



Cambridge Instruments
& Engg. Co.

EST. 1963 · HOWRAH, INDIA

TEST AND MAINTENANCE REGISTER

Earth Pit Test Register

One line per earth pit · measured resistance, limit, maintenance done and next test date

01 Site details

Customer / site

Test instrument, serial no.

Tested by

Test date

Method (e.g. 3-pole fall of potential)

Reviewed by

Season / last rainfall

Calibration due

02 Earth pit readings

test with the pit disconnected from the grid where possible, so you read the pit alone

Pit no.	Location / equipment served	Type plate / pipe / rod	Reading Ω	Limit Ω	Result	Water / maintenance	Next test due
1					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
2					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
3					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
4					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
5					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
6					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
7					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
8					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
9					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
10					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
11					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
12					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
13					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	
14					☐ Pass ☐ Fail	☐ Water ☐ Salt ☐ Fixed	

Set the limit for each pit from the equipment it serves (see page 2) or from your specification. A pit that fails should be treated and re-tested before the register is signed.

03 Summary

Pits tested

Pits passed

Pits failed

Pits not accessible

Signature and date: tester

Signature and date: reviewer



Limits, visit checklist and method

Commonly quoted earth resistance targets and a checklist for each pit visit

01 Commonly quoted targets as a guide. IS 3043 and IEEE 80 are the usual references. Check your edition and your specification

Installation GUIDE	Target, Ω or less	Often asked in specifications	Target
Large power station	0.5	Electronic, server or instrument earth	1 Ω or lower, per vendor
Major substation	1	Transformer neutral earth	per utility, often 1 Ω
Small substation	2	Motor frames and body earth	per site, often 5 Ω
Other, general electrical earthing	5	Generator neutral earth	per site specification
Lightning protection earth electrode	10		

Guides, not a rulebook. Several of these come from utility and vendor specifications that differ. Always use the strictest value that applies to the equipment on the pit.

02 Checklist for each pit visit tick the pit number on page 1 only when all applicable items are done

Check	OK / Fixed
Pit cover and chamber intact, cover can be opened and is labelled	☐ OK ☐ Fixed ☐ N/A
Water pipe and funnel clear, pit watered and drained as needed	☐ OK ☐ Fixed ☐ N/A
Salt or charcoal fill topped up where the design uses it	☐ OK ☐ Fixed ☐ N/A
Earth strip or conductor connection tight, clean and corrosion free	☐ OK ☐ Fixed ☐ N/A
Strip joint to the grid or equipment bonded, no broken strands	☐ OK ☐ Fixed ☐ N/A
Link or test point present so the pit can be isolated for testing	☐ OK ☐ Fixed ☐ N/A
Pit number and test date marked at the pit	☐ OK ☐ Fixed ☐ N/A
Area around the pit clear of paving, spills and standing water	☐ OK ☐ Fixed ☐ N/A

03 Method notes

- **Reading one pit.** Isolate the pit if the system allows. Place the current spike at a distance D of at least 5 times the pit depth or length, put the potential spike at 62 % of D, and take the reading. The detailed method and plateau check is on the CIE earth resistance test form.
- **Seasonal change.** Earth resistance rises in dry weather. Record the season and last rainfall, and apply your own seasonal factor if the specification asks for one.
- **Clamp readings.** A clamp-style earth tester reads a pit in a multi-pit loop without isolating it, but only where the pit is part of a closed loop. It cannot be used on a single isolated pit.
- **Frequency.** Test at least once a year, and at the driest time of year if you can. Test again after earth faults and after any work near the pit.

CIE INSTRUMENTS FOR THIS TEST

DET-2000

Digital earth resistance tester, 4-terminal, rechargeable battery

CIE/222M

Analog hand-driven earth tester, 3-terminal and 4-terminal soil resistivity



Full test form

Scan for the earth electrode test form with plateau graph.
cieinstruments.in/templates