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Overview



The S6002 is a two-axis micro-stepping drive which incorporates the latest breakthroughs in microstepping technology to provide the user with superior step motor/drive performance. This drive accepts either differential step and direction or clockwise/counterclockwise control signals, and can interface with controls from IDC or other suppliers. All S6000 Series products contain microstepping drives capable of resolutions up to 25,400 steps per revolution.

Our drives have been carefully engineered for exceptional reliability, dynamic performance and repeatability. An extremely efficient isolated switchmode power amplifier means greater power density and less electrical noise than other drives.

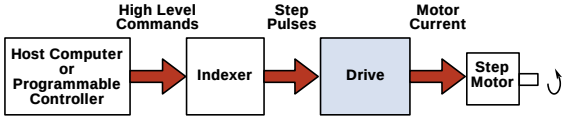
Anti-Resonance Circuitry

Many step motor users are familiar with mid-range instability, or resonance, which under some conditions can cause a step motor to stall between 13 and 18 rps. Microstepping technology alone does not address mid-range instability. However, our S6000 drives use anti-resonance circuitry to virtually eliminate it.

Protection and Diagnostics

LEDs indicate when power is on, step inputs are received, and when a fault condition exists. Internal circuitry protects against damage caused by a mis-wired or damaged motor (short circuit protection), as well as allowing considerable regenerative energy to be dissipated.

Features	Benefits
• Anti-Resonance circuitry.	Significantly reduces chance of stalling.
• 120 VAC power input.	Convenient power, no external transformer required.
• Step and Direction or CW/CCW inputs.	Works with popular stepper controls.
• Short circuit protected (phase to phase and phase to ground).	Prevents failure due to mis-wired, or damaged motors.
• Brownout and overtemperature protected.	Less concern for unpredictable extremes.
• Isolated switchmode power amp.	Highly efficient, lower electrical noise than other drives.
• Optically isolated I/O.	Excellent noise immunity.
• LED status indicators.	Simple troubleshooting.
• Built-in and external re-gen power dump.	Protects system, allows extreme inertial loads when you need it.
• 2.5" x 9" footprint, 5.84" deep.	Compact. Same size for single or two-axis drive.



Compatible Mechanics:
EC2-S, EC3-S, EC4-S, EC5-S
NV-S, N2-S, R2A-S, R3-S, R4-S
Positioning Tables

Specifications

Power Input

105-132 VAC Single Phase, 50/60 Hz
1000 VA max @ 6 Amp setting

Motor Output

Current	0.1 to 6.0 Amp, in 0.1 Amp increments (rotary switch selectable)
Voltage	160 VDC Bus Voltage
Resolution	Switch selectable: 200; 400; 1000; 5000; 10,000; 18,000; 25,000; 25,400

Motor Compatibility

Type	2 phase, hybrid permanent magnet, 0.9°, 1.8°, or 7.2° full step
Inductance	2 mH to 60 mH per phase (rotary switch selectable)

Amplifier

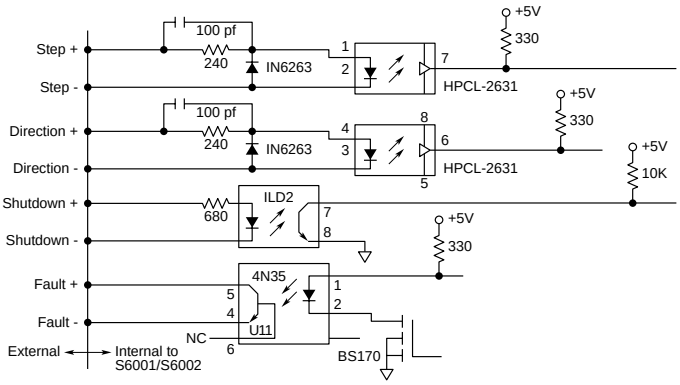
Protection	
Short Circuit	Amp disabled if phase-to-phase or phase-to-ground short detected.
Brownout	Amp disabled if supply drops below 90 VAC
Over-temperature	Amp disabled if heat sink temperature exceeds 65°C
Standby	Switch selectable. Reduces motor current to 75% of preset value if no step pulses are received for 1 second. Rated current levels resume upon receipt of next step pulse. Reduces motor heating.
Waveform	Switch selectable. Configures the shape of the current waveform. Optimize smoothnesss and step-to-step accuracy.

Command Interface

Inputs	Step, Direction and Shutdown are Optically Isolated 6.5 mA min, 15 mA max. Step and direction can be configured as CW/CCW step inputs through switch selection.
Step	400 nsec min. width, 1.25 MHz max pulse rate, triggered on rising edge
Direction	Logic High = CW rotation, Low = CCW rotation, 0.4 µs set-up time required after direction change before next step pulse
Shutdown	Logic High = amp disabled, Low = normal operation
Fault Output	Optically isolated NPN, Collector (Fault+) and Emitter (Fault–) connections available. Output Off = drive not faulted; Output On = drive faulted

