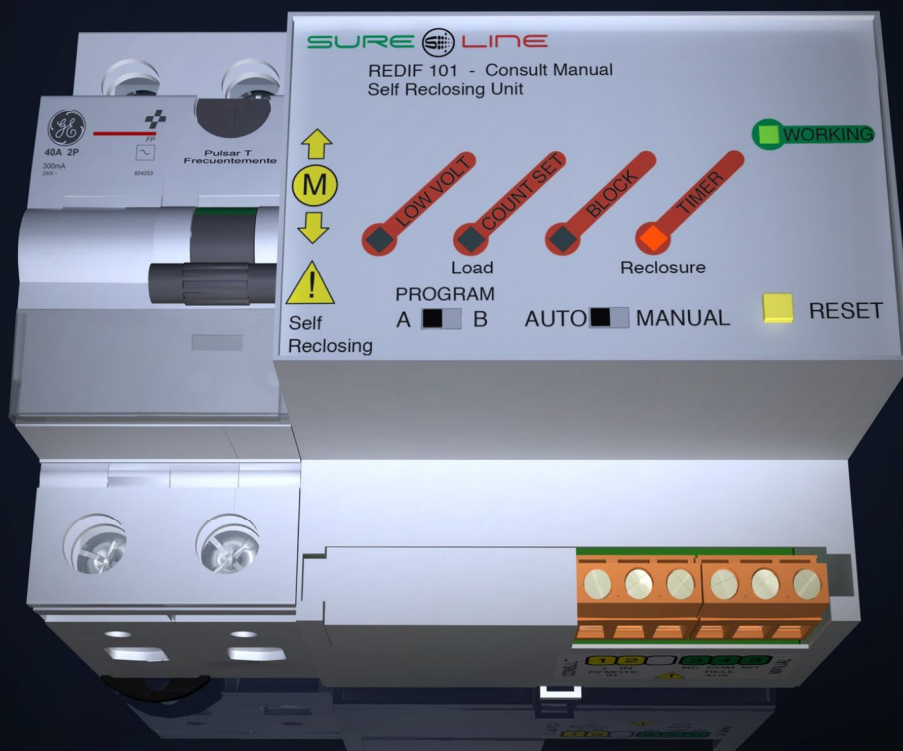


AUTOMATIC DIFFERENTIAL RECLOSURE UNIT

AUTOMATIC MCB RECLOSURE UNIT



Model with built-in reclosure motor-drive

Instruction Manual

REDIF101, (2-pole)

USER'S / INSTALLER'S MANUAL

It is essential that the user/installer fully understand the present manual prior to using the unit. Should any doubt arise, please refer to the Authorised Distributor or the Manufacturer

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REDIF101 Automatic Differential Reclosure Unit with built-in reclosure motor-drive

Single-phase unit includes REDIF101 control module with 2-pole RCD.

REDIF101 - D - C - A - V

NOMENCLATURE:

REDIF101 - Model

- D** Differential intensity sensitivity (Substitute **D** for selected option)
- (I Δ n 30mA)
 - (I Δ n 300mA)
- C** Class (Substitute **C** for selected option)
- A
 - AC
- A** Maximum intensity (ancillary RCD). (Substitute **A** for selected option)
- 25, 40, 63A
- V** Supply voltage 50/60Hz (Line Neutral): 120V (for 115V, 120V and 127V), 230V (for 220V, 230V and 240V)
- 120V, **230V** (230V standard) (Substitute **V** for selected option)

E.j.: REDIF101 - (I Δ n 30mA) - A - 40A - 230V

REDIF101 Automatic MCB Reclosure Unit with built-in reclosure motor-drive

Single-phase unit includes REDIF101 control module with 2-pole MCB.

REDIF101 - A - C - K - V

NOMENCLATURE:

REDIF101 - Model

- A** MCB intensity (ancillary MCB). (Substitute **A** for selected option)
- 6, 10, 16, 20, 25, 32, 40, 50, 63 A
- C** MCB tripping curve (ancillary MCB). (Substitute **C** for selected option)
- **C**, D, K (C standard)
- K** MCB cut-off capacity (ancillary MCB), in compliance with IEC 60947-2. (Substitute **K** for selected option)
- **10 kA**, 15 kA (10 kA standard)
- V** Supply voltage 50/60Hz (Line Neutral): 120V (for 115V, 120V and 127V), 230V (for 220V, 230V and 240V)
- 120V, **230V** (230V standard) (Substitute **V** for selected option)

E.j.: REDIF101 - 40A - C - 10kA - 230V

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INTRODUCTION - Description and Characteristics

SURELINE incorporates a highly advanced and innovatory technology for automatic differential reclosure, with built-in motor-drive in the control module itself.

