Vector

RCCB with automatic reclosing device

DREC-C



INSTRUCTION MANUAL

(M202BVM-03-24B)

CE

SAFETY PRECAUTIONS

Follow the warnings described in this manual with the symbols shown below.

	**DANGER** Warns of a risk, which could result in personal injury or material damage.

	**ATTENTION** Indicates that special attention should be paid to a specific point.

If you must handle the unit for its installation, start-up or maintenance, the following should be taken into consideration:

	Incorrect handling or installation of the unit may result in injury to personnel as well as damage to the unit. In particular, handling with voltages applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire. Read the manual carefully prior to connecting the unit. Follow all installation and maintenance instructions throughout the unit's working life. Pay special attention to the installation standards of the National Electrical Code.

	**Refer to the instruction manual before using the unit** In this manual, if the instructions marked with this symbol are not respected or carried out correctly, it can result in injury or damage to the unit and / or installations.

Vector, reserves the right to modify features or the product manual without prior notification.

DISCLAIMER

Vector, reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

Vector, on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

www.vectorenergy.com

	**Vector,** recommends using the original cables and accessories that are supplied with the device.

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REVISION LOG

Table 1: Revision log.

Date	Revision	Description
06/21	M202BVM-03-21A	Initial Version
11/21	M202BVM-03-21B	Changes in the following sections: 2.- 4.1.
10/24	M202BVM-03-24A	Changes in the following sections: 4.3.2. - 6.
10/24	M202BVM-03-24B	Changes in the following sections: 2.- 6.

SYMBOLS

Table 2: Symbols

Symbol	Description
CE	In compliance with the relevant European directive.
	Device covered by European directive 2012/19/EC. At the end of its useful life, do not leave the unit in a household waste container. Follow local regulations on electronic equipment recycling.
⎓	DC current
~	AC current

Note: *The images of the devices are solely for the purpose of illustration and may differ from the original device.*

1.- VERIFICATION UPON RECEPTION

Check the following points when you receive the device:

a) The device meets the specifications described in your order.
b) The device has not suffered any damage during transport.
c) Perform an external visual inspection of the device prior to switching it on.
d) Check that it has been delivered with the following:
   - Installation guide

	If any problem is noticed upon reception, immediately contact the transport company and/or **Vector's** after-sales service.

2.- PRODUCT DESCRIPTION

DREC-C is a 2 or 4-pole type A RCCB linked to a smart reclosing motor, which enables safe reclosing of the corresponding RCCB.
In the **DREC-C 2P** model, the insulation reclosing mode is used for high sensitivity protection, so that the device only recloses when the fault that caused tripping has disappeared. The rest of the models implement the timed reclosing mode to ensure power supply continuity.



The device features:

- **2 LED** indication.
- Automatic reclosing by insulation or Time, depending on the model (**Table 3**).
- **Protection cover** for the reclosing system.
- **Mode selection switch** to select between Manual and Automatic operating mode and physically lock the reclosing device.

Table 3: DREC-C Models.

Models	Reclosure mode	Rated current (In)	Sensitivity (ΔIn)
DREC-C 2P 40A 30mA	Isolation	40 A	30 mA
DREC-C 2P 63A 30mA	Isolation	63 A	30 mA
DREC-C 2P 40A 300mA	Time	40 A	300 mA
DREC-C 2P 63A 300mA	Time	63 A	300 mA
DREC-C 4P 40A 30mA	Time	40 A	30 mA
DREC-C 4P 63A 30mA	Time	63 A	30 mA
DREC-C 4P 40A 300mA	Time	40 A	300 mA
DREC-C 4P 63A 300mA	Time	63 A	300 mA

3.- DEVICE INSTALLATION

3.1.- PRIOR RECOMMENDATIONS

	In order to use the unit safely, it is critical that those who handle it follow the safety measures set out in the standards of the country where it is being used, use the necessary personal protective equipment and pay attention to the various warnings indicated in this instruction manual.

The **DREC-C** device must be installed by authorised and qualified staff.

Also, it is critical to keep the cables in perfect condition in order to avoid accidents, personal injury and damage to installations.

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

If you detect any operational faults in the device or in its protection system, remove the device from service.

This device has been designed for easy replacement in case of malfunction.

	Disable the automatic reclosing function and disconnect the main protection device before handling active parts.
	Please contact the after-sales service if you suspect that there is an operational fault in the device.

