Circutor RECmax P Automatic Switch for An Automatic Reclosing System Instruction Manual

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This manual is a RECmax P installation guide. For further information, please download the full manual from the CIRCUTOR web site: **www.circutor.com**

IMPORTANT!

The device must be disconnected from its power supply sources (power supply and measurement) before undertaking any installation, repair or handling operations on the device's connections. Contact the after-sales service if you suspect that there is an operational fault in the device. The device has been designed for easy replacement in case of malfunction.

The manufacturer of the device is not responsible for any damage resulting from failure by the user or installer to heed the warnings and/or recommendations set out in this manual, nor for damage resulting from the use of non-original products or accessories or those made by other manufacturers.

Contents

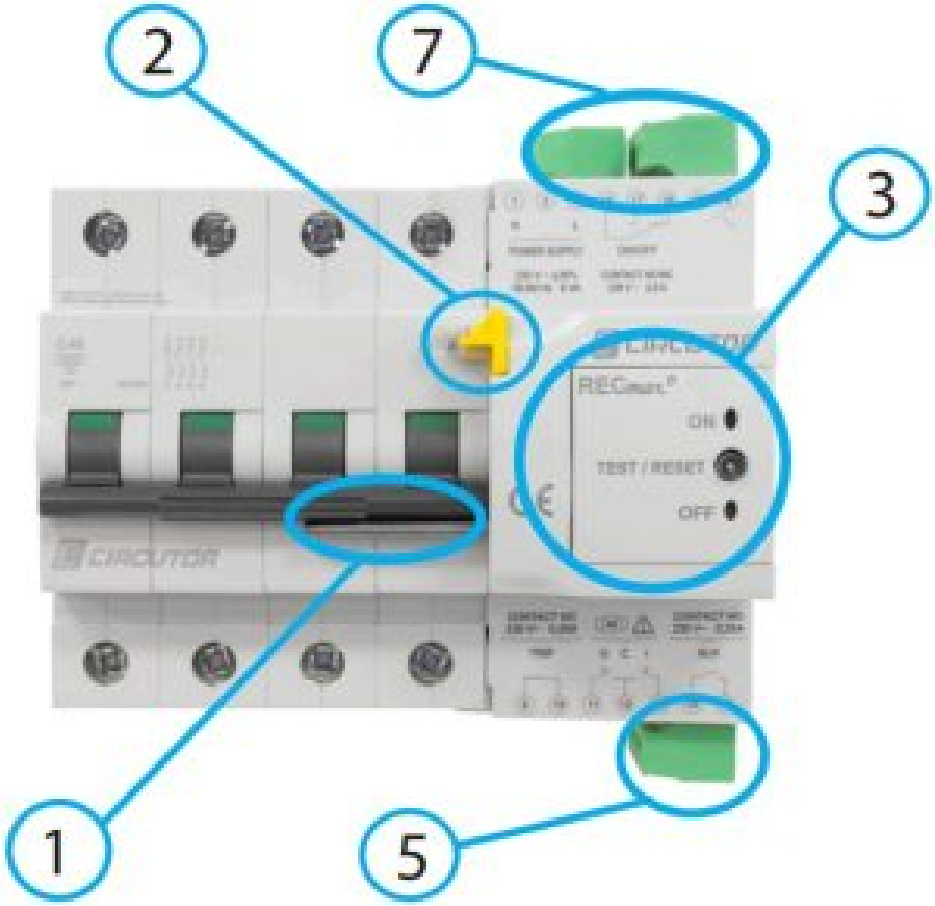
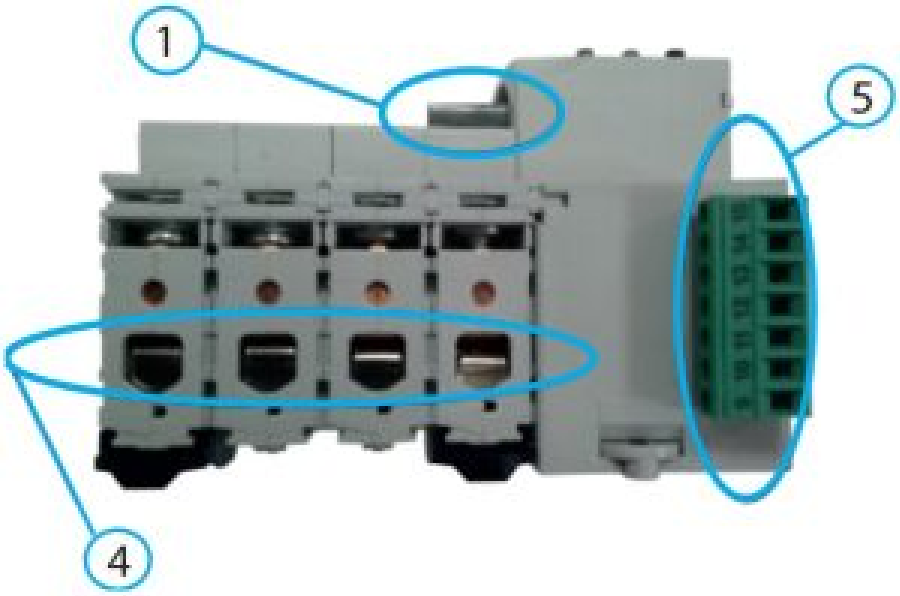
DESCRIPTION

