RDA-MT Electronic earth leakage protection relay with self-reclosing system



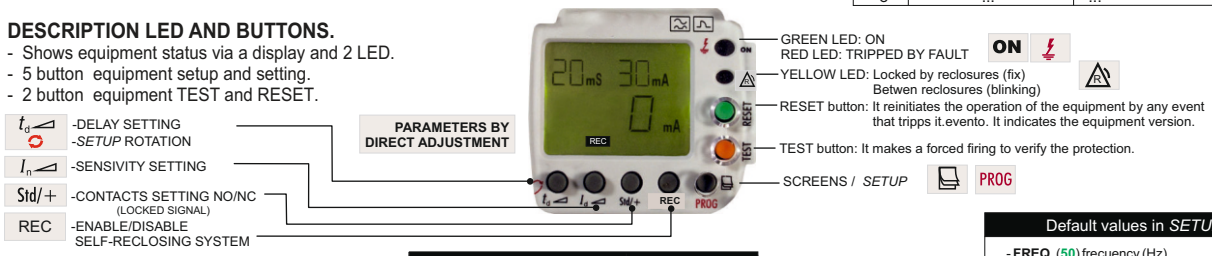
Code	Type	Sensivity (A)	Tripping delay (s)	Communications
D1L0110856	RDA-MT	0,03-0,1-0,3-0,5-1-3 by direct adjustment 5-10-30 by *SETUP*	INS-SEL-0,02-0,1-0,2-0,3-0,4-0,5-0,75-1 by direct adjustment 3-5-10 by *SETUP*	No Available

GENERAL DESCRIPTION

- Device with programmable differential relay with self-reclosing system. Symbol REC in LCD.
- It has 2 independents outputs by relays. Trip and locked by reclosing.
- It has 1 input for external Trip/Reclose. This input is not opto - coupled.
- Mounting in Rail DIN 46277 (EN 50022).
- Associated to a **TDC** Series external , toroidal current transformer.
- It must be asociated to a MCB motorized with or without a trip coil.
- It verifies connection with differential transformer **TDC** by means inductive test.
- Leakage detection and measurement is via calculating its true efective value (TRMS).
- Display settings values and instant residual current to its accociated units.

DESCRIPTION LED AND BUTTONS.

- Shows equipment status via a display and 2 LED.
- 5 button equipment setup and setting.
- 2 button equipment TEST and RESET.



INDICATION BY LED AND DISPLAY.

- **TRIP RELAY.** LED and display signals a change of status by changing from green to red.l Display event type messages or values.
- **BETWEN RECLOSURES.** The yellow LED is blinking. Red Display shows the tripp cause fluctuating with partial reclosures No
- **LOCKED BY RECLOSURES**. The yellow LED is fixed. The equipment arrives al maximun number of reclosures established by the self-reclosing sequence. Red display shows the cause.
- **No OF RECLOSURES.** By short press on **PROG** the display shows the number of reclosures by earth leakage, short ciruit-overload faults and total number. The partial number are floating pages In these pages it can configure the self-reclosing sequence by press **REC** button.

Tripping cause	Message display
Test	TESt
Remote signal trip/reclose	EXT
Earth leakage fault	DIF / valor
Short circuit / Overload fault	MAG

Others MESSAGES by display	
SAVE	Enter setting values
EXIT	Exits setting mode
OVR	Value reading off scale
ERRt	Poor toroidal conection

RECLOSING THE EQUIPMENT.

- BY **TRIP / LOCKED BY RECLOSURES**
  1. Automathic (earth leakage, short ciruit-overload faults or manual). REC Enabled.
  2. Manual reclose by pushing button **RESET**
  3. External reclose sytem by remote or communications signal. When it forces a trip by remote signal, only it can reclose by another remote signal.
  4. Manual reclose circuit breaker associated.

In the case 2 and 3 the all partial counters of reclosures returns to a zero.

¡ IMPORTANT !

The relay only self-recloses before a trip by earth leakage, short-circuit/overload current fault. The Test (red button) only verifies the relay trips the protection. It recloses only by manual pressing RESET button.

RELAY PARAMETERS SETTING (t_d, I_d y std/+)

- **SETTING TRIP DELAY**, t_d. The PROG message and two values appear on the screen after pressing the t_d button. The lowest value indicates the current set value and the highest is the values to be configured which are displayed by pressing ↻. The selected value to be saved is displayed by showing the message SAVE.
- **SENSITIVITY SETTING,** I_d. The same operation as above setting is carried out by pressing I_d. .
- **SIGNALLING CONTACTS RELAY STATE, std/+** . Select the default position of the relay contacts 7-8-9 that indicates the situation of locked by reclosures of the device . In (Std) 8-7 NA / 8-9 NC and (+) 8-7 NC / 8-9 NA and appears the ± symbol in display.
- **SELF-RECLOSING SYSTEM, REC**. In reclosure partial numbers by press **REC** button we configure the self-reclosing sequence referred at the page which it's showing us. By default is configured nº10 by earth leakage protection and nº5 by short-circuit/overload protection.