3.2.- INSTALLATION

	Do not use the device until it is fully installed.

The **DREC-C** is a device specifically designed to be installed in electric panels or enclosures, with DIN rail fixing elements (IEC 60715).
To install the device on a DIN rail:

1.- Place the device at the top of the DIN rail.
2.- Swing the **DREC-C** downwards until it is secured to the lower section of the DIN rail.
3.- Make sure that it has been secured on the rail.

3.3.- CONNECTION

The **DREC-C** must be connected to an installation protected with fuses suitable for its power supply range and consumption.

Note: *Cross-section of the cable: 16 - 25mm²*

	Terminals, opening covers or removing elements can expose parts that are hazardous to the touch while the device is powered
	If the **DREC-C** indicates a permanent failure (**AUTO** and **REC** LEDs are lit), you must check the RCCB and the installation.
	If the installation of the device is done with the RCCB in the OFF state, when panel receives voltage the device will not activate the automatic reclosing system for safety reasons And the **AUTO** and **REC** LEDs turn on to turn off in a few seconds. A manual reclosing of the system must be done on the panel with voltage.

3.3.1.- CONNECTION DIAGRAM 2-POLE MODEL: DREC-C 2P

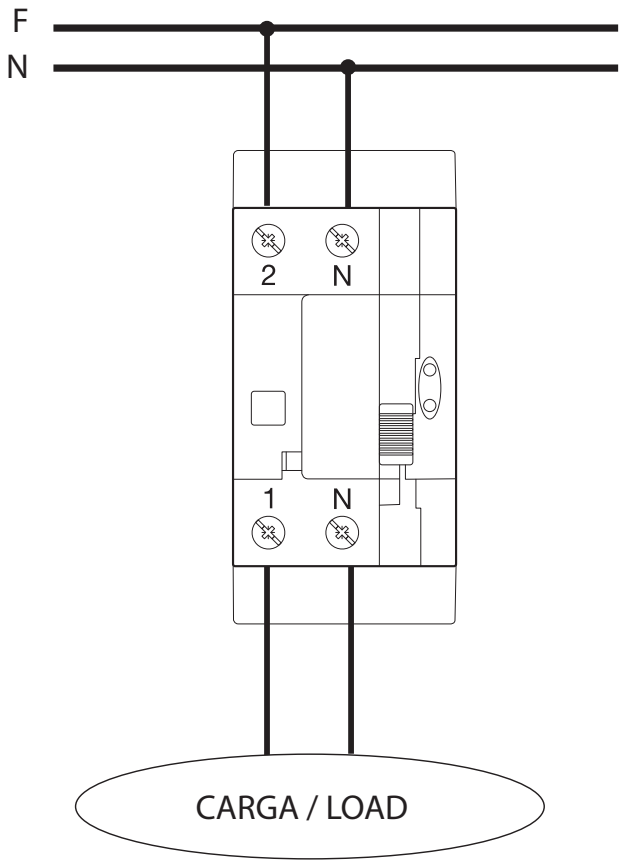


Figure 1: Connection diagram DREC-C 2P.

3.3.2.- CONNECTION DIAGRAM 4-POLE MODEL: DREC-C 4P

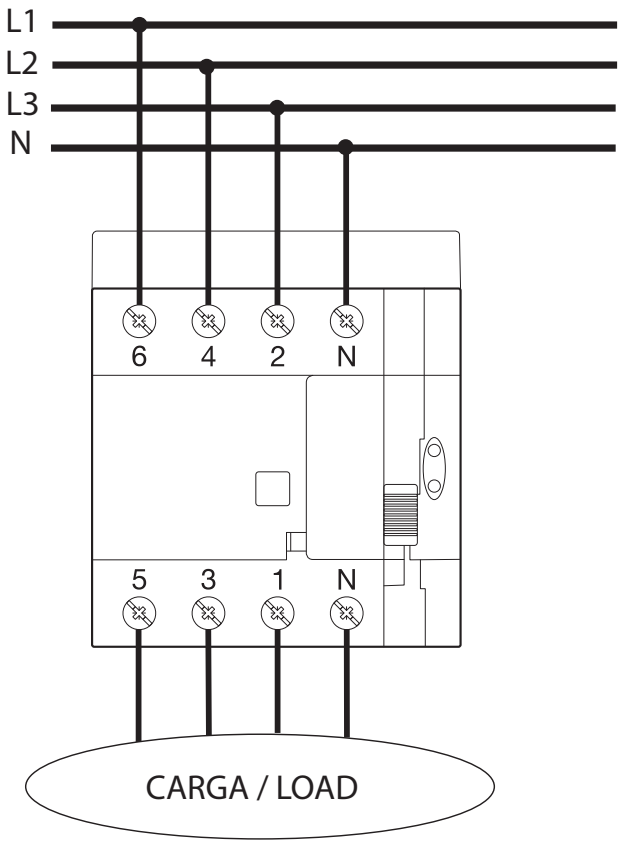


Figure 2: Connection diagram DREC-C 4P: Three phase system.