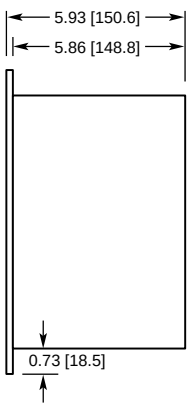
Environmental

Operating Temperature	Thermal shutdown occurs if heat-sink temperature exceeds 65°C (149°F). Heat-sink temperature is a function of motor current, motor regen, and ambient temperature. Severe applications may require -FK1 fan kit option. Most applications will not require the -FK1 if the *total* motor current is less than 6 amps (sum the current setting for the two drives). See page G-44 for more information.
Storage Temperature	-40°C to 80°C (-40°F to 176°F)
Humidity	0% to 90% non-condensing

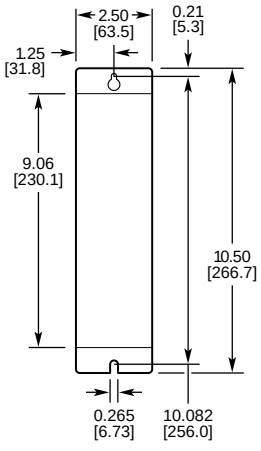


S6002 Mounting Dimensions

Side View in [mm]

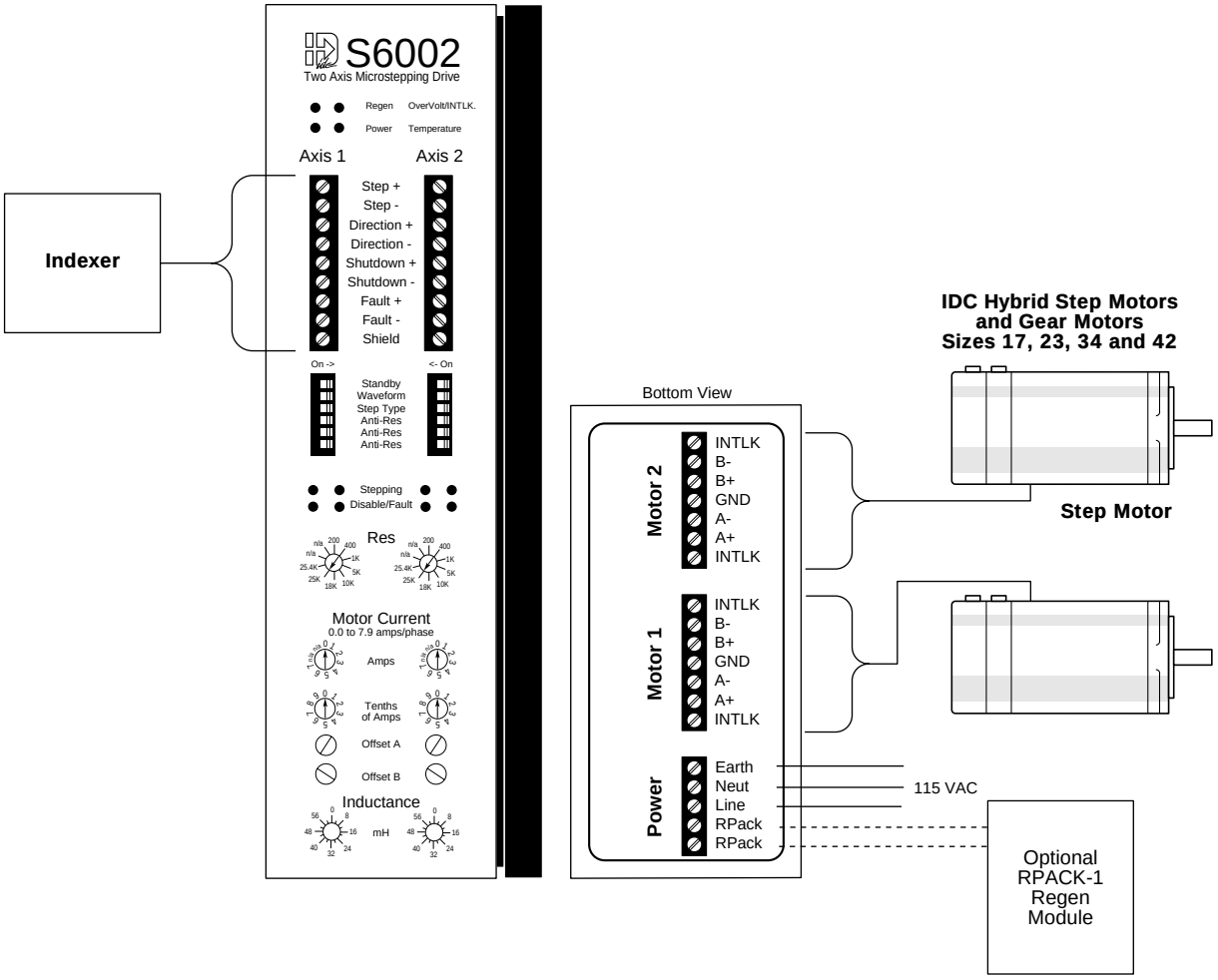


Front View in [mm]



Operation

System Configuration



How To Order

Model	Description	Options	Description
S6002	2-axis, 6 amp/axis microstepping drive	-FK1 Fan Kit	When exceeding 6 Amps total current setting (sum of axis 1 and axis 2 current setting). See page G-37.

Accessories

RPACK-1	External regenerative power dissipation module. Only for exceptionally large inertial and/or vertical loads with ballscrew actuators. See page G-39.

To confirm your selection, review the checklist on page G-6.

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