DP Level and Guided Wave Radar Fault Finding Guide

Vendor neutral fault finding guide for field technicians

ib

instrumentationblog.in

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

- Wet legs full, seals intact?
- Density used in range matches product?
- GWR echo curve saved?
- Compare with gauge glass or dip.

Symptoms, causes and fixes

Symptom	Likely causes	Checks and fixes
DP level reads high	Wet leg partly empty, higher density, blocked LP	Refill leg; check density; clear LP tap
DP level reads low	Lower density, gas in HP line, blocked HP	Check density; vent HP; clear tap
Drift with ambient	Remote seal capillaries in sun, unequal lengths	Shade and insulate capillaries
Wrong after product change	Range calculated for old density	Recalculate LRV and URV
GWR reads end of probe	Low dielectric, coating, wrong probe length	Check dielectric and probe settings
GWR interface wrong	Emulsion layer, wrong upper dielectric	Check settings; sample to confirm layers

Formulas

- $h = \Delta P \div (\rho\, g)$.
- Wet leg offset = $\rho_{leg}\, g\, H_{leg}$.
- 1 m water ≈ 98.07 mbar.

NAMUR NE107 status

Status	Meaning	Action
F Failure	Output invalid	Repair or replace; check loop goes to safe state
C Function check	Simulation, calibration or maintenance active	Finish the work, return to normal mode
S Out of specification	Operating outside limits or uncertain	Check process conditions and sensor
M Maintenance required	Still valid but degrading	Plan maintenance before failure