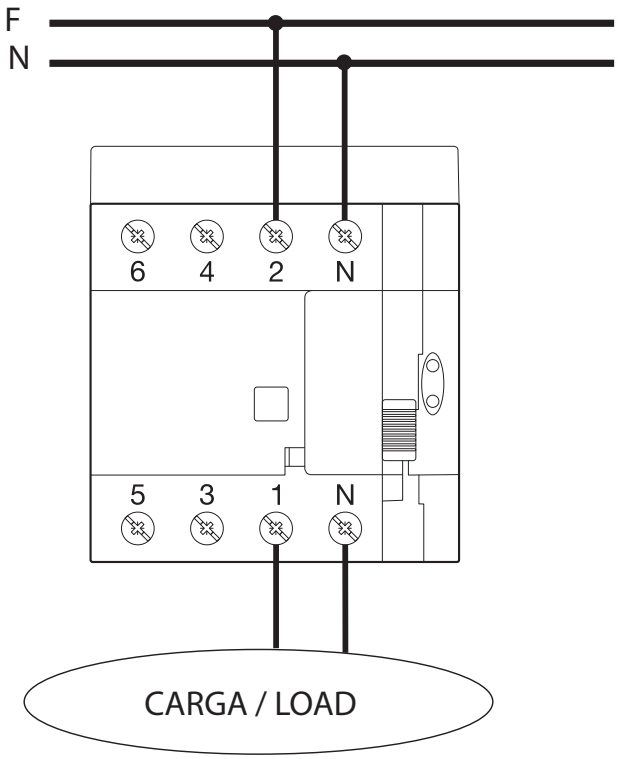


Figure 3: Connection diagram DREC-C 4P: Single phase system.

4.- OPERATION

4.1.- DESCRIPTION

Figure 4 and **Figure 5** shows a description of the most important pieces of device.

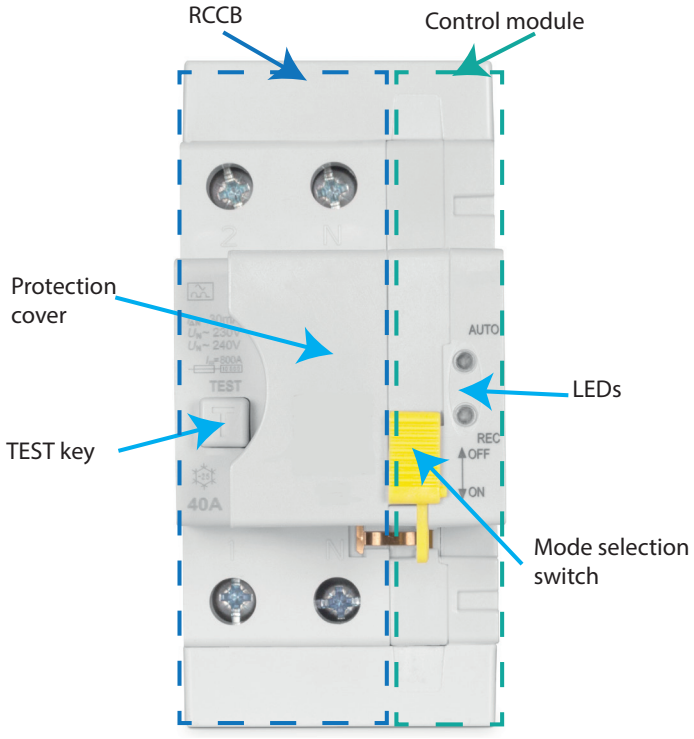


Figure 4: Description of the DREC-C 2P.

