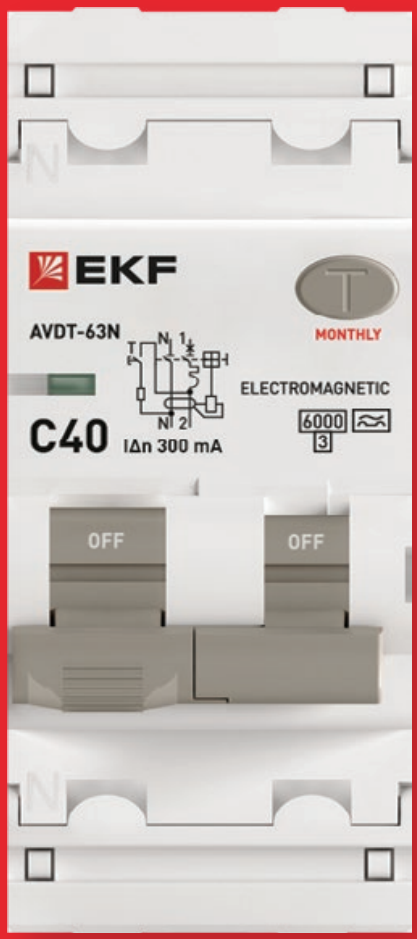
EKF



TECHNICAL MANUAL

Residual current circuit breakers with overcurrent protection AVDT-63N PROXIMA EKF

1 DESCRIPTION

Residual current circuit breakers with overcurrent protection AVDT-63N PROXIMA EKF are used in 50/60 Hz AC circuits in residential and commercial buildings.

Residual current circuit breakers with overcurrent protection (RCBO) are designed to:

- Protect persons against electric shock by accidental contact with exposed conductive parts of electrical installations;
- Protect electrical equipment in case of damaged insulation and faults;
- Protect equipment against fires and inflammations caused by leakage currents and subsequent short circuits, housing- or ground faults;
- Auto disconnect circuit sections in case of overload or short circuit.

RCBO AVDT-63N type AC trips on alternating sinusoidal residual current, suddenly applied or smoothly increasing.

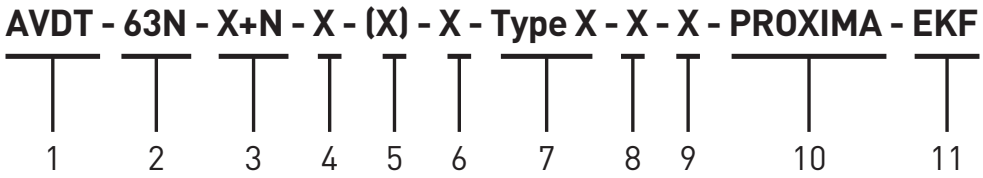
RCBO AVDT-63N type A trips on alternating sinusoidal residual current and on residual pulsating direct current, suddenly applied or smoothly increasing.

RCBO AVDT-63N type AC-S (selective) trips with pre-set time delay on residual current flowing.

The devices of this series feature advanced design. Plastic screw shields hide access to screw terminals, sealing the RCBO and thus preventing unauthorized access to wires.
A convenient operating handle ensures reliable operation. The front panel features an indicator of contact physical position.

The residual current circuit breakers with overcurrent protection AVDT-63N PROXIMA EKF comply with IEC 61009-1.

TYPE CODE



1. Residual current circuit breaker with overcurrent protection
2. RCBO model
3. Number of poles
4. Rated current, A
5. Tripping curve
6. Residual current trip setting, mA
7. Residual current trip type
8. Residual current protection type
9. Rated short-circuit breaking capacity, kA
10. Product line
11. Brand name

2 TECHNICAL DATA

Table 1

Number of poles	1P+N
Terminal for neutral conductor	left-side
Rated operating voltage Ue, V AC	220 / 230 / 240
Frequency, Hz	50 / 60
Rated current In, A	6, 10, 16, 20, 25, 32, 40, 50, 63
Residual current protection type	Voltage dependent (electronic) and independent (electromagnetic)
Tripping curve	B (Figure 1a), C (Figure 1b)
Rated short-circuit breaking capacity Icn, A	6000
Residual current trip type	A, AC
Type by time delay	S (for AC)
Rated breaking residual current IΔn, mA	10, 30, 100, 300
Rated residual non-operating current IΔno, mA	0,5IΔn

