



APPLICATION SOLUTION C48C #01

GLUING MOVING BOXES APPLICATION

A manufacturer has shipping boxes moving across a conveyor. They want glue applied two inches in from the start of the flap and to stop just before the end of the flap. When there is no box, the glue is not dispensed. They want the operator to be able to change the starting and stopping point of the glue on the flap.

PRODUCTS USED: C48CD002, ZFG0200C, PRDC0000, WF1000OF

The following Red Lion Controls models can do the job: C48CD002 Dual Preset Counter, ZFG0200C 200 ppr Length Sensor, WF1000OF 12" Measuring Wheel (metric measuring wheels also available), LSAHC001 Length Sensor Hinge Clamp Assembly and a PRDC0000 DC Photo-Electric Sensor.

HOW IT WORKS

The C48CD002 Dual Preset Counter will be used to control the operation. Both programmable user input 1 and counter input A will be configured as current sinking to accept outputs from the NPN open collectors of the ZFG0200C Length Sensor and the PRDC0000 Photo-Electric Sensor. The WF1000OF 12" measuring wheel is mounted to the conveyor using the LSAHC001 Length Sensor Hinge Clamp Assembly. The wheel will ride smoothly on the surface of the conveyor. One complete rotation of the wheel will equal 12" of conveyor. The ZFG0200C Length Sensor will be easily mounted to the wheel and clamp assembly and will monitor rotations of the wheel. For each rotation of the wheel, or 12" of conveyor, the encoder will generate 200 pulses on its NPN open collector output. This output will be fed to Input A of the C48CD002 Counter. The PRDC0000 Proximity (Diffuse) DC Photo-Electric Sensor will be mounted to the conveyor using a MB300000 side mounting bracket. The sensor will be used to detect the presence of a box and to trigger the gluing sequence. The photo-electric sensor will be set to Dark Operate so an output will be given to User Input 1 of the C48CD002 Counter when a box is not present. User Input 1 will be programmed to act as a reset for the counter. Output 1 the C48CD002 Counter will supply the start/stop signal to the glue dispenser.

When the photo-electric sensor does not detect a box, the counter is held in reset and the glue gun is off. When a box is detected, the reset is removed and the counter begins to increment based on the input from the encoder. When the first preset value is reached the output to the glue gun turns on and dispenses the glue onto the flap of the box. When the second preset is reached the output to the glue gun shuts back off. When the box has passed, the input from the photo-electric sensor to User Input 1 turns back on and resets the counter.

DESIGN ADVANTAGES

The customer quickly realized the benefits of this new system. The operator can change both counter presets without the counter having to be placed in the program mode. This allows on the fly adjustments by the operator. By using the encoder to measure the distance the box has traveled on the conveyor, glue is accurately dispensed onto the box flap with out mess or waste.

DIP SWITCH OR JUMPER SETTINGS

All are at factory settings.

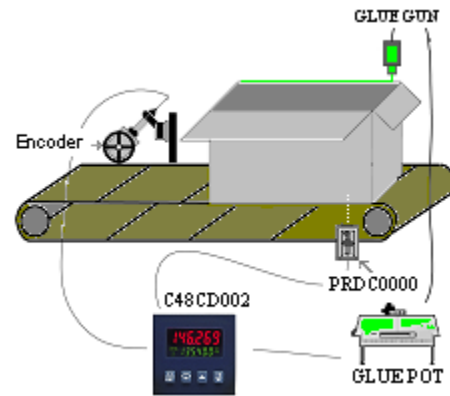
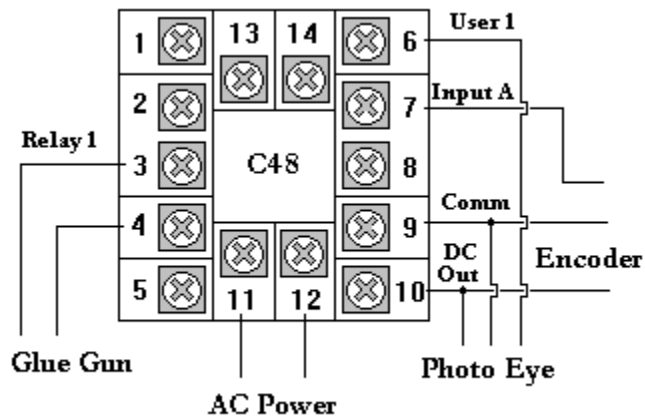
PROGRAMMING (Only nonfactory settings shown)

PscALr : 0.6
Dec Pt : 00000.0
Cnt In : C1-Ud
OPEr : 4 (Output 1 off at preset2)

PrESEt PRS1 : 2.0 (Starting point)
PrESET PRS2 : 5.0 (Ending point)
Usr In1 : rSt.-L

WIRING

All wiring must be according to the installation guidelines listed in the product's specifications. For the setpoint outputs to function an external isolated voltage source (not shown below) must be connected in series.



This application note is intended to be an example. Your specific application may require changes in products, programming and/or wiring. For specific assistance, you may contact your local Red Lion products supplier or Red Lion Controls Technical Support at 717-767-6511.