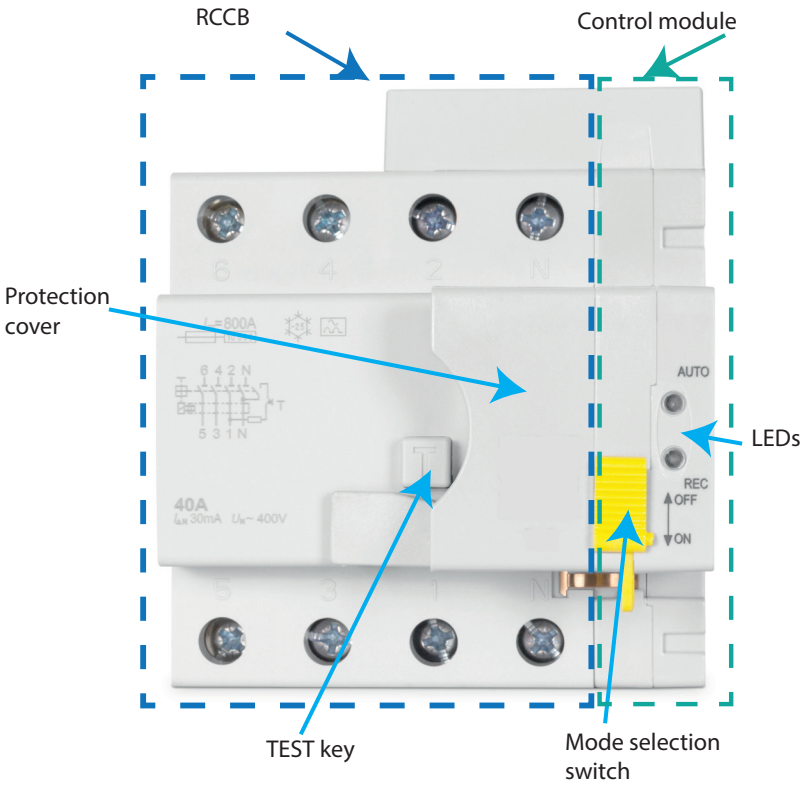


Figure 5: Description of the DREC-C 4P.

4.2.- LEDs

The device has two LEDs: **AUTO** in green and **REC** in red, which indicate the status of the **DREC-C** at all times. (**Figure 6** and **Table 4**)

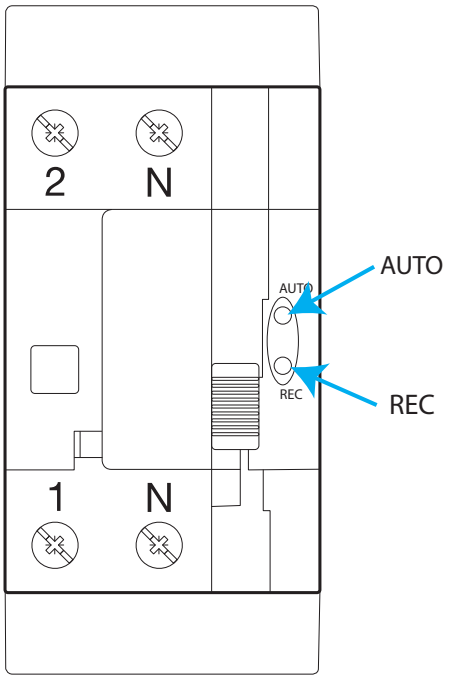


Figure 6: LEDs DREC-C.

Table 4: LED indications.

AUTO	REC	Operating mode	RCCB status	Description
OFF	**OFF**	Manual	-	Device is manual operating mode. There is no power to the **DREC-C**.
ON	**OFF**	Automatic	ON	No rearm sequence has been initiated.
ON	**Slow flashing**	Automatic	OFF	Rearm sequence initiated: Time delay of the rearm sequence (if applicable).
ON	**Fast flashing**	Automatic	OFF	Rearm sequence initiated: Monitoring the leakage current.
ON	**ON**	Automatic	OFF	The maximum number of reclosures has been reached. The installation is in permanent failure mode
Fast flashing	**Fast flashing**	Alarm	-	Make sure that the neutral connection has been made correctly on the indicated terminal. If the device does not reset itself to the correct operating mode, contact the TAS.

4.3.- START-UP

Once the device is installed you must carry out the following start-up sequence for it to work properly.

4.3.1.- AUTOMATIC MODE

If the device is going to operate in automatic mode, see Section ***"4.4.2.- AUTOMATIC",*** the start-up sequence is:

1.- Put the mode selector switch in Manual Mode (OFF).
2.- Lift the RCCB cover.
3.- Put the RCCB contact in ON mode.
4.- Lower the RCCB cover.
5.- Put the mode selector switch in Automatic Mode (ON).