Table 1 continued

Maximum trip time at any rated residual non-operating current, sec.	0,04
Rated impulse withstand voltage, kV	4
Overvoltage protection (for the electronic residual protection), V	270 ± 5%
Mechanical endurance, O-C cycles	20 000
Electrical endurance, O-C cycles	10 000
Cross-section of connected wires, mm^2	1 to 25
Degree of protection	IP20
Operating temperature, °C	-25 to 50
Max. tightening torque, N•m	3
Max. weight, kg	0,2

3 TRIPPING CHARACTERISTICS

At the ambient temperature of +30°C

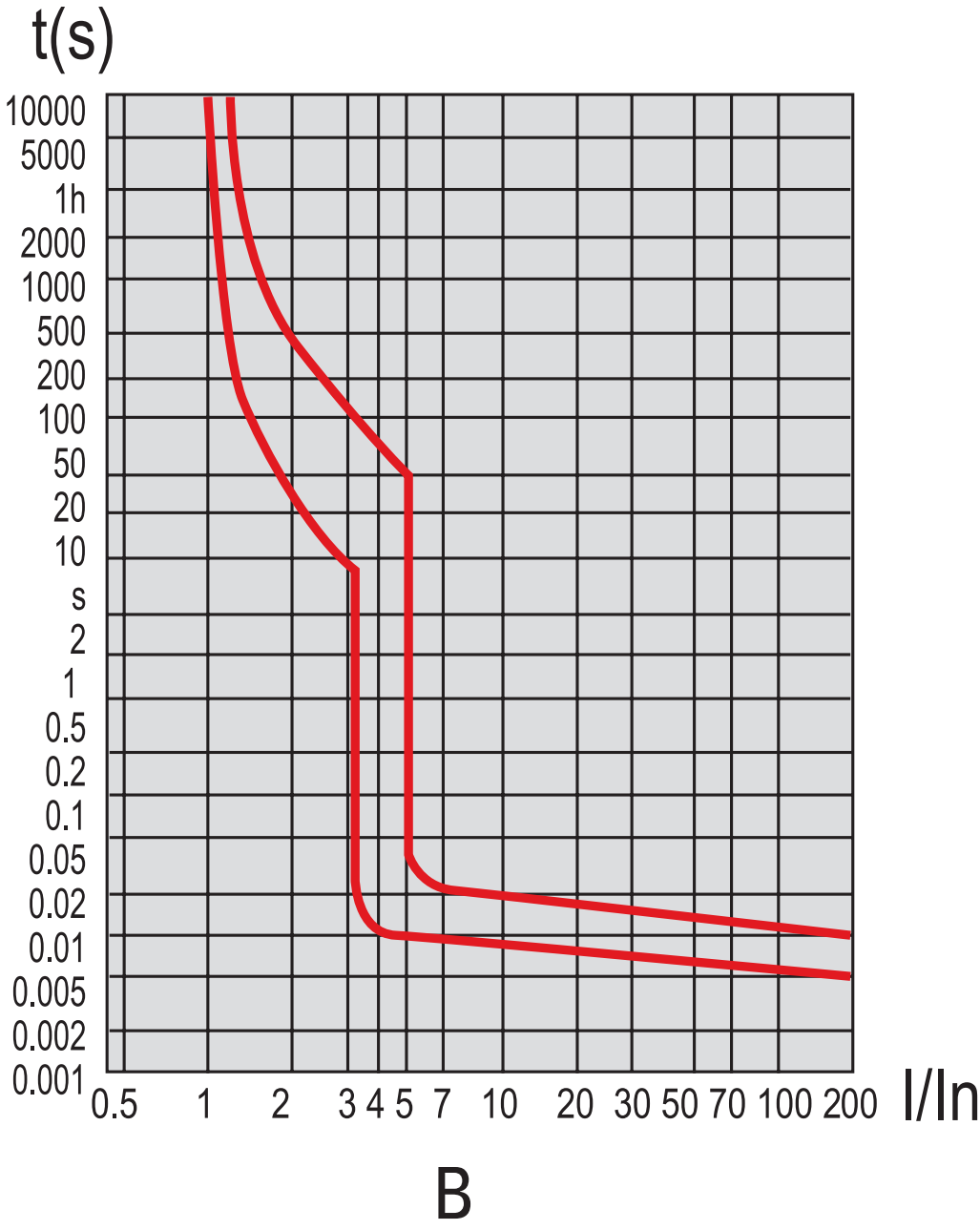


Fig. 1a - Tripping characteristics

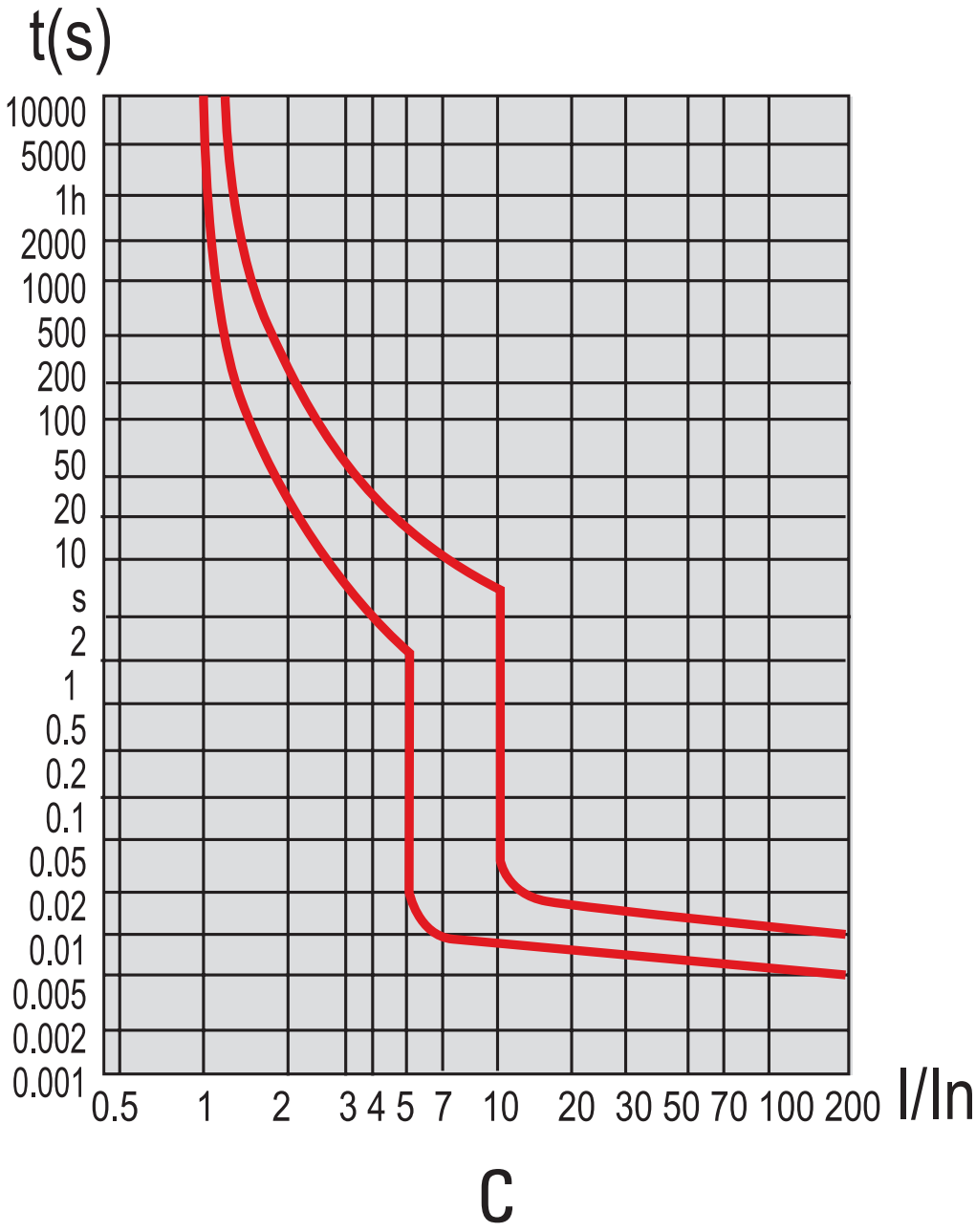


Fig. 1b - Tripping characteristics

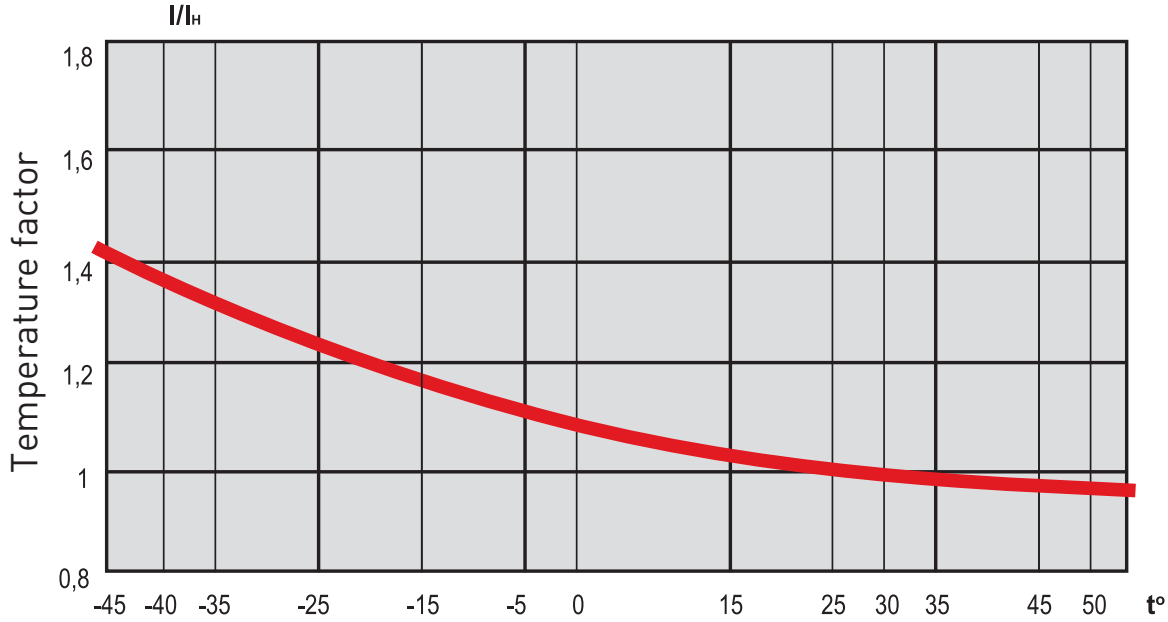


Fig. 2 - RCBO temperature derating chart

4 OVERALL DIMENSIONS

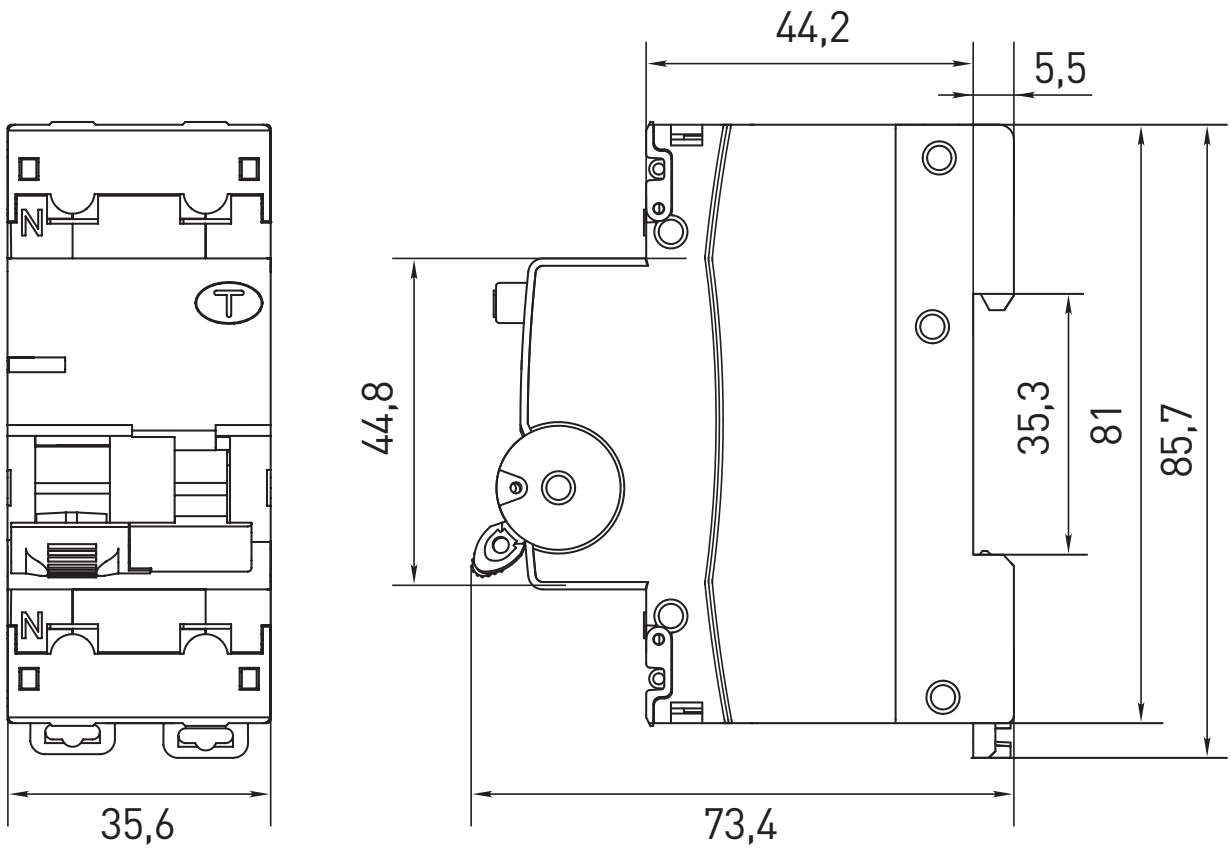


Fig. 3 - Overall dimensions

Table 2 - Trip /non-trip time limits for alternating residual current for RCBO AVDT-63N types AC and A, sec.

