DELIXI
ELECTRIC
德力西电气

DZ47LE-125
RESIDUAL CURRENT
OPERATTED CIRCUIT-BREAKER

NAVIGATOR Series

User Manual

Please carefully read this User Manual before installing and operating the product, and keep this manual properly for future reference

DZ47LE-125 Residual Circuit Operated Circuit-Breaker
User Manual

Safety Notice

Please carefully read this manual before the installation, operation, run, maintenance, and inspection of the product, and install and operate this product properly according to the contents of the instructions.

Danger:

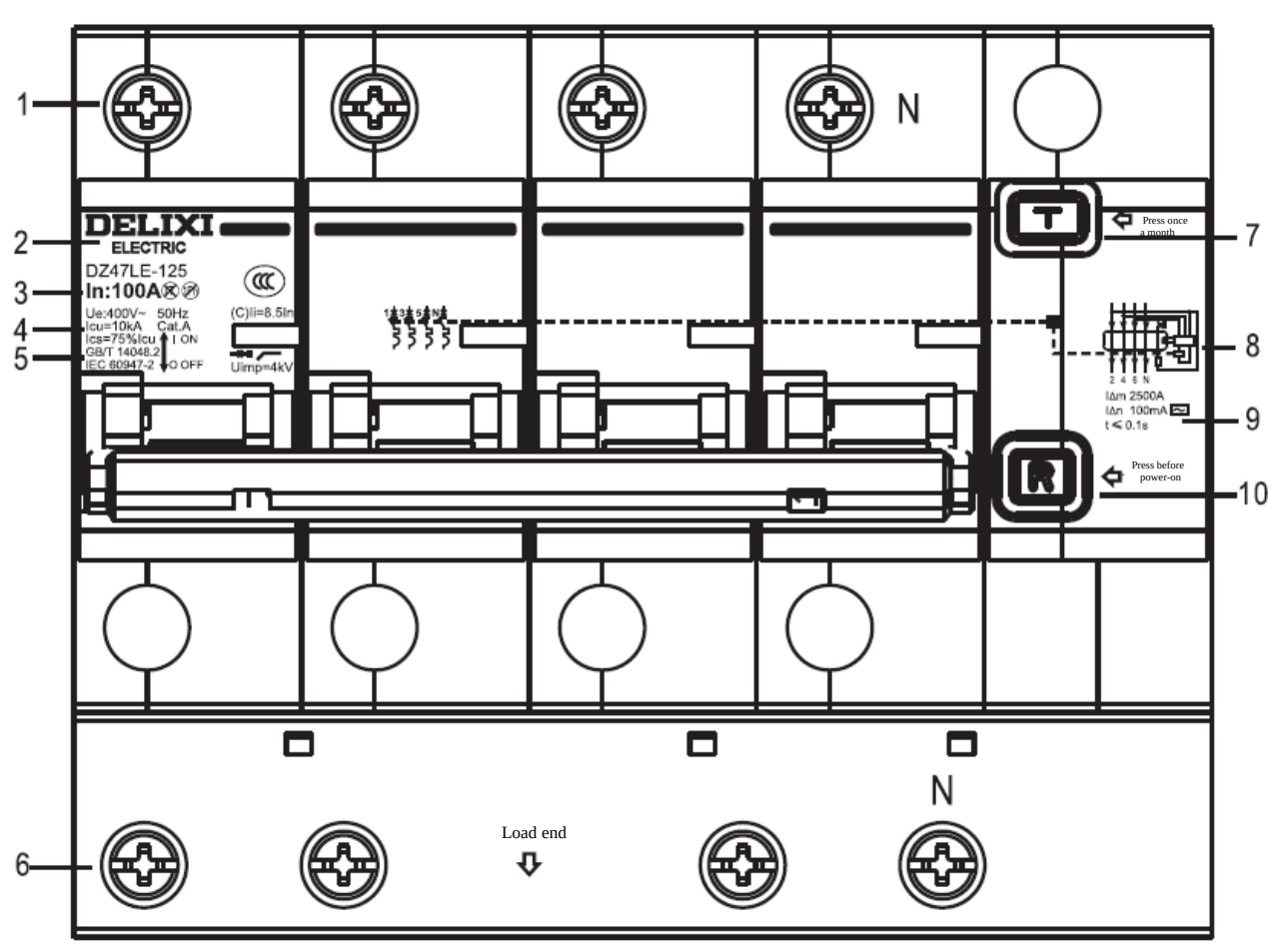
- It is prohibited to operate the circuit breaker with your wet hands;
- It is prohibited to touch the conductive part during operation;
- Make sure that the product is de-electrified during the maintenance and service;
- It is prohibited to use the short circuit method to test the product;

