2-WAY BYPASS VALVE CONTROL | SPECIAL APPLICATION PROCEDURE

APPLICATION

This configuration is ideal for systems with flow sensitive systems or equipment, down-stream of a 2-way (normally closed) system bypass valve. The valve will be opened and closed as system flow, which is also monitored by the controls, registers below or above a pre-set (adjustable) minimum flow value, using the built-in outputs and relays in the Design Envelope pumping unit on-board controls.

OPERATION

When system flow drops below a pre-set value, a digital output is energized to open the valve.

When system flow rises above the pre-set value, the digital output is de-energized to close the valve.

The relay will energize/de-energize depending on which pump is running in the duty/standby configuration.

SITE REQUIREMENTS

1. Control valve already installed with wiring run to the pumps (but not terminated)
2. Enough space to remove the Duty and Standby controllers’ covers safely

PERSONNEL REQUIREMENTS

1. Armstrong Tier 3 training or equivalent
2. Ability to terminate simple control wiring
3. Ability to configure Armstrong controls
4. All work will be done on low voltage, however, when removing the controller cover high voltage may be exposed. An electrician license is required in some areas.
5. Torx screw driver set

WIRING

If Duty/Standby configuration, then the contact wires have to be wired to the Master controller. If it’s unknown which controller is the Master controller, verify the settings of parameters 13-00 to 13-02.

The Master controller is the unit that has the following parameters configured as follows:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>NAME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-00</td>
<td>slc Controller mode</td>
<td>[1] On</td>
</tr>
<tr>
<td>13-01</td>
<td>Start event</td>
<td>[37] Digital input d132</td>
</tr>
<tr>
<td>13-02</td>
<td>Stop event</td>
<td>[26] Logic rule 0</td>
</tr>
</tbody>
</table>

2 WAY CONTROL VALVE WIRING

1. Connect the Positive terminal of the control valve to the Master controller Relay 2 [Terminal 4].
2. Connect the Common terminal of the control valve to the com of the Master And Slave controller (If Applicable) [Terminal 20].
**SPECIAL APPLICATION PROCEDURE**

2-Way bypass valve control

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**ALTERNATION WIRING (IF APPLICABLE)**

1. As per the ivs102 Manual

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**ENSURE FLOW IS MAINTAINED DURING ALTERNATION**

1. Tune the following parameters to ensure the system pressure doesn’t drop below the minimum required (the threshold that opens the contact) during alternations. This has to be done on both controller and both should have the same final parameters.

2. Configure these parameters when the controller is running (Setup 1):

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>NAME</th>
<th>SUGGESTED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-41</td>
<td>Ramp up Time</td>
<td>15 sec</td>
</tr>
</tbody>
</table>

Configure this parameter when the controller is not running (Setup 2):

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>NAME</th>
<th>SUGGESTED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-42</td>
<td>Ramp Down time</td>
<td>120 sec</td>
</tr>
</tbody>
</table>

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**TESTING**

1. Place both controllers in Auto Mode.

2. Reduce the flow to the running pump until it reaches below the value in P13-12.

3. Verify the control valve starts to open.

4. Increase the flow to the running pump until it reaches above the value in P13-12.

5. Verify the valve starts to close.

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**Adjustable site parameters:**

For Master controller:

<table>
<thead>
<tr>
<th>PARAMETER NUMBER</th>
<th>PARAMETER VALUE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>13–12</td>
<td>Min. Sensorless flow</td>
<td>Minimum sensorless Flow value</td>
</tr>
</tbody>
</table>

For Slave controller: (If applicable)

<table>
<thead>
<tr>
<th>PARAMETER NUMBER</th>
<th>PARAMETER VALUE</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>13–12</td>
<td>Min. Sensorless flow</td>
<td>Minimum sensorless Flow value</td>
</tr>
</tbody>
</table>

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