Note: *The switch has an M2 hole where you can attach a seal or a padlock to block access to the RCCB and any other attempts at manual reclosing (**Figure 7**).*

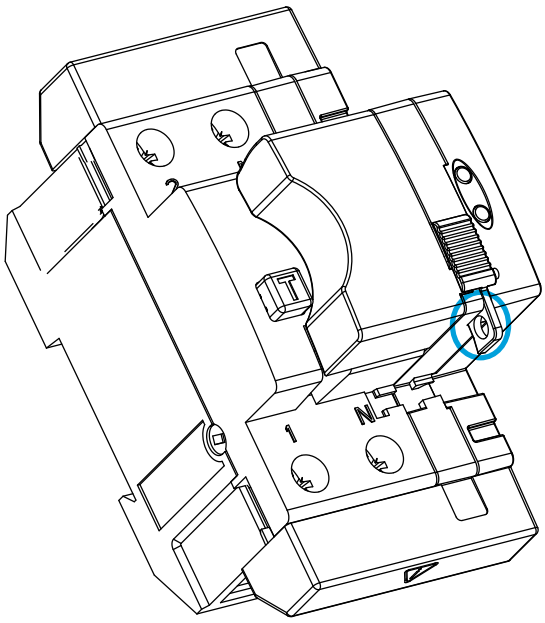


Figure 7: Switch's M2 hole to seal access to the RCCB.

4.3.2.- MANUAL MODE

If the device is going to operate in manual mode, see Section ***"4.4.1.- MANUAL",*** the start-up sequence is:

1.- Put the mode selector switch in Manual Mode (OFF).
2.- Lift the RCCB cover.
3.- Put the RCCB contact in ON mode.
4.- Lower the RCCB cover (optional).

4.4.- OPERATING MODES

The device has two operating modes, **manual** and **automatic**, which can be selected using the mode selector switch (**Figure 4** and **Figure 5**).

4.4.1.- MANUAL

The **DREC-C** can operate in manual mode as if it were a standard RCCB.

To operate in this mode, the mode selector switch must be all the way to the top, in OFF position, to disable the unit's automatic reclosing device. (**Figure 8**)

The RCCB must be reclosed manually.

The **AUTO** and **REC** LEDs are off.

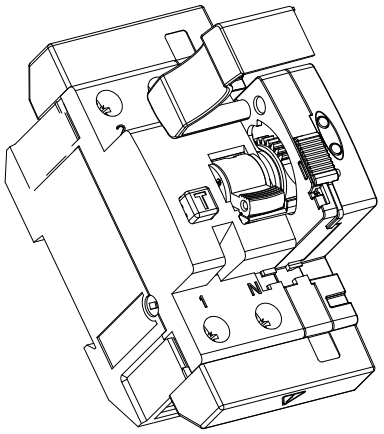


Figure 8: DREC-C in manual mode, with mode selector switch at OFF.

4.4.2.- AUTOMATIC

To operate in Automatic mode the mode selector switch must be completely downward,in ON position, to enable the device's automatic reclosing system.(**Figure 9**)

The **AUTO** LED is constantly lit and the **REC** LED lights up based on the unit's status.

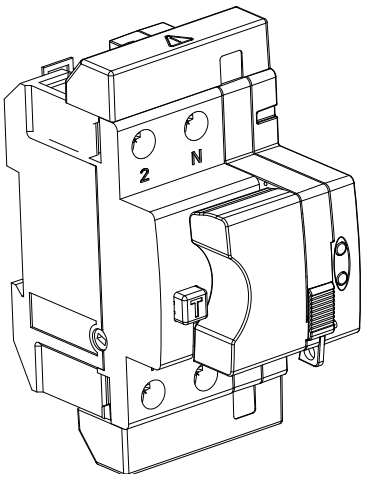


Figure 9: DREC-C in automatic mode, with mode selector switch at ON.

The **DREC-C** allows one mode of automatic reclosing:

- **Reclosing by insulation**, the device does not reclose until the leakage has disappeared.

4.4.2.1.- Reclosing by insulation

Following a time delay after a disconnection due to an RCCB trip, the **DREC-C** makes a measurement to check whether there is a leakage current. If there is none it begins to reclose.

The **DREC-C** attempts a maximum of 3 measurements to check the leakage current; following this the unit stays locked and does not automatically reclose.

