

Micro Control Systems

APPLICATION NOTE

APP-020

Dunham-Bush 2 Pump Control

ACDRB 07.30-A

EXV 07.30-A

Revision History

Date	Author	Description
07/12/99	John G. Walterick	ACDR & EXV 2 Pump Control

Theory

This specialized software provides for a lead / lag evaporator pump control. If there is a loss of flow from the current pump it is locked off and the second pump is automatically started.

Requirements & Logic

- 1 Pump 2 must be the immediate relay output following Pump 1.
- 2 You must have a proof of FLOW sensor input.
- 3 The FLOW SWITCH set point must be active. Based on the settings the results will be as follows:
 - 3.1 LOCKOUT Option selected – Unit continues to run while switching pumps. The current pump yielding the no flow indicator will be locked off and requires a 'LOCKOUT RESET' from the MCS-8 keypad.
 - 3.2 ALARM Option selected – The unit will be shut down while switching pumps. The current pump yielding the no flow indicator will be locked off and requires a 'LOCKOUT RESET' from the MCS-8 keypad.
 - 3.3 SETPOINT Time delay - The time placed in the set point will determine the length of time the 'NO FLOW' will be on prior to making the pump switch.
- 4 The lead pump rotation will occur if one of the following occurs:
 - 4.1 The 'RUN / STOP is placed in STOP & then placed in RUN. (This can be a manual operation or a remote operation, from a BMS.)
 - 4.2 A schedule shuts down the unit and restarts the unit.
- 5 When the unit is shut down the current pump continues to run for 60 seconds.
- 6 The two pumps are assumed to be in parallel and the control functions as follows:
 - 6.1 When the unit calls for cooling, Pump 1 comes on. (Assuming it is the current lead.) If the FLOW SWITCH input goes off for the set point length of time Pump 1 is 'LOCKED OFF' & Pump 2 is started. To reset, the 'LOCKOUT RESET' & 'ENTER' keys on the micro must be used.
 - 6.2 If Pump 1 is currently 'LOCKED OFF', Pump 2 is running and a NO FLOW input occurs for the time delay set in the set point, Pump 2 will be LOCKED OFF & the unit shut down.
- 7 When ever a 'LOCKOUT RESET' is executed, Pump 1 will be reset to the lead.'
- 8 An Alarm is generated for each Pump failure. If an 'ALARM' relay output is provided it is turned on.