



智新 H8
INTELLIGENT NEW H8 SERIES

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H8ML

Earth Leakage Circuit Breaker



Application

H8ML series earth leakage circuit breaker (ELCB) is applied to the power system of AC 50Hz, rated voltage 400V and rated current up to 630A, for overload, short circuit protection. It also can be used to control infrequent motor operation.

The ELCB's electric leakage (residual current) protection function offers indirect protection for electric shock. It also can prevent the electrical fire caused by earthing fault current, which can not be detected by over current protection device.

The ELCB has adjustable ratings and protection operating time, so selective protection can be realized in power distribution system. With rated residual operating current setting up as 30mA, it can provide direct contact protection, even when relevant protection device doesn't work.

The product accords with the standard IEC 60947-2, IEC 755.

Pig 1

Code	Type	Explanation
A	A	N pole does not install over-current release and switch on all the time, not switch on/off with other three poles.
B	B	N pole does not install over-current release and switch on/off with other three poles.

Pig 2

Code	Type	Explanation
1	Time delay release	With protection characteristic of over current inverse time delay
2	Instantaneous release	Namely electromagnetic release, with protection characteristic of over current instantaneous operation
3	Duplex release	Both of the functions mentioned above

Pig 3

Frame size rated current In(A)	I		II		III		Note
	Code	Explanation	Code	Explanation	Code	Explanation	
100 250	0	None	0~1		0~1	Auxiliary contact group quantity	
	1	Shunt release					
400	0	None	0~3		0~2		II + III ≤ 5
	1	Shunt release	0~1		0~1		II + III ≤ 2
	2	Under voltage release	0~1		0~1		II + III ≤ 2
630	0	None	0~4		0~3		II + III ≤ 7
	1	Shunt release	0~2		0~2		II + III ≤ 4
	2	Under voltage release	0~2		0~2		II + III ≤ 4

Normal operation condition

1. Ambient temperature: -5°C~+45°C
2. Altitude: ≤2000m
3. Humidity: The air relative humidity under the highest temperature +40°C cannot surpass 50%; Under the lowest temperature has a higher relative humidity, the wettest month' average lowest temperature cannot surpass +25°C, and the average relative humidity cannot exceed 90%;
4. Pollution degree: class 3
- Mounted at places without explosive risk, without gases that may be corrosive to metal or gases that may cause damage to the insulation, and with little conducting dust
5. Mounting category: III
6. Breaker terminal "1.3.5.N1" shall connect to power supply; "2.4.6.N2" to load.
7. The breaker usually adopts vertical installation, with power supply terminal up, and load terminal down; horizontal installation is also available.

Main technical parameter

1.H8ML series ELCB

Pig 4

Frame size rated current In(A)	100			250			400			630			
Model	H8ML-100S	H8ML-100H	H8ML-100U	H8ML-250S	H8ML-250H	H8ML-250U	H8ML-400S	H8ML-400H	H8ML-400U	H8ML-630S	H8ML-630H	H8ML-630U	
Rated current In (A)	40, 50, 63, 80, 100			100, 125, 150, 160, 175, 200, 225, 250			250, 300, 350, 400			400, 500, 630			
Pole	3	4	3	3	4	3	3	4	3	3	4	3	
Rated insulating voltage Ui (V)	AC800 50Hz												
Rated operating voltage: Ue (V)	AC400 50Hz												
Flashover distance (mm)	≤50(0)*			≤50(0)*			≤100(0)*			≤100(0)*			
Rated impulse withstand voltage: Uimp kV	8												
Rated ultimate /service short circuit breaking capacity Icu/Ics (kA)	55/55	85/85	125/125	55/55	85/85	125/125	75/75	100/100	125/125	75/75	100/100	125/125	
Rated leakage operating current IΔn (mA)	non time delay 100, 300, 500 adjustable time delay (500, 800, 1000) adjustable												
Rated leakage non-operating current IΔno (mA)	1/2IΔn												
Rated leakage short circuit making and breaking capacity IΔm (kA)	1/4Icu												
Operating times	Electrify			3000			2500			2500			
	Non-electrify			7000			4000			2500			
Outline dimension (mm)	a	90	120	90	105	140	105	140	185	140	210	280	210
	b	155		216	165		240	257		297	275		322
	c	68			68			103		200	103		200

*Note: please give clear indication of zero flashover distance when place an order.

