



APPLICATION SOLUTION **PAXC #03**

COUNTING PARTS AND CONTAINERS (PROCESS/BATCH/TOTAL) APPLICATION

A small hardware manufacturer has a requirement on one of their machines to count 1000 parts each into 10 separate containers. The machine that the company utilizes is a vibratory feeder that individually drops the parts, through an optic sensor, into the container. The piece count and container quantity may change per order so the operator will need to easily change these values. At the end of the day a total part count from that machine is needed.

PRODUCTS USED: PAXC000, PAXCDS20

The PAXC Dual Input Preset Counter, with PAXCDS20 Quad Setpoint Card, is chosen. This counter has three count displays that can be selected by pressing the DSP button the on the counter.

HOW IT WORKS

Input A will take the signal from the optic sensor and send it to Counter A (Process count). When Counter A reaches a value of 1000 parts, Setpoint 1 will open Relay 1, which will stop the vibratory feeder for 10 seconds and reset the counter. At this value, Setpoint 3 will close Relay 3, which will move the conveyor for 10 seconds. Also at this value, Setpoint 4 will close Relay 4, which is wired to Input B of the counter. This is programmed in module 6-SPt.

When Input B is momentary closed by Relay 4, it will increment Counter B (Batch count) by one. This is programmed in module 1-INP. When Counter B reaches a value of 10 containers, Setpoint 2 will open Relay 2, which will stop the vibratory feeder until the Start button is pressed. Relay 1 (10 seconds off) and Relay 2 (latch off) are in series so when one of them opens the power to the feeder is cut.

When Counter C (Total count) is assigned to Counter A, it will count all the parts since the front RST button was pressed. This Counter is setup in module 5-CtrC and must be changed to read along with Counter A and B in module 3-LOC. The reset for Counter C is setup in 2-FNC.

Since Setpoint 1, 3 and 4 all happen at the same time, only one needs to be entered after the initial setup. Assigning Setpoint 3 and 4 to track Setpoint 1 does this. For lockout, User 3 is programmed for PLOC in module 2-FNC. In module 3-LOC, Setpoint 1 (parts) and Setpoint 2 (containers) are programmed as Enter.

DESIGN ADVANTAGES

With the lockout design feature and the setpoint tracking feature, all the operator has to do is prepare the material, key in the amount per container and the desired number of containers and press external Start button.

ADDITIONAL CAPABILITIES

Reset for Counter A and B could be programmed using the front buttons eliminating the external button.

DIP SWITCH OR JUMPER SETTINGS

SW1-5 OFF SW6 ON (Because the signal is from Relay contact 4).

PROGRAMMING (Only non-factory settings shown)

1-INP

A CNt : cnt
b CNt : cnt

2-FNC

Usr-2 : CtrStE
A Cnt : YES
b Cnt : YES
C Cnt : NO
Usr-3 : PLOC
RSt : CtrStE
A Cnt : NO
b Cnt : NO
C Cnt : YES (reset Total)

3-LOC

A CNt : REd (Process)
b CNt : REd (Batch)

C CNt : REd (Total)

SP-1 : Ent

SP-4 : Ent

ASFAC : LOC

5-CtrC

C Cnt : cnt

6-SPt

SPSEL : SP-1 (Stop parts momentary)

OUt-1 : rEV

ACt-1 : tOUt

ASN-1 : A CNt

SP-1 : 1000

tOUt-1 : 10.0

AUtO-1 : ZErOAS

SPSEL : SP-2 (Stop parts latch at Batch#)

OUt-2 : rEV

ACt-2 : LAtCH

ASN-2 : B CNt

SP-2 : 10

RSd-2 : YES (reset with start)

SPSEL : SP-3 (Conveyor on)

ACt-3 : tOUt

ASN-3 : A CNt

SP-3 : 1000

TrC-3 : SP-1

tOUt-3 : 10.0

SPSEL : SP-4 (Pulse to
Input B Batch)

ACt-4 : tOUt

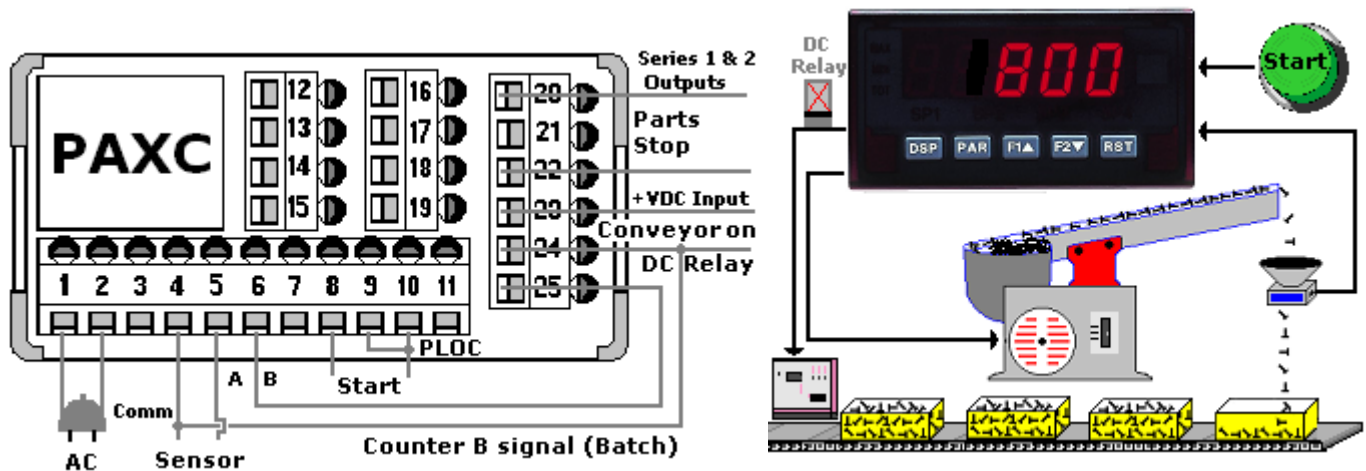
ASN-4 : A CNt

TrC-4 : SP-1

SP-4 : 1000

WIRING DIAGRAM

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. Because Relay 3 & 4 share the same common and Relay 4 is going to Input B, Relay 3 must go to an external DC relay before going to "conveyor on" circuit.



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.