



Electrical Policy
Integrated Management System

Zitrón
UK

Zitron UK Electrical Policy

Purpose

This document forms part of ZITRON UK electrical safety and procedures and details the policy and safe work procedures relating to electrical services and equipment in use on the premises.

Legislation/guidance

The Electricity at work regulations 1989 requires every employer to comply with the provisions of the regulations in so far as they relate to matters which are written within his control and in particular.

- All systems shall at all times be of such construction as may be necessary to prevent danger, so far as is reasonably practicable.
- All systems shall be maintained so as to prevent, so far as is reasonably practicable, such danger.
- Every work activity, including operation, use and maintenance of a system and work near a system shall be carried out in such a manner as not to give rise so far as is reasonably practicable to danger.
- Any equipment provided under these regulations for the purpose of protecting persons at work on or near electrical equipment shall be suitable for the use for which it is provided and be maintained in a condition suitable for that use and be properly used.

Health Technical Memorandums

- Health Technical Memorandum 2020 - Electrical safety code for low voltage system
- Health Technical Memorandum 2007-Electrical Services: supply and distribution

IET Wiring Regulations BS 7671:2018

Definitions

- Electrical equipment is defined as anything used, intended to be used or installed for use, to generate, provide, transmit, transform, rectify, convert, conduct, distribute, control, store, measure or use electrical energy.
- Live means that the equipment in question is at a voltage, by being connected to a source of electricity as for example in normal use. This implies that unless otherwise stated, the live parts are exposed so that they can be touched either directly or indirectly or indirectly by means of some conducting object and that they are either live at a dangerous potential in dry conditions; or at a dangerous energy level.
- Charged means that the item has acquired a charge either because it is live or because it has become charged by other means such as by static or induction charging, or has retained or regained a charge due to capacitance effects even though it may be disconnected from the rest of the system.
- Dead means not electrically 'live' or 'charged'.
- Disconnected is used to describe equipment or a part of an electrical system which is not connected to any source of electrical energy.
- Isolated is used to indicate equipment or part of an electrical system which is disconnected and separated by a safe distance (the isolating gap) from all sources of electrical energy in such a way that the disconnection is secure, and cannot be re-energised accidentally or inadvertently.
- Low Voltage is regarded as a voltage exceeding 50v a.c or 120v d.c between conductors or earth but not exceeding 1000v a.c or 1500v d.c between conductors or 600v a.c or d.c between any conductors and earth.



- Authorised persons (LV) - Authorised persons (LV) are employees of ZITRON UK or subcontractors who have been approved by the Authorising Engineer to authorise work to be carried out on electrical services from the point of supply.
- Competent Persons (LV) - Competent persons (LV) are employees of ZITRON UK or subcontractors who are in relevant electrical works in accordance with the Electricity at Work Regulations (1989).

Permit to Work

The following works carried out on electrical equipment located on the premises may be subject to a permit-to-work:

- Switching off any switch fuse, distribution board, or mains circuit board that may affect or safety critical systems, the safety of persons working on or visiting the premises;
- Work on live electrical apparatus;
- Work on electrical distribution systems that need the installed safety systems/barriers or removed;
- Work on electrical distribution system that expose personnel to shock hazards;
- Work on remote & automatically controlled low voltage switchgear.
- Work on any earthing whilst the supply is still live;

All permits to work for work on electrical equipment shall be issued in accordance with ZITRON UK.

Safe System of Work

All work carried out on electrical equipment on premises including work carried out by authorised contractors shall be subject to a risk assessment.

The results of all risk assessments for work on electrical equipment shall be documented and shall include a detailed method statement that documents:

- The steps that will be taken to ensure or verify that there is adequate working space, adequate means of access, and adequate lighting at all electrical equipment on which or near which work is being done.
- The means by which the electrical equipment to be worked on shall be disconnected from every source of electrical energy.
- The steps that will be taken to ensure that electrical equipment to be worked has been made dead.
- The precautions that will be taken to prevent electrical equipment, which has been made dead, from becoming electrically charged during that work.
- The personal safety equipment & tools that shall be required to prevent injury.
- The action to be taken to segregate the work area & post warning notices.
- The inspections & tests required on completion of the work.
- The action required to return the low voltage electrical equipment to service.

Authorised persons (LV) shall ensure that all work carried out on electrical equipment or service on premises is carried out by a Competent Person (LV) or authorised contractor.

A person shall be deemed competent to work on electrical equipment if they:

- Have a recognised qualification in electrical installation.
- Have sufficient training & experience in the type of work involved to carry out the work in accordance with current best practices, to the standards required by legislation, and are able to apply this to the tasks required.
- Recognise the limitations of their own knowledge & experience.
- Understand the principles of risk assessments & risk prevention.



