

RECmax

New range of reclosing systems

*Earth leakage and circuit breaker protection
with automatic earth leakage reclosing system.
Manage its installation remotely*



How to enhance electrical quality and continuity for your infrastructures or services by ensuring electrical protection

Today, our industrial production processes and the myriad of services for individuals normally entail a constant demand for electrical energy.

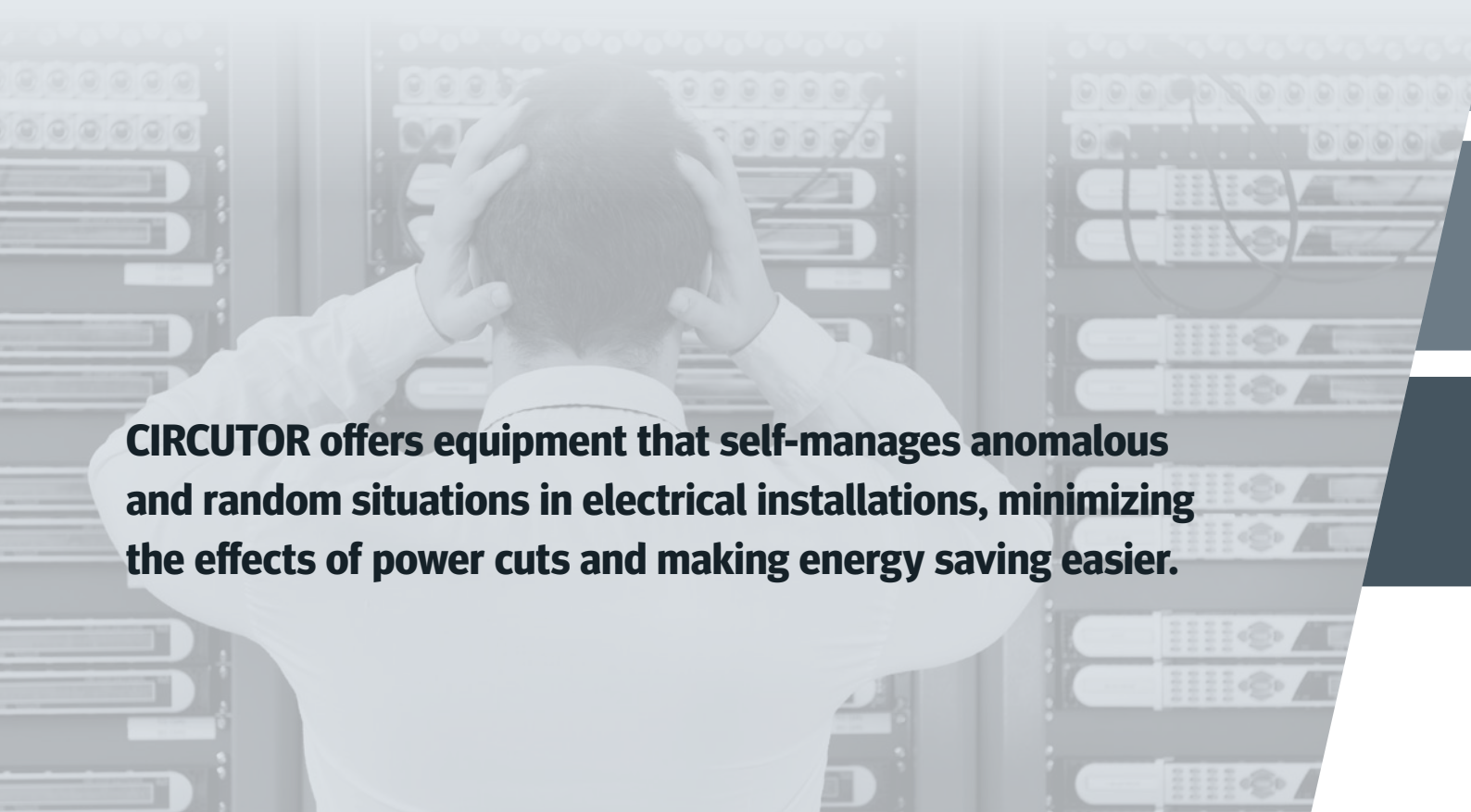
Electrical service continuity ensures high energy management efficiency (ISO 50001) in our companies and quality of life for individuals in their homes or places of entertainment.