Caution:

- The installation, maintenance, and service shall be carried out by the qualified professionals;
- The three-pole and four-pole products are only available for the power supply of the three-phase system;
- All characteristics of the product have been set in the factory, and the product cannot be disassembled without permission or adjusted at will during operation;
- Please confirm that the product voltage, rated current, frequency, and characteristics of the product meet the working requirements before use;
- In order to prevent short circuit between the phases, the exposed wire or copper busbar at the terminal block shall be subject to the insulation treatment;
- To test the insulation resistance or power frequency withstand voltage, please disconnect the electronic components between the current circuits, otherwise the product performance will be deteriorated;
- The product only provides the protection for electric leakage fault generated at the load end;
- For less wiring or wrong wiring connection, the electric leakage protection function of the product will be disabled;
- If found damage or heard abnormal sound when unpacking the product, please stop the operation immediately and contact the supplier;
- This product is not suitable for special occasions such as frequent startups of motor, electric heating equipment, capacitor cabinets, high inductive and high capacitive loads and high temperature environments;
- When scrapping the product, please dispose the product waste properly; thanks for your cooperation.

About DZ47LE-125 Residual Circuit Operated Circuit-Breaker

- Panel introduction



Legends:

1. Power supply end 2. Company logo 3. Rated current: 63A, 80A, 100A, 125A
4. Technical parameters: Ue: 230V (1P+N,2P) / 400V (3P, 3P+N, 4P),
   Icu: 10kA, Ics= 75% Icu, Uimp: 4kV
   (C) Ii=8.5In (for power distribution protection),
   (D) Ii=12In (for motor protection) I△m = 2500A
5. Standard: GB/T 14048.2 and IEC 60947-2
6. Load end 7 Test button 8. Wiring diagram
9. Residual operating current and time 10. Reset buttons.

Normal Operation, Installation and Transportation Conditions

● Normal operation and installation conditions

(1) The upper limit of the ambient air temperature shall not exceed +60°C, the lower limit shall not exceed -20°C, and the mean temperature shall not exceed +35°C within 24 hours;

(2) The altitude of the installation site does not exceed 2000m;

(3) When the maximum temperature is +60°C, the relative humidity of the air does not exceed 50%; a higher relative humidity is allowed at lower temperatures, such as 90% at +20°C. Special protection measures should be taken for condensation occurred occasionally due to temperature changes;

(4) The external magnetic field near the installation site of the circuit breaker should not exceed 5 times of the geomagnetic field in any direction;

(5) The installation site shall be vertical, and the inclination angle does not exceed 10° in any direction;

(6) Installed in places where there is no obvious impact and vibration and no rain and snow attacks;

(7) Pollution degree: Level 2;

(8) Installation category: Class II, Class III;

(9) Protection grade: Installed a power distribution tank, distribution cabinet or box: IP40.

● Normal storage and transportation conditions

(1) Temperature: -40°C ~ +70°C;

(2) Relative humidity (at 25°C): ⩽ 95%;

(3) Please handle the product gently during transportation, do not upside it down, and prevent it from violent collision.

Main Specifications and Technical Parameters

● The main technical parameters are listed in Table 1

Table 1 Main technical parameters

Model	Number of poles	Zero line added	Freq. Hz	Rated current In A	Rated voltage Ue V	Rated limit short circuit breaking capacity Icu A	Rated residual operating current I△n mA	Rated residual non-operating current I△no mA	Breaking time at I △n s	Rated residual making and breaking capacity I△m A	Trip type
DZ47LE-125	1	N	50	63 80 100 125	230	10000 (Ics=75% Icu)	30 50 75 100 300	15 25 37.5 50 150	≤0.1	2500	C type Ii = 8.5In (for power distribution protection) D type Ii = 12In (for motor protection)
	2										
	3				400						
	3	N									
	4										

- The protection characteristics of the overcurrent release are listed in Table 2

Table 2 Protection characteristics of the overcurrent release

Type of overcurrent instantaneous release	Test current A	Starting state	Test time	Expected results	Remarks	Reference temp.
C, D	1.05In	Cold state	t≤1h (In≤63A) t≤2h (In>63A)	No trip	--	$+30^{+5}_{0}$°C
C, D	1.3In	Followed by test	t<1h (In≤63A) t<2h (In>63A)	Trip	The current rises to the specified value within 5s	
C, D	2.55In	Cold state	1s<t<120s	Trip	--	
C	8.5Inx80%	Cold state	t≤0.2s	No-trip	Turn on the aux. switch, and connect the power supply	
D	12Inx80%					
C	8.5Inx120%	Cold state	t<0.2s	Trip	Turn on the aux. switch, and connect the power supply	
D	12Inx120%					