- Have been approved and certified as a Competent Person by the Authorising Engineer

Planning Work On Electrical Equipment

All work on electrical equipment shall be planned in advance, when planning works the following factors shall be considered:

- The work to be done.
- The hazards of the system or equipment to be worked on.
- The people doing the work & the level of supervision necessary.
- The precautions to be taken.
- The system of work to be employed.

It is recognised that further review of the ongoing project may be necessary due to unforeseen circumstances.

All work on electrical equipment that may have an effect critical safety shall be notified in advance.

Notifications shall set out:

- The work to be carried out.
- The effect that it will have.
- The duration of the work.

Authorised persons (LV) shall ensure that notification is sent to any department, or contractor who may be affected by the work.

Procedure For Working On Dead Electrical Equipment

The Authorised Person and the Competent Person (LV) shall ensure before any work is carried out on electrical equipment that may give rise to danger that there is:

- Adequate means of isolation.
- Adequate working space.
- Adequate means of access.
- Adequate lighting.

All necessary steps shall be taken to protect against inadvertent contact with other live parts nearby. This shall be done wherever practicable by the erection of physical and/or the use of temporary insulation.

No person shall work on electrical equipment on the premises if they are unsure of the requirements of the safe working procedures set out in the safety method statement for the work.

Before disconnecting or isolating any electrical equipment:

- The circuit to be worked on or near, shall be identified.
- The electrical equipment shall wherever practicable be physically identified.
- This process shall be aided by the use of appropriate drawings, diagrams and other written information.
- Labelling on circuits & equipment may be used to assist in the identification process it must however never be assumed that labelling is correct.

Once the circuit or equipment to be worked on or near has been identified it shall be disconnected from every source of electrical energy.



The Authorised person (LV) shall prove live then prove dead before work can be carried out on the circuit/equipment.

Adequate precautions shall be taken to prevent electrical equipment which has been made dead, from becoming electrically charged during that work. This should be carried out by locking off all isolators (LOTO).

Once isolated a caution notice and others if applicable shall be put at the place of disconnection This should be supplemented by 'danger' notices adjacent to the place of work indicating nearby apparatus that is still energised.

Having isolated the circuit or equipment all parts to be worked on. Or near, shall be tested to ensure that they are dead, even if the isolation has been achieved automatically through an interlocking system. If it is a three-phase system or equipment with more than one supply. Prove that all supply conductors are dead. The device used for proving dead shall itself be proves immediately before & after testing.

Before reinstatement, the circuit/equipment shall be tested to prove safe before energisation.

To ensure that the risk to personnel is minimised, even if the above precautions fail, all conductors should be earthed. Earthing equipment is particularly desirable if there is a risk of re-energising. In other low voltage equipment, however it may be physically impractical to apply earths, or the risk of short circuit from introducing an earth near adjacent live parts may outweigh the benefit of earthing the apparatus worked on.

Safety Equipment

The Authorised Person and the Competent Person (LV) shall ensure that the following equipment is available and used where necessary during any work on electrical equipment located on site (including work carried out by authorised contractors).

- Rubber gloves, safety glasses.
- Rubber mats for switchboards or where applicable
- Approved electrical test instrumentation.
- Insulated tools.
- Safety locks.

All safety equipment should be suitable for the voltage potentially encountered during the work. Safety equipment shall be kept in approved containers when not in use & stored in a location where it is not exposed to damage or deterioration.

All insulating personal protective equipment (PPE) and devices shall be inspected for scratches, punctures, and crack/ cuts before use. Defective (PPE) & devices shall be disposed of immediately or removed from site.

All rubber gloves used must be stamped with the date of test, marked with the rated voltage & never used with voltage that exceeds this rating. Defective gloves shall be disposed of immediately.

Where work is permitted by a contractor, the contractor shall provide all necessary personal protective equipment, tools, safety devices, & instructions.

Safety Locks, Caution Notices & Danger Notices

Caution notices shall be fixed on all switchgear controlling the apparatus on which is to proceed.



Safety locks shall be used to lock off switches at point where the circuit on which work is to be carried out can be energised.

Danger notices shall also be fixed where applicable, on or adjacent to live apparatus.

Safety warning tags are to be attached to each caution & danger notice.

Keys for safety locks shall be retained in the possession of the Authorised Person (LV) or authorised contractor who is working on the equipment or installation.

Locks can only be removed by the Authorised person (LV) or authorised contractor who is working on the equipment or installation. Only in exceptional circumstances can the locks be removed by others. Approved from the authorising engineer in writing is required for the removal of these locks.