When dealing with electrical protection, one of the most frequently used solutions for protection devices is to cut off the electric supply from affected areas when an insulation fault is detected. Therefore, we are faced with a critical electric supply continuity point, given that services and production processes are interrupted to protect people

against electrocution or property against fire hazards or other damage.

Clearly, this is the correct decision. Safety comes first, even though we cannot leave our installations without electrical service indefinitely, especially infrastructures, production processes or services that are difficult to maintain.

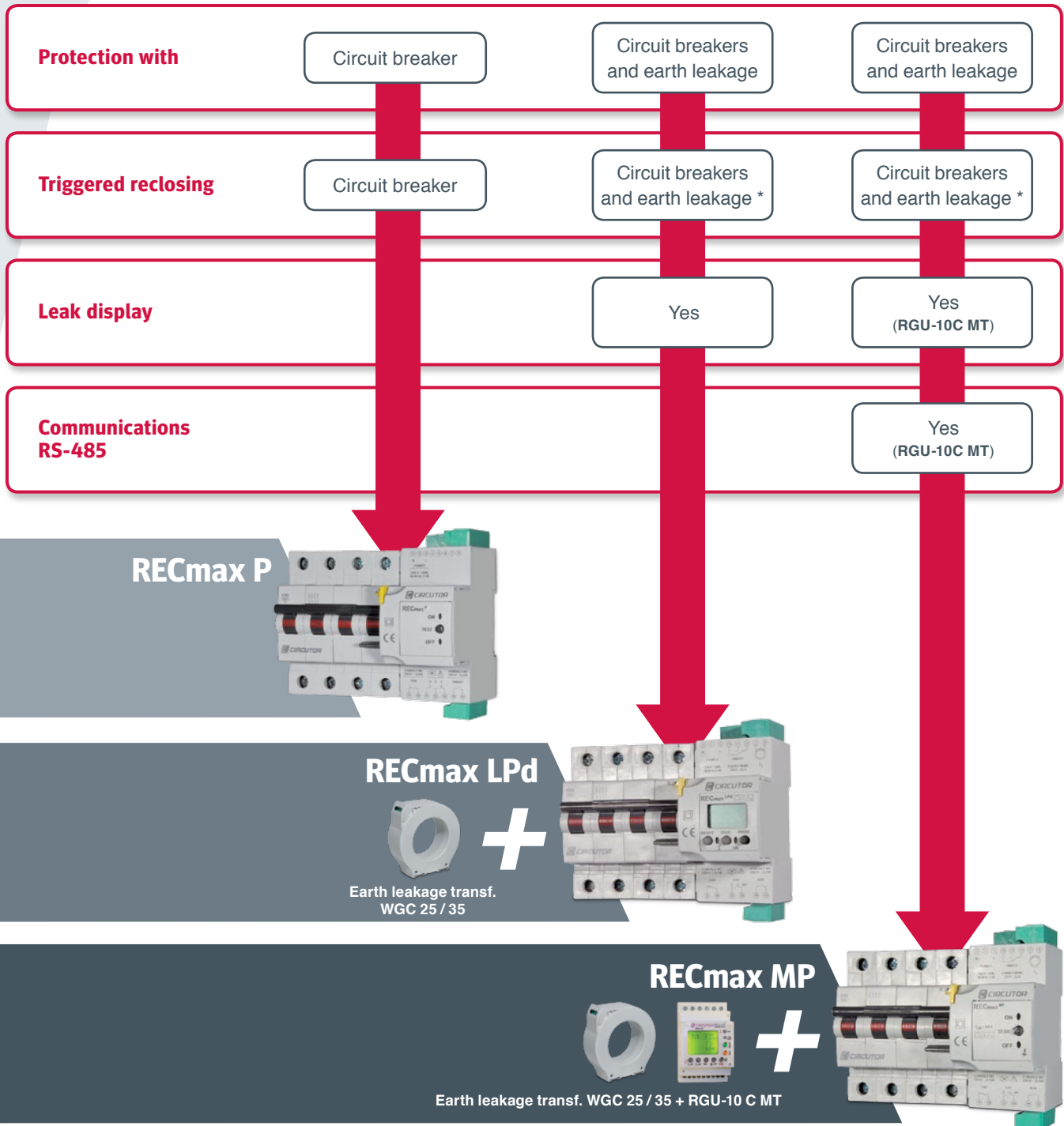
These types of applications make it necessary to use intelligent automatic reclosing earth leakage and circuit breaking protection devices. This implies devices that guarantee protection activated only when the problem is real, with capacity to re-establish the electric supply under the reclosing conditions required by the application.