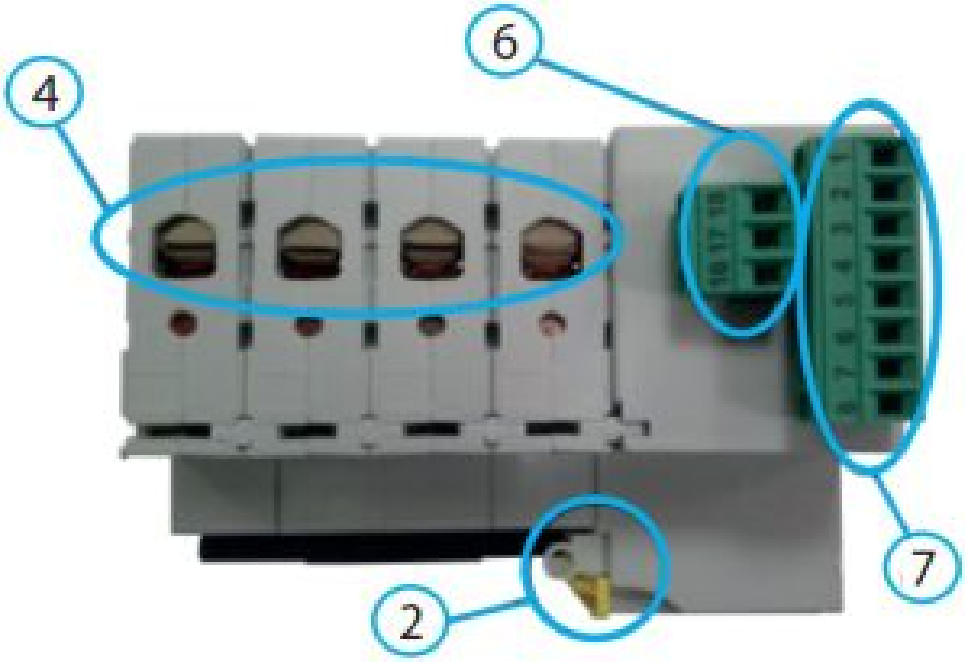
The RECmax P is a electronic DC motor which controls an associated circuit breaker. It's circuit breaker with automatic reclosing system to protect and reclose the electrical installations. It is routinely used in installations which require electrical continuity with little maintenance.

It has two voltage-free external signal inputs which order the opening and subsequent closing (reclosing system) of the automatic switch.

It has two single-contact outputs to show the status and cause of the opening of the automatic switch.

