Name of Design Doc.	Instruction for Use	ODLX.463.343HM01	
Type and Name of Product	HDB9Z Series DC Miniature Circuit Breaker	**DELIXI ELECTRIC**	
		Total 5 Pages	Page 1

Safety Notice

Please read this Instruction for Use before installation, operation, running, maintenance and inspection, as well as install and use this product correctly according to the contents contained in this Instruction for Use.

Danger:

- Never operate circuit breaker with wet hands.
- Never touch conducting part during operation.
- Ensure product is not electrified during maintenance.
- Never test product through method of short circuit.

Caution:

- Only the operator with professional competence is allowed to maintain and install this product.
- During installation, pay attention to the positive ("+") and negative ("-") poles. Connect the wires strictly according to diagram. Otherwise the products and the connected equipment will be damaged.
- The characteristics of product have been set before ex-work, and no private disassembly and adjustment is allowed during product use.
- Please verify whether the working voltage, rated current, frequency and characteristics of product is in accordance with the working requirements.
- Should make insulation treatment to naked conductor and copper busbar at terminal port in order to prevent phase-to-phase short circuit.
- Should stop use and contact supplier immediately if any damage or abnormal noise is found to the product after unpacking.
- Please properly handle industrial wastes after the product is disused. Thanks for your cooperation.

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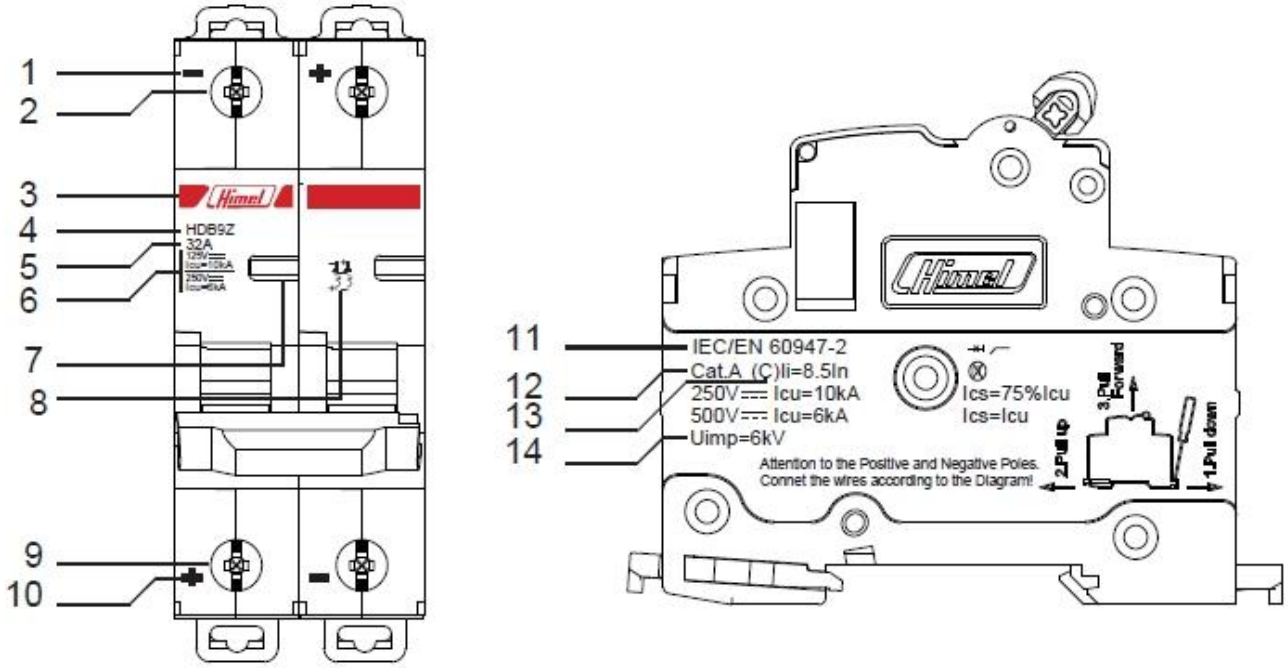
About HDB9Z Series Miniature Circuit Breaker

