

ATH Series Terminal Distribution Product

ATH Series Miniature Circuit Breakers

Your brand of choice
<http://www.si-apt.com>

ATH Series Miniature Circuit Breakers

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WORRY-FREE ELECTRICITY WITH MAXIMUM SAFETY



RICITY AFETY



APT

ATH Series Miniature
Circuit Breakers

CCC ccc CE RoHS CB



苏州西门子电器有限公司上海分公司
(营销中心)



苏州西门子电器有限公司
(总公司)



苏州西门子电器有限公司天台分公司
(制造基地)

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ABOUT US

APT

Siemens Electrical Apparatus Ltd., Suzhou, Shanghai Branch

Brand history

Founded in 1993, acquired by Siemens in 2008 when becoming a wholly owned subsidiary of Siemens.

Main products

Pushbuttons, indicator lights, cam switches, relays, current transformers, tower lamps and other low-voltage products.



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- Capacity reduction for plateau
- Special environment usage
- Storage and transportation precautions

PRODUCT DETAILS

ATH series



Safety window

The window displays red or green to indicate ON/OFF status, for easy working condition recognition.



Operating handle

The ergonomic handle design provides more comfortable and convenient operation.



Dust-proof and finger-touch-proof

Dust-proof and finger-touch-proof design greatly reduces the risk of electric shock and ensures the electrical safety of the customers.



Sliding buckle

The sliding buckle design makes assembly and disassembly more efficient.



INDUSTRIAL APPLICATIONS



▲ Typical application: new energy/chemical industry



Escalator

Logistics

Machine tool



Workshop ◀

ATH Series Terminal Distribution Product is a brand new distribution product launched by APT after years of research on OEM customer applications and low-voltage electrical products. As the market develops and changes, OEM customers have become more flexible in their choice of low-voltage circuit breakers. However, they always require products with high standards of safety, reliability, convenient installation, and international quality.

ATH Series Terminal Distribution Product is a series of products specifically developed for OEM customers, covering the full current range for various application scenarios. The rich electrical accessories easily achieve function expansion, while high standards of production and manufacturing process control bring a brand-new user experience to OEM customers.

ATH Series Terminal Distribution Product boasts multiple product advantages, including energy efficiency, safety, high efficiency, and compactness. It includes RCBO as well as electrical accessories such as auxiliary/fault contacts.



ATH6 series MCB (miniature circuit breaker)

Order code description

Parameter	Breaking capacity (kA)		Tripping characteristic		Rated current (A)												Number of poles (P)				
	4.5	6	C	D	1	2	4	6	10	16	20	25	32	40	50	63	1	2	3	4	
Series	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ATH6-63	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

The symbol "*" represents an optional item


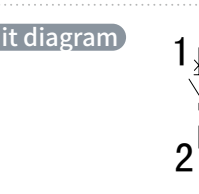


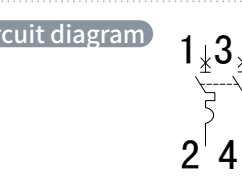
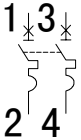
No.	ATH 6 - 63 N 1 C 16						
	1	2	3	4	5	6	7
1 series name	ATH : circuit breaker series						
2 product name	6 : MCB						
3 current rating of enclosure	63 : 63A						
4 breaking capacity	A : 4.5KA, N : 6KA						
5 Number of poles	1 : 1P, 2 : 2P, 3 : 3P, 4 : 4P						
6 Tripping characteristic (instantaneous)	C : 5In~10In, D : 10In~20In						
7 Rated operational current	1 : 1A, 2 : 2A, 4 : 4A, 6 : 6A, 10 : 10A, 16 : 16A, 20 : 20A, 25 : 25A, 32 : 32A, 40 : 40A, 50 : 50A, 63 : 63A						

Basic technical parameter

Type	Parameter
Rated current	1A/2A/4A/6A/10A/16A/20A/25A/32A/40A/50A/63A
Rated voltage	1P : 230VAC, 2P/3P/4P : 400VAC
Number of poles	1P, 2P, 3P, 4P
Breaking capacity	6KA
Tripping characteristic	C/D
Wiring terminal tighten torque	2.5 Nm max
Function	Short circuit, over load, disconnect
Wiring capacity	With wiring nose: Max. 16mm ² (flexible) / 25mm ² (hard) Without wiring nose: Max. 16mm ² (hard) 20,000 times
Mechanical endurance	10,000 times
Electrical endurance	10,000 times
Pollution degree	II
Altitude	2000m
Working temperature	Maximum operating temperature - 20°C ~ +55°C (- 5°C ~ +40°C , without capacity reduction) *
Storage temperature	-20°C ~ +60°C
Rated insulation voltage	690V
Rated surge withstand voltage	4KV
Accessory	AS/F C auxiliary / alarm contact
Standard	GB/T 10963.1, IEC 60898-1
Certification	CCC , CE , CB , CQC , RoHS
Degree of protection	IP20
Enclosure material	Thermoplastic
Entry manner	Top and bottom
Mounting	Modular structure, DIN mounting rail