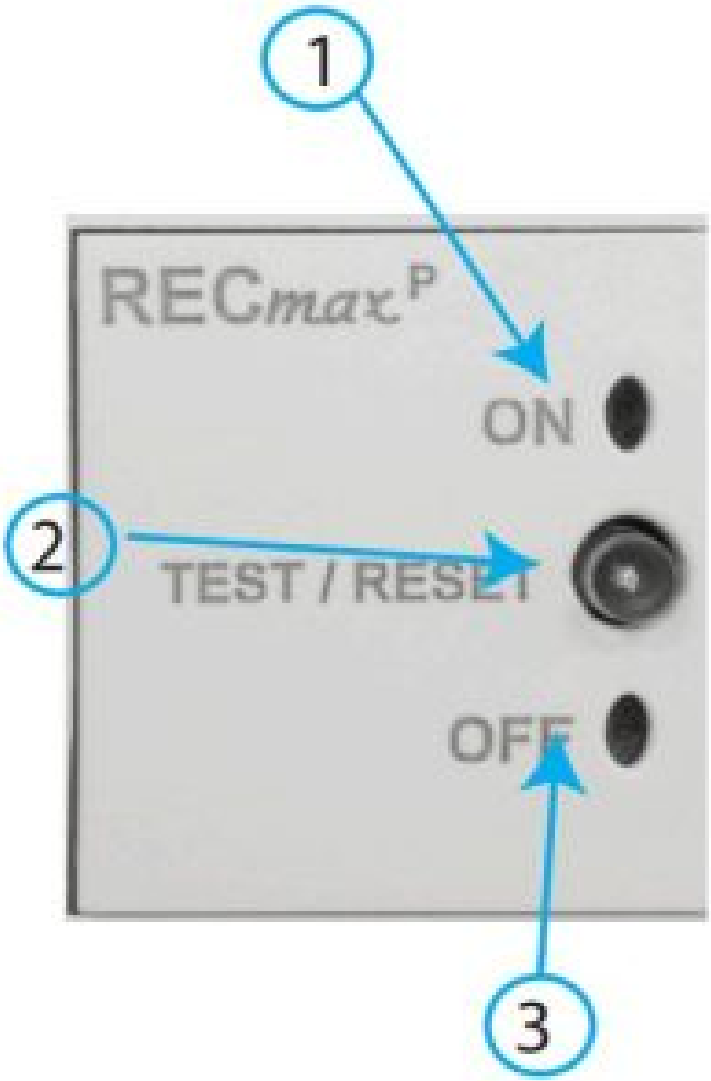
Components	
1	The lever is used to re-close the main switch. The default position of the lever is down. In case of a re-clo sing, the lever is raised by a motorized driver, which connects the main switch. After the re-closing, the m otor drives the lever back to the down position
2	Locking system: The system consists of a mechanical lock avoiding the re-connection of the main switch, thus overriding the automatic re-closing option **Note** : The locking lever can be mechanically locked
3	Front of motorized controller: push-button
4	Circuit breaker power contacts.
5	Bottom plug-in terminals set : **TRIP (9,10):NC** output Manual-Test **O (11,12):** Isolated input for trip, voltage free. **I (12,13):** Isolated input for restart, voltage free. **AUX (14,15):** NO output
6	Top plug-in terminals set ON/OFF **(16,17,18):** Circuit breaker status.
7	Top plug-in terminals set **L-N (1,3)**: Power supply

- 
2
7
3
1
5
ON
TEST / RESET
OFF
- 
1
5
4



Indicators

1	**LED ON (Green)** the circuit breaker is closed
2	**TEST/RESET / TEST/RESET push-button** Button has a double function depending on the previous status of the circuit breaker
3	**LED OFF (Red)** the circuit breaker is open



If the **ON** (green) and **OFF** (red) LED are blinking, indicates some type of malfunction, contact the assistance service.

