

Stepper Motor Controlled Huber Slit Driver

GENERAL DESCRIPTION

The Model HSC-1 Stepper Motor Controlled Huber Slit Driver is a compact, lightweight unit that contains 2 stepper motors and their microprocessor controlled drivers. The units are designed to be daisy-chained so that a single RS-232 line can control multiple sets of slits. Power is provided to the units through the same daisy chain, allowing multiple units to be powered from a single HSC-PWR Power Adapter. Daisy-chaining is via DB-9 connectors, allowing the user to simply make up ribbon cable connectors for this purpose. The onboard microcontroller accepts simple ASCII commands to move the slits. Step size is 2.5 μm at 200 steps/revolution. Individual slit motions and the pseudo-motor motions “open/close” and “slide” are supported. Motor power is turned off after each move to save power and reduce switching noise. Slit locations are saved to non-volatile memory on power failure. Units may be ordered with slits or as separate assemblies to retrofit existing Huber Slits.

The Model HSC-PWR Power Adapter is a wall transformer unit which generates power for up to 4 HSC-1's. The unit comprises two parts, the transformer itself and an adapter cable which places both power and RS-232 signals onto 9 lines for daisy chaining between successive HSC-1's.

FEATURES

- One HSC-1 drives one axis of Huber slits.
- Low cost – no other control circuitry required.
- Low noise, low power, 2.5 μm per step.
- Onboard microcontroller and motor drivers
- Simple RS-232 command language
- Wall transformer unit powers several HSC units.
- Daisy-chain power and RS-232 signals between units.
- Supports software limits movement.
- Current locations saved on power failure.
- Pushbuttons for “Manual” control



APPLICATIONS

The HSC-1 provides precise remote control so that slits can be adjusted while the x-ray beam is on. Its low cost allows this control to be implemented on all Huber slits, whether they need to be adjusted only occasionally or as part of the experimental data collection process. The HSC-1's compact size and light weight makes it an ideal candidate for controlling slits on diffractometer arms as well as on stationary beam paths. Retrofitting existing slits is easy too and does not require machining the knurled knobs.

SPECIFICATIONS

Power Requirements:

Supply Voltage Range: 24 - 30 Volts. Voltages lower than 24 volts may be used, with less immunity to accidentally triggering the power failure sensing circuit (which uses a threshold of 18 Volts)

Supply Current: 50 mA with no motors moving

175 mA with one motor moving (motor current set to high)

300 mA with both motors moving (motor current set to high)

Signal Connections

The HSC-1 supports a standard 3-line DTE - DCE connection running at 9600 baud, with 1 stop bit and no parity.

Mechanical

Uses full-step mode to achieve 200 steps per revolution, corresponding to 2.5 μ m per step.

The microcontroller automatically takes up the mechanical backlash after every motor movement.

Slit Installation

Driver mounts to slit using holes on current Huber model 3013 slits. Specifications are included for machining mounting holes on older sets of slits.

Supports two knob styles: recent Huber slits with knobs measuring 0.425 inches in diameter, and older slits with knobs measuring 0.390 inches in diameter

ORDERING INFORMATION

Shipping Weight: 1.5 lbs. (HSC-1)

Warranty: One year

Prices: Per Current Price Sheet

Part Numbers:

HSC-1 Single package controller plus 2 motors, RS-232 plus power interface.

HSC-SLIT-1: Huber 3013 Slit plus single mounted HSC-1 controller.

HSC-SLIT-2: Huber 3013 Slit plus pair of mounted HSC-1 controllers.

RELATED PRODUCTS

HSC-PWR: RS-232 Power adapter & supply for up to 4 HSC-1's.

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