CIRCUTOR offers equipment that self-manages anomalous and random situations in electrical installations, minimizing the effects of power cuts and making energy saving easier.

CIRCUTOR presents, within a **wide range of solutions** for the **automatic reclosing of circuit breakers and earth leakage protection**, an exclusive range for installations of up to 63 A: **RECmax**

NEW RECmax RANGE







*The programming of the equipment allows circuit breaker reclosing to be disabled.

Comparison table. RECmax range

The **RECmax** range of products for the earth leakage and circuit breaker protection of the installation is capable of meeting the needs of any installation up to 63 A.

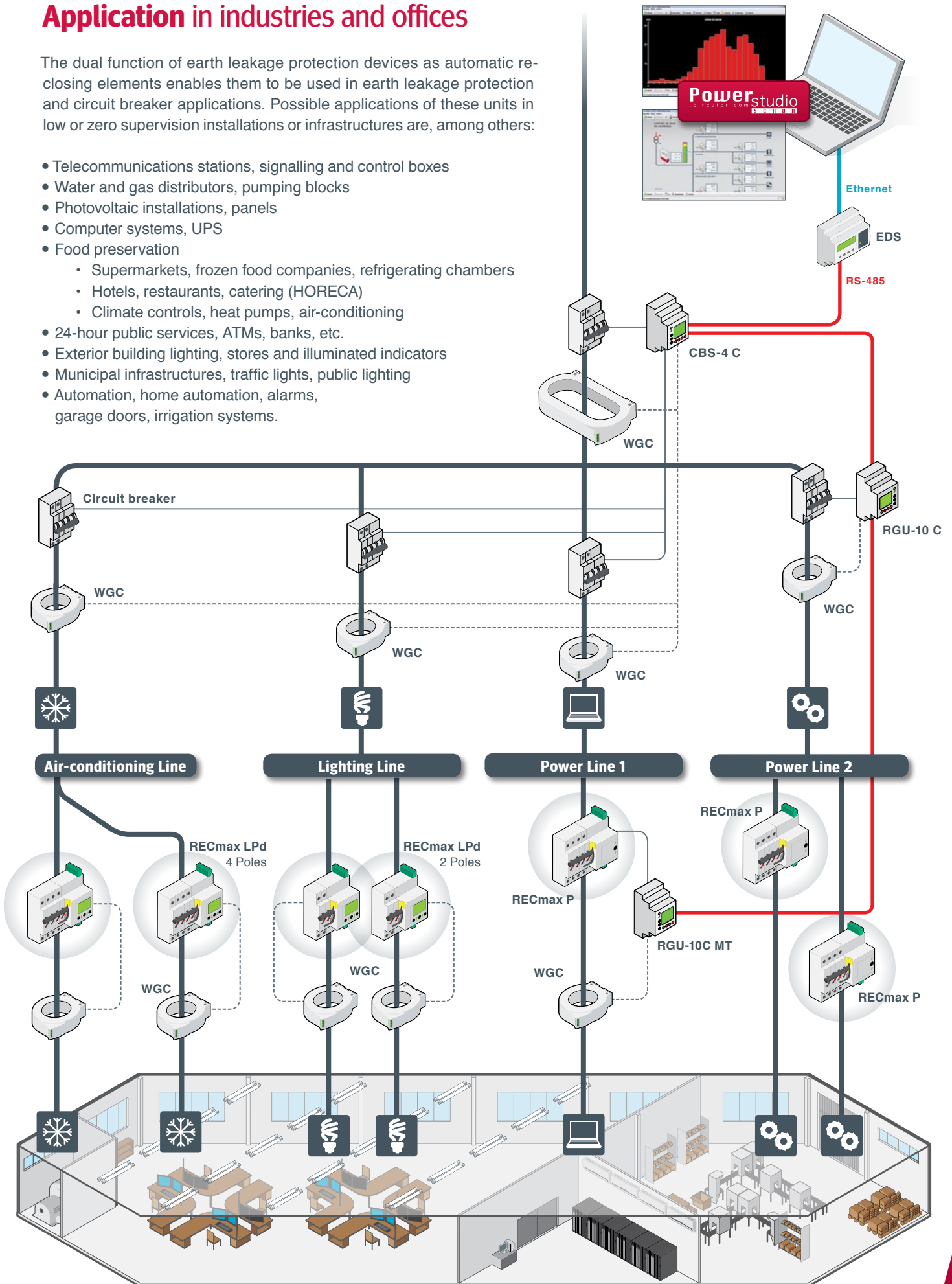
Model design with special features depending on specific needs, for example: preventive maintenance, control and telemanagement of electrical installations.