An outstanding feature is the automatic sequential reset in the event of MCB and RCD tripping.

SURELINE provides the user with automatic differential reclosure. This small, compact unit for 35mm DIN rail is supplied all ready to be installed in a standard enclosure and used in any installation or sector whatsoever.

- Description

Presentation: standard (EN 50 022) enclosure for 35mm DIN rail. This is a compact unit monitored by a microcomputer. Highly stable due to its built-in double process monitor (Watchdog).

The unit provides automatic differential reclosure:

- ◇ With double programming of the number of sequential differential reclosures (PROGRAM A / B)
- ◇ With auto / manual switch
- ◇ With remote control of input / output, etc.

- Technical characteristics of the REDIF101 reclosure module

Mechanical endurance reclosure motor-drive	50,000 complete manoeuvres (ON/OFF)
Mechanical endurance GE RCD	20,000 complete manoeuvres (ON/OFF)
Mechanical endurance GE MCB	20,000 complete manoeuvres (ON/OFF)
Consumption	2,5 W at 230V
Input voltage	230V AC 50/60 Hz alternating sinusoidal
Working temperature	0 to +40° C. Domestic version -10° a +50° C. Industrial version (I) -15° a +70° C. Extended Industrial version (E)
Dimensions : 2-pole	107 mm (6 modules) height: 81 mm 35mm DIN rail
Weight: 2-pole	625 gr.
Guarantee	3 years
Design in compliance with norms:	UNE 20-600-77 (CEI-278)
Design in compliance with norms for ancillary RCD module:	EN 61008-1 (CEI 1008-1)

Automatic Sequential Reclosures of RCD:

PROGRAM switch, position A:

8 sequential resets of ancillary RCD or ancillary MCB.

3 minutes, 5 minutes, 7 minutes, 10 minutes, 15 minutes, 30 minutes, 60 minutes, 120 minutes.

PROGRAM switch, position B:

18 sequential resets of ancillary RCD or ancillary MCB

3 minutes, 3 minutes, 5 minutes, 5 minutes, 7 minutes, 7 minutes, 10 minutes, 10 minutes, 15 minutes, 15 minutes, 30 minutes, 30 minutes, 60 minutes, 60 minutes, 120 minutes, 120 minutes, 120 minutes, 120 minutes.

Auto-start timer for sequential RCD resets counter: 30 minutes.

- Description of REDIF101 display panel:

1- Square yellow pushbutton: varies depending on context:

RESET = reset + rest to zero of the sequential RCD resets counter

2- LED's vary depending on context:

Static green LED (WORKING): unit is in process of detection of RCD

Blinking Red LED (TIMER Reclosure) : countdown in process and when this finishes unit will reclose

Static red LED (LOW VOLT : anomaly in the mains input voltage. Due to abnormally low voltage, below 180 V AC approx.

Blinking Red LED (BLOCK): unit blocked due to sequential reclosures of RCD used up.

Blinking Red LED (LOAD) (COUNT SET): loading in process (storage energy)

Static red LED (LOAD) (COUNT SET): RCD sequential reset counter is not at zero. To reset this counter, press RESET or wait 30 minutes for the auto-start timer of the RCD sequential reset counter to reset to zero..

LEDS rojos LOW VOLT, LOAD, BLOCK, in periodic to-fro sequence : imminent reclosure
 LEDS rojos LOW VOLT, LOAD, BLOCK, TIMER, in periodic to-fro sequence : start-up sequence

3- Sliding command switches:

Sliding AUTO / MANUAL switch:

AUTO position: normal functioning, automatic ancillary RCD reclosure enabled.

MANUAL position: automatic ancillary RCD reclosure disabled (only manual RCD reclosure)

Sliding PROGRAM A / B switch:

Position A: 8 sequential resets of ancillary RCD

3 minutes, 5 minutes, 7 minutes, 10 minutes, 15 minutes, 30 minutes, 60 minutes, 120 minutes.