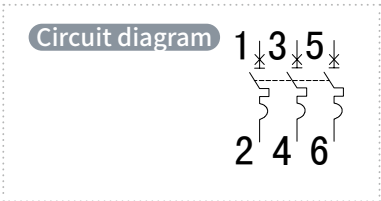

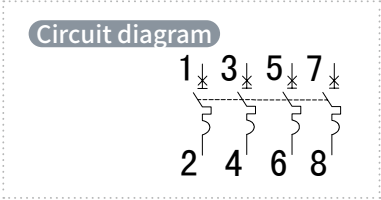
* Correction factors for other temperature conditions are specified in the attached temperature correction factor table.

Selection rules and ordering code for ATH6

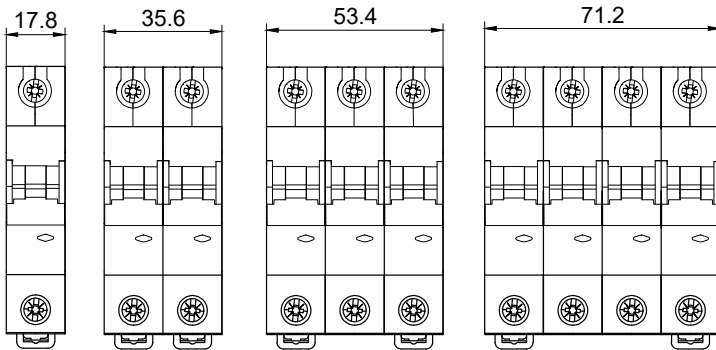
Appearance	product name	Enclosure rating	breaking capacity	Number of poles	Tripping type	Rated current	Product order code
	ATH6	63	N	1P	C	1	ATH6-63N1C1
			N			2	ATH6-63N1C2
			N			4	ATH6-63N1C4
			N			6	ATH6-63N1C6
			N			10	ATH6-63N1C10
			N			16	ATH6-63N1C16
			N			20	ATH6-63N1C20
			N			25	ATH6-63N1C25
			N			32	ATH6-63N1C32
			N			40	ATH6-63N1C40
			N			50	ATH6-63N1C50
			N			63	ATH6-63N1C63
			A			50	ATH6-63A1C50
			A			63	ATH6-63A1C63
 <p>Circuit diagram</p> 	ATH6	63	N	1P	D	1	ATH6-63N1D1
			N			2	ATH6-63N1D2
			N			4	ATH6-63N1D4
			N			6	ATH6-63N1D6
			N			10	ATH6-63N1D10
			N			16	ATH6-63N1D16
			N			20	ATH6-63N1D20
			N			25	ATH6-63N1D25
			N			32	ATH6-63N1D32
			N			40	ATH6-63N1D40
			N			50	ATH6-63N1D50
			N			63	ATH6-63N1D63
			A			50	ATH6-63A1D50
			A			63	ATH6-63A1D63
	ATH6	63	N	2P	C	1	ATH6-63N2C1
			N			2	ATH6-63N2C2
			N			4	ATH6-63N2C4
			N			6	ATH6-63N2C6
			N			10	ATH6-63N2C10
			N			16	ATH6-63N2C16
			N			20	ATH6-63N2C20
			N			25	ATH6-63N2C25
			N			32	ATH6-63N2C32
			N			40	ATH6-63N2C40
			N			50	ATH6-63N2C50
			N			63	ATH6-63N2C63
			A			50	ATH6-63A2C50
			A			63	ATH6-63A2C63
 <p>Circuit diagram</p> 	ATH6	63	N	2P	D	1	ATH6-63N2D1
			N			2	ATH6-63N2D2
			N			4	ATH6-63N2D4
			N			6	ATH6-63N2D6
			N			10	ATH6-63N2D10
			N			16	ATH6-63N2D16
			N			20	ATH6-63N2D20
			N			25	ATH6-63N2D25
			N			32	ATH6-63N2D32
			N			40	ATH6-63N2D40
			N			50	ATH6-63N2D50
			N			63	ATH6-63N2D63
			A			50	ATH6-63A2D50
			A			63	ATH6-63A2D63

ATH6 Series MCB (miniature circuit breaker)

