

Your Company Name / Logo	PH ANALYSER CALIBRATION SOP	Doc no: SOP ANA 001	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To keep online pH measurements accurate by calibrating the electrode and transmitter against standard buffers.

2. Scope

Online pH analysers with glass electrodes and automatic temperature compensation.

3. References

- Analyser and electrode manuals
- Buffer solution certificates

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.
- Process liquid may be corrosive: wear chemical gloves and goggles.
- Handle glass electrodes carefully; they break easily.

6. Tools and equipment

- Fresh pH buffers (pH 7.00 and pH 4.01, or pH 10.01 for alkaline processes) within expiry
- Clean beakers and deionised water
- Soft tissue (do not rub the glass bulb)

7. Prerequisites

- Loop in manual or alarms inhibited; electrode accessible via retractable holder or bypass.

8. Procedure

8.1 Cleaning

- 8.1.1 Remove the electrode, rinse with deionised water and clean any coating as recommended by the manufacturer.

8.2 Two point calibration

- 8.2.1 Start the calibration routine on the transmitter.
- 8.2.2 Immerse in pH 7 buffer, wait for a stable reading and accept.
- 8.2.3 Rinse, immerse in pH 4 (or pH 10) buffer, wait for stability and accept.
- 8.2.4 Record the slope (%) and offset (zero point, mV) shown by the transmitter.

8.3 Completion

- 8.3.1 Rinse and reinstall the electrode; check the process reading is reasonable.
- 8.3.2 Release the loop to automatic.

9. Acceptance criteria

- Slope typically 95 to 102 % of the theoretical value (replace the electrode if below the manufacturer limit, often about 85 to 90 %).
- Offset (zero point) typically within ± 30 mV.
- Stable reading in both buffers.

10. Records

- Calibration master list (free template: instrumentationblog.in/downloads/templates/calibration-master-list/)
- Instrument PM schedule (free template: instrumentationblog.in/downloads/templates/instrument-preventive-maintenance-schedule/)

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.