Protection with	Earth leakage and/or circuit breaker		Circuit breaker
Reclosing with	Earth leakage and/or circuit breaker		Circuit breaker
Classification of models based on need, installation and features of the model.	 RECmax MP + RGU-10 C MT + WGC	 RECmax LPd + WGC	 RECmax P
Customer need			
Continuity of service	■	■	■
Status outputs	■	■	■
Control, telemanagement, telecontrol	■	■	■
LCD Display	■ (RGU-10C MT)	■	
RS-485 communication	■		
Installation			
Single-phase	•	•	•
Three-phase (4 wires)	•	•	•
Three-phase	•	•	•
Used with external earth leakage transformers WGC	•	•	
Nominal current	≤63 A	≤63 A	≤63 A
Attached to DIN rail	•	•	•
Size in DIN modules	7.5 / 9.5 (with RGU-10C MT)	4.5 / 6.5	4.5 / 6.5
Protection features			
Type A earth leakage protection(ultra-immunized)	•	•	
Used for instantaneous protection	•	•	
Use as selective protection	•	•	
Configurable system in terms of time and current	•	•	
Pre-alarm/status output	•	Programmable	•
Standard	IEC 60947-2 Appendix M, IEC 62020		IEC 60898
Reclosing system features			
Number of reclosing procedures, N	Programmable 		3
Time between reclosing procedures, T			3 minutes
Reclosing meter RESET time			30 minutes

Application in industries and offices

The dual function of earth leakage protection devices as automatic re-closing elements enables them to be used in earth leakage protection and circuit breaker applications. Possible applications of these units in low or zero supervision installations or infrastructures are, among others:

- Telecommunications stations, signalling and control boxes
- Water and gas distributors, pumping blocks
- Photovoltaic installations, panels
- Computer systems, UPS
- Food preservation
 - Supermarkets, frozen food companies, refrigerating chambers
 - Hotels, restaurants, catering (HORECA)
 - Climate controls, heat pumps, air-conditioning
- 24-hour public services, ATMs, banks, etc.
- Exterior building lighting, stores and illuminated indicators
- Municipal infrastructures, traffic lights, public lighting
- Automation, home automation, alarms, garage doors, irrigation systems.



RECmax LPd



Compact dimensions

2 Poles



4 Poles



Simple, intuitive programming



External signals



Remotely manageable



Remote control

Earth leakage circuit breaker with self-reclosing system and display (LCD)

Description

Self-resetting cut off device with circuit breaker and **ultra-immunized** earth leakage protection. Programmable unit with display, which measures leakage currents (earth leakage protection), and orders the disconnection or reclosing of the circuit breaker (circuit breaker protection) through a motor that controls it mechanically. The leakage current measurement, I_{Δ} , needs an external earth leakage **WGC / WGS** transformer, which is supplied separately.

The assembly is regularly used in electrical, single-phase and three-phase installations that require high continuity of the electric supply. It has inputs/outputs which provide information and control on the state of the electrical installation where it is working.

LED display and backlit (LCD) display:

- Earth leakage protection/reclosing parameters.
- Protection trip current.
- Number of reclosures
- Protection status messages, etc.

Applications

The **RECmax LPd** connected to the **WGC / WGS** toroidal transformers ensure earth leakage and circuit breaker protection with self-reclosing after an earth leakage, overload or short-circuit trip.