Type	**In, A**	**IΔn, mA**	**Trip /non-trip time limits for alternating residual current for AVDT-63N types AC and A, sec.**					
			IΔn	**2IΔn**	**5IΔn**	**500A**	**IΔt***	**Notes**
Non-selective	Any value	< 30	0,3	0,15	0,04	0,04	0,04	Max. trip time
		30						
		> 30						
Selective	⩾ 25	> 30	0,5	0,20	0,15	0,15	0,15	
		> 30	0,13	0,06	0,05	0,04	0,4	Min. non-trip time

Table 3 - Maximum trip time for half-wave pulse residual current, AVDT-63N type A

Type	**In, A**	**IΔn, mA**	**Maximum trip time for RCBO type A for half-wave pulse residual current, sec.**							
			1,4IΔn	**2IΔn**	**2,8iΔN**	**4IΔn**	**7IΔn**	**0,35A**	**0,5A**	**350A**
Non-selective	Any value	< 30	-	0,3	-	0,15	-	-	0,04	0,04
		30	0,3	-	0,15	-	-	0,04	-	0,04
		> 30	0,3	-	0,15	-	0,04	-	-	0,04
Selective	⩾ 25	> 30	0,5	-	0,2	-	0,15	-	-	0,15

5 INSTALLATION AND CONNECTION

RCBOs can be connected with pin- and fork-type busbars both from the top and bottom.

