



To guarantee the safety of people and goods, selecting the best earth leakage protection option

Earth leakage monitoring systems

Earth leakage protection, as we understand it, is vital to the safety of people and goods. Faced by these dangers, our devices react with a rapid disconnection of the voltage of the entire installation, or only the affected part, in case the earth leakage protection selection process has been efficient.

The devices required for this function are normally RCD, RCCB or RCBO. RCD is the solution offered by CIRCUTOR to its customers for such purposes.

- **RCD: Electronic earth leakage relays**
- RCCB: electromechanical RCCBs
- RCBO: electromechanical earth leakage circuit breaker switches.

Used as the main earth leakage protection system in electrical installations where the earthing system is of the TT or TN-S type. It can be used in other types, but as an additional protection system.

It is therefore necessary and essential to disconnect the electrical network because of the dangers of electrocution as a result of an electrical insulation fault. However, it is a nuisance and a problem for production processes which require a determined uninterrupted electrical service.



Given their importance in distributing electrical energy, electrical installations require maintenance to guarantee their correct use and operation. Relevant standards, such as EN 50110, not only talk about maintenance, but also about preventive maintenance systems.

These systems are capable of notifying possible anomalies in our electrical installations, based on which appropriate decisions can be taken in advance for their implementation.

All in all, devices directly in harmony with applications that require Efficiency Management Systems. Systems currently implemented in all types of activities and covered by ISO 50001.

In our case, we refer to a very specific type of prevention system, namely fault current monitors, in terms of electrical insulation control with current measurement systems. These devices are commonly known as RCM.

RCMs, or fault current monitoring devices, detect fault currents in the electrical installation via an external or internal sensor, as in the case of earth leakage protection devices (RCD). The main difference between both is their final application.

RGU-10 y CBS-4, are some of CIRCUTOR's RCD systems which, depending on the needs of the application and installation, can be used as RCMs.

In the first case, when the fault current reading exceeds a certain threshold, the RCM activates an alarm, usually of the visual or audible type or implemented as application data. Product regulations are governed by IEC 62020.