INSTALLATION

RECmax P must be installed inside an electric panel or enclosure and mounted on a DIN rail.

It has LEDs indicators signalling that voltage is present. Even though these LEDs are not on, this does not relieve the user from verifying that the unit is disconnected from all power supply sources.

IMPORTANT!

Take into account that when the device is connected, the terminals may be hazardous to the touch, and opening the covers or removing elements may provide access to parts that are dangerous to the touch. Do not use the device until it is fully installed

IMPORTANT

The device’s auxiliary supply must be protected with fuses or protection elements appropriate for the power supply

range and consumption. Preferably the protection should consist of a small circuit breaker allowing the disconnection of the device from the power supply in case of servicing.

OPERATION

In normal operating conditions (no trip), the device has the following status:

- Circuit breaker closed, handle up
- Motor lever **(1)** down.
- Green LED on and red LED off. **(3)**
- TRIP output, terminals 9-10. closed contact
- AUX output, terminals 14-15. open contact

When the automatic switch opens due to:

- A fault in the electrical installation (Short-circuit / Overload)
- Manually lower the circuit breaker handle.
- External order, remote control. Short circuiting O input, terminals 11-12.
- Push TEST/RESET button when the ON LED is green.

The device has the following status:

- Circuit breaker open, handle down.
- Motor lever **(1)** down.
- Green LED off and red LED on. **(3)**
  A flashing light indicates a default trip. Enable automatic reclosing system and three minute timer in each attempt until they are exhausted (3 times). All attempts exhausted, permanent OFF LED. Just reconnect manually or by remote control and the automatic reclosing system is disabled. This state remains indicated visually (permanent OFF LED) and externally (relay contact output).
- TRIP output, terminals 9-10. open contact, only in the event of disconnection during a TEST
- AUX output, terminals 14-15. closed contact
  The system returns to the start position when:
- It is automatically reconnected by the reclosing system sequence (only in the case of a flashing OFF LED)
- Terminals 12-13 (Input I) close, external order of automatic reclosing system.
- Press the TEST/RESET key when the OFF LED is red.

 On occasions when the circuit breaker is to be disconnected, it should be disconnected and subsequently locked to prevent accidental reclosing while work is under way.

The system enables the possibility of automatic reclosing to be mechanically prevented by removing a yellow pin, **(2).**
Whenever working in the electrical installation protected by a RECmax P, the reclosing system function must be cancelled by manually lowering the switch and subsequently removing the yellow pin.

Technical features

Power supply				
Rated voltage	230 V ~ ± 30%			
Frequency	50 / 60 Hz			
Power	4.5 VA			
Installation category	CAT III 300 V			
Rated voltage	230 V ~ ± 30%			
Maximum voltage	420 V ~			
Minimum voltage	90 V ~			
Frequency	50 / 60 Hz			
Absorbed power	10 VA			
Closure time motor	< 1000 ms			
Tripping time motor	< 10 ms			
Impulse time for closure	> 10 ms			
Impulse time for opening	> 10 ms			
Electrical life	> 20000 maniobras / operations			
Protection degree	IP40 (DIN 40050)			
Current, In (1)	6, 10, 16, 20, 25, 32, 40, 50, 63 A ~			
Rated voltage, Un	240 / 415 V~			
Minimum voltage, Ub	12 V~			
Magnetic trip curves (1)	C, D, B(consultar /consult)			
No. of mechanical / electrical operations	> 20000 / 10000 maniobras / operations			
Cross-section	**Flexible cable**		**Rigid cable**	
	25 mm2		35 mm2	
Number of poles (1)	1 (consultar /consult) / 2 / 3 (consultar /consult) / 4			
Breaking capacity (EN 60898)	**Poles**	**Voltage**	**Icn / Ics**	
	1 – 4	230 / 400 V	6 kA	
Breaking capacity (EN 60947-2)	**Poles**	**Voltage**	**Icu / Ics**	
	1	< 60 V	10 kA	
	2	< 125 V	30 kA	
	Poles	**Voltage**	**Icu**	
	1	240 V	10 kA	