Position B: 18 sequential resets of ancillary RCD

3 minutes, 3 minutes, 5 minutes, 5 minutes, 7 minutes, 7 minutes, 10 minutes, 10 minutes, 15 minutes, 15 minutes, 30 minutes, 30 minutes, 60 minutes, 60 minutes, 120 minutes, 120 minutes, 120 minutes, 120 minutes.

- Description of module's connection terminals at rear

◇ L POWER 230V	PHASE SUPPLY (LINE) 230V
◇ N POWER 230V	NEUTRAL SUPPLY
◇ L CONTROL IN	INPUT DETECTION POSITION RCD L (LINE) 230V
◇ N CONTROL IN	INPUT DETECTION POSITION RCD N (NEUTRAL)

- Description of module's connection terminals at front

◇ 1 + REMOTE IN	+ 12 V (FOR SENSOR REMOTE IN)
◇ 2 IN REMOTE IN	SENSOR REMOTE IN
◇	
◇ 3 NC RELÉ AUX.	POTENTIAL-FREE CONTACT NORMALLY CLOSED OF AUX. RELAY
◇ 4 COM RELÉ AUX.	POTENTIAL-FREE CONTACT COMMON OF AUX. RELAY.
◇ 5 NO RELÉ AUX.	POTENTIAL-FREE CONTACT NORMALLY OPEN OF AUX. RELAY.

In order to enable the REMOTE IN, a connection is to be generated between 1 + REMOTE IN and 2 IN REMOTE IN by means of a potential-free contact of at least 4 KV isolation. The REMOTE IN is an external order for unblocking and resetting the sequential RCD reclosure counter to zero. For an external order, close the contact between 1 + REMOTE IN and 2 IN REMOTE IN for one second and then re-open.

1 + REMOTE IN and 2 IN REMOTE IN ARE TO BE CONNECTED AND DISCONNECTED BY MEANS OF A SWITCH/RELAY WITH POTENTIAL-FREE CONTACTS AND WITH AN ISOLATION POTENTIAL OF 4KV

THE AUX. RELAY IS ENABLED IN THE EVENT OF BLOCKING OF THE UNIT DUE TO THE SEQUENTIAL RCD RECLOSURES BEING USED UP.

- Other options input output remote control, please consult

PRECAUTIONS / WARNINGS FOR USER / INSTALLER:

- ◇ Despite this unit's being of maximum safety, both from a design and features standpoint, the utmost care must always be taken when using it. It must not be used until its characteristics and mode of operation have been fully understood.
- ◇ Generally speaking, the precautions to be taken with this unit do not differ from those taken with any other piece of electronic equipment connected to the mains. Nevertheless, special attention should be paid to the following:
- ◇ It must be borne in mind that the unit resets the ancillary RCD automatically and this fact could cause injury to a careless operator or user. In order to avoid this:
 - all up-stream conductors are to be disconnected. (by means of switches, sectionalisers or others.)
- ◇ The wiring of the installation must be foreseen for the maximum intensity of the protection elements
- ◇ Do not apply current nor use the module until it has been correctly installed in a standard enclosure.
- ◇ Do not connect the unit up to voltages other than 230V AC 50 HZ sinusoidal
- ◇ When power supply to the unit is cut off or below minimum (180V AC approx.), a total reset to zero of counters, timers and conditions is generated.
- ◇ Do not expose to liquids or humidity
- ◇ Do not drop, knock or expose to vibrations.
- ◇ Do not expose to sources of heat.
- ◇ Do not expose to environmental temperatures below 0°, -15° C. Or over 40°, 50°, 70° C (depending on version).
- ◇ Do not expose to magnetic sources or emissions (radio-frequency emitters, electric motors and transformers, electro-magnets, etc.).
- ◇ Under no circumstance whatsoever must the unit be opened and the interior manipulated. The safety seals must remain intact. Should they be broken, the correct functioning of the unit could be jeopardised.
- ◇ In the event of any of the above occurring, the authorised technical service must be contacted immediately in order for the unit to be examined.

◇ **WARNING!**

- ◇ This unit must be installed in a standard enclosure, the only part within access of the user being the display and command panel.

