

PRM(Pu)

Dual Set-Point, Hydraulically-Modulated PRV

Description

Dorot model PRM(Pu) is an automatic pilot controlled, pressure reducing valve activated by the pressure of the pipeline.

The valve reduces upstream pressure to a dual set-point downstream pressure, that shifts automatically in response to changes in the upstream pressure.

The upstream-pressure normally corresponds to the demand in the network, so modulating the downstream-pressure in response to that, enables reducing the pressure when the demand is low and increasing pressure when the demand is high.

As the demand may change anytime, unlike timer-control, this solution will optimize the leakage-savings while assuring customer service.

The Dorot PRM(Pu) will control from no flow, to maximal full open flow without any chattering or slamming.

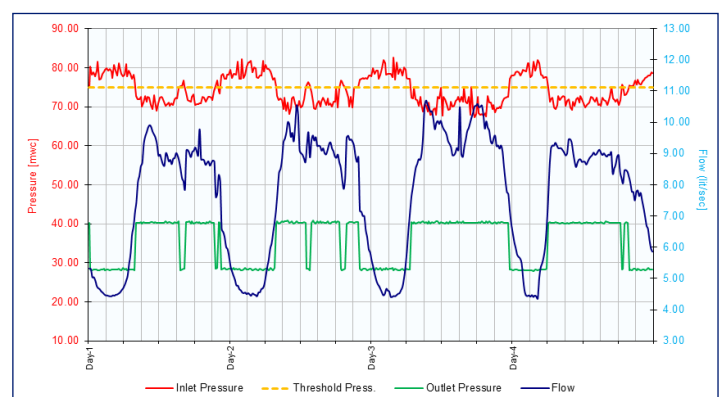
Features

- 100% hydraulic modulation with no electronics, batteries and IP limitations
- Reduces background leakage
- Reducing burst frequency
- No electronics/power supply requirements
- Maximal reliability: Bias chamber assembled on a standard PRV pilot and modulated by a standard pilot valve.
- Fast, real time response to hydraulic changes in the system
- Simple to commission, operate and maintain completely stable down to no-flow demand.
- No throttling plug or by-pass valve used

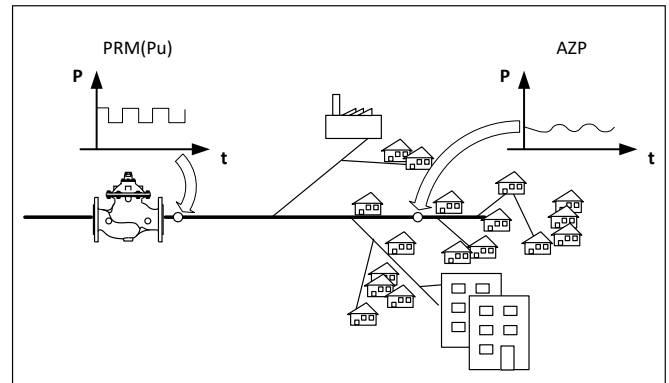
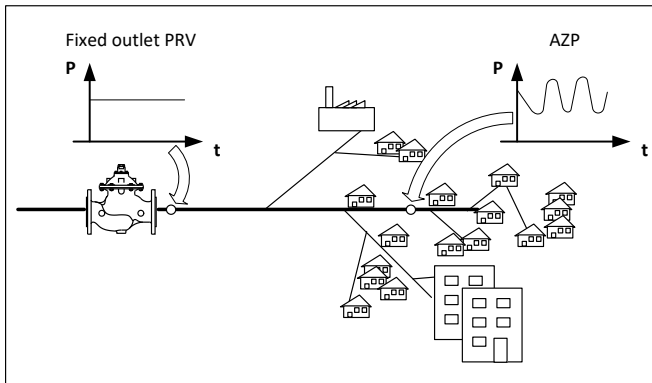
Typical installation



30-4-PRM(Pu) Logging Data



Typical Installation



Pressure Settings

The pressure will change to a user selected two points:

1. Required valve low outlet pressure P_L at an upstream-pressure higher than P_T .
2. Required valve high outlet pressure P_H at an upstream-pressure lower than P_T .

Design Notes

- The system assumes the pressure in the supply-side, vary at a similar pattern and value, as a factor of the demand in the network. In case irregular supply-pressure pattern exist or expected (such as in a case a booster-pump in the supply-side boosts the pressure when it is normally low) – other control-solutions should be considered.
- Regulating valves may operate in destructive cavitation conditions. Contact Dorot support dep. for further information.
- Minimal pressure setting (P_L) should be equal or larger than the required minimal pressure (PCN) plus the elevation difference (ΔH) of the critical node in the system and the PRM location.
- Maximal pressure setting (P_H) should be equal or larger than the required minimal pressure (PCN) plus the elevation difference of the critical node in the system and the PRM location plus maximal expected system losses (Δh) at maximal demand flow.

Optional Features

- Electric and \ or Manual On-Off control
- Hydraulic check-valve function
- Excessive Flow Shut-Off function

Where to use

The PRM(Pu) application is designed for the use in Pressure Management schemes where the target pressure in the zone (normally the AZP) changes as a result of varying demand.

These changes are often associated with high leakage index and burst frequency.

When other options should be considered

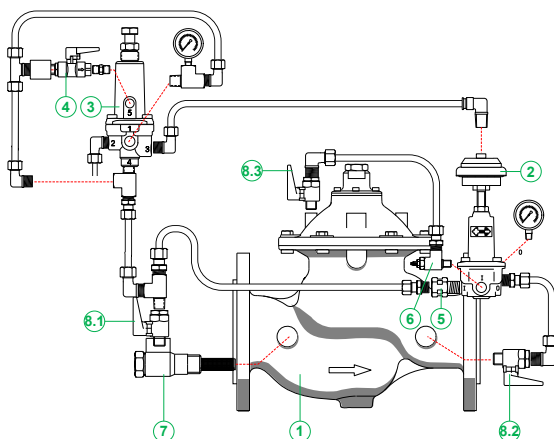
Where no upstream pressure variations exist or where these do not correlate to demand changes in the supplied zone - consider using electronically modulated PRV model PRM(E2) or EC valves, or use hydraulically modulated PRM(HyMod)

Where continuous flow-modulated pressure reducing (in opposed to dual-set-value reducer) is required - consider using HyMod, PRM(CF) or EC models

Where the upstream pressure changes are irregular and do not follow the demand pattern in the system

Where there is no set-point, modulation is required - consider using fixed outlet PRV model PR

Control System



Main Parts:

1. S-300 PRV
2. PRM – Bias Chamber modulated 2-way PR pilot valve
3. 311SD Differential Sustaining, 3-way pilot valve
4. 'Manometer valve' for manual high-pressure setting override (normal state – closed)