Radar and Ultrasonic Level Fault Finding Guide

Vendor neutral fault finding guide for field technicians

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

- Save the echo curve first.
- Reference height and units correct?
- Antenna clean and dry?
- Mapping done at low level?

Symptoms, causes and fixes

Symptom	Likely causes	Checks and fixes
Lost echo	Foam, turbulence, low dielectric, antenna buildup	Check echo curve; clean antenna; consider GWR or stilling well
Reads constant level	Locked on a false echo from internals	Redo false echo mapping at low level
Reads full when empty	Echo inside blocking distance, condensation on antenna	Check blocking distance; heat or purge antenna
Jumps between values	Agitator, filling stream, multiple echoes	Move sensor; map; increase damping slightly
Ultrasonic reads wrong in closed tank	Vapour changes speed of sound, temperature gradient	Use radar; check temperature compensation
Offset error	Wrong reference height or tank height	Measure ullage manually; correct reference

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