

Your Company Name / Logo	INSTRUMENT CABLE INSULATION RESISTANCE TEST SOP	Doc no: SOP INST 016	Rev: 0
Department: Instrumentation	Standard operating procedure	Date:	Page: see footer

1. Purpose

To find damaged or wet cables before energising and during fault finding, without damaging electronics.

2. Scope

Low voltage instrument, control and thermocouple extension cables.

3. References

- Cable schedule
- Project test specification (test voltage and minimum IR)
- Insulation tester manual

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.
- Insulation testers produce high voltage: warn others and do not touch cores during the test.
- In hazardous areas, megger testing needs a gas free certificate; IS circuits need special care.
- Discharge every core to earth after testing.

6. Tools and equipment

- Calibrated insulation tester
- Shorting links
- Multimeter
- Cable schedule and test record

7. Prerequisites

- Both ends disconnected from instruments, cards and barriers.
- Cable identified at both ends.

8. Procedure

8.1 Prepare

- 8.1.1 Isolate and disconnect the cable at both ends; confirm no voltage with a multimeter.
- 8.1.2 Record cable tag, cores and length.

8.2 Test

- 8.2.1 Test core to core, core to earth and core to screen at the specified voltage (commonly 500 V DC).
- 8.2.2 Hold the test about 1 minute and record the reading.

8.3 Discharge and restore

- 8.3.1 Discharge each core to earth.
- 8.3.2 Reconnect and check terminations and screens.

8.4 Record

8.4.1 Record results and mark failures for repair and retest.

9. Acceptance criteria

- All readings at or above the minimum IR in the specification.
- Cores discharged and reconnected correctly.

10. Records

- Insulation resistance test record (free template: instrumentationblog.in/downloads/templates/cable-insulation-resistance-test-record/)
- Cable continuity test record (free template: instrumentationblog.in/downloads/templates/cable-continuity-test-record/)

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.