It is a good solution for those infrastructures that are hard to control and monitor because of their location in the following control boards:

- Telephony systems
- DTT systems
- Computer systems, UPS
- Other difficult maintenance services

Parameter display



Display due to earth leakage protection.



No. reclosures made.



Instantaneous leakage current value.

Trigger event display



External signal trigger, remote control.



TEST trigger



N° reclosings due to earth leakage trip.

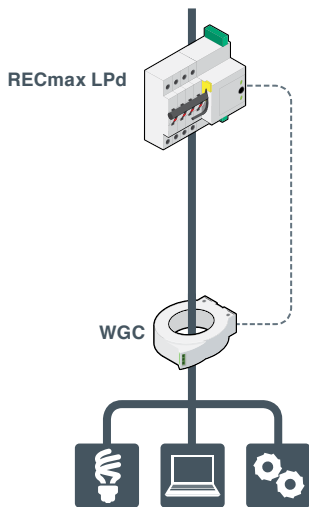


Trip current value.

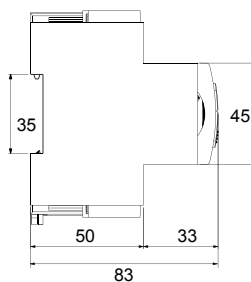
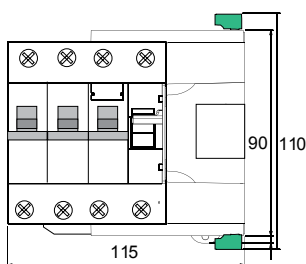
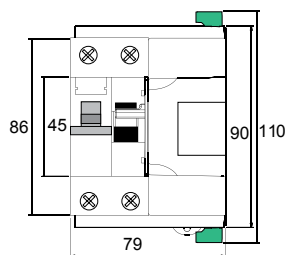
RECmax LPd

Earth leakage circuit breaker with self-reclosing system and display (LCD)

Installation elements



Dimensions



Technical features

Protection	Earth leakage	
	Class A (IEC 60755)	A ultra-immunized
	Measurement	True root mean square (TRMS)
	Adjustable sensitivity	0.03-0.1-0.3-0.5-1 A (*)
	Trip delay	Trip curves: INS, SEL Time defined: 0.1-0.2-0.3-0.4-0.5-0.6-0.8 1 sec.
Protection	Test and Reset	Using buttons T and R
	Sensor element to connect	WGC / WGS earth leakage transformer
Protection	Circuit breaker	
	Integrated element	Motorized circuit breaker
	Current, I_n	6-10-16-20-25-32-40-50-63 A
	Number of poles	2/4
	Rated voltage U_n	240 / 415 V _{AC}
Reclosing system	Trip curves	C
	Cut off power (EN 60898)	6 kA
	No. of reclosures	Programmable
	Time between reclosures	In accordance with sequence configured
	RESET time	In accordance with sequence configured
External signalling	LED	Presence of voltage, leakage trip, timing between reclosures
	LCD Display	Instantaneous value of leakage, trip leakage value, reclosing energy meter, programming values, protection statuses
	Remote	Potential free auxiliary contact output, of the locking status (reclosing not enabled) and circuit breaker position status
External inputs	Remote circuit breaker ON/OFF	
	Opening time	< 10 ms
	Pulse time for opening	> 200 ms
	Closure time	< 1,000 ms
	Pulse time for closing	> 200 ms
Electrical features	Auxiliary power supply	230 V _{AC}
	Remote locking output contact	Potential free, 230 V, maximum current 250 mA
	Remote output contact of circuit breaker position	Potential free, 230 V, maximum current 500 mA
	Remote control inputs	Voltage-free, activated by button or external switch
Mechanical features	Operating temperature	-10...+50 °C
	Fixing	DIN rail 46277 (EN 50022)
	Dimensions (modules)	4.5 (2 poles) - 6.5 (4 poles)
	Mechanical working life	> 10,000 operations
	Weight (g)	452 (2-pole) 703 (4-pole)
	Protection degree	IP 20 terminals IP 41 embedded
Standards	Plug-in connection terminals	Vertical orientation
	IEC 60947-2, IEC 60755	

(*) if adjusted to an earth leakage trigger of 30 mA, the default delay is set to INSTantaneous.

