

Comment

This control scheme is to compensate for a deep well jet pump with a suspected failing foot valve. The foot valve has been installed for at least 35 years, and possibly 60+ years, and (because easy well access was cut off due to remodeling) is very difficult to replace. The pump cannot be set up for more than about 38 PSI without running continuously. However, at lower setpoints pressure suddenly crashes (when the pressure tank goes empty), and thus turns on the pump later than desired. Since the well still delivers sufficient output a flow switch is installed to start the pump before the pressure switch sees a pressure loss.

The 'flow up' and 'flow down' pulse generators are used to match (via experimentation) the amount of pumping time needed to restore to restore x amount of flow.

A pressure switch is still used to compensate for small water flows which do not trigger the flow switch, and runs the pump a dedicated amount of time.

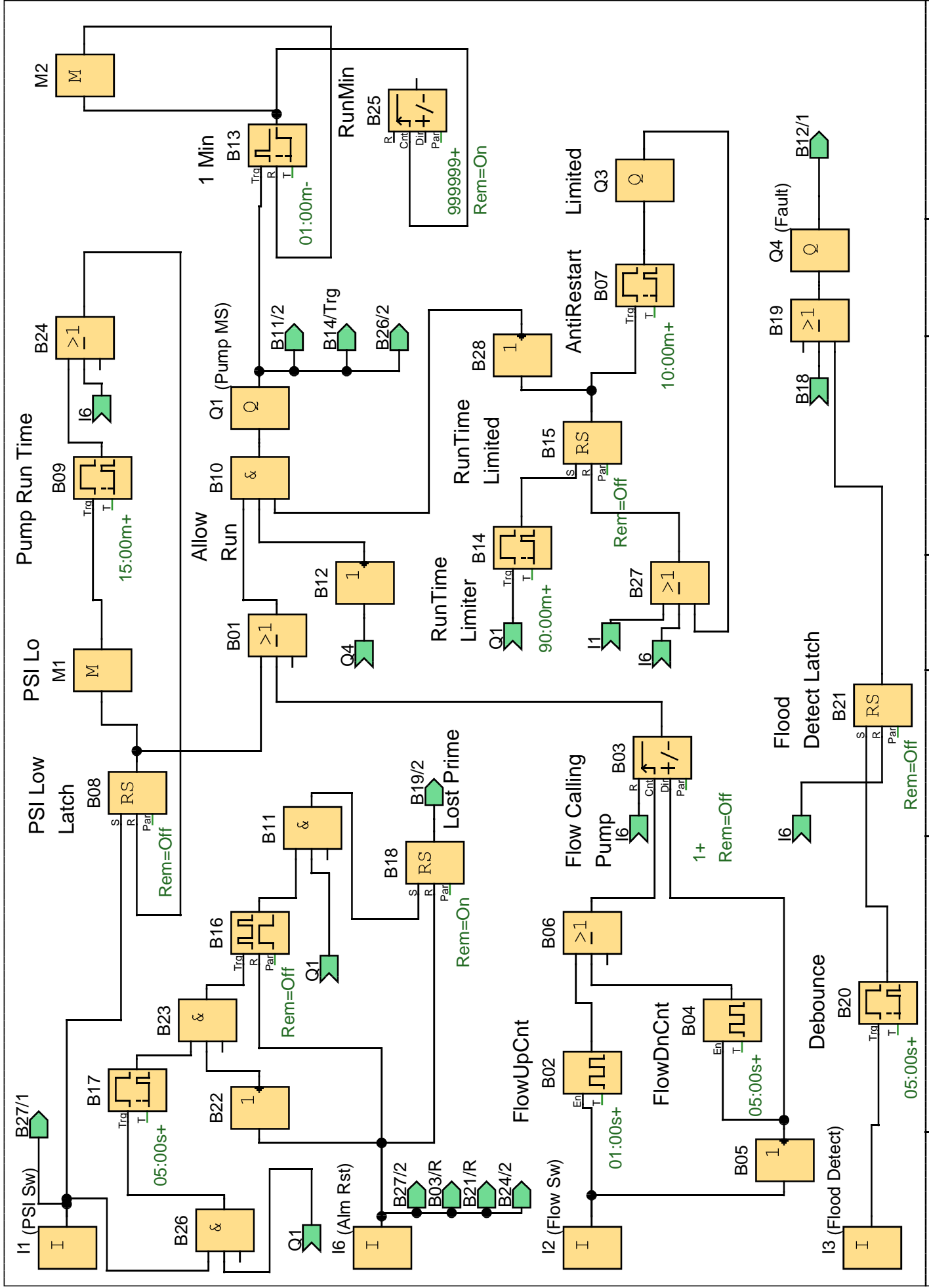
A 'run limiter' and 'anti-restart' timer combo is used to prevent excessive running and to limit the number of restarts per hour. This is over-ridden by a low pressure condition.

If a low pressure condition has been detected after the pump has been running for a time (indicating loss of prime), or a 'flood detect' has been sensed (this can be a series string of N.C. float switches, or other suitable sensors) the alarm bit Q4 is set, and must be reset using the 'reset' PB at I6.

This prevents pump seal damage caused by running dry, and also flooding the cellar in the event of pump hosing failure.

This program requires an -0BA2 or higher level processor

Creator:	Bob Welker	Project:	Well Pump Controller	Customer:	none
Checked:	operation not verified	Installation:		Diagram No.:	
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Block Number (Type)	Parameter
B02(Pulse Generator) : FlowUpCnt	01:00s+
B03(Up/Down Counter) : Flow Calling Pump	1+ Rem=Off
B04(Pulse Generator) : FlowDnCnt	05:00s+
B07(On Delay) : AntiRestart	10:00m+
B08(Latching Relay) : PSI Low Latch	Rem=Off
B09(On Delay) : Pump Run Time	15:00m+
B13(Retentive On Delay) : 1 Min	01:00m-
B14(On Delay) : RunTime Limiter	90:00m+
B15(Latching Relay) : RunTime Limited	Rem=Off
B16(Pulse Relay) :	Rem=Off
B17(On Delay) :	05:00s+
B18(Latching Relay) : Lost Prime	Rem=On
B20(On Delay) : Debounce	05:00s+
B21(Latching Relay) : Flood Detect Latch	Rem=Off

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Block Number (Type)	Parameter
E25(Up/Down Counter) : RunMin	999999+ Rem=On

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Connection	Inscription
I1	PSI Sw
I2	Flow Sw
I3	Flood Detect
I4	
I5	
I6	Alm Rst
Q1	Pump MS
Q2	
Q3	
Q4	Fault

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