

**SERIES B5950**

**BLOCK MICRO PROPORTIONAL DRIVER**

**General Description**

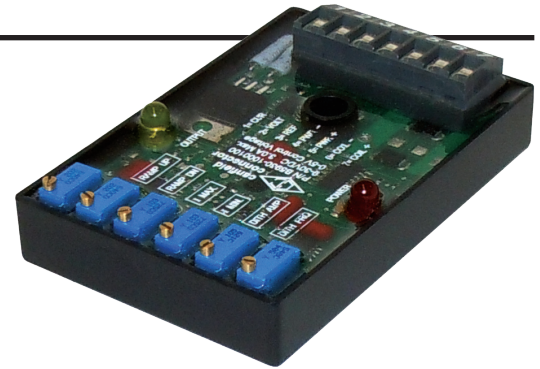
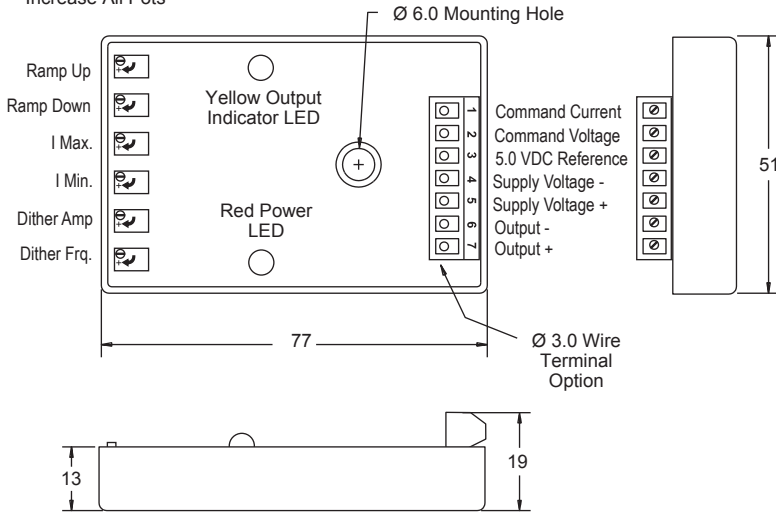
The Canfield Connector Series B5950 is a rugged proportional driver built into an epoxy potted enclosure designed to control linear proportional solenoid operators. Features include selectable control signal inputs from 0-5V or 0-20 mA with adjustable min/max current output. The output steps to the minimum current setting when 0.1V or 0.4 mA is applied to the control signal input. Also included in the compact package is a 0.1 to 20 second adjustable ramp-up and ramp-down output and sine wave dithering (PWM) with adjustable amplitude and frequency. The B5950 has an output current that is proportional to the command signal input.

Assembly and mounting of the unit is accomplished by use of a 6mm diameter mounting hole in the body of the unit. Connection is made by use of a miniature header strip which accommodates stranded or solid wire to 3mm diameter. Adjustments are easily accessible on the top surface of the unit. Additional features include on-board diagnostics such as a red indicator light for power and a yellow indicator light for output to the solenoid. The B5950 can be used to control any solenoid operator designed to meet the technical specifications as shown on this brochure.

**Dimensional Data**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

(18 Turn Adjustment)  
 Clockwise to  
 Increase All Pots



**Technical Data**

Parameter	All Versions
Supply Voltage	9.0V DC min. - 32 VDC max.
Supply Current	45 mA max. (no load)
Input Control Signal	
*Control Voltage	0 - 5 VDC (300 K $\Omega$ impedance)
Control Current:	0 - 20 mA (100 $\Omega$ impedance)
Ramping Up/Down Time	0.1 - 20 sec. linear (+/- 0.1% / °C)
PWM Frequency	1.2 KHz fixed
Output Leap to I min.	@ 0.1 V or 0.4 mA control (+/- 15%)
Dithering Frequency	30 -150 Hz
Dithering Aplitude	0 - 500 mA peak to peak
Voltage Reference	5.0V +/- 5% regulated
Operating Temp.	-25 to 85° C