<table>
<tr><td rowspan="5">Breaking capacity (EN 60947-2) ~</td><td rowspan="3">2</td><td>127 V</td><td>30 kA</td></tr>
<tr><td>240 V</td><td>20 kA</td></tr>
<tr><td>415 V</td><td>10 kA</td></tr>
<tr><td rowspan="2">3 y/and 4</td><td>240 V</td><td>20 kA</td></tr>
<tr><td>415 V</td><td>10 kA</td></tr>
<tr><td>No of reclosing system attempts</td><td colspan="3">3</td></tr>
<tr><td>Timing between reclosing system attempts</td><td colspan="3">3 min.</td></tr>
<tr><td>Meter reset time</td><td colspan="3">30 min.</td></tr>
<tr><td>O input, terminals 11-12</td><td colspan="3">Libre de tensión / Voltage-free</td></tr>
<tr><td>I input, terminals 12-13</td><td colspan="3">Libre de tensión / Voltage-free</td></tr>
<tr><td>AUX output, terminals 14-15</td><td colspan="3">0.25 A – 230 V</td></tr>
<tr><td>TRIP output, terminals 9-10</td><td colspan="3">0.25 A – 230 V</td></tr>
<tr><td>ON/OFF output, terminals 16-17-18</td><td colspan="3">0.5 A – 230 V</td></tr>
<tr><td>Operating temperature</td><td colspan="3">-20ºC… +70ºC</td></tr>
<tr><td>Relative humidity (non-condensing)</td><td colspan="3">5 … 95%</td></tr>
<tr><td>Maximum altitude</td><td colspan="3">2000 m</td></tr>
<tr><td>Protection degree</td><td colspan="3">IP20</td></tr>
<tr><td>Self-extinguishing capability</td><td colspan="3">V0 (UL)</td></tr>
<tr><td>Screws</td><td colspan="3">M3</td></tr>
<tr><td>Insertion force per pole</td><td colspan="3">max 3N</td></tr>
<tr><td>Withdrawal force per pole</td><td colspan="3">min 5N</td></tr>
<tr><td>Recommended torque</td><td colspan="3">0.5 / 0.6 Nm</td></tr>
<tr><td>Length of stripped insertion cable</td><td colspan="3">6 – 7.5 mm</td></tr>
<tr><td rowspan="2">Maximum cross-section</td><td colspan="2">Rigid cable</td><td>Flexible cable</td></tr>
<tr><td colspan="2">0.05 – 2.5 mm2</td><td>0.05 – 1.5 mm2</td></tr>
<tr><td>Maximum current intensity</td><td colspan="3">10 A</td></tr>
<tr><td>Contact resistance</td><td colspan="3">15 mΩ</td></tr>
<tr><td>Insulation resistance</td><td colspan="3">1000 GΩ (500 V)</td></tr>
<tr><td>Attachment (EN50022)</td><td colspan="3">Carril / rail DIN 46277</td></tr>
<tr><td rowspan="2">Dimensions</td><td colspan="2">Single-phase</td><td>Three-phase</td></tr>
<tr><td colspan="2">4.5 módulos / modules</td><td>6.5 modulos / modules</td></tr>
</table>

