

# SY4-110

On/Off Floating Point, Non-Spring Return, 110 V



## 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).

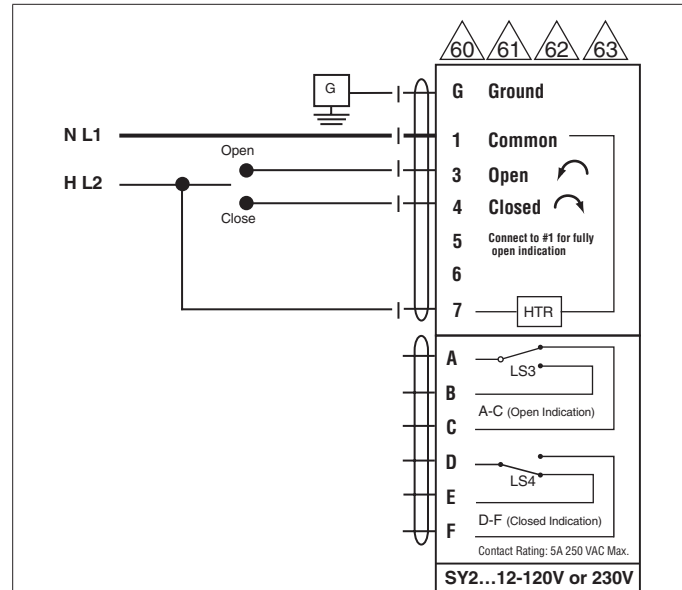
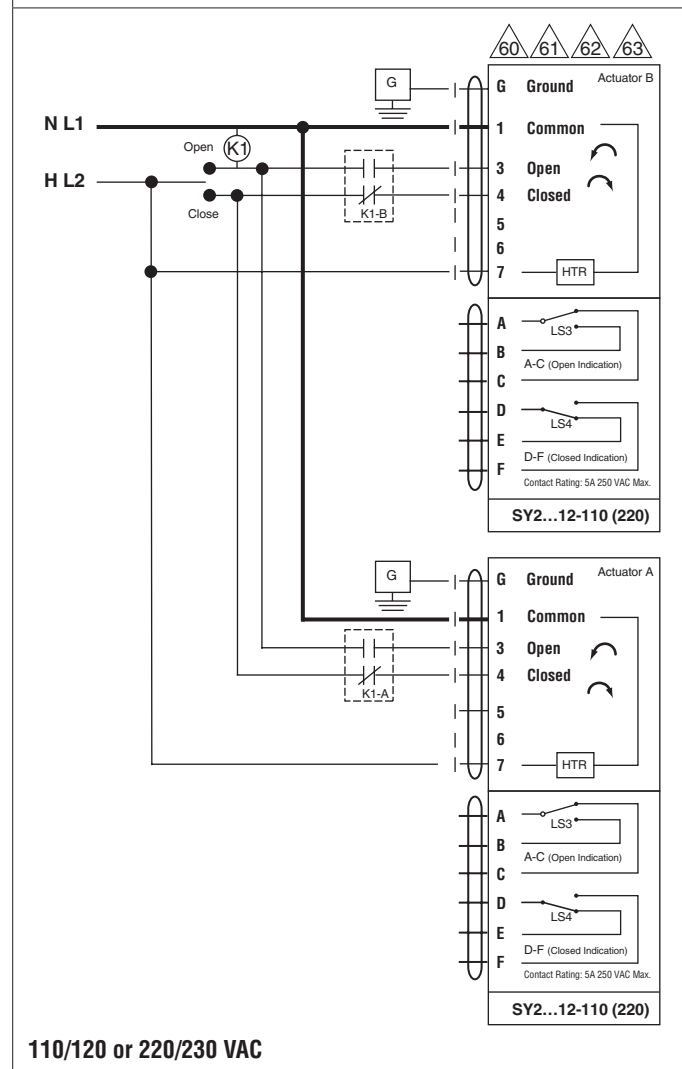
## Technical Data

|                             |   |
|-----------------------------|---|
| Power Supply                | 120 VAC, $\pm 10\%$ , 50/60 Hz  |
| Transformer sizing          | 253 VA  |
| Current consumption         | 2.1 A   |
| Electrical Connection       | terminal blocks   |
| Overload Protection         | thermally protected 135°C cut-out   |
| 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          | 34 sec  |
| Internal Humidity 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 [23 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**

- 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.


**110/120V or 220/230V AC/DC**

**110/120 or 220/230 VAC**