

Your Company Name / Logo	DP LEVEL TRANSMITTER CALIBRATION SOP	Doc no: SOP INST 011	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To make sure DP level transmitters read the true level over their range, including the effect of wet legs, seals and mounting height.

2. Scope

DP and pressure transmitters used for level on open and closed vessels, with dry legs, wet legs or remote seals.

3. References

- Level transmitter data sheet and range calculation
- Manufacturer manual
- Vessel drawing with tap elevations
- Site calibration procedure for pressure transmitters

4. Responsibilities

- Instrument technician: carries out the work and records results.
- Instrument engineer or supervisor: reviews and approves the records.
- Operations: grants the permit, isolates the process and returns the equipment to service.

5. Safety precautions

- Work only under a valid permit to work and follow the site isolation (lockout tagout) procedure.
- Wear the PPE required for the area: safety helmet, glasses, gloves and safety shoes as a minimum.
- In hazardous areas use certified or intrinsically safe test equipment, or obtain a gas free certificate and hot work permit.
- Inform the control room before starting, and before returning the instrument to service.
- Close and drain impulse lines slowly; hot or toxic liquid may be trapped in legs and seal pots.
- Do not open remote seal capillaries; they are sealed systems.

6. Tools and equipment

- Pressure calibrator with low range module, or pressure and vacuum source
- HART communicator
- Range calculation sheet with LRV and URV in mbar
- Fill liquid for wet legs if required

7. Prerequisites

- Range calculation checked: process SG, tap spacing, wet leg or seal head.
- Operations agree on the level loop being out of service; alarms and trips inhibited as authorised.

8. Procedure

8.1 Prepare

- 8.1.1 Isolate the transmitter with the manifold and vent both sides safely.
- 8.1.2 Record the configured LRV, URV, damping and output mode.

8.2 As found test

- 8.2.1 Apply pressure to the HP side (or vacuum to LP for negative values) at 0, 25, 50, 75 and 100 % of span, rising and falling.
- 8.2.2 Record the output at each point on the calibration report.

8.3 Adjust

- 8.3.1 If any point fails, trim zero and span (sensor trim) with the communicator.
- 8.3.2 Repeat the 5 point test and record as left values.

8.4 Wet leg and seal check

- 8.4.1 Refill the wet leg to its seal pot level with the specified liquid and vent gas.
- 8.4.2 For seals, confirm the transmitter height and capillary route match the range calculation.

8.5 Return to service and verify

- 8.5.1 Open the manifold in the correct order, close the equaliser last.
- 8.5.2 Compare the transmitter level with a gauge glass or manual dip; investigate a difference.
- 8.5.3 Remove inhibits and inform the control room.

9. Acceptance criteria

- As left error within tolerance at all points (for example ± 0.25 % of span).
- Level reading agrees with the local gauge within the agreed limit.
- Wet legs full, seals intact, records complete.

10. Records

- Level transmitter calibration report (free template: instrumentationblog.in/downloads/templates/level-transmitter-calibration-report/)
- Calibration master list (free template: instrumentationblog.in/downloads/templates/calibration-master-list/)

11. Approval

	Prepared by	Reviewed by	Approved by
Name			
Signature			
Date			

This procedure is a generic template. Adapt it to your site permit system, the manufacturer instructions and your quality system before use.