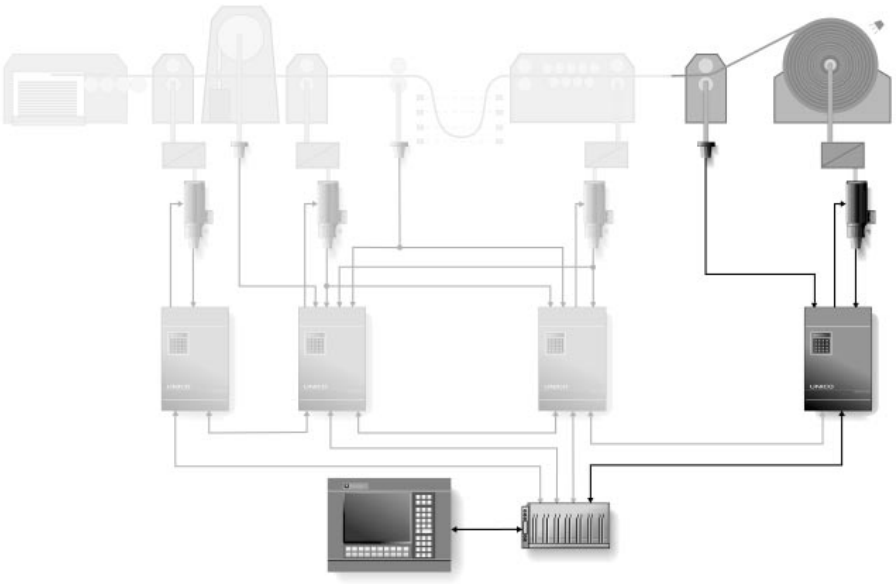

Overview

The URC™ software module is engineered specifically for controlling unwind and rewind applications. The program is embedded within the controller of a UNICO drive, eliminating the need for an external control rack. When used in conjunction with a programmable controller, the drive forms a powerful automation work cell that can either stand alone or be easily integrated with other UNICO automation cells to build a complete control system for a metal-processing line. Embedded control reduces system complexity while taking full advantage of the exceptional performance, flexibility, and ease of use of UNICO drives.

Features

Coil Diameter Calculation

The unwind/rewind continuously updates its system calculations. The outside diameter, mass, and inertia of the coil are updated once every revolution. Dynamic inertia compensation is calculated to provide smoother acceleration and deceleration of the coil.

External Diameter Reference

The coil diameter may be tracked using an external device such as a sonic wired to one of the analog input channels. Three diameter outputs can be used to enable or disable certain events when the coil reaches user-defined diameters. These outputs are normally used as early warning signals.

Tension Set-Up

The unwind/rewind can be configured to provide either forward tension, for applications such as recoilers, or reverse tension, for applications such as uncoilers. Separate adjustments provide independent control over tension while threading material and while running.

Underpeel/Overpeel Control

Some operations load coils randomly without consideration as to whether the coil reels from the top or the bottom. An underpeel/overpeel feature allows coils to be wound or unwound without dictating how the coil must be loaded.

Linear Material Counter

The linear amount of material on the coil is continuously estimated as the coil builds up or down based upon the thickness of the material and the inner and outer coil diameters.

Coil Footage Counter

The software keeps track of the amount of material that has been uncoiled or recoiled on the line.

URC™
Embedded Unwind/ Rewind Control

Features *(continued)*

Early Warning Output
An early-warning output can be turned on when the amount of material remaining on the coil reaches a user-defined length.

Velocity Difference Fault
The program can detect a broken material strip or clock-springing coil by monitoring the velocities of the motor and master follow signal. A fault is generated if excessive velocity difference is detected.

Torque Limit Control
A torque limit mode can be used when the drive follows a velocity signal but requires control over its overall torque output. The torque limit value can be regulated using the torque limit selection or adjusted by an analog input.

Velocity Following
Most UNICO drives can be configured for transducerless control using an internal velocity estimator. The drive can follow a reference velocity and rate-limit this velocity using the acceleration and deceleration setups. This configuration allows the unwinder or rewinder to act as a master line control with its input being a target velocity. The drive can also operate as a simple slave.

Velocity Cruise Control
A velocity cruise-control feature in master velocity mode allows the drive to be accelerated, decelerated, or resume its last speed when the appropriate input is set.

Transducerless Drive Control
A transducerless mode of operation is available for less demanding velocity-control applications with motors that have no feedback device and do not require position control.

Programmability
The control can be customized to a specific installation using *UEdit™*, a powerful Windows-based programming tool that lets users add their own ladder logic and function-block programming.

Inputs/ Outputs

A variety of input/output functions are provided for integrating the unwind/rewind control with external devices. The user can select the functions required by a given system and specify their corresponding hardware or serial I/O points.

Inputs
- motor on
- fault reset
- jog forward
- jog reverse
- fast stop
- motion enable
- auto
- auto run
- velocity slave
- velocity master
- torque limit
- tension on
- run tension
- forward tension
- velocity select 0
- velocity select 1
- velocity select 2
- velocity select 3
- manual
- acceleration 1
- track reference
- speed adjust
- accelerate
- decelerate
- resume
- underpeel
- read diameter
- coil select 0
- coil select 1
- coil select 2

Outputs
- motor on
- no fault
- manual
- no warning
- auto
- in motion
- forward motion
- reverse motion
- at zero velocity
- at request velocity
- at maximum velocity
- tension on
- torque limit
- following
- underpeel
- early warning
- at diameter 1
- at diameter 2
- at diameter 3
- track preset
- motor rms warning
- inverter thermal warning

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