- **Panel introduction**



Designation:

1. Negative Poles 2. Terminal 3. Brand Logo 4.Product Model 5 Rated Current (Table 1) 6. Rated Voltage and Breaking capacity (Table 1) 7.CPI 8 Diagram 9 Terminal 10. Positive poles 11 Complied standard 12 Using environment 13.Triping curve 14. Rated impulse withstand voltage

Conditions of normal use, installation and transportation

- Conditions of normal use and installation

(1) The limited ambient temperature shall be lower than +70℃ and higher than -30℃ during normal use and installation, as well as the average temperature within 24 hrs. should not exceed +35℃.
(2) The altitude of installation place should not exceed 2000 m
(3) The relative humidity should not exceed 50% at a maximum temperature of +70℃. The relative humidity is allowed to increase while under lower temperature. For instance, 90% for temperature +20℃, but it should take condensation into consideration when temperature changes.
(4) The external magnetic field near the installation place of circuit breaker in any direction should not exceed 5 times of geomagnetic field.
(5) Products should be installed in the environment without explosive media, which doesn't contain air and dust that may cause metal corrosion and insulation damage.
(6) Products should be installed in the place without obvious shocking and heavy rain & snow.
(7) Pollution degree: Level 2
(8) Utilization category : Type II & II
(9) Should be installed in distribution pillar, cabinet or box.

- **Conditions of normal storage and transportation**

(1) The limited ambient temperature shall be lower than +85℃ and higher than -40℃ during normal storage and transportation.
(2) The relative humidity should not exceed 95% under 25℃.
(3) The product should be handled properly, no upside down and should avoid violent collision.

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Main Technical Data

- Main technical data of circuit breaker, refer to Table 1:

Table 1 Main technical data

Tripping Curve	Rated Current In A	Poles	Rated Voltage Ue V	Breaking Capacity Icn A
B	1、2、4、6、10、16、20、25、32、40、50、63	1	125V	10kA
		2	250V	
		1	250V	6kA
		2	500V	
C	1、2、4、6、10、16、20、25、32、40、50、63	1	125V	10kA
		2	250V	
		1	250V	6kA
		2	500V	

Overcurrent protection of circuit breaker, refer to Table 2:

Table 2 Overcurrent protection of circuit breaker

Tripping Curve	Rated Current In (A)	Test Current A	Initial condition	Initial time	Estimated Result	Remarks	Ref. temp.
B、C	≤63	1.05In	Cold	t≤1h	No tripping	————	$+30^{+5}_{0}$ ℃
B、C		1.3In	Immediately following test	t＜1h	tripping	Current rises to specified value within 5s	
B		5.5In*80%	Cold	t＜0.2s	No tripping	Close the auxiliary switch，and connect the power	
C		8.5In*80%					
B		5. In*120%			tripping		
C		8.5In*120%					

