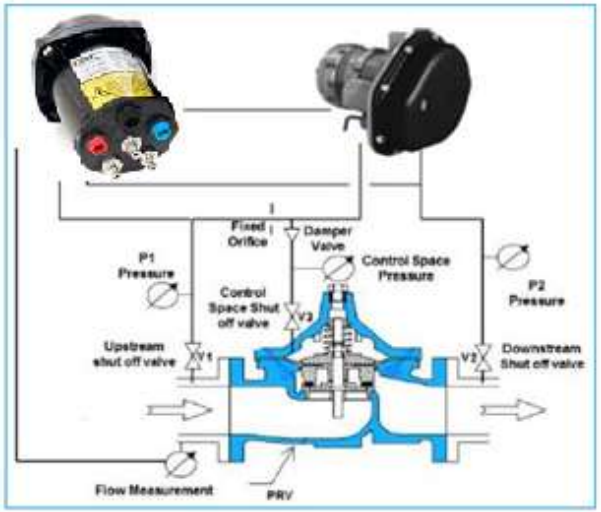
Quick Reference Guide

Hydraulic Fault Finding with i2O Advanced Pilot Valve (APV)

The following assumes a previously-calibrated and operational PRV installation.



If in doubt, transfer PRV Control to the Manual Pilot Rail:

1) Isolate i2O Control using P1 and P2 shutoff valves
2) Switch control space to manual pilot using 3-way valve
3) Open the manual pilot circuit by opening shutoff valve (adjust pressure if necessary).

Symptom	PRV Operation	Possible Root Cause	Investigation / Key Indicators
High or increasing PRV outlet (P2) pressure.	PRV too open.	Leaking or disconnected hose Leaking pilot rail.	Check for leaks in pilot rail red and blue hoses. Any leaks can cause pressure rise as control space pressure is not properly maintained.
		Partially-closed upstream (P1) shutoff valve (V1).	Check upstream shutoff valve (red hose) is fully open and not blocked.
		Upstream (P1) hose constricted.	Check red hose for any constrictions, kinks, blockages.
		Blocked fixed orifice in restriction block.	Isolate control space shutoff valve (V3), clean filter, clean fixed orifice.
		Leaking PRV diaphragm.	Isolate control space shutoff valve (V3). If flow is stable, pressure should not change; if it continues to increase then strip PRV and check diaphragm.
Low or falling PRV outlet (P2) pressure.	PRV too closed.	Partially-closed downstream (P2) shutoff valve (V2).	Check downstream shutoff valve (blue hose) is fully open and not blocked (V2).
		Downstream (P2) hose constricted.	Check blue hose for any constrictions, kinks, blockages.
		Insufficient upstream pressure (P1).	Check upstream pressure (P1) and verify that it is sufficient to deliver the target outlet pressure.
		Downstream (P2) hose frozen.	PRV closes to compensate for high downstream pressure caused by frozen water.

Symptom	PRV Operation	Possible Root Cause	Investigation / Key Indicators
PRV oscillating at low flows.	PRV diaphragm control over-sensitive.	PRV oversized – trying to control over very small range, in 'nearly closed' position.	Review PRV size against recommendations. Contact i2O Support for guidance.
	PRV diaphragm moves too quickly.	Insufficient damping.	Carefully screw in damper in restriction block until oscillation is damped. Note: Care required as over-damping will cause slow APV response to flow and pressure changes.
Poor control.	PRV diaphragm not moving smoothly.	Sticking APV diaphragm shaft – needs service.	Check/service PRV.
Erratic flow.	Generating variable downstream pressure.	Faulty flow meter, pulse head, pulse signal generator.	Check meter/pulse unit and replace.
Varying CP pressure, PRV downstream pressure (P2) stable, but not controlling with flow.	PRV in fixed outlet mode.	I2O PRV Controller battery depleted, operating in "safe mode" or APV lead has been disconnected.	Check Controller to APV cable Check Controller with Water Service Application Replace Controller (hot swap)
Unable to activate device with magnets.	PRV in fixed outlet mode.	I2O PRV Controller battery depleted, operating with hydraulic control only.	Check Controller with Water Service Application Replace Controller (hot swap)
P2 pressure too high at low flow, but controls OK at higher flows	PRV not closing fully.	Stones or other debris in PRV, preventing closing of diaphragm.	Check/service PRV

Restrictor block

Calm water