



USB TYPE-C CONNECTOR
Mid-Mount Hybrid Receptacle



TE connectivity Authorized Distributor
Digi-Key LEARN MORE

HOME > TECHNOLOGIES > MOTORS/DRIVES > MOTOR-POWERED ACTUATOR CONTROLS FLOW ON CONVEYORS

Motor-powered actuator controls flow on conveyors

Elisabeth Eitel

Jun 6, 2013

SHARE Tweet G+1 Recommend 0

COMMENTS 0



Upon start-up, two signals are internally pulled up to 5 Vdc. Onboard electronics switch between the two when pulses are detected on the Step input.

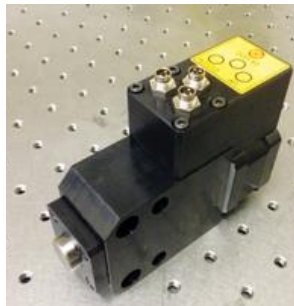
Engineers at **Mechatronic Techniques**, Plano, Tex., recently designed a motor-powered stopper to replace pneumatic and solenoid stoppers on some custom conveyors. The stoppers extend into the conveyor's material stream to halt the flow of trays containing parts for assembly. When workstations downstream are ready, the stoppers retract and the flow of trays resumes. Previous pneumatic stoppers were inefficient and loud, and solenoid stoppers were often underpowered.

The engineering team had to get this conveyor subsystem from design to prototype in two weeks and manufacture 35 working units in one month with the help of **AllMotion**, Union City, Calif.

The stopper actuators consist of a custom stepper motor with a leadscrew and round-shaft bearing, plus an AllMotion Intelli-Inch stepper controller and driver. It also has a linear shaft with an antirotate feature. The controller/driver generates up to 25,000 pulses/sec and is programmed to run the motor a fixed number of steps clockwise or counterclockwise. At the end of travel, the motor simply stalls.

The actuator extends (and retracts) 11 mm in 0.5 sec to stop and release 10-tray pileups that push on the cantilevered actuator arm with about 15 lb of sideload. Besides its use in new conveyor machinery, the actuator is a drop-in replacement for pneumatic and solenoid stoppers on older machines.

Its electrical interface is similar to that for a solenoid: Wire inputs include Step, Direction, Ground, and



For compatibility with previous machines, Intelli-Inch Controller and Driver power input is 24 Vdc. That way, a PLC can take an input to ground to make the actuator retract, or take the other input to ground to make actuator extend. Mechatronic Techniques is working on an alternative design that will use a single input.

With enhanced EMI and board retention features this slim profile connector is small enough for handheld devices yet robust enough for industrial applications.



TE connectivity Authorized Distributor
Digi-Key LEARN MORE

For more information, visit **Digi-Key** today!

Featured

Learn to Stop Worrying and Love the Cloud

By Carlos Gonzalez



Read Now

Back to Basics

3D Printing Tips and Tech: Get to Know Those Acronyms

By Jeff Kerns