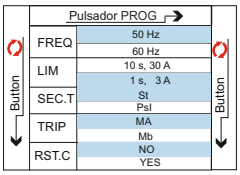
RECLOSE SEQUENCES BY EARTH LEAKAGE CURRENT FAULT

SREC	No RECLOSURES	TIME SEQUENCES	RESET TIME
0	DISABLED		
1	6	8, 16, 30, 59, 115 and 224 s	15 minutes
2	30	20, 40 s and 5 min. to the end	15 minutes
3	8	30 s, 1, 2, 3, 4, 5, 6 and 7 min	15 minutes
4	6	10, 20, 30, 60, 130 and 600 s	15 minutes
5	MAG 6	2, 4 y 8 min. to the end	15 minutes
6	7	30 s, 1, 2, 3, 4, 8 and 16 min	30 minutes
7	MAG 10	1 min	30 minutes
8	MAG 10	90 s	30 minutes
9	MAG 8	2, 4 y 6 minutes to the rest	15 minutes
10	MAG 10	3 minutes	30 minutes
11	MAG 7	2, 4, 8, 16, 32, 32 and 32 minutes	15 minutes
12	MAG 31	2, 4 and 6 minutes to the rest	15 minutes
13	6	8 s	15 minutes
14	...	...	...

WARNING: The reclosing sequences marked by MAG are only for motorized circuit breakers with or without trip coil. I_N>63 A.

RECLOSE SEQUENCE BY SHORTCIRCUIT/OVERLOAD FAULT

SREC	No RECLOSURES	TIME SEQUENCE	RESET TIME
0	DISABLED		
1	2	1 minute	30 minutes
2	2	1 minute	60 minutes
3	2	90 s	30 minutes
4	2	90 s	60 minutes
5	2	3 minutes	30 minutes
6	...	...	...
7	...	...	...
8	...	...	...



Default values in *SETUP*

- **FREQ**, (**50**) frecuency (Hz)
- **LIM**,(**1s, 3A**), range of values (Id / td)
- **SEC. T**, (**NO**),contacts 5-6 [NA/NC]
- **TRIP, (MA), breaking element** (without trip coil)
- **RST.C**, (**NO**), initiates the partials counters.

SETUP SETTINGS

A long press in **PROG** activates the *SETUP* settings. In this operating mode by pressing buttons **PROG** and ↻ it shows the submenus and the setting values to modify . With **PROG** these new setting values are validated, the message **SAVE** is shown by display and exits setting mode. In case of keypad inactive, it exits setting mode and the message **EXIT** is shown by display wihtout changes.
In **TRIP** (Circuit Breaker), The value ⊓⊓ is used when the CB don't need a trip coil. The value ⊓⊔ is used when CB needs one.
In **SEC.T** it defines the working mode of outputs contacts relay 5-6. By default 5-6 is normally open (St)

TECHNICAL FEATURES

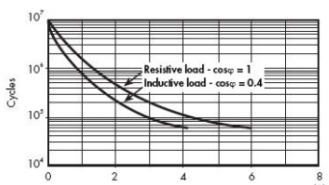
- Tipo Relay type: Electronic class A. High frequency current filtering.
- Reclosing type: Authomatic, RESET button or by cutting power supply.
- Rated power supply voltage: 230 o 110 Va.c. (+/- 20%) 50/60 Hz, 6 VA

- Operating temperature: -10ºC / 50ºC
- Connections:
  Permissible cable section: 0,127 - 2,082 mm^2
  Recommended tightening torque: 0.5-0.6 Nm
  Length of cable to strip: 7 mm

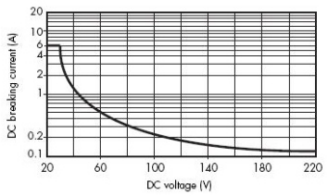
- Switch Output contact features 13-14-15, 7-8-9 and 5-6
  Rated current/Maximum instant current: 6/10 A a.c.
  Rated voltage/Maximum switching voltage: 250/230 V a.c.
  Rated load in AC: 2,500 V·A
  Contacts protected by varistor

- Varistor Features
  Maximun Voltage: 275 Va.c.