◇ **Important**

◇ **- Wiring**

It is of the utmost importance **that the connection terminals of the REDIF101 be correctly connected**. Said connections must mandatorily be carried out as indicated in the wiring diagrams.

A main risk of the unit not functioning correctly could be originated principally by an incorrect wiring up of the connection terminals. It is, therefore, of the **utmost importance that this wiring be carried out correctly** in accordance with the following protocol:

- ◇ a homologated "male pin" is to be incorporated in the naked core of the stripped pliable conductor.
- ◇ these terminals are placed in the corresponding grooves as far in as they will go
- ◇ ensure that the conductor lead is correctly fixed with the pertinent tightening torque, i.e. there must be no displacement of the terminal nor any damage to the screws on head, thread, fillet or washer, any of which would be to the subsequent detriment of the assemblies and screw connections.

The user must carry out the complete protection test periodically as is described in CHAPTER 2.

CHAPTER 1 - Installation

◇ Transport and handling

This being a highly sophisticated electronic unit, it must be transported and handled with care as per the precautions stipulated in the foregoing section "PRECAUTIONS".

◇ Installation

The installation must be carried out by responsible, competent and qualified technical personnel once the present manual has been fully understood.

The location of the unit must meet the requirements and respect the precautions stipulated in the chapter "PRECAUTIONS", especial attention being paid to those under the heading "Most important".

The unit must be installed in a standard single-phase installation, active phase and neutral having a difference of potential of 230 V AC, or a three-phase installation (3 phases + neutral) having a difference of potential from phases to neutral of 230 V AC, and also a protection conductor of operative earth. Moreover, the installation must have, at its main switch panel, appropriate MCB's or fuses and an RCD.

◇ Wiring

The unit is fitted with top quality connection terminals. Each terminal has notches to enable easier fixing of the wires and prevent accidental removal. Likewise, the clamping screws have a self-fixing system which avoids their falling out should they work loose.

Moreover, the serigraphy identifies the corresponding counter-positioned terminals on the fanning strip. Intuitive identifying colours back up the graphic indications.

- 1 Connect the POWER L1 terminals to line 1 (phase 1) and POWER N to neutral of the mains line, 230V sinusoidal alternating current, 50Hz.
- 2 Connect the remaining terminals as indicated for the chosen configuration. Please, refer to "Wiring diagrams".

It is imperative that the wiring of the terminals and the tightening of the screws in the fanning strip be effected correctly.

"Wiring diagrams" should be consulted. Should any doubt arise, the manufacturer or authorised distributor should be consulted.

CHAPTER 2 - Verification and start-up

Start-up

Connect all up-stream conductors by means of switches, sectionalisers or others. The reinitiation sequence will automatically be carried out. The ancillary RCD will then reset and the unit will be operative.

Carry out the functioning test.

Para efectuar correctamente el test de funcionamiento, el aparato deberá estar en posición de WORKING (trabajando), y el diferencial esclavo en posición ON permanente antes de pulsar el test del diferencial esclavo.

In order to carry out the test correctly, the unit must be in the permanent ON position and the RCD in the permanent ON position before pressing the test button.

Functioning is correct when, once the ancillary RCD Test button is pressed, the ancillary RDI cuts off. The unit will then start the countdown process for the reclosure timer. Once this process is concluded, the ancillary RCD will reset. If one repeats the ancillary RCD Test several times, for example 8 times with PROGRAM in position A, at the ninth time, the unit will lock. In order to restart the unit, press "reset" or move the ancillary RCD lever to the ON position or enable REMOTE IN.

The unit has an automatic sequential reset of the ancillary RCD (8 or 18 reclosures depending on whether PROGRAM A or B). Moreover, it has a 30-minute auto-start timer for the sequential RCD reclosure counter. This means that if there are several reclosures, due to the differential having come into play consecutively followed by a time lapse of over 30 minutes, the sequential RCD reclosure counter will reset to zero.

CHAPTER 3 - Mode of Use

Given its automatic nature as regards functioning, after having read and fully understood the present manual and having started up the unit, the user may then proceed to connect up the elements of consumption in the output line and the unit will operate as described in CHAPTER 2.

Before using the unit, the complete functioning test must be carried out. If the unit is to be put to permanent use, testing must be done as a matter of routine. Once the test has been completed, should the results not be correct, the unit must not be used under any circumstance whatsoever. The Authorised Technical Service must be contacted at once.