RCBOs must be installed and connected by qualified electrical personnel.

The RCBO is vertically installed with operating handle in OFF/down position; max. tolerance shall not exceed 90° to either side of the specified plane.

Before installation, make sure that:

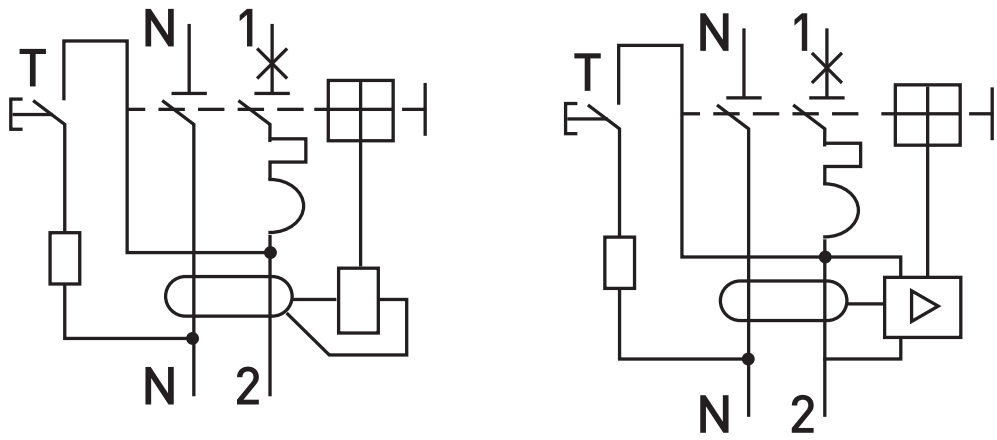
- The device characteristics (RCBO marking) meet the required values.
- The device has no visible damage.
- The mechanism properly operates by turning the handle a few times.

Copper and aluminum wire connections are supported. Do not connect copper and aluminum wires to one terminal concurrently.

RCBO power supply shall be connected on the top from terminals 1 & N. RCBOs AVDT-63N are installed onto 35mm DIN rail.

Tightening torque: max. 3 N•m for copper wires; max. 2,2 N•m for 8000-series aluminum-alloy wires.

If vertically installed, the up position of the operating handle shall correspond to the RCBO ON status, while the handle down position shall correspond to the RCBO OFF status in compliance with IEC 60447. If horizontally installed, the handle right position shall correspond to the device ON status, while the handle left position shall correspond to the device OFF status.



Electromagnetic Electronic

Fig. 4 - Wiring diagrams

Make sure that the neutral (N) operating conductor is connected neither to earthed elements nor to the protective earthing (PE) conductor in the protection area of the RCBO, when installing the device.

Test the device operation with the Test (T) button monthly. The RCBO operates properly, if it trips instantly.

A split operating handle enables rapid identification of the trip condition. Only the left part of the handle down (OFF) means short circuit or overload, refer to Figure 5.

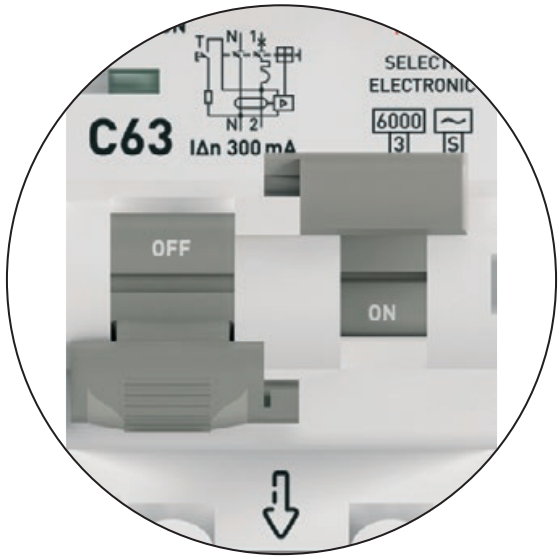


Fig. 5 - RCBO tripped by short circuit or overload

Both parts of the operating handle down (OFF) mean residual currant, refer to Figure 6.

