

EICR TECHNICAL GUIDE

Periodic Inspection & Testing | Industrial and Commercial Electrical Installations

A practical technical overview of Electrical Installation Condition Reports (EICRs), including survey planning, testing, classification, reporting and follow-up. The extent and sequence of inspection and testing must be determined by a competent person for the specific installation.

01 | Purpose and scope

An EICR assesses whether an existing electrical installation remains safe for continued use, identifies damage or deterioration and records departures from the current edition of BS 7671 that may give rise to danger. It is not a certificate for new installation work and does not establish that every circuit or component has been inspected unless the agreed extent confirms this.

02 | Information required before attendance

Obtain previous EICRs, installation certificates, single-line diagrams, distribution-board schedules, circuit lists, earthing details, supply characteristics, known defects and records of alterations. Confirm operational constraints, sensitive equipment, hazardous areas, access requirements and shutdown permissions. Where information is missing, record assumptions and identify the resulting limitations.

03 | Agreeing the extent of inspection and testing

Document the agreed scope, areas covered, inaccessible equipment and any sampling arrangement before work begins. Sampling must be technically justified and recorded; it should not be described as a full inspection of every final circuit. For sites tested only periodically, the condition, use and risk profile should inform whether 100% final-circuit testing is appropriate.

04 | Safe isolation and working arrangements

Identify each source of supply, including generators, UPS, solar PV and backfeeds. Plan shutdowns with the site, safely isolate, lock off and prove dead using suitable equipment and procedures before dead testing. Live testing must be risk-assessed and carried out only where justified and with appropriate controls. Protect essential processes and equipment from inadvertent interruption.

05 | Visual inspection

Check distribution equipment, protective devices, cable systems, enclosures, terminations, signs, identification, earthing, bonding, accessibility, fire barriers and evidence of overheating, mechanical damage, moisture or corrosion. Assess suitability for the installation environment and note changes of use or additional loading since the previous report.

INSPECTION & TESTING

Tests are selected and sequenced to suit the installation, available access and the agreed extent of inspection.

06 | Supply and protective arrangements

Establish the earthing arrangement (TN-S, TN-C-S or TT as applicable), nominal voltage, external earth fault loop impedance (Z_e) where safely obtainable, prospective fault current, protective-device ratings and breaking capacities. Confirm that measured or verified parameters are compatible with the installed equipment and protective measures.

07 | Continuity and bonding

Verify continuity of protective conductors and relevant bonding connections. Where appropriate, measure $R1+R2$ or $R2$ and confirm satisfactory continuity for ring final circuit conductors. Test methods must account for parallel paths and connected equipment; recorded values should be attributable to the correct circuit.

08 | Insulation resistance

Select appropriate test voltages and methods for the circuit and connected equipment. Sensitive electronics, surge protective devices, control systems and equipment that cannot be disconnected may require a modified approach in accordance with BS 7671. Record test conditions and limitations rather than assuming a standard test was performed.

09 | Polarity, loop impedance and disconnection

Confirm correct polarity and verify that fault protection can operate within the required disconnection time. Earth fault loop impedance may be measured or determined using permitted methods as appropriate. Compare findings against the applicable protective-device characteristics, circuit arrangement and design requirements.

10 | RCD testing and functional checks

Identify RCD type, rating and application, including any equipment with power electronics or variable-speed drives. Carry out applicable instrument and functional tests using suitable equipment and methods. Test results should be assessed against the requirements relevant to the device and installation, rather than using one universal pass value.

11 | Additional considerations in factories

Inspect three-phase distribution, submains, machinery supplies, isolation, high-load circuits and any areas affected by vibration, dust, moisture, chemicals or heat. Coordinate testing around production, motor controls, inverters and equipment that cannot be disconnected without a controlled shutdown. ATEX areas require appropriate competence and controls.

12 | Limitations and inaccessible circuits

Record the reason and precise extent of every limitation, such as sealed equipment, restricted access, energised essential circuits or missing drawings. Significant restrictions may prevent a meaningful assessment; discuss them with the duty holder and arrange follow-up access or testing where necessary.

REPORTING & FOLLOW-UP

Clear, traceable results allow duty holders to prioritise electrical safety and plan remedial work.

13 | Observation classifications

C1 – Danger present: immediate action is required. **C2 – Potentially dangerous:** urgent remedial action required. **FI – Further investigation:** required without delay because safety cannot be established. **C3 – Improvement recommended:** improvement is advised but is not itself grounds for an unsatisfactory assessment. An EICR with C1, C2 or FI observations is normally unsatisfactory.

14 | Report contents

The report should identify the installation and client, purpose, agreed extent, limitations, supply and earthing details, inspection schedule, circuit details, test results, observations and overall assessment. Circuit references and board schedules should be sufficiently clear to locate the affected equipment. Record any immediate safety action taken and communicate serious danger promptly.

15 | Remedial works and verification

Prioritise C1 and C2 defects and investigate FI observations without delay. Scope and quote corrective work separately where required. On completion, issue the appropriate electrical certification or written confirmation of the work and associated test results. A remedial certificate does not automatically replace the original EICR or prove that unrelated limitations have been resolved.

16 | Recommended intervals and ongoing maintenance

Inspection intervals are risk-based, considering use, environment, maintenance history, previous findings and guidance such as IET Guidance Note 3. Three years is a commonly cited initial interval for many industrial installations and five years for many commercial installations, but neither is a blanket statutory EICR deadline for all premises. Duty holders remain responsible for maintaining electrical systems to prevent danger under the Electricity at Work Regulations 1989.

17 | QUEST Electrical testing approach

QUEST Electrical undertakes structured industrial and commercial EICRs with calibrated test equipment, documented circuit results and clearly explained observations. Work can be planned in phases to manage operational downtime. Where a client requires a full assessment, the quotation and agreed scope should identify the distribution boards, submains and final circuits included.

Technical handover checklist

Before testing	Scope, access, previous records, isolations and operational constraints agreed
During testing	Circuit references, observations, results and limitations recorded
After testing	EICR issued, urgent risks communicated, remedial priorities identified

Technical note: This guide is general information, not a substitute for BS 7671, IET Guidance Note 3, manufacturer instructions or site-specific engineering judgement. Apply the editions and statutory requirements relevant to the work.