When the circuit is controlled only by fuses or links. The Authorised Person (LV) or authorised contractor shall remove, retain in a safe place & replace the fuses, links & carriers. This must be approved by the Authorising Engineer in writing.

Live Working

Work on or near live conductors shall only be permitted in exceptional circumstances & only when authorised after consultation & agreement between the Authorised Person & Competent Person. In all other circumstances live working shall be strictly forbidden. The advice of the Authorising Engineer shall be sought where appropriate.

Routine testing & adjustment of control circuits is permitted if a risk assessment proves that minimal hazards exist & are acceptable. The following requirements still apply:

- No working alone.
- Only trained, qualified & experienced persons are used to carry this out.
- Evaluation of potential hazards in the area, must take place to ensure safe working conditions.
- Safe procedures are in place.

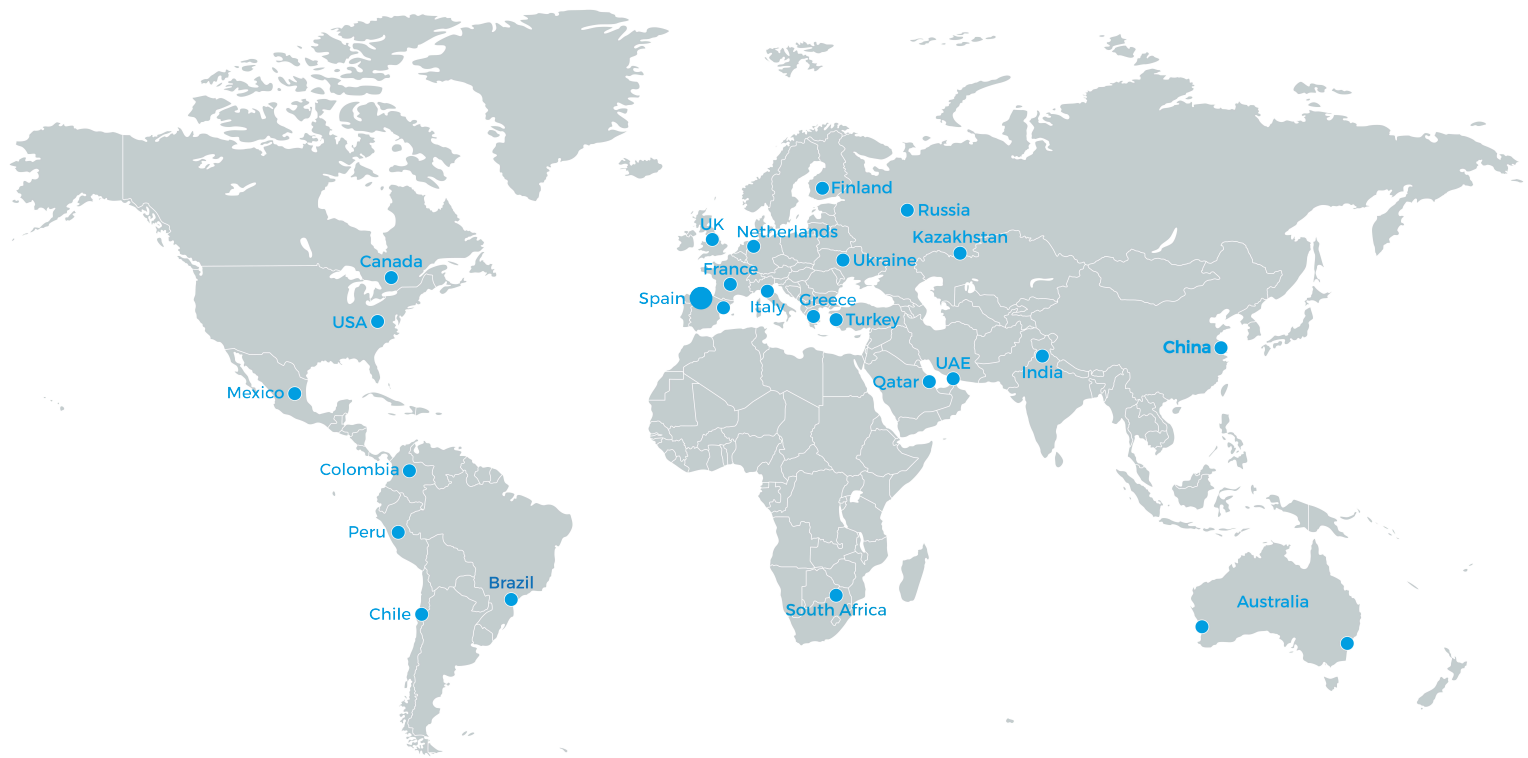
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