RECmax MP

Motorized automatic switch (up to 63 A)



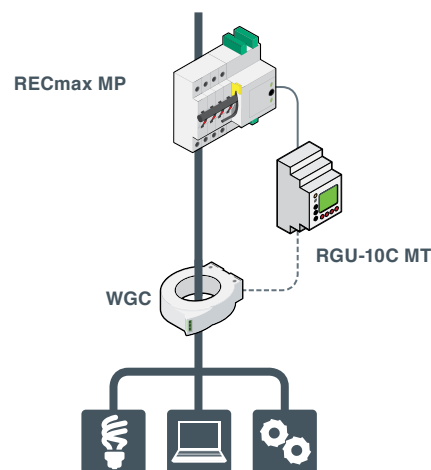
Compact dimensions



External signals Remotely manageable



Installation elements



With reclosing element and earth leakage RGU-10C MT + WGC



Simple, intuitive programming



Communications



Description

The **RECmax MP** series are motorized circuit breaker switches. They protect against short-circuits and overloads, but are also used as circuit breakers. After a disconnection caused by a circuit breaker, the switch can be reconnected through an external order. It has two inputs which, through voltage-free external signals, order the opening (input

O) and subsequent closing (reclosing system) of the circuit breaker (input I). It also has three outputs for signalling the status and the cause of the opening and closing of the circuit breaker (trigger, manual/Test).

Applications

The **RECmax MP** series are motorized circuit breakers that can be controlled remotely, apt for any application in which remote connection/disconnection control is required. They are also used as circuit breakers linked to **CIRCUTOR** self-reclosing relays. They are a vital accessory in the automatic self-reclosing overload and earth leakage protection process.

Technical features

Protection	Circuit breaker	
	Integrated circuit breaker	Motorized circuit breaker
	Current, I_n	6-10-16-20-25-32-40-50-63 A
	Number of poles	2 / 4
	Rated voltage U_n	240 / 415 V _{AC}
	Cut off power (EN 60898)	6 kA
	Trip curve	C
External signalling	LEDs	Presence of voltage Circuit breaker OFF/ON
	Remote	Locking status (reclosing not enabled) Circuit breaker position status
Circuit breaker external input OFF	Opening time	< 10 ms
	Pulse time for opening	> 10 ms
Circuit breaker external input ON	Closure time	< 1,000 ms
	Pulse time for closing	> 10 ms
Electrical features	Auxiliary power supply	230 ±30% V _{AC}
	Working frequency range	50...60 Hz
	Remote locking output	Auxiliary contact potential-free, 230 V, maximum current 250 mA
	Circuit breaker position double remote output	Auxiliary contact potential-free: 230 V, maximum current 500 mA 230 V, maximum current 100 mA
	Remote control external inputs OFF/ON	Voltage-free pulse-activated (t > 10 ms)
Mechanical features	Operating temperature	-10...+50 °C
	Fixing	DIN rail 46277 (EN 50022)
	Mechanical working life	> 10,000 operations
	Dimensions (modules)	6.5 modules - 4-pole 4.5 modules - 2-pole
	Weight (g)	452 - 2-pole 703 - 4-pole
	Protection degree	Terminals IP20, embedded IP41
	Plug-in connection terminals	Vertical orientation
Standards	IEC 60947-2, IEC 60898	

RECmax P

Motorized automatic reset circuit breaker (up to 63 A)



Compact dimensions

2 Poles



4 Poles

External signals Remotely manageable



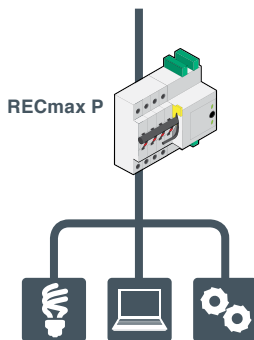
Remote control

Depending on the fixed automatic reclosing sequence



Sequence of 3 timed reclosings every 3 minutes with a 30-minute restart time after the last reclosing.

Installation elements



Description

The RECmax P series are 2- and 4-pole circuit breakers connected to a compact motor and internal control unit that enables automatic reclosing. After a trip, the switch recloses, following a sequence of 3 reclosings with 3 minutes between re-arms. If the unit is not able to reconnect after 3 attempts, it remains triggered until a manual or remote reset is made. They

can also be connected remotely to an external control. It has two inputs which, through voltage-free external signals, order the opening (input O) and subsequent closing (reclosing system) of the circuit breaker (input I). It also has three two single-contact outputs for signalling the status and the cause of the opening of the circuit breaker (trigger, manual/Test).

