

Your Company Name / Logo	TEMPERATURE ELEMENT REPLACEMENT SOP	Doc no: SOP INST 017	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To replace failed temperature elements without opening the process and with a correct, verified measurement afterwards.

2. Scope

RTD and thermocouple insert elements in thermowells, with head or remote transmitters.

3. References

- Temperature transmitter and thermowell data sheets
- Spare parts list
- 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.
- Never remove a thermowell in service; only the element inside the well.
- Elements from hot wells are hot: use gloves.
- If the well is suspected leaking, stop and treat it as a pressure boundary failure.

6. Tools and equipment

- Replacement element of correct type, length and diameter
- Multimeter or temperature calibrator
- Spanners and heat resistant gloves

7. Prerequisites

- Loop in manual; alarms and trips inhibited as authorised.

8. Procedure

8.1 Remove

- 8.1.1 Disconnect wires, noting terminal positions.
- 8.1.2 Unscrew and withdraw the element; check the well bore for liquid, which indicates a leaking well.

8.2 Check new element

- 8.2.1 Confirm type (Pt100, type K), wiring, length and diameter.
- 8.2.2 Measure resistance or mV at ambient and compare with the table.

8.3 Install

- 8.3.1 Insert until the tip touches the well bottom (spring loaded).
- 8.3.2 Reconnect wires with correct polarity or 3 wire arrangement.

8.4 Verify

- 8.4.1 Compare the reading with a nearby instrument or a portable probe.
- 8.4.2 Remove inhibits and record the replacement.

9. Acceptance criteria

- Correct element type and length installed, touching the well bottom.
- Reading consistent with process and nearby instruments.

10. Records

- Instrument maintenance log (free template: instrumentationblog.in/downloads/templates/instrument-maintenance-log/)
- Instrument spare parts list (free template: instrumentationblog.in/downloads/templates/instrument-spare-parts-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.