Should the user wish to disconnect the line and the unit, the circuit-breaker switch at the main switchboard may be tripped manually (upstream).

- It must especially be borne in mind that the unit resets the ancillary RCD automatically and this fact could cause injury to a careless operator or user. In order to avoid this:
 - All up-stream conductors are to be disconnected (by means of switches, sectionalisers or others).

CHAPTER 4 - Description of basic components

Ancillary 2-pole RCD

Manufacturer: General Electric
 Type: BP or FP
 Sensitivity: 30 mA or 300 mA
 Classe: A or AC
 Intensities 25, 40, 63A
 Mechanical endurance: 20,000 complete manoeuvres (ON / OFF)

For further information, please consult the manufacturer

Ancillary 2-pole MCB

Manufacturer: General Electric
 Type: EP 60 (breaking capacity 10kA IEC 60947-2 or 6kA IEC 60898)
 Type: EP 100 (breaking capacity 15kA IEC 60947-2 or 10kA IEC 60898)
 Curve C (standard), D, K
 Intensities 6, 10, 16, 25, 32, 40, 50, 63 A
 Mechanical endurance MCB: 20,000 manoeuvres completas (ON / OFF)

For further information, please consult the manufacturer

CHAPTER 5 - Trouble-shooting and diagnosis

Consult Authorised Technical Service

AUTHORISED TECHNICAL SERVICE:

SOLELY BY THE MANUFACTURER

GUARANTEE (owner's copy)

SAFELINE, S.L., as a leader in the field of electrical and electronic safety equipment endeavours to maintain an extensive service along with up-dated information to the users of its products. To this end, it is indispensable that the user fills out and returns the present guarantee further to purchase of his SURELINE unit.

Period of guarantee: three years as from date of purchase

Conditions and application of your SURELINE guarantee: Your SURELINE unit is guaranteed against any defect of manufacture or original components as determined by our Technical Service. Any repair or substitution does not extend the guarantee period.

The guarantee covers:

- Reception of the unit for its repair or servicing
- Cost of all components, replacements and labour on original components

The guarantee does not cover:

- Transport
- Breakdown caused by non-original components or devices
- Defects caused by incorrect installation
- Damage caused by incorrect usage, or errors arising from repairs and internal manipulation by unauthorised persons.
- Consumables: fuses, thermal fuses, varistors and labour involved in replacement of same

The guarantee is automatically forfeited in the event of:

- Breakage or deterioration of the seals of any of the original SURELINE elements
- Incorrect usage due to non-observance of the recommendations given in the SURELINE manual.

Repair service: All repair service, both within and outside of the guarantee period, is by SAFELINE, S.L. and its Authorised Technical Assistance Services.

NOTES

We suggest your noting down and keeping in a safe place the serial number of your unit, original or modified user's PIN and other information of interest.

GUARANTEE CARD (to be photocopied and sent to Safeline)

SURELINE model
 Serial nbr.
 Date of purchase

Stamp of establishment where unit purchased (complete address)