1. Leakage protection operating time

Non time delay type residual current protection operating time t

Pig 5

t(s)	Frame size current In(A)		100~630					
	I Δ n (mA)	I Δ n (mA)	30	100	300	500	800	1000
I Δ n			≤ 0.1	≤ 0.2				
0.25A			≤ 0.04					
2I Δ n				≤ 0.1				
5I Δ n				≤ 0.04				

Time delay type residual current protection operating time

Pig 6

t(s)	Frame size current In(A)		100~630		
	I Δ n (mA)	I Δ n (mA)	0.4	1	2
I Δ n			< 0.6	< 1.2	< 2.2
2I Δ n			> 0.2	> 0.5	> 1
5I Δ n			$0.2 \leq t < 0.44$	$0.5 \leq t < 1.04$	$1 \leq t < 2.04$

Note: "t" means the time delay setting value, operating time in 2I Δ n called ultimate non operating time.

Thermal and electromagnetic over-current release

1. Long time delay release setting current Ir1

The setting current Ir1 is the same as rated current In .

The neutral pole of four-poles circuit breaker does not installed with over-current release. The conventional thermal current is more than In/2 and 63A.

2. Breaker's power loss

Pig 7

Frame size rated current Inm (A)	Rated current In (A)	Resistance per pole (m Ω Ω)	Total powerloss of three poles (W)	
			Fixed type	Inserted type or drawble type
100	100	0.83	25	30
250	250	0.32	60	75
400	400	0.20	87	110
630	630	0.14	167	195

3. Over-current protection characteristic of circuit breaker for power distribution

Pig 8

Rated current In (A)	Thermal release (ambient temperature +40 $^{\circ}$ C)		Electromagnetic release operating current
	1.05In non operation time(h) cold state	1.30In operation time(h) heat state ≤ 1	
≤ 63	> 1	≤ 1	$(10 \pm 2)I_n$
> 63	> 2	≤ 2	