Weight	550 gr	800 gr
Enclousure	PC + FV	

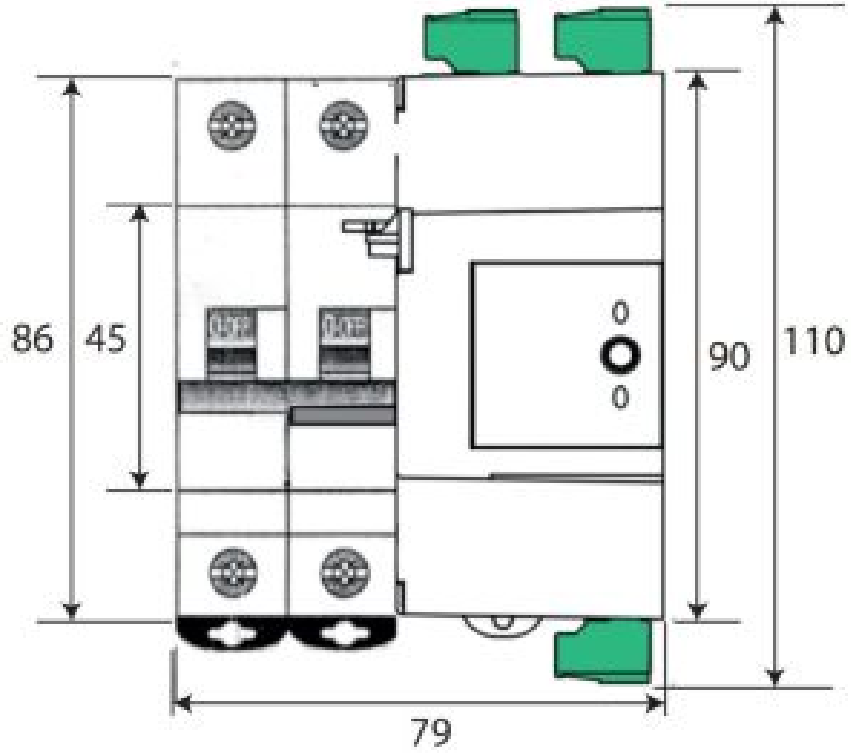
Standars: IEC 60898 , IEC 60947-2

Depending on model:

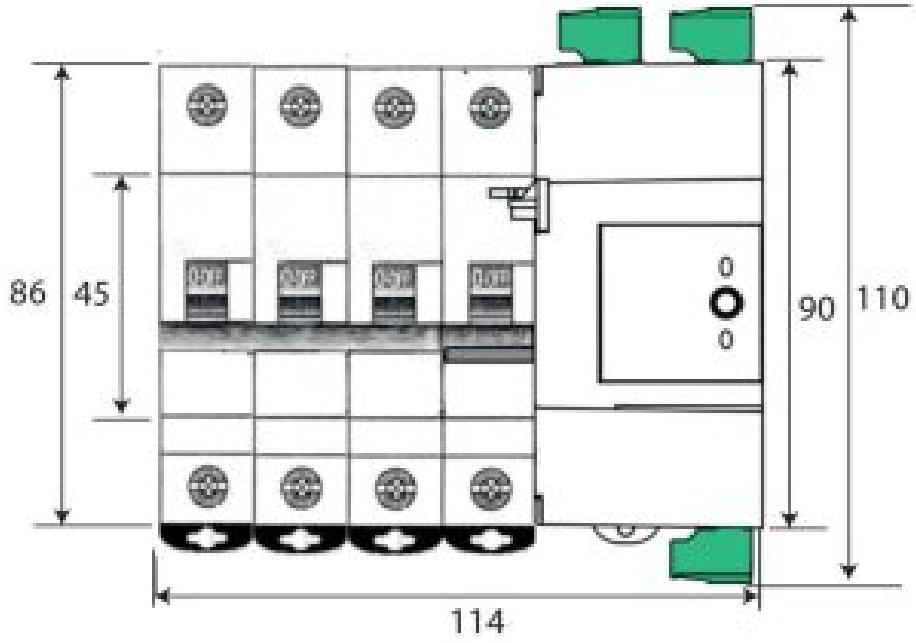
Exceeded 3 attempts to reclose, the system will be blocked. The state will be signalled locally by OFF LED and externally by auxiliary contacts. Is needed to reset manually or by remote control.