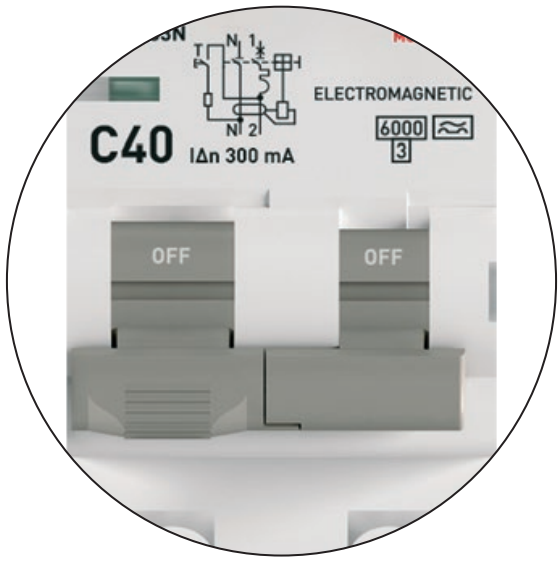


Fig. 6 - RCBO tripped by residual current

The front panel features a true contact position indicator shielded by transparent cover.

Red: contacts are closed - the RCBO is powered ON.

Green: contacts are open - the RCBO is powered OFF.

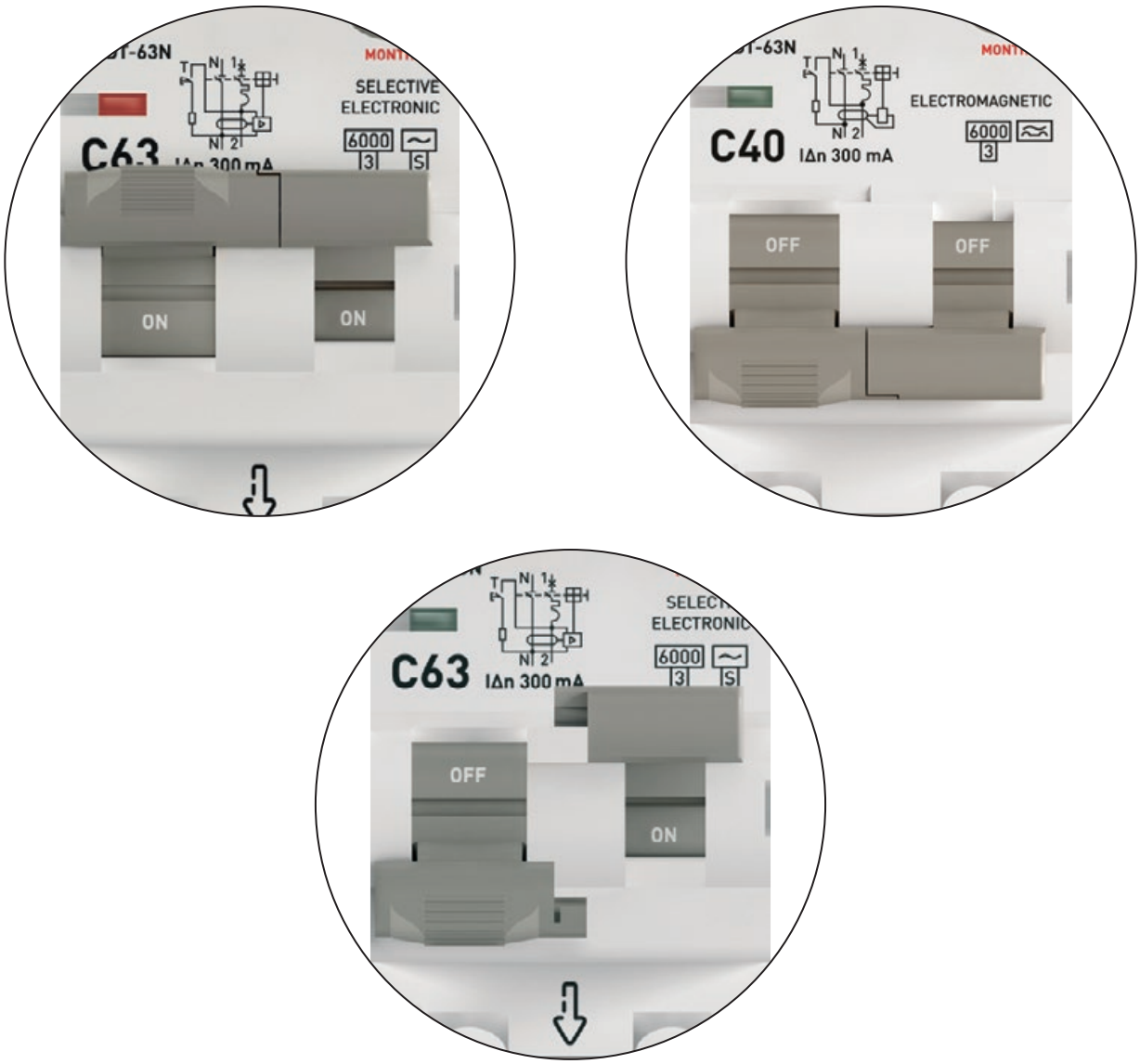


Fig. 7 - Visual true contact position indicator

After the RCBO trips by any reason, carefully inspect the insulation of wires and devices in the protected circuit and troubleshoot the causes of the trip. Turn the handle down to the OFF position and then turn it up to the ON position to reclose the RCBO.

6 OPERATION CONDITIONS

Operating temperature: from -25°C to +50°C.

Altitude above sea level: max. 2000 m.

The device must be operated in non-explosive environment free of gases, liquids, or dust, impairing the device operation.

7 DELIVERY SCOPE

Residual current circuit breakers with overcurrent protection are supplied in an individual package. For all available documentation, scan the QR-code on the insert or on the inside of the package.

8 SAFETY REQUIREMENTS

Do not operate RCBOs with visible mechanical damage.

RCBOs conform to IEC 61140 Class 0 for protection against electrical shock and must be installed in distribution enclosures with Class 1 protection or higher.

9 MAINTENANCE

For maintenance, follow national safety rules for operation of electrical Installations.

Under normal operating conditions: test the RCBO operation with the Test button every month; visually inspect the device and tighten screw terminals every 6 months.

Do not operate RCBOs with damaged housing.

10 STORAGE AND TRANSPORTATION