Parameter	High Resolution Version	High Output Version
<b>Output Current @ 25° C T<sub>A</sub></b>		
Continuous	1.5 Amps max.	3.0 Amps max.
Peak Pulsed (16ms)	4.7 Amps max.	17.0 Amps max.
I min. (+/- 20%)	0 - 0.5 Amps max.	0 - 1.0 Amps max.
I max. (+/- 20%)	I min. + 1.0 Amps max.	I min. + 2.0 Amps max.
Regulation $\Delta V$	+/- 0.2% / V	
Regulation $\Delta T$	+/- 0.1% / °C	

\* Also available with 0 - 10 VDC control voltage (see ordering information)

## Function

**Minimum Current & Maximum Current** - These two adjustments will vary the minimum and maximum output current limits. The minimum current can be set between 0 - 500 mA or 0 - 3 A, depending on output current option. The maximum current can be set in the range between the minimum current setting and the minimum current setting plus 1 A or 2 A depending on output current option. The minimum current must be set first as described below.

**Minimum Current Adjustment** - Set both min. and max. current adjusters max. counterclockwise. Apply the minimum input command signal (approximately 0.5 volts or 1.0 mA). Adjust the min. current adjuster for a minimum current or to a desired system response. Back up adjuster until system stops responding. Proceed to max. current adjuster.

**Maximum Current Adjustment** - Increase the input command signal to maximum. Adjust max. current adjuster for a maximum current limit or to a desired system response.

**Note:** To minimize any effect of supply voltage, load resistance or temperature variation, make setup adjustments when these parameters are at the midpoint of the expected operating range for a particular installation. For example, if the expected operating temperature range is 20° C to 60° C, make final setup adjustments when system is approximately 40° C. If the supply voltage has a tolerance of 22 to 32 volts, make adjustments when the supply voltage is approximately 27 VDC.

**Ramp Up/Ramp Down** - Adjust to desired ramp up/ramp down time (0.10 - 20 sec.). Ramp time is linear and is proportional to the step change in the control signal. For example: 0.1 - 5 VDC change in control signal gives max. ramp of 20 sec. 0.1 - 2.5 VDC change in control signal gives max. ramp of 10 sec.

**PWM Frequency** - The output is pulse-width modulated to control output current within the minimum and maximum current settings. The frequency of the modulation is fixed at 1.2 KHz.

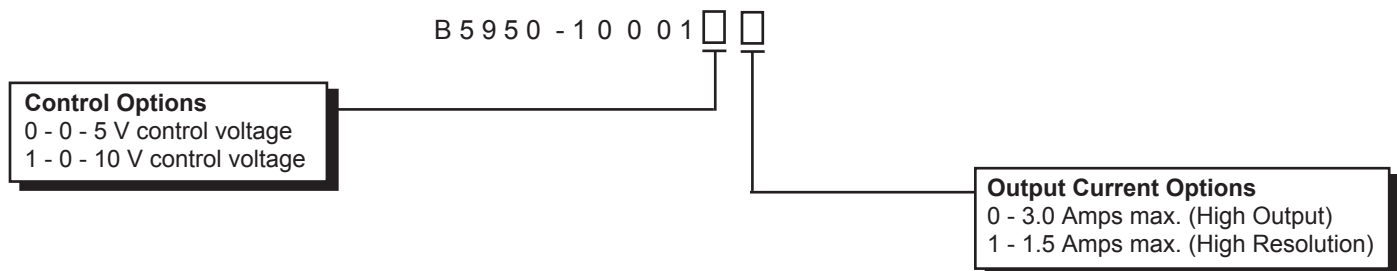
**Dither** - The coil current is sine wave modulated with adjustable frequency (30 - 150 Hz) and amplitude (0 - .5A peak to peak).

**Reference Voltage** - A regulated 5.0 VDC voltage is available for on site command voltage. Use of a 10K - 100K potentiometer connected from 5.0 VDC Reference to Supply Voltage (-) is recommended.

**Output** - The output is current regulated and will remain constant (within the limits specified under Technical Data on previous page) at the level set by the input command signal. Variations in supply voltage and load resistance have little effect as long as these values satisfy the equality stated below.

$$\text{Maximum Required Currents} \leq \frac{\text{Min. Supply Voltage}}{\text{Max. Load Resistance}}$$

## Ordering Information



### Ordering Example:

B5950 - 1000100

Block Micro Proportional Driver  
(MPD) 3.0 Amps max