|  | Auxiliary switch | $2 \times$ SPDT, 3 A resistive ( 0.5 A inductive) @ AC <br> $250 \mathrm{~V}, 1 \times 3^{\circ} / 1 \times 87^{\circ}$ |
|  | Switching capacity auxiliary switch | 3 A resistive (0.5 A inductive) @ AC 250 V |
|  | Electrical Connection | Terminal blocks |
|  | Overload Protection | thermally protected $135^{\circ} \mathrm{C}$ cut-out |
|  | Internal Humidty Control | resistive heating element |
| Functional data | Direction of motion motor | selectable with switch 0/1 |
|  | Manual override | hand wheel |
|  | Angle of rotation | $90^{\circ}$ |
|  | Running Time (Motor) | 62 s |
|  | Duty cycle value | 30\% |
|  | Noise level, motor | $45 \mathrm{~dB}(\mathrm{~A})$ |
|  | 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 | $-22 . . .149^{\circ} \mathrm{F}\left[-30 . . .65^{\circ} \mathrm{C}\right]$ |
|  | Storage temperature | $-40 . . .176^{\circ} \mathrm{F}$ [-40...80 $\left.{ }^{\circ} \mathrm{C}\right]$ |
|  | 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

Electrical accessories Description Type

Local electric disconnect for SY4... 12 series actuator, AC 120 V, on/off HOA-120V

## Electrical installation

## $\nrightarrow$ installation notes

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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 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.

## $\triangle$ 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
AC/DC 110/120 or 220/230V


AC 110/120 or $220 / 230 \mathrm{~V}$