- The protection characteristics curves of circuit breaker are illustrated in Fig. 1 and Fig. 2

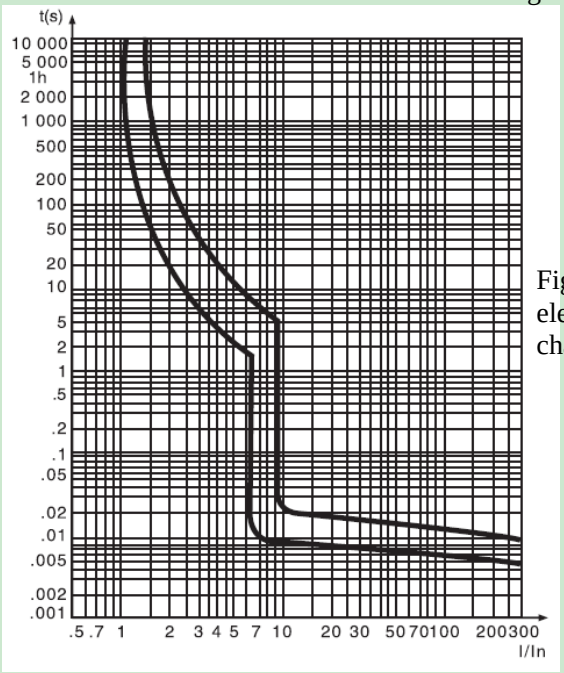


Fig. 1 C type thermal / electromagnetic trip characteristics curve

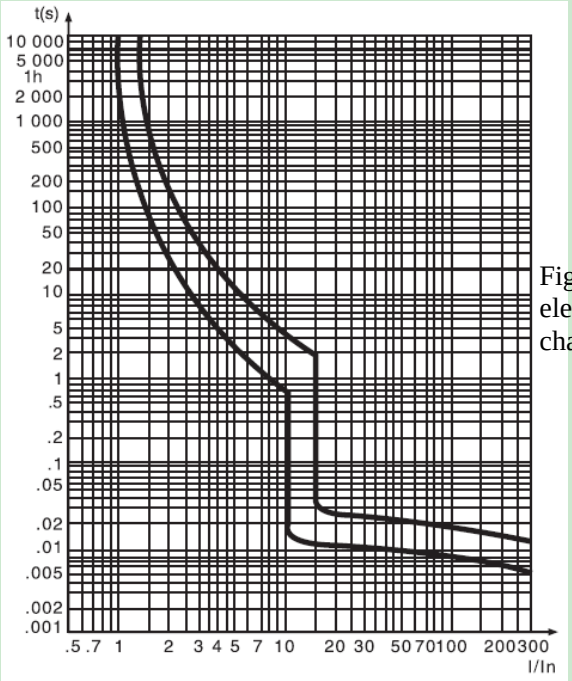


Fig. 2 D type thermal / electromagnetic trip characteristics curve

Outline and Installation Dimensions

This series of circuit breaker of the rail-mounted type, suitable for TH35-7.5 steel mounting rail, and its outline and installation dimensions are shown in Fig. 3.