Dimensions

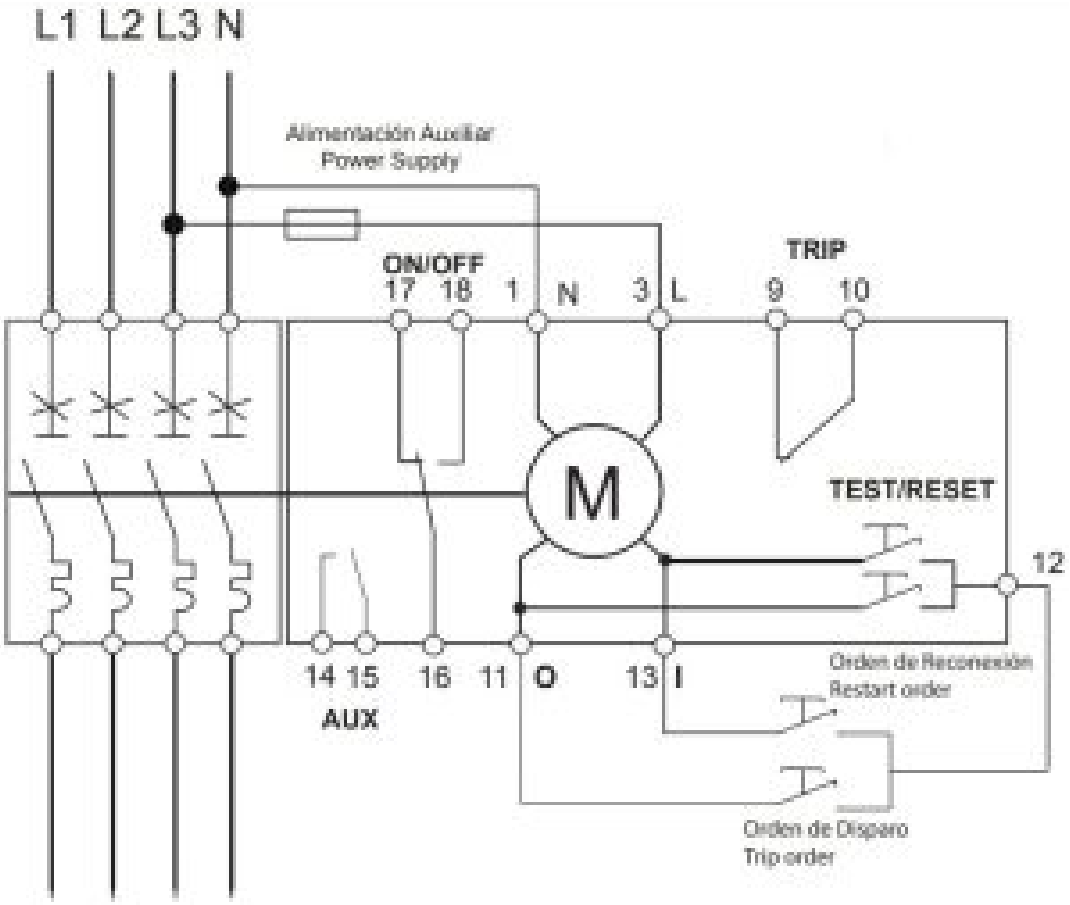
Single-phase installation – 2 poles



Three-phase installation – 4 poles

- 

Terminal connections designations	
1, 3	**Power supply**
9	**TRIP output (Common)**
10	**TRIP output (NC)**
11	**O input (NO)**
12	**O input – I input (Common)**
13	**I input (NO)**
14	**AUX output (Common)**
15	**AUX output (NO)**
16	**ON/OFF output (Common)**
17	**ON/OFF output (NC)**
18	**ON/OFF output (NO)**



⚠ The N-L auxiliary power supply may be external to the installation to be protected, but in no case it must be connected downstream from the main switch.

⚠ Make sure that the Neutral conductor connection is made as indicated in the connection diagrams in this guide.

Technical service

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Note: Device images are for illustrative purposes only and may differ from the actual device.

Documents / Resources

	**Circutor RECmax P Automatic Switch for An Automatic Reclosing System** [pdf] Instruction Manual RECmax P, Automatic Switch for An Automatic Reclosing System