If the time between a reclosure and the next trip is greater than the restart time, the reclosing attempts start over at zero.

The delay and restart times depend on the number of attempts the reclosing device has made, as shown in **Table 5**.

Table 5: Delay and Restart Times.

Reclosures					
1		2		3	
Delay	Restart	Delay	Restart	Delay	Restart
<3 sec.	10 sec.	20 sec.	20 sec.	180 sec.	60 sec.

The leakage current will be supervised by measuring the resistance downstream of the tripped RCCB.

4.4.2.2.- Restarting the reclosing system meter

There are two ways to restart the internal reclosing system meter:

- **Manually**, by moving the mode selector switch from ON to OFF position and back to ON.

- **Automatically**, when the restart time elapses after the last reclosing without tripping again.

4.4.2.3.- Restart in case of blocking

In case of blocking of the device, the start-up sequence is:

1.- Check installation.
2.- Put the mode selector switch in Manual Mode (OFF).
3.- Lift the RCCB cover.
4.- Put the RCCB contact in ON mode.
5.- Lower the RCCB cover.
6.- Put the mode selector switch in Manual mode (ON).

Note: *The switch has an M2 hole where you can attach a seal or a padlock to block access to the RCCB and any other attempts at manual reclosing (**Figure 7**).*

5.- MAINTENANCE

The RCCB must be checked frequently.

Test sequence (**Figure 10**):

1.- Press the **TEST** (**T**) key.

2.- Check that the RCCB jumps to **OFF** position.

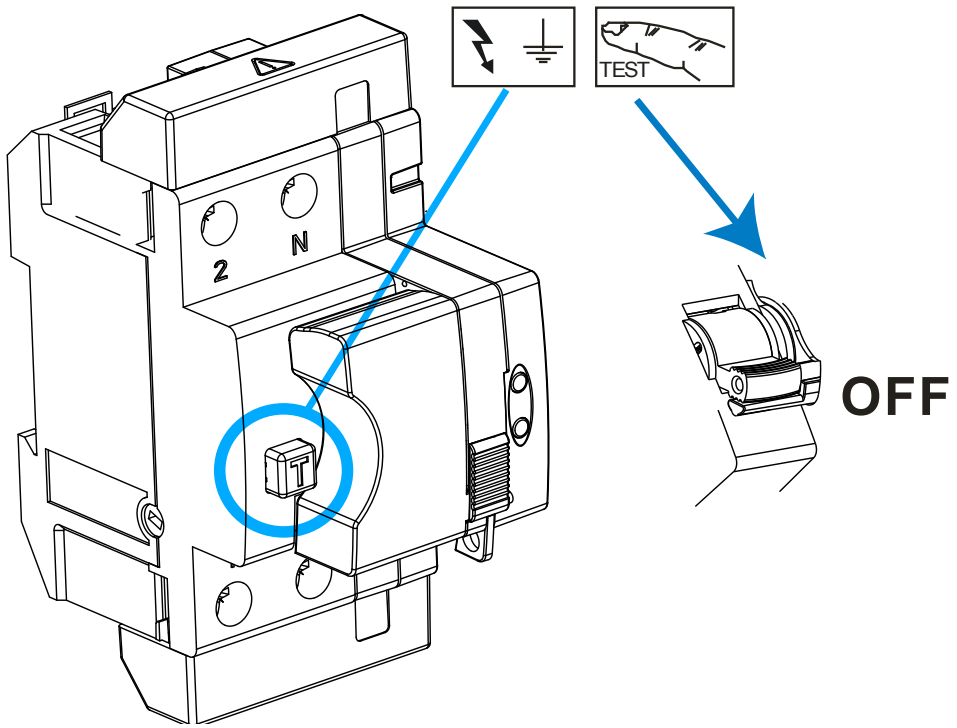


Figure 10: RCCB Test Sequence.

⚠	In the event of a Test sequence failure, contact the after-sales service.