Unit: mm

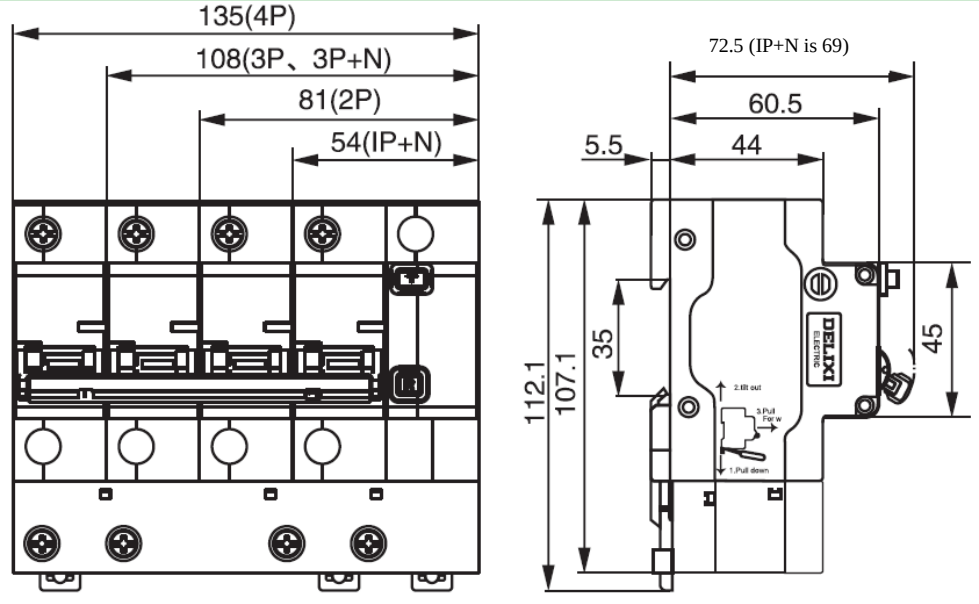


Fig. 3 Outline and installation dimensions

Product accessories

There are two different accessories for circuit breaker, including OF aux. contact and SD alarm contact. Accessories are all installed at the left side of the product.

Installation, Operation and Maintenance

- Installation and Operation

(1) Before installation, check whether the product identification is consistent with the working conditions.

(2) Press the Reset button before power on.

(3) Please operate the residual current operated circuit breaker several times before power on, and its mechanism shall work flexibly and reliably without blockage.

(4) For residual current operated circuit breaker, the “1”, “3”, “5”, and “N” ends are power ends, and “2”, “4”, “6”, and “N” ends are load ends, and they shall not be connected reversely;

(5) The sectional area of the connecting wire sees Table 3.

Table 3 Rated current and sectional area of the connecting wire

Rated current A	63	80	100	125
Sectional area of wire, mm^2	16	25	35	50
Wiring tighening torque N.m	Power end and load end: 3.5			

(6) After power on, operate the test button of the residual current operated circuit breaker several times and confirm whether it can work reliably.

(7) When the handle moves upwards, the indicator window displays red, indicating that the circuit is in the connection state; when the handle moves downward, the indicator window displays green, indicating that the circuit is in the disconnection state.

(8) When installation, insert the residual current operated circuit breaker into the mounting rail, and ensure that the residual current operated circuit breaker is fixed on it without any looseness and falling off. To remove the residual current operated circuit breaker, pull the stopper.

The working reference temperature of the residual current operated circuit breaker is $+30^{+5}_{0}$℃. When the ambient temperature changes, its rated value shall be correct. The temperature correction coefficients see Table 4. If multiple residual current operated circuit breakers are installed in an enclosed box, the temperature inside the box will increase correspondingly, and the rated current shall multiply by the derating coefficient 0.8.

Table 4 Rated current and temperature correction coefficient table

Rated current A	Rated current correction value A								
	-20°C	-10°C	0°C	+10°C	+20°C	+30°C	+40°C	+50°C	+60°C
63	78.9	75.7	72.5	69.3	66.2	63	59.2	55.4	51.6
80	100	96	92	88	84	80	75.2	70.4	65.6
100	125	120	115	110	105	100	94	88	82
125	169.2	162.8	143.8	137.5	131.2	125	117.8	111.5	105

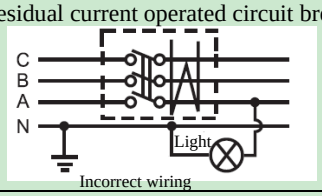
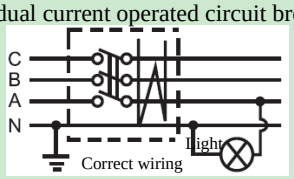
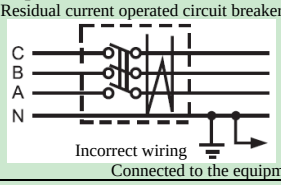
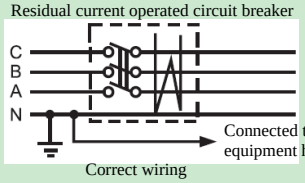
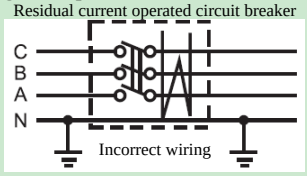
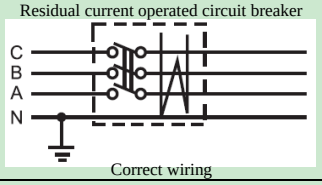
Maintenance and Service

- The maintenance and service must be carried out by the qualified professionals;
- Be sure to ensure the product is deenergized (except for the use of test button for test);
- The maintenance and service must be carried out once a year under normal operating conditions, and the maintenance contents are listed in Table 5.