4. Over-current protection characteristic of circuit breaker for motor

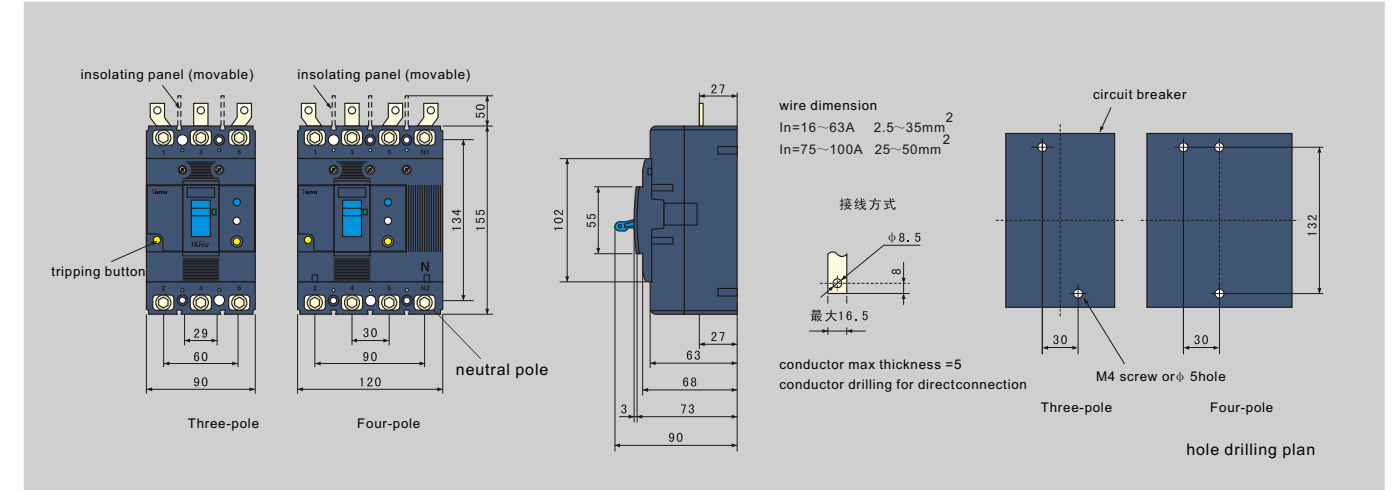
Pig 10

Rated current In (A)	Thermal release (ambient temperature +40 $^{\circ}$ C)				Electromagnetic release operating current
	1.0In non operation time(h) cold state	1.2In operation time(h) heat state	1.5In operation time(min) heat state	7.2In non operation time Tp(s) cold state	
$I_n \leq 63$	> 2	≤ 2	≤ 2	$2 < T_p \leq 10$	$(12 \pm 2.4)I_n$
$63 < I_n \leq 250$			≤ 4	$4 < T_p \leq 10$	
$250 < I_n \leq 800$			≤ 8	$6 < T_p \leq 20$	

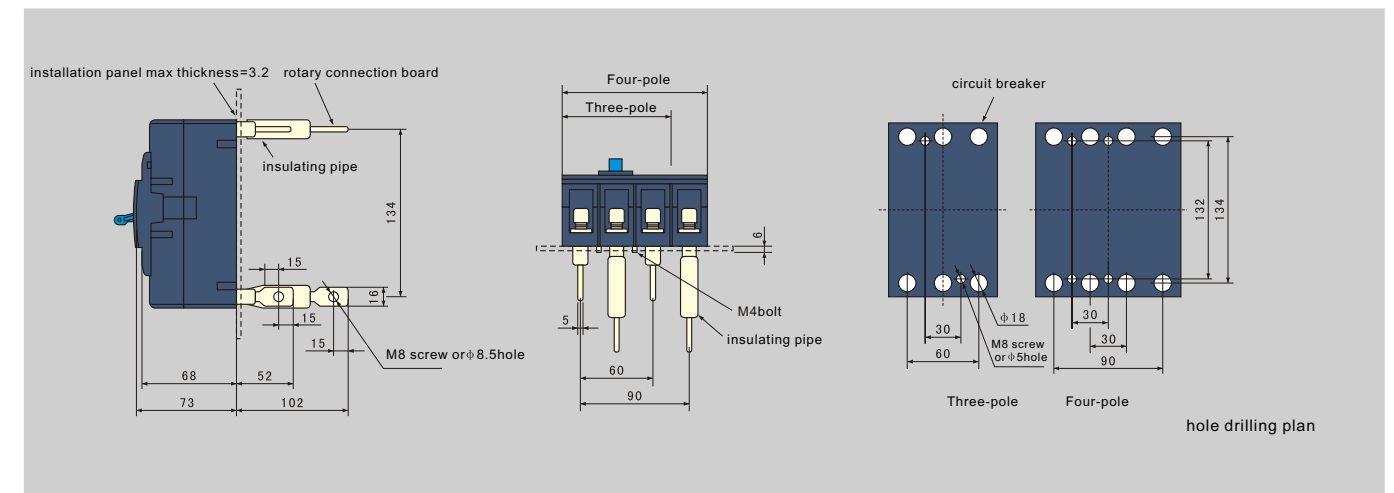
Overall and mounting size

1. H8ML-100S Overall and mounting size

Front plate connection



Rear plate connection



Inserted connection

