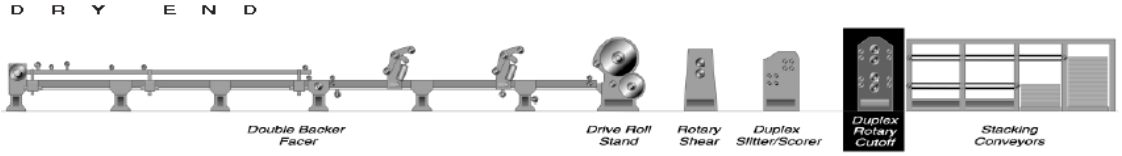
RCO

Smart Rotary Cutoff Drive



UNICO®

RCO

Smart Rotary Cutoff Drive

Overview

Unico's Smart Rotary Cutoff (RCO) Drive is a digital signal processor (DSP) based variable-speed drive with an embedded software block to control a rotary cutoff. The program offers a number of programmable features that enable OEMs, integrators, and users to customize the functionality of the software to the application.

Features

Cut-to-Length or Cut-to-Mark

The rotary cutoff control cuts a continuously moving web of material into specified lengths. A measuring wheel is used to track web movement. Two different modes offer the choice of cutting prescribed lengths or cutting relative to printed registration marks using a mark detector to scan the web. Windowing features minimize spurious mark errors during registration cutting.

Pattern Recognition

The drive can search for a user-defined pattern of marks on the web. When a pattern is recognized, the cutoff makes a cut at a specific location relative to the last mark in the pattern. A pattern tolerance setup establishes the degree to which the distance between consecutive marks can vary from the set distance and still be considered a valid part of the pattern.

Simulators

Two simulation tools facilitate setting up, testing, and troubleshooting a rotary cutoff system. A line simulator makes it possible to run the cutoff without a web by simulating the feedback that the measuring wheel or pull roll would provide as the line ramps up, ramps down, or runs at speed. A mark detector simulator provides marks at a specified separation to allow testing in cut-to-mark mode.

Batch Control

Two different part lengths and batch sizes can be specified at once, allowing the operator to set up the next order while the current one is running. In cut-to-mark mode, batches also specify the mark offset and up to eight pattern edges. Orders change automatically at the end of a batch or when requested by the operator. A customizable early warning feature indicates when a batch is nearly complete. A single length may also be produced indefinitely.

Micro Trim Adjust

A micro adjust feature compensates for length errors caused by wear or build-up on the measuring wheel or rolls. The operator enters the measured length of a part, and the program recalculates the correct measuring wheel circumference to bring the cut and requested lengths into agreement.

Customized Tuning

A customized tuning approach reduces the cut error during line velocity changes to minimize bad parts and scrap caused by line stops.

Features *(continued)*

Dynamic Feedback Sourcing

The cutoff can follow line speed feedback from two different sources and switch between them “on the fly” to enable tailout and line thread operations.

Maximum Line Velocity Calculations

The program calculates the maximum velocity at which the line can operate based upon sheet length. The velocity is computed using a number of parameters that describe the knife, knife motor, and knife drive.

Real-Time Trackers (AOC Timers)

Up to four programmable web tracking controllers can be used to trigger external devices. Real-time tracking is based on encoder feedback, such as from a measuring wheel (LPG). These web trackers can be used in conjunction with complete dry-end AOC controllers.

Communications Protocols

The drive supports a variety of serial communication protocols for connecting to virtually any PLC or HMI. The drive can also operate in a stand-alone mode using the built-in keypad/display with an ANSI protocol connection to a simple serial display unit.

- ControlNet
- CC-Link
- Ethernet
- EtherCAT
- Profibus
- ProfiNet
- CANopen
- DeviceNet
- Modbus RTU

Inputs & Outputs

All inputs and outputs are user-enabled and are mapped to hardware I/O points to allow customization of the control. They are also accessible through a high speed serial communication link.

Inputs

- motor on
- fault reset
- motor thermal ok
- motor blower ok
- jog forward
- goto position
- goto auto off
- auto
- order change
- follow source
- dereference
- cut to mark
- skip mark
- set window
- advance offset
- retard offset
- reference

Outputs

- motor on
- no fault
- no warning
- manual
- auto
- reference
- at position
- cut error
- line too fast
- at goto position
- at auto off position
- batch complete
- early warning
- missed mark
- open window
- cut to mark
- forward motion
- no ref warning
- thermal warning
- motor rms warning
- track 1
- track 2
- track 3
- track 4
- cam 1
- cam 2
- cam 3
- cam 4
- cam 5
- cam 6
- cam 7
- cam 8

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Unico is a leading global innovator of motion-control solutions for industry. Founded in 1967, the company develops, manufactures, and services variable-speed drives, application-engineered drive products, integrated drive systems, and ancillary products that improve operations by increasing productivity, safety, and equipment life while lowering energy and maintenance costs.

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