Applications

The RECmax P series are motorized circuit breakers that can be rearm automatically or controlled remotely, suitable for any application in which remote connection/disconnection control is required. They are an essential accessory for protection and automatic circuit breaker and earth leakage reclosing system, and for external connection/disconnection control.

Technical features

Protection	Circuit breaker	
	Integrated circuit breaker	Motorized circuit breaker
	Current, I_n	6-10-16-20-25-32-40-50-63 A
	Number of poles	2 / 4
	Rated voltage U_n	240 / 415 V _{AC}
	Cut off power (EN 60898)	6 kA
	Trip curve	C
Reclosing activated by:	Circuit breaker	
	No. of reclosures	3
	Time between reclosures	3 minutes
	Reset time	30 minutes
External signalling	LEDs	Circuit breaker voltage OFF/ON
	Remote	Timing between reclosings Locking status (reclosing not enabled) Circuit breaker position status.
Circuit breaker external input OFF	Opening time	< 10 ms
Circuit breaker external input ON	Pulse time for opening	> 10 ms
	Closure time	< 1,000 ms
	Pulse time for closing	> 10 ms
Electrical features	Auxiliary power supply	230 ±30% V _{AC}
	Working frequency range	50...60 Hz
	Locking remote output	Auxiliary contact potential-free, 230 V, maximum current 250 mA
	Circuit breaker position double remote output	Auxiliary contact potential-free: 230 V, maximum current 500 mA 230 V, maximum current 100 mA
	Remote control external inputs OFF/ON	Voltage-free pulse-activated (t > 10 ms)
	Plug-in connection terminals	Vertical orientation
Mechanical features	Operating temperature	-10...+50 °C
	Fixing	DIN rail 46277 (EN 50022)
	Mechanical working life	> 10,000 operations
	Dimensions (modules)	6.5 - 4-pole, 4.5 - 2-pole
	Weight (g)	452 - 2-pole, 703 4-pole
	Protection degree	Terminals IP20, embedded IP41
	Plug-in connection terminals	Vertical orientation
Standards	IEC 60947-2, IEC 60898	

Symbols

	Dimensions (DIN modules)		Configurable automatic reclosing parameters		
	Nominal currents		Configurable earth leakage protection settings		
	Sensitivity		Display		
	TEST button, earth leakage protection	Opt.	Aux. contact status outputs.	Opt.	Remote control input
	Range of nominal currents	Opt.	RS-485 communication output:		

RECmax LPd

Versatile

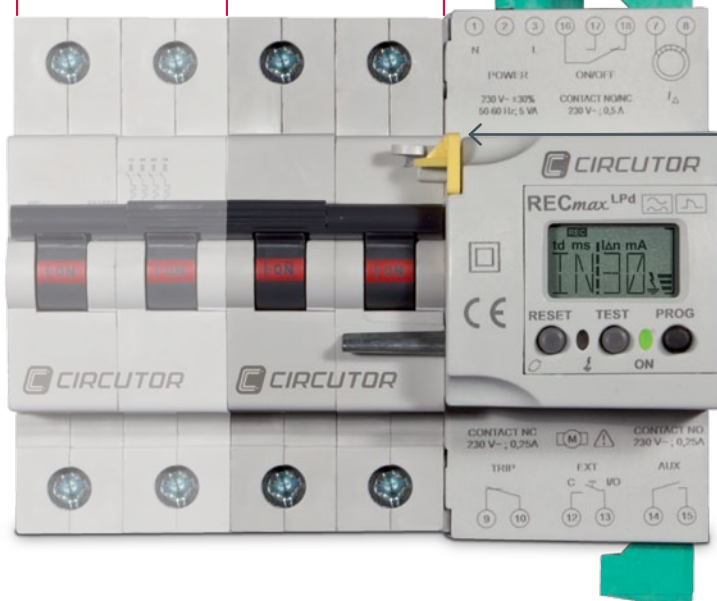
Available in 2- and 4-pole for all types of installations.

Control

Remote-control input:

Easy

Quick connection from the earth leakage transformers via **removable terminal**.