- Protection feature curve of circuit breaker. Refer to Fig. 1, 2respectively

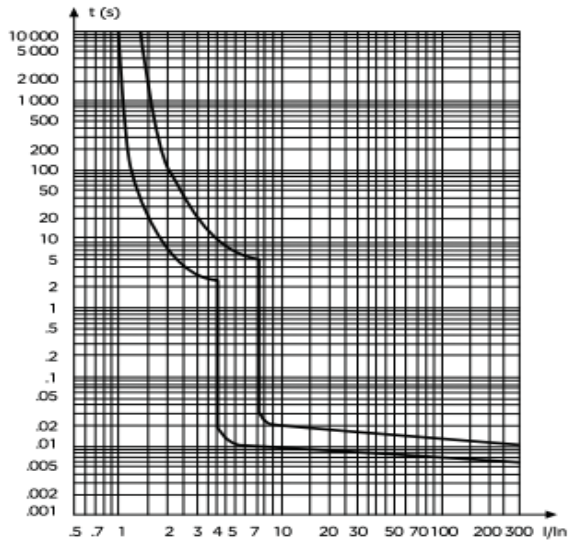

Fig.1 Type B

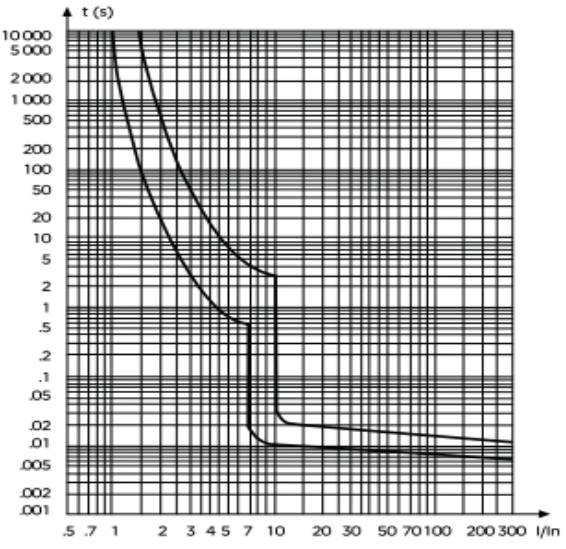

Fig.2 Type C

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Overall dimensions of installation

The circuit breaker is rail mounted, the overall dimensions of installation refer to Fig. 3.

Unit: mm

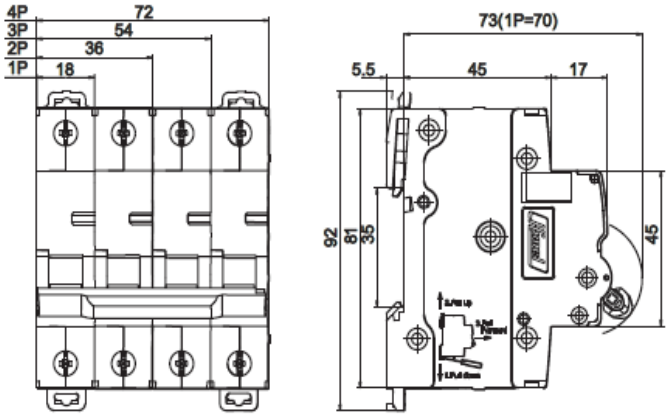

Fig. 3 Overall dimensions of installation

Installation, use and maintenance

- Before installing circuit breaker:

(1) Check whether the technical data on the printing conform to use requirements.

(2) Before use, employ 500V megameter to check the insulation resistance between the circuit breaker pole and pole (single pole excluded),pole and shell, pole and mounting rail, incoming and outgoing, shall be not less than 5MΩ. If it is less than 5MΩ, which means the product can not be used, shall contact the supplier for replacement immediately.

(3) Make closing/ opening operation for several times to check whether there have clamping stagnation phenomenon to the operating mechanism of circuit breaker and the mechanism operation is reliable.

(4) The reference temperature of MCB series is $+30^{+5}_{0}$ ℃. If more than one circuit breaker is installed in a sealed cabinet, the cabinet temperature will arise and the use current is 0.8 In.

(5) The cross-sectional area connecting to the conductor should match the rated current of circuit breaker, refer to Table 3.

Table 3 Rated current and cross-sectional area of conductor

Rated current, A	1, 2, 4, 6	10	16, 20	25	32	40, 50	63
Cross-sectional area of conductor, mm ²	1	1.5	2.5	4	6	10	16
Min. length of conductor, m	1	1	1	1	1	1	2

(6) This series of MCB adopts TH35-7.5 steel rail to install.

