DP Flow Measurement Fault Finding Guide

Vendor neutral fault finding guide for field technicians

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Before you start

- Permit, isolation and control room informed.
- Put the loop in manual or inhibit trips as authorised.
- Use certified test equipment in hazardous areas.
- Record as found readings before changing anything.

Quick checks

- Equaliser closed, HP and LP open?
- Legs full (liquid) or drained (gas)?
- Square root in one place only?
- Plate direction and bore correct?

Symptoms, causes and fixes

Symptom	Likely causes	Checks and fixes
Reads low	Gas in liquid legs, HP side leak or plug, worn orifice edge, orifice installed reversed	Vent legs; check HP valves and tap; inspect plate edge and direction
Reads high	LP side leak or plug, liquid in gas legs, wrong bore or range	Check LP side; drain gas legs; verify bore and range
Flow shown at zero	No low flow cutoff, equaliser passing, zero shift	Set cutoff; check equaliser; zero at line pressure
Flow far too high at low DP	Square root applied twice (transmitter and DCS)	Apply square root in one place only
Noisy	Pulsation, two phase flow, short straight run	Damping; check process; verify straight run
Slowly drifting	Plugging taps, condensate level changing in steam legs	Blow down; keep condensate pots full and equal
Wrong after rerange	DCS scaling or totaliser not updated	Update all settings and data sheet

Rules of thumb

- Flow % = √(DP %) × 10.
- 25 % DP = 50 % flow = 12 mA (square root output).
- Liquid service: transmitter below taps; gas service: above taps.
- Steam: condensate pots at equal height.