Table 5 Maintenance and Service

Item	Contents
Appearance	No dust, no condensation; clean if necessary No damage No color changes on the housing and terminal block
Connection of terminal block	Tighten it according ot the torque listed in Table 3 without looseness
Handle closed/open operation	Operated flexibly
Test button	After the product trips, the handle shall indicate the trip position
Insulation test	It is prohibited to carry out the insulation test between the phases at the load end
Test via test button	Conduct the simulation of the electric leakage proteciton test once monthly

Faults and Troubleshooting

Fault		Cause	Solution
Mis-operation	Residual current operated circuit breaker works improperly to cause mis-operation	The three-pole residual current operated circuit breaker is used in the three-phase four-wire circuit, because the normal operating current in the zero line does not pass through the current transformer, once the single-phase load starts, the residual current operated circuit breaker will work. 3P residual current operated circuit breaker  Incorrect wiring	In the three-phase four-wire circuit, 3P+N or 4P residual current operated circuit breaker must be used. 3P+N or 4P Residual current operated circuit breaker  Correct wiring
	Zero line on the load side of the residual current operated circuit breaker is earthed to cause mis-operation	When the zero line on the load side of the residual current operated circuit breaker is earthed, the normal operating current will flow into the earth through the earth point to cause misoperation. Residual current operated circuit breaker  Incorrect wiring Connected to the equipment housing	Connect the earth wire to the zero line on the power side of the residual current operated circuit breaker Residual current operated circuit breaker  Correct wiring
	Leakage current and capacitance current of the wire to the earth cause mis-operation	The wire on the load side is close to the earth tightly and has long laying length, generaing a large capacitance current to earth The leakage current to earth of the wire on the load side increases due to insulation reduction.	Select the residual current operated circuit breaker with a large residual operating current
No-operation	No-operation caused by the repeated earthing on the load side of the residual current operated circuit breaker	The neutral line on the load side of the residual current operated circuit breaker is earthed, and the leakage current will be shunted through the earth point in the event of current fault on the line, making the current difference between the leakage current and the current flowing back to the N phase is less than the rated residual operating curent, causeing non operation. Residual current operated circuit breaker  Incorrect wiring	Remove the repeated earth wire on the load side. Residual current operated circuit breaker  Correct wiring
	No-operation caused by the open phase on the power side of the three-pole (or four-pole) residual current operated circuit breaker	The phase wire on the power side of the three-pole (or four-pole) residual current operated circuit breaker is not wired as required	Connect the phase line on the power side as required

Unpacking Inspection

After unpacking, the user must check whether the product is intact, whether the exposed metal is rusty, and whether the product is defects due to poor transportation or storage. If found the above phenomenon, please stop the product, and contact the supplier timely for solution.

Company' commitment

The free repair or replacement will be provided by the company for damage or abnormal operation of the product produced by our company due to poor manufacturing quality within 36 months from the date of the production under the premise that the user conforms to the operation and storage conditions and that the product is well sealed. A paid repair is provided when the warranty period expires. However, the paid repair is provided for damage caused by one of the following situations even within the warranty period:

(1) Improper operation, maintenance, or storage;
(2) Modification without permission, or improper maintenance;
(3) Damage caused by falling off after purchase or occurred during the installation process;
(4) Irresistible nature disasters such as earthquakes, fires, lightning strikes, and abnormal voltages.

If you have any questions, please contact the dealer or the company's customer service department.

Customer service hotline: 400-826-8008

Ordering Notice

Please specify the following contents when ordering:

a) Name, model and spec. of residual current operated circuit breaker;
b) Rated current of the residual current operated circuit breaker;
c) Residual operating current of the residual current operated circuit breaker;
d) Number of poles;
e) Qty.

For example, to order DZ47LE-125, three-pole circuit breaker, C type, rated current 100A, rated residual operating current 30mA, 100 units.
Please specify: DZ47LE-125/3P, C100, 30mA, 100 units.

DELIXI ELECTRIC 德力西电气

Certificate

DELIXI ELECTRIC LTD

Name: Residual Current Operated Circuit Breaker

Model: DZ47LE-125

The product passes the inspection, and is allowed to be shipped.

Standard: GB/T 14048.2

Inspector: Check 02

Date of production: See the label in the inner box

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www.delixi-electric.com
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