(7) The rated current should be corrected accordingly when ambient temperature is changed. Refer to Table 4 for the correction factor of rated current and temperature.

Table 4 Table of correction factor of rated current and temperature

Temp (℃) / Rated Current (A)	-30	-20	-10	0	10	20	30	40	50	60	70
1	1.26	1.22	1.18	1.14	1.09	1.05	1	0.95	0.90	0.84	0.78
2	2.49	2.42	2.34	2.2	2.18	2.08	2	1.92	1.8	1.74	1.59
4	5.18	5.00	4.82	4.63	4.43	4.22	4	3.77	3.52	3.26	2.97
6	7.59	7.35	7.10	6.84	6.57	6. 9	6	5.69	5.37	5.02	4.65
10	13.63	13.09	12.54	11.95	11.34	10.69	10	9.26	8.45	7.56	6.55
16	20.44	19.77	19.07	18.35	17.60	16.82	16	15.13	14.22	13.23	12.17
20	25.30	24.49	23.66	22.80	21.91	20.98	20	18.97	17.89	16.73	15.49
25	31.74	30.72	29.67	28.57	27.43	26.24	25	23.69	22.30	20.82	19.23
32	40.48	39.19	37.86	36.49	35.05	33.56	32	30.36	28.62	26.77	24.79
40	50.89	49.24	47.54	45.77	43.93	42.01	40	37.88	35.64	33.24	30.66
50	64.00	61.89	59.70	57.43	55.06	52.59	50	47.27	44.36	41.26	37.90
63	82.09	79.22	76.26	73.17	69.94	66.56	63	59.22	55.19	50.84	46.08

Please wire the products strictly according to Fig 4

	1P	1P	2P	2P	2P	2P
Un	⎓125V	⎓250V	⎓250V	⎓250V	⎓250V	⎓500V
Unmax UL+/ L-	⎓125V	⎓250V	⎓250V	⎓250V	⎓250V	⎓500V
Unmax UL/⏚	⎓125V	⎓250V	⎓250V	⎓250V	⎓125V	⎓250V

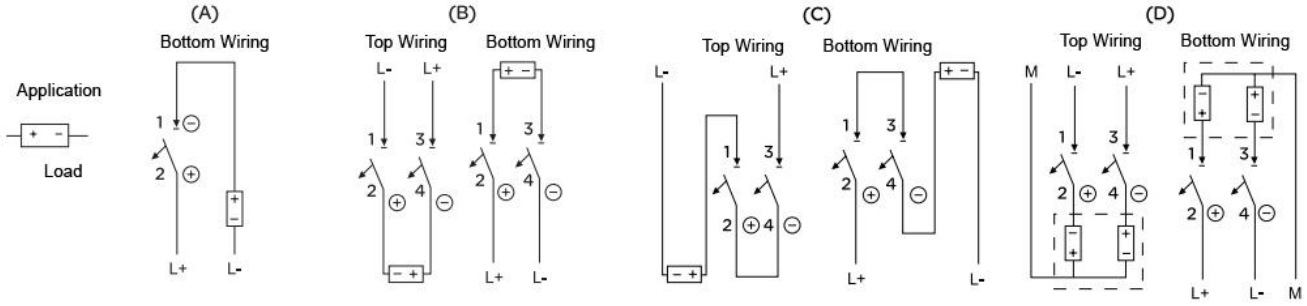

Fig. 4

Remarks:

1. L+: Positive Poles of Power, L-: Negative Poles of Power.
2. ⊕ : Positive Poles of MCB, ⊖ Negative Poles of MCB,
3 L- indicates to earth in DC system; M indicates in AC system

Unpacking inspection

After unpacking, the user must check whether the product is intact, whether there is any rust on the exposed metal parts, and whether there is any defect that may be caused by improper transportation or storage. Once any of the aforesaid phenomena is found, the product cannot be used, please contact the supplier in a timely manner to solve.

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