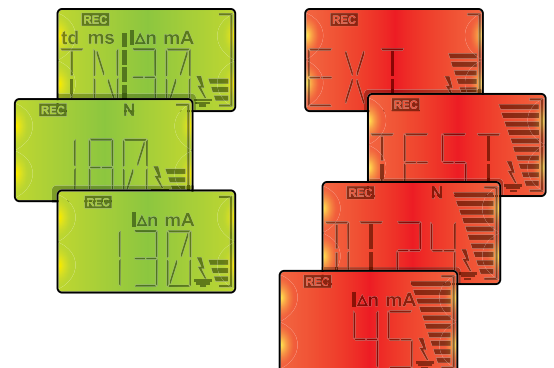


Safe

Mechanical reconnection locking.

Visual

Display of statuses, parameters and trigger events with the **LCD display** and **LEDs**.



Control

Through the **outputs** can have protection status and reclosing alarms

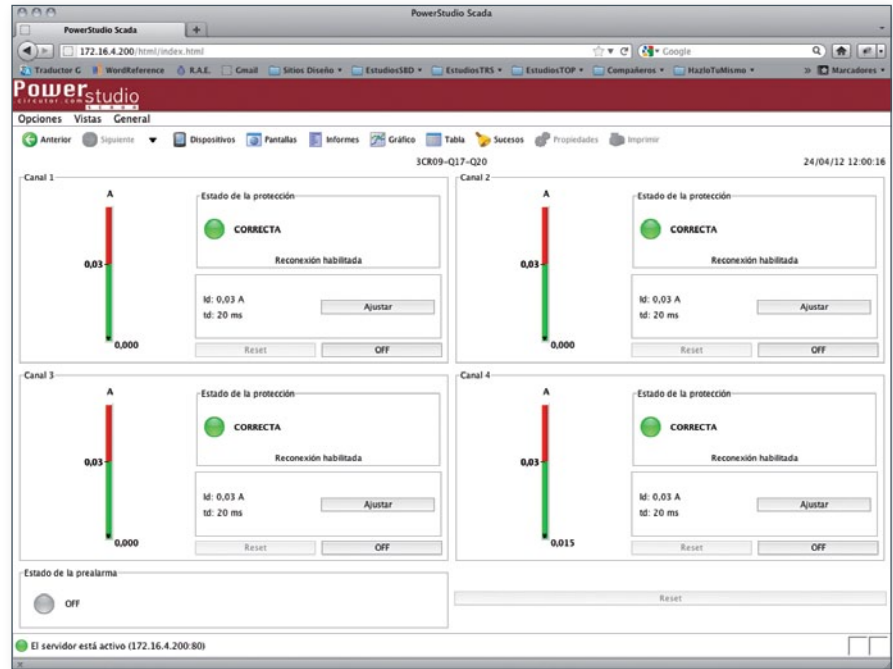
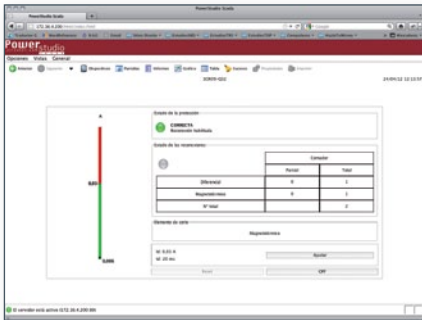
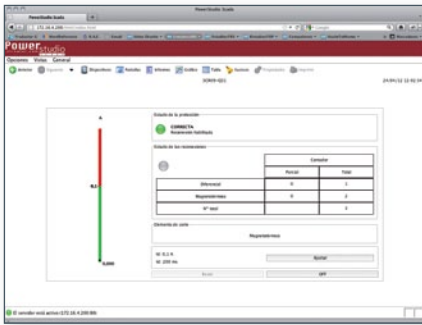


Management and monitoring software

With PowerStudio SCADA you can:

- Guarantee the accurate energy supervision of your installation
- Achieve the preventive maintenance of all lines and installations

The **RGU-10 C** series uses the standardized Modbus/RTU (RS-485) or Modbus/TCP (Ethernet) protocols, which can be queried from any other market application.



<http://powerstudio.circutor.com>



REC Max

New range of reclosing systems

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