



APPLICATION SOLUTION PAXR #01

PAPER COATING ALTERNATE SETPOINT LIST APPLICATION

A manufacturer of building products needed improved flow control on their paper coating machine. When resin is applied properly to asphalt roofing material, the paper roll will gain water repellant and mildew resistant properties. There are two different resin flow rates based on the selected project grade. The operators were not always getting the proper flow rate when manually changing between the grades.

PRODUCTS USED: PAXR0000, PAXCDS10

The solution to this application is the PAXR0000 Rate Meter with a PAXCDS10 Dual Setpoint Relay Output Card installed. The PAXR was chosen because of its alternate setpoint parameter list feature.

HOW IT WORKS

The engineering unit for the rate is cc per minute and for this customer there are 20 pulses per cc. When using a rate display value of 60, the rate input in Hz is always the number of pulses per unit, in this case 20.0. ($60 \text{ cc/min} \times 20 \text{ pulses/60 sec} = 20 \text{ Hz}$). Entering rate display of 60 and rate input of 20.0, in 4-rtE, the display will show the correct value at all speeds.

Set-up SP-1 (A) for boundary mode, high acting and a flow value of 53 cc/min while SP-2 (A) is slightly different with boundary mode, low acting and a flow value of 49 cc/min. If the resin flow rate is between 49 and 53 cc/min neither output would trigger, however, if the flow decreased to 48 cc/min, relay 2 would trigger the drive's speedup input driving the pump a little faster. Once the flow crossed above 49 cc/min, relay 2 would de-energize halting the increase command. Obviously SP-1 would activate the decrease flow command if the flow rate went above 53. List B will tag SP-1 (B) and SP-2 (B) with identical action features but with values of 62 cc/min and 58 cc/min.

When programming the separate setpoint action and values, User-1 (in 2-FNC) must be programmed for "LIST", and wire an external switch between User Input 1 to User Common. With the switch towards the A label, all subsequent programming is List A setpoint characteristics. When completed, flip the switch and configure List B setpoint characteristics. To remove any operator access into the meter's programming, assign User-2 to PLOC and jumper User 2 to User Common.

DESIGN ADVANTAGES

The PAXR allowed for a single flick of a switch, to select between two different setpoint lists. No bad products were manufactured while operators searched for the proper setpoint values.

ADDITIONAL CAPABILITIES

An easy swap from dual setpoint option card (PAXCDS10) to the quad setpoint card (PAXCDS20) adds the possibility of a low and high flow rate alarms.

DIP SWITCH OR JUMPER SETTINGS

All are at factory settings.

PROGRAMMING (Only non-factory settings shown)

2 - FNC

USr-1 : LISt
USr-2 : PLOC

4 - rtE

rtE dP : 0
rtEdSP : 60 (per minute)
rtE INP : 20.0 (pulses per unit)

6-SPt

LIST A (increase)

SPSEL : SP-1

LIt-1 : NOr
Out-1 : NOr
SUP-1 : SAVE
Act-1 : bOUNd
SP-1 : 53
tYP-1 : HI
HYS-1 : 1

LIST B (increase)

SPSEL : SP-1

LIt-1 : NOr
Out-1 : NOr
SUP-1 : SAVE
Act-1 : bOUNd
SP-1 : 62
tYP-1 : HI
HYS-1 : 1

LIST A (decrease)

SPSEL : SP-2

LIt-2 : NOr
Out -2 : NOr
SUP-2 : SAVE
Act-2 : bOUNd
SP-2 : 49
tYP-2 : HI
HYS-2 : 1

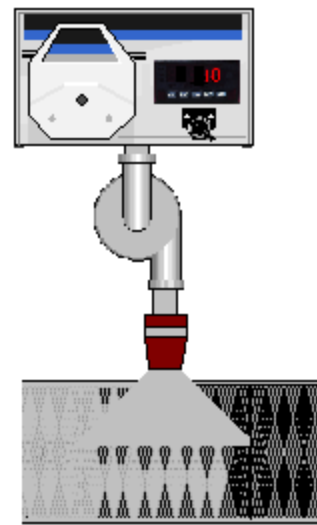
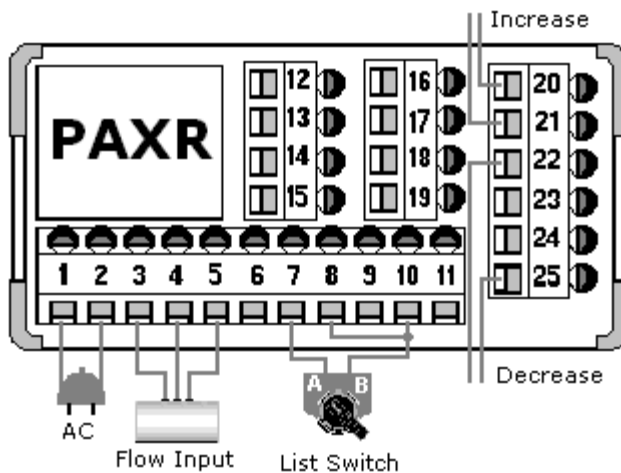
LIST B (decrease)

SPSEL : SP-2

LIt-2 : NOr
Out -2 : NOr
SUP-2 : SAVE
Act-2 : bOUNd
SP-2 : 58
tYP-2 : HI
HYS-2 : 1

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.



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.