-Characteristics input remote Trip/Reclose 1-2
Input not using optocoupler

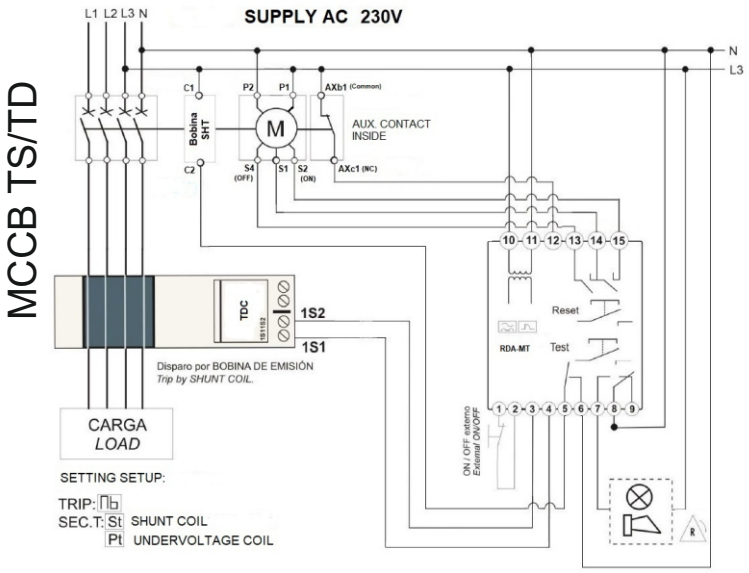


Electrical useful life for AC loads: No of cycles
(See graph)



Maximun DC Load Breaking Capacity:
Maximun opening current
(See graph)

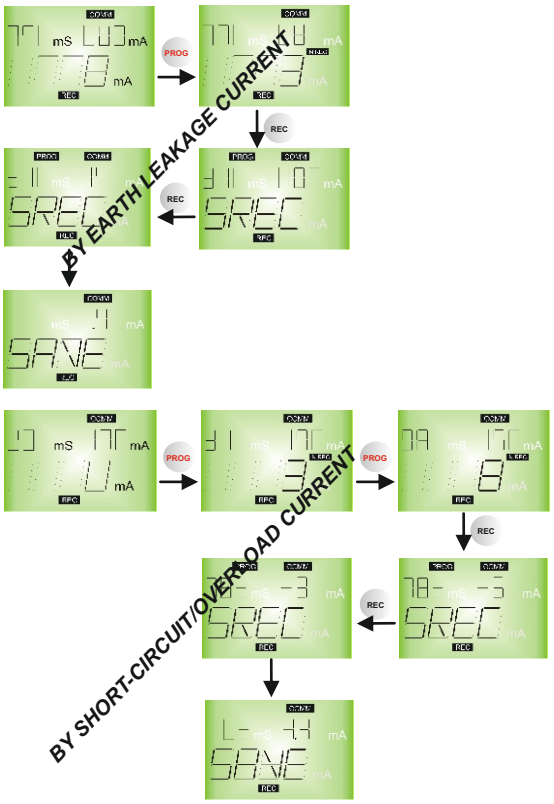
CONNECTION RDA-MT + TDC + MOTORIZED CIRCUIT BREAKER WITH TRIP COIL



¡ WARNING !

The input 1-2 must be closed. If 1-2 is open the equipmen is tripped and appears the message EXT on red backlight display

SELF-RECLOSING SEQUENCES CONFIGURATION



TERMINAL CONNECTIONS DESIGNATIONS

POWER SUPPLY

(10)–(11) : A1 - A2

CORE BALANCE TRANSF.

(3)–(4) : 1S2 - 1S1

TRIPPING CONTACTS

(14):COMMON (13): OFF MOTOR (15) : ON MOTOR

(5)–(6) TRIP COIL. CONTACT NO

MOTORIZED CIRCUIT BREAKER WITH TRIP COIL

MOTORIZED CIRCUIT BREAKER

EXTERNAL TRIP/RECLOSE

(1)–(2) OPEN: TRIP
CLOSED : RECLOSE

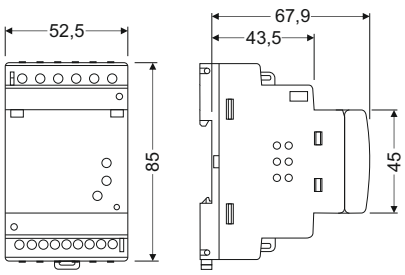
CIRCUIT BREAKER STATUS

(11)–(12) CONTACT NC

SIGNALING CONTACTS LOCKED BY RECLOSURES

(8): COMMON (7) : OUTPUT NO (9): OUTPUT NC

DIMENSIONS



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