

Your Company Name / Logo	VORTEX FLOWMETER VERIFICATION SOP	Doc no: SOP INST 013	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To confirm a vortex meter is configured correctly and measuring reliably, without removing it from the line.

2. Scope

Inline vortex flowmeters on steam, gas and liquid service with 4 to 20 mA, pulse or HART outputs.

3. References

- Meter manual and calibration certificate (K factor)
- Flow data sheet and design conditions
- Loop diagram

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.
- Steam lines are hot; do not open the meter body in service.

6. Tools and equipment

- HART communicator or configuration software
- mA calibrator or multimeter
- Frequency source if electronics simulation is used

7. Prerequisites

- Operations aware; flow loop may be put in manual if simulation is used.

8. Procedure

8.1 Configuration check

- 8.1.1 Compare K factor, pipe ID, fluid, density basis and units with the calibration certificate and data sheet.
- 8.1.2 Check damping, low flow cutoff and output range.

8.2 Electronics test

- 8.2.1 Run the built in self test or simulate a shedding frequency.
- 8.2.2 Confirm the displayed flow and output current match the expected values.

8.3 Signal quality

- 8.3.1 Review signal strength or noise diagnostics at normal flow.
- 8.3.2 Look for vibration sources and check the meter does not read flow when the line is stopped.

8.4 Process comparison

- 8.4.1 Compare the reading with mass balance, a check meter or other plant data.

8.4.2 Record findings and restore the loop to automatic.

9. Acceptance criteria

- Configuration matches the certificate and data sheet.
- Simulated flow and output within electronics tolerance.
- No false flow at zero; reading consistent with process data.

10. Records

- Flowmeter verification record (free template: instrumentationblog.in/downloads/templates/flowmeter-verification-record/)
- Instrument maintenance log (free template: instrumentationblog.in/downloads/templates/instrument-maintenance-log/)

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.