6.- TECHNICAL FEATURES

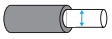
Power supply	
Mode	self-powered
Rated voltage	230V ~
Tolerance	± 15%
Frequency	50Hz - 60Hz , ±5%
Maximum power consumption	5 VA
Installation category	CAT III 300V

RCCB		
Rated voltage	DREC-C 2P	230 V ~
	DREC-C 4P	400 V ~
Rated current (In)	DREC-C 2P 40A 30mA	40 A
	DREC-C 2P 63A 30mA	63 A
	DREC-C 2P 40A 300mA	40 A
	DREC-C 2P 63A 300mA	63 A
	DREC-C 4P 40A 30mA	40 A
	DREC-C 4P 63A 30mA	63 A
	DREC-C 4P 40A 300mA	40 A
	DREC-C 4P 63A 300mA	63 A
Sensitivity (IΔn)	DREC-C 2P 40A 30mA	30 mA
	DREC-C 2P 63A 30mA	
	DREC-C 2P 40A 300mA	300 mA
	DREC-C 2P 63A 300mA	
	DREC-C 4P 40A 30mA	30 mA
	DREC-C 4P 63A 30mA	
	DREC-C 4P 40A 300mA	300 mA
	DREC-C 4P 63A 300mA	
Resistance to surges	class A , AC: 250A 8/20µs class S: 3000A 8/20µs	
Resistance to short-circuits	Inc : 10000A a 230/400V with gB 80A fuse	
Class	A (IEC 61008.1)	
Number of poles	DREC-C 2P	2
	DREC-C 4P	4
Rated marking and breaking capacity	Im : 500 A	
Working frequency	50 / 60 HZ	

Measurement circuit		
Models **DREC-C 2P xxA 30mA**: The leakage current will be supervised by measuring the resistance downstream of the RCCB.		
Sensitivity	**Rd and Rd0**	**RCCB response**
30 mA	**Rd** < 8 KΩ	no reclose
	Rd0 > 16 KΩ	reclose

User interface	
LEDs	2 LED : **AUTO** in green and **REC** in red

Environmental features		
Operating temperature	Earth leakage protection	-25°C ... +55°C
	Automatic reclosing	-10°C ... +55°C
Storage temperature	- 35°C ... +65°C	
Relative humidity (non-condensing)	5 ... 95%	
Maximum altitude	2000 m	
Resistance to pollution	Category 2	
Protection degree	IP 20	

Mechanical features			
Terminals			
1... 6, N	1 ... 25 mm^2	≤ 3 Nm	M5 (Pozidrive PZ2)
Fixing	DIN rail		
Weight	DREC-C 2P		296 g.
	DREC-C 4P		496 g.
Material	V0 Polycarbonate plastic		
Colour	RAL 7035		
Dimensions (mm)	Figure 11 and Figure 12		

Standard	
Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) -- Part 1: General rules	UNE-EN 61008-1
Requirements for automatic reclosing devices (ARDs) for circuit breakers-RCBOs-RCCBs for household and similar uses	UNE-EN 63024