RCBOs can be transported by any means of enclosed transport that ensures protection of packaged products from mechanical impacts and weather exposure.

RCBOs shall be stored indoors in the original package at the ambient temperature from –40°C to +50°C and relative humidity of max. 80% at +25°C.

11 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the national and local laws and regulations in force.

To dispose of the product, send it to an authorized company for recycling in compliance with the effective national and local laws and regulations.

12 MANUFACTURER'S WARRANTY

The manufacturer guarantees residual current circuit breakers with overcurrent protection (RCBO) comply with the declared characteristics, provided that consumers follow the operation, transportation and storage conditions.

Warranty period: 7 years from the date of sale specified in the sales receipt.

Shelf life: 7 years from the date of manufacture specified on the product packaging or housing.

Service life: 20 years.

Manufacturer: ООО Electroresheniya, Otradnaya st., 2b/9, 127273, Moscow, Russia, tel. +7 (495) 788-88-15.

MEA regional headquarters: EKF ELECTRICAL SOLUTION FZCO, Techno Hub-2, Dubai Silicon Oasis, P.O. box 341079, Dubai, United Arab Emirates, tel. +971-4-547-06-18.

Importer and EKF trademark service representative in the territory of the Republic of Kazakhstan: ТОО «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

13 CERTIFICATE OF ACCEPTANCE

The residual current circuit breaker with overcurrent protection AVDT-63N PROXIMA EKF has been approved for operation.

Date of manufacture: for information, refer to the product package.

Quality control stamp

ekfgroup.com

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