YASKAWA

Successful Solution

Cable Bundler
July 14, 2008

Issues / Problems / Challenges
- Synchronized motion between axes to eliminate pushbar skewing and binding
- Smooth change from position control to force control
- Replace pneumatic system without high cost
- Easy to commission and scalable

Solution
Controller:	MP2300Siec
Controller Software:	MotionWorks IEC
Solution Code:	PLCOpen + Custom
Servo:	(5) Sigma-5 (SGDV)
Power Level:	200 w
Voltage Level:	230 VAC, 1 Ph.

Performance Achieved:
Throughput:	n/a
Positioning Accuracy:	+/- 0.001"
Force Accuracy:	+/- 0.5 lb

Customer Information
Industry:	Material Handling
Application:	Cable Bundling
Motion Type:	Electronic Line Shaft
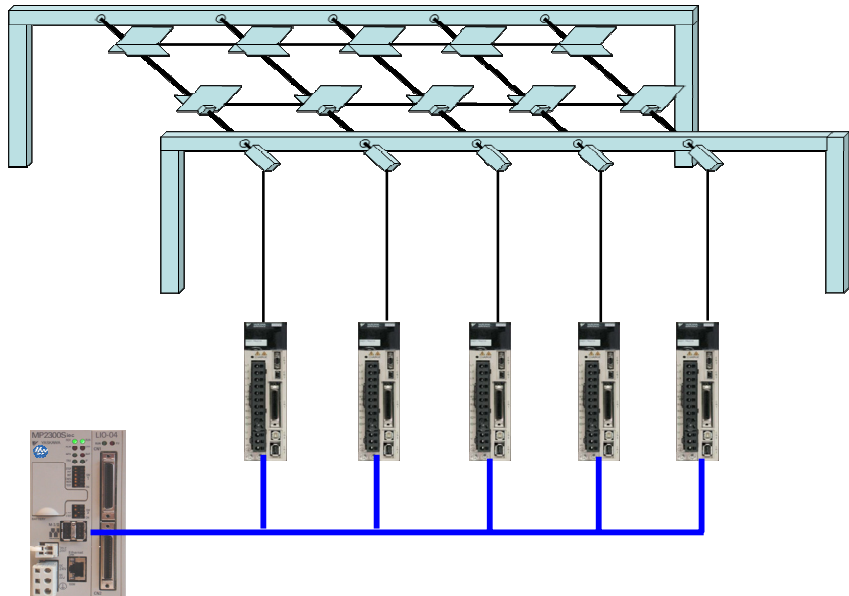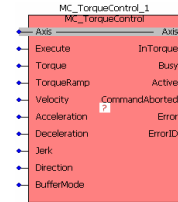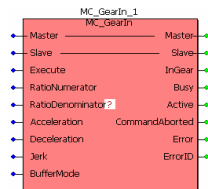
Application Description:

This OEM makes a variety of equipment that mainly serves the material handling industry. This application requires 5 axis of servo motors, mated to linear actuators, to bundle wires together to be wrapped into a cable harness. Through simple I/O interface, the operator selects one of several closed position targets based on the number of wires in the bundle. The operator also selects a force setpoint through additional digital inputs. During the move to the closed position, the 5 axes are geared together to smoothly move the 30 foot long bundling bar across the work surface without skew or binding. After reaching the target position, the MP2300Siec controller switches to torque control mode on all 5 axes to generate a final, specific force on the captured bundle of wires. After manual operation to create the bundle, the controller switches back to a geared position mode and returns the bundling bar to the start position.

Differentiating Solution Features	Resulting Solution Benefits
- IEC 61131-3 programming environment	- Familiar environment eases implementation time, reduces project risk, and improves performance
- Autotuning servo amplifier	- Saves commisioning time - improves system response
- Gearing and Torque control modes	- Improves throughput - Reduces product damage - Prevents mechanism skew and binding

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