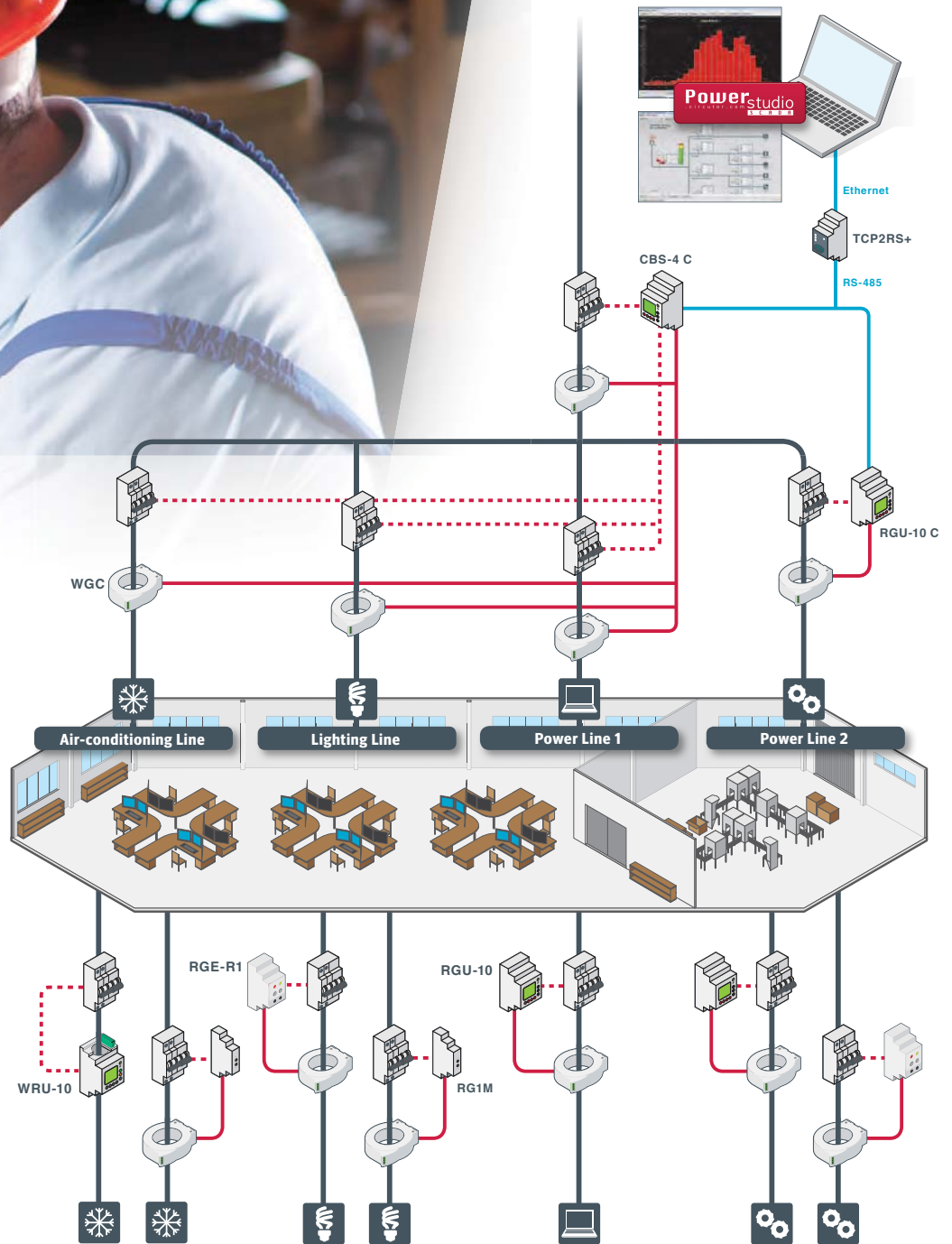
In the second case, it disconnects the installation or part of it from the electrical network, since it must guarantee the protection features. However, it does so with the obligation of complying with the operation times determined by the IEC 60755 standard and similar standards on earth leakage protection, such as IEC 61008, IEC 61009, IEC 60947-2-M for other similar types of devices.

Como se observa, después de lo dicho, un dispositivo de protección diferencial (RCD) indirectamente es un RCM, especial, preparado para asociarse a un elemento de corte (Interruptor automático con bobina de disparo o contactor) y que dispara en los tiempos adecuados para la protección.

As observed, and after what has been said, an earth leakage protection device



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(RCD) is indirectly a special RCM, prepared for its connection to a circuit breaker (circuit breaker with trigger coil or contactor) triggered at the appropriate times for protection purposes.

In contrast, by definition, a RCM can never be used as a RCD to protect people and goods. The reason being is that under the 62020 standard there is no obligation to follow the times established by the aforementioned standards for these types of protection systems.

All in all, the use of a RCM or RCD system is heavily determined by the type of electrical installation (TT, TN or IT earthing systems) and by the rules/regulations that govern the installation in the country in question.

CIRCUTOR, SA, as a RCD manufacturer, in its extensive range of earth leakage protection devices, has been adding items and features to its product, providing ultra-immunised earth leakage protection and carrying out excellent work in signalling and warning processes.

CIRCUTOR RCDs, can be used as RCMs, depending on the needs of the application and installation. The modern range of models consists of various

solutions, such as RG1M, RGE-R/R1, WRU-10 and the RGU-10 /CBS-4 family, with or without communications.

The following parameters make this family a good solution as earth leakage monitoring systems:

- Type A signal measurement, ultra-immunised.
- Programmable in trip currents from 30 mA to 30 (according to model)
- Programmable in trip delay, times defined from 20 ms to 10 seconds (according to model)
- Possibility of having two programmable prealarm outputs
- Display
- Status leds
- Optional RS-485 communications, MODBUS protocol. ▶