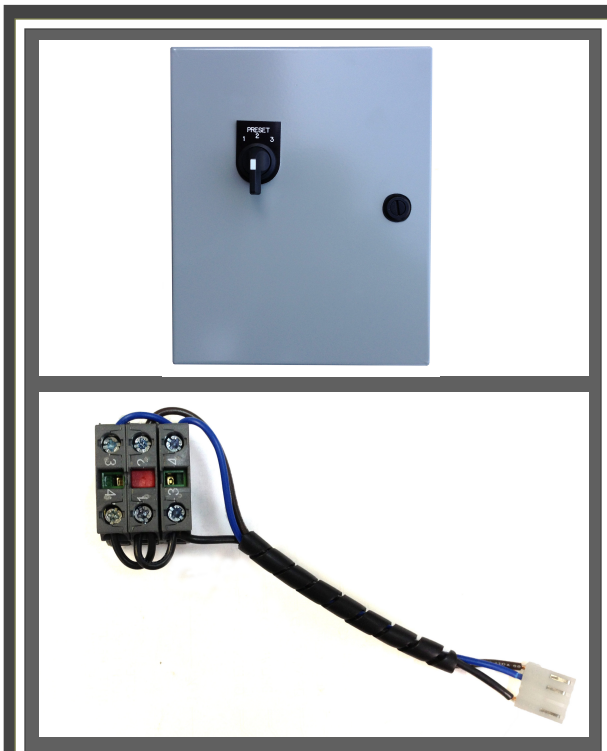


- Short Feed Progressions.** When a straightener, designed to keep up with high press throughputs, is presented with a very short feed progression or slow press SPMs, a standard loop control algorithm can cause problems. The straightener will grind along at a small fraction of its rated speed. Without ventilation from its internal fan the motor overheats. At best, the thermal cutouts snap, and the straightener's down. Usually, the motors just burn up. The CS-5000's control relay lets you program an ON-OFF system with hysteresis. Using the control relay, the straightener turns on when the loop rises to a predetermined height, then stops when the loop drops below a certain level (see figure above). This way the straightener is ON at a reasonable speed for a while, then rests. In the figure below the diagonal arrows in the time graph indicate whether the loop is depleting (arrows point UP) or re-filling (arrows point DOWN).

This algorithm is a little more complicated to program and wire. If your line requires this feature, refer to our white paper entitled Accessing ON-OFF Control Within the 3CPO Option.

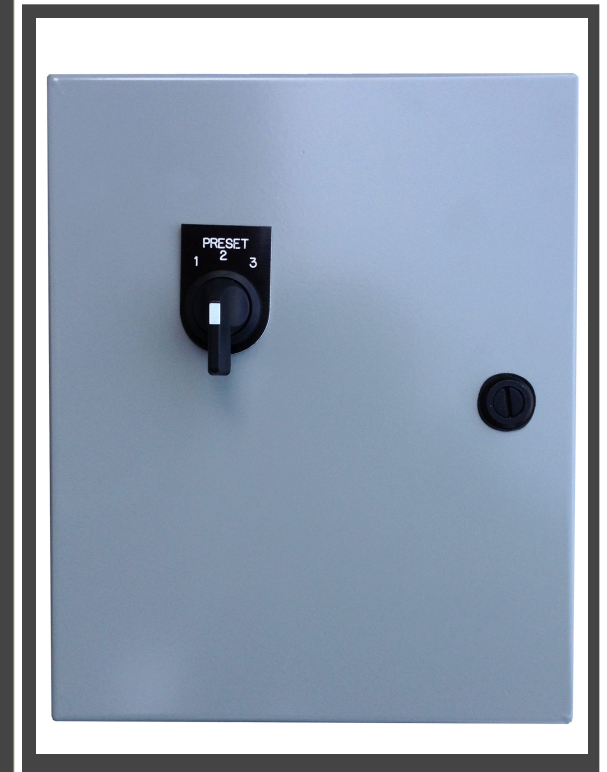


Installation Options

Programming the CS-5000 series controls for multiple program presets can be performed manually with the on-board DIP switches. Full functionality including programming OFFSET or the Control Relay must be performed using Coiltek's CSWin32 software. It's a free download from this website. The 3 CPO option is available pre-installed on our CS-5000, CS-5100 or even our CS-6100 series controls. It is also sold as a simple-to-install kit.

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coiltek



The 3CPO
 Option
 for
 Coiltek® Loop Controls

The Coiltek® 3CPO Option

Program Multiple Loop Control Settings Using Our 3CPO Option

Coiltek's CS-5000 ultrasonic sensor has always had the capability of storing multiple loop control parameters. The 3CPO option makes it easy for press operators to quickly switch to the appropriate loop control algorithm to run the job.

Why would you need different loop control parameters? Here are a few examples of press jobs that need special treatment.

- **Long Feed Progressions.** If each press cycle pulls most of the slack from the loop, your loop control algorithm should include offset. With offset, the control signal from the CS-5000 jumps from zero volts to some percentage of full scale output. Figure 1 shows a comparison of a standard analog output with a 30% offset output. With offset, the feed equipment (decoiler or straightener/flattener) gets a substantial move signal before too much loop is depleted. This head start overcomes the inertia of the equipment giving it more of a chance to match the press throughput. With offset set properly, the feed device will run more smoothly. Here's why. The loop will swing up and down dramatically with each stroke of the press. This is unavoidable. The loop control will sense the large fluctuation. Note that with offset, the output signal over the control range presents a gentler slope than a pure 1:1 analog output. Provided the loop stays within the desired control range, the drive that the CS-5000 controls will

exhibit far less "wow" (variation in speed with each press stroke). Offset works best with constant speed devices like straighteners or nip-pullers than with decoilers. The dwindling radius of the coil represents a constantly changing system gain, which can make the offset characteristics difficult to dial in.

- **Thick stocks.** In a given looping area, thin stocks 'drape' better than thick stocks. In fact, if there is insufficient looping distance, thick stocks cannot be pushed all the way to the floor without imposing set (curvature) in the material. Where a straightener/flattener is used to remove coil-set, it's hardly good practice to re-institute it in the loop. It's critical that, if you run different stock thicknesses through the same press, you set different control ranges to adapt to material thickness. A preset program associated with a particular stock thickness lets you control the radius of curvature in the loop so that stock bending stress is kept below yield.



The 3CPO option comes installed or in an easy to install kit and is compatible with all CS-5000, CS-5100, and CS-6100 series loop control units.

For more information contact us at (800) 883-7542 or e-mail us at contact@coiltek.com.