Purchaser's complete name and address

e-mail

Principal use to which unit is to be put

Notes

Do you authorise Safeline to keep you periodically informed? Yes No

GUARANTEE

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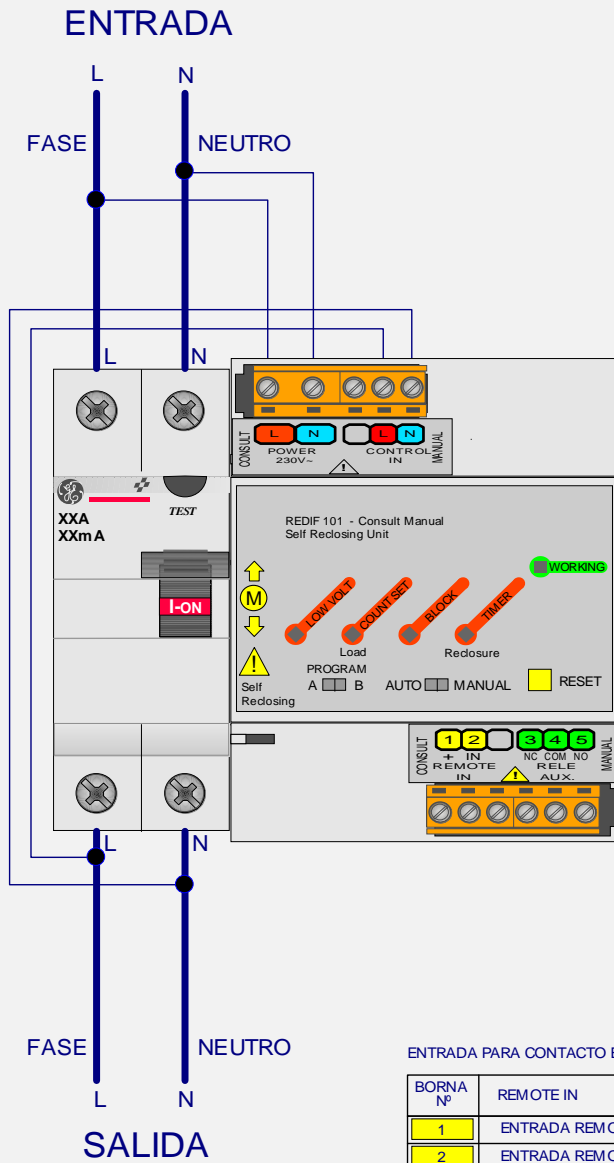
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- Incorrect usage due to non-observance of the recommendations given in the SURELINE manual.

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MODELO REDIF 101

REARMADOR AUTOMATICO DE DIFERENCIALES CON CONTROL REMOTO DE ENTRADA / SALIDA



RELES DE SALIDA CONMUTADO LIBRE DE POTENCIAL

BORNA Nº	RELE AUX.
3	CONTACTO N/C RELE AUX.
4	CONTACTO COM UN RELE AUX.
5	CONTACTO N/O RELE AUX.

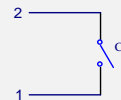


RELE AUX CONTACTO AUXILIAR CONMUTADO SE ACTIVA EN CASO DE BLOQUEO

ENTRADA PARA CONTACTO EXTERNO LIBRE DE POTENCIAL

BORNA Nº	REMOTE IN
1	ENTRADA REMOTE IN 1 (+)
2	ENTRADA REMOTE IN (IN)

C1 CONTACTO LIBRE DE POTENCIAL EXTERNO PARA ORDEN EXTERNA DEL REMOTE IN



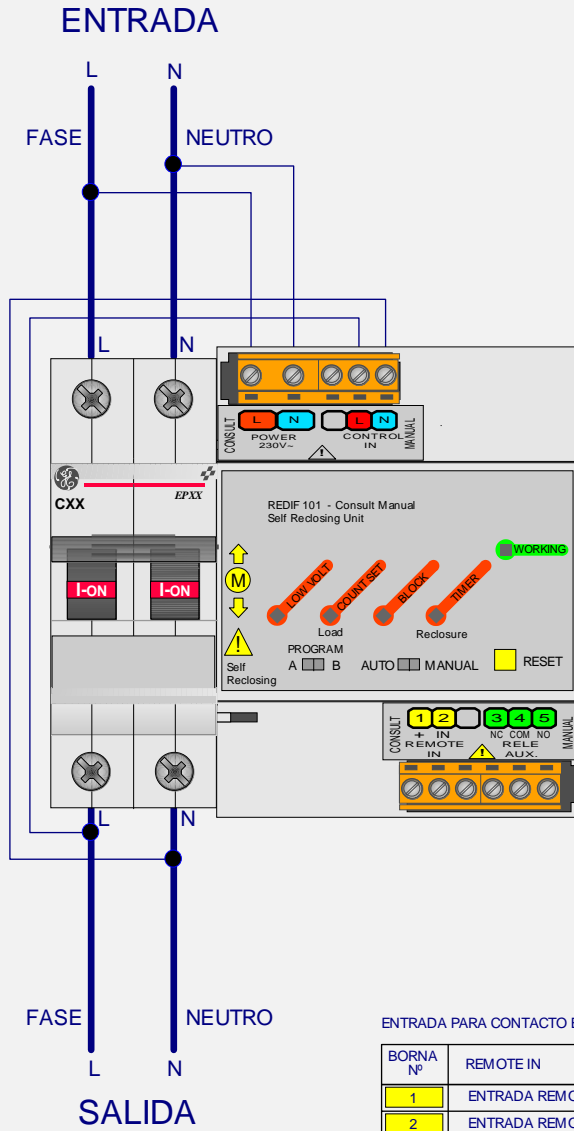
C1 CONTACTO LIBRE DE POTENCIAL EXTERNO PARA ORDEN EXTERNA DE DESBLOQUEO Y PUESTA A CERO DE LA CUENTA DE DISPAROS PARA ORDEN EXTERNA CERRAR C1 DURANTE 1 SEG Y ABRIR POSTERIORMENTE