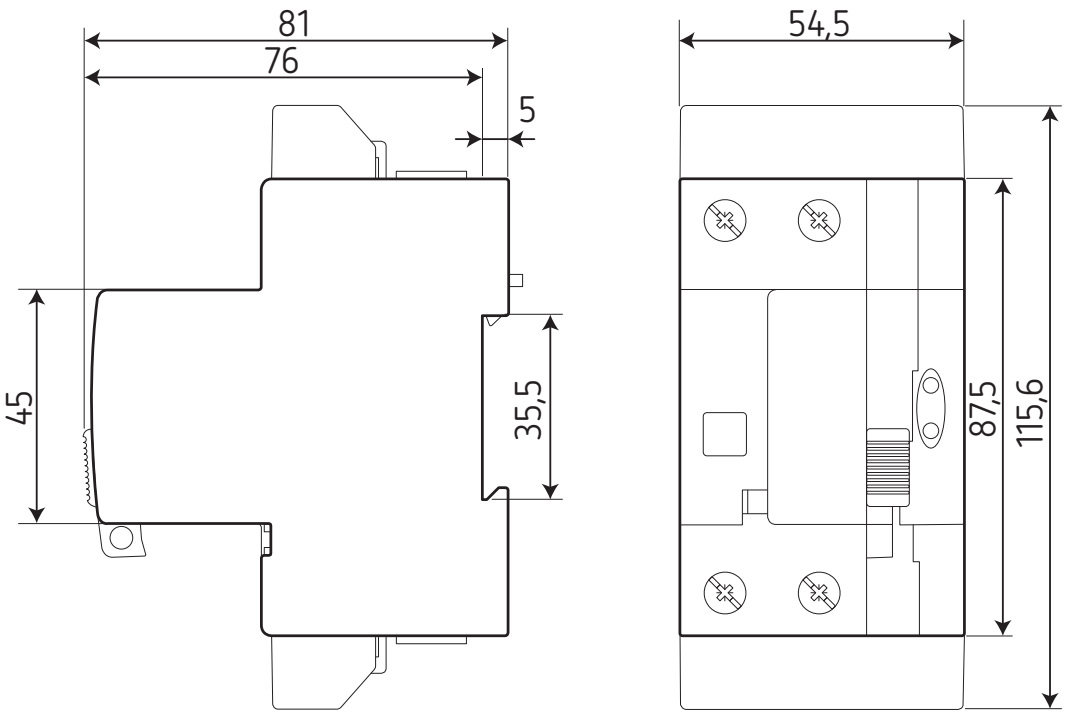


Figure 11: DREC-C 2P dimensions.

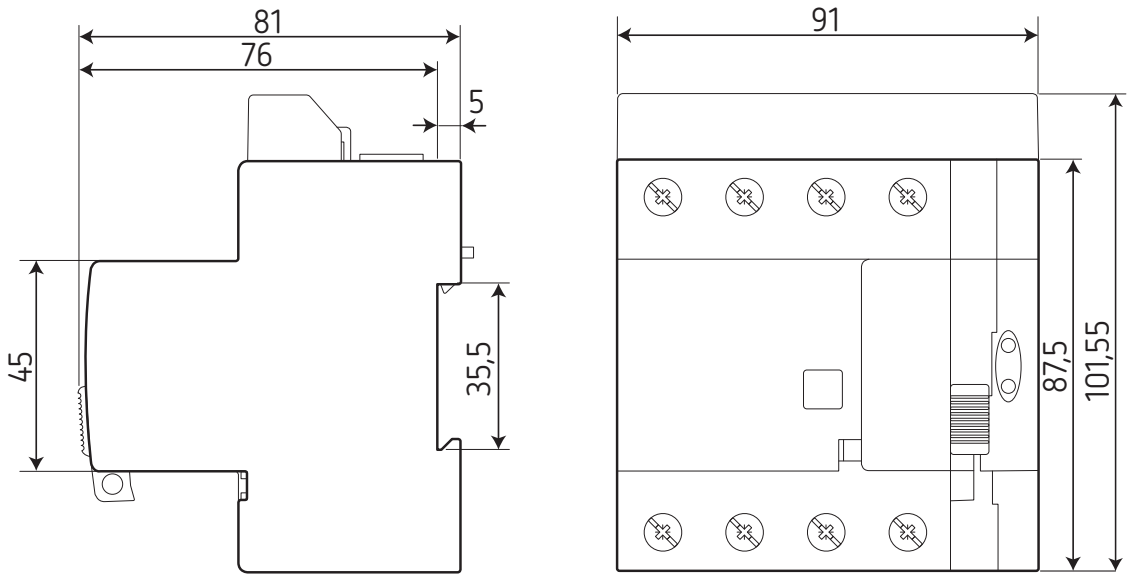


Figure 12:DREC-C 4P dimensions.

7.- TECHNICAL SERVICE

In the case of any query in relation to device operation or malfunction, please contact the **Vector,** Technical Support Service.

Technical Assistance Service
C/ Montcada 7, Pol. Ind. Les Pereres
08130 - Santa Perpètua de Mogoda (Barcelona)
Tel: (+34) 935 748 206
email: info@vectorenergy.com

8.- GUARANTEE

Vector guarantees its products against any manufacturing defect for two years after the delivery of the units.

Vector will repair or replace any defective factory product returned during the guarantee period.



• No returns will be accepted and no unit will be repaired or replaced if it is not accompanied by a report indicating the defect detected or the reason for the return.
• The guarantee will be void if the units has been improperly used or the storage, installation and maintenance instructions listed in this manual have not been followed. "Improper usage" is defined as any operating or storage condition contrary to the national electrical code or that surpasses the limits indicated in the technical and environmental features of this manual.
• **Vector** accepts no liability due to the possible damage to the unit or other parts of the installation, nor will it cover any possible sanctions derived from a possible failure, improper installation or "improper usage" of the unit. Consequently, this guarantee does not apply to failures occurring in the following cases:
- Overvoltages and/or electrical disturbances in the supply;
- Water, if the product does not have the appropriate IP classification;
- Poor ventilation and/or excessive temperatures;
- Improper installation and/or lack of maintenance;
- Buyer repairs or modifications without the manufacturer's authorisation.

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