CONSULTAR MANUAL DE INSTRUCCIONES

MODELO REDIF 101

REARMADOR AUTOMATICO DE MAGNETOTERMICO CON CONTROL REMOTO DE ENTRADA / SALIDA



RELES DE SALIDA CONMUTADO LIBRE DE POTENCIAL

BORNA Nº	RELE AUX.
3	CONTACTO N/C RELE AUX.
4	CONTACTO COM UN RELE AUX.
5	CONTACTO N/O RELE AUX.

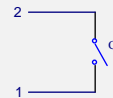


RELE AUX CONTACTO AUXILIAR CONMUTADO SE ACTIVA EN CASO DE BLOQUEO

ENTRADA PARA CONTACTO EXTERNO LIBRE DE POTENCIAL

BORNA Nº	REMOTE IN
1	ENTRADA REMOTE IN 1 (+)
2	ENTRADA REMOTE IN (IN)

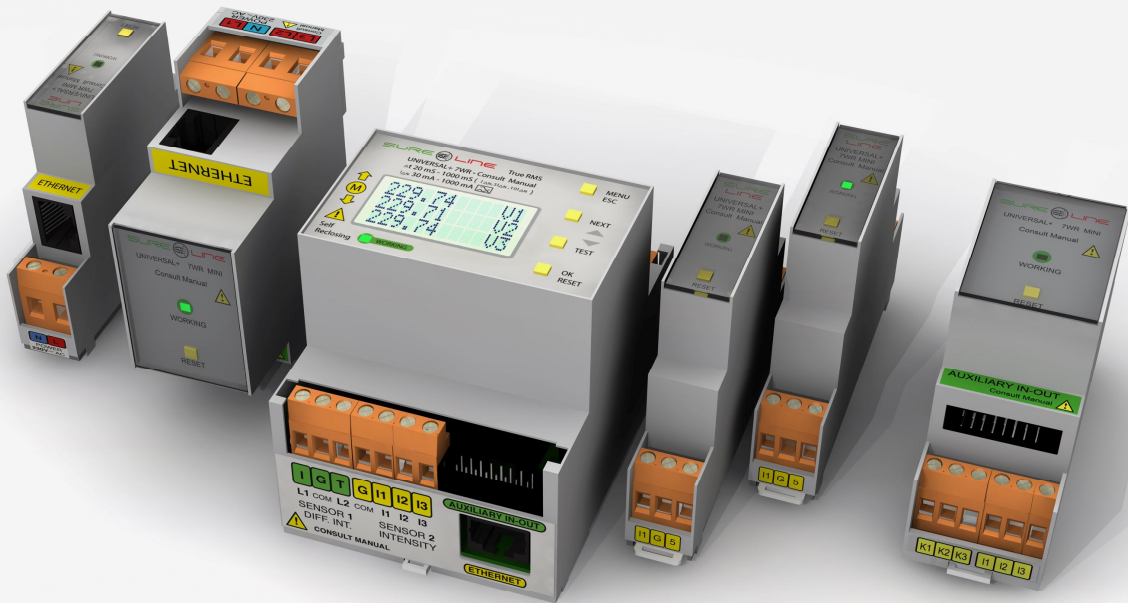
C1 CONTACTO LIBRE DE POTENCIAL EXTERNO PARA ORDEN EXTERNA DEL REMOTE IN



C1 CONTACTO LIBRE DE POTENCIAL EXTERNO PARA ORDEN EXTERNA DE DESBLOQUEO Y PUESTA A CERO DE LA CUENTA DE DISPAROS PARA ORDEN EXTERNA CERRAR C1 DURANTE 1 SEG Y ABRIR POSTERIORMENTE



CONSULTAR MANUAL DE INSTRUCCIONES



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