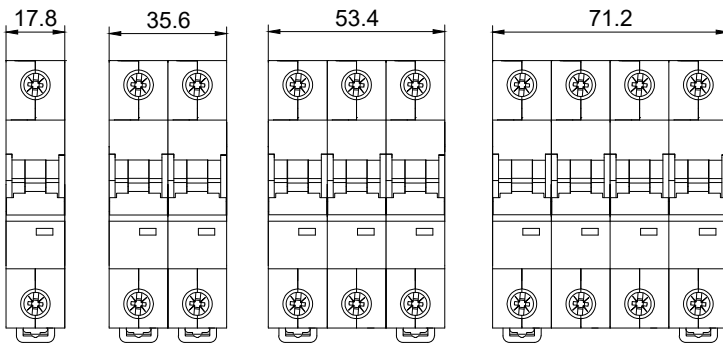
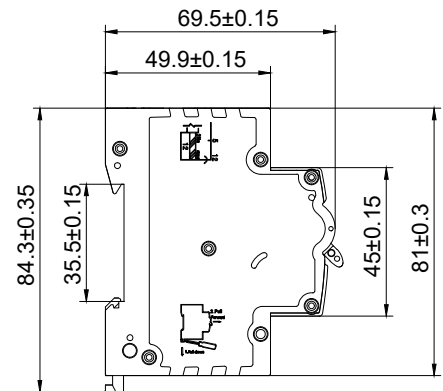
Selection rules and ordering code for ATH6

Appearance	product name	Enclosure rating	breaking capacity	Number of poles	Tripping type	Rated current	Product order code					
	ATH6	63	N	3P	C	1	ATH6-63N3C1					
			N			2	ATH6-63N3C2					
			N			4	ATH6-63N3C4					
			N			6	ATH6-63N3C6					
			N			10	ATH6-63N3C10					
			N			16	ATH6-63N3C16					
			N			20	ATH6-63N3C20					
			N			25	ATH6-63N3C25					
			N			32	ATH6-63N3C32					
			N			40	ATH6-63N3C40					
			N			50	ATH6-63N3C50					
			N			63	ATH6-63N3C63					
			A			50	ATH6-63A3C50					
			A			63	ATH6-63A3C63					
			 <p>Circuit diagram</p>			ATH6	63	N	3P	D	1	ATH6-63N3D1
								N			2	ATH6-63N3D2
								N			4	ATH6-63N3D4
								N			6	ATH6-63N3D6
								N			10	ATH6-63N3D10
N	16	ATH6-63N3D16										
N	20	ATH6-63N3D20										
N	25	ATH6-63N3D25										
N	32	ATH6-63N3D32										
N	40	ATH6-63N3D40										
N	50	ATH6-63N3D50										
N	63	ATH6-63N3D63										
A	50	ATH6-63A3D50										
A	63	ATH6-63A3D63										
	ATH6	63		N	4P			C			1	ATH6-63N4C1
				N							2	ATH6-63N4C2
				N							4	ATH6-63N4C4
				N							6	ATH6-63N4C6
				N							10	ATH6-63N4C10
			N	16		ATH6-63N4C16						
			N	20		ATH6-63N4C20						
			N	25		ATH6-63N4C25						
			N	32		ATH6-63N4C32						
			N	40		ATH6-63N4C40						
			N	50		ATH6-63N4C50						
			N	63		ATH6-63N4C63						
			A	50		ATH6-63A4C50						
			A	63		ATH6-63A4C63						
			 <p>Circuit diagram</p>	ATH6		63	N		4P	D	1	ATH6-63N4D1
							N				2	ATH6-63N4D2
							N				4	ATH6-63N4D4
							N				6	ATH6-63N4D6
							N				10	ATH6-63N4D10
N	16	ATH6-63N4D16										
N	20	ATH6-63N4D20										
N	25	ATH6-63N4D25										
N	32	ATH6-63N4D32										
N	40	ATH6-63N4D40										
N	50	ATH6-63N4D50										
N	63	ATH6-63N4D63										
A	50	ATH6-63A4D50										
A	63	ATH6-63A4D63										

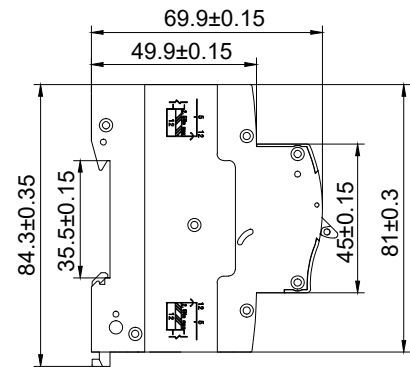
ATH6 series MCB Dimensional drawings



ATH6-63 1P-4P 6KA (C/D curve 1-40A);
4.5KA (C/D curve 50-63A)



ATH6-63 1P-4P 6KA (C/D curve 50-63A)



ATH8 series

RCBO (residual current operated circuit breaker)

Order code description

Parameter	Type	Number of poles (P)	Trip characteristics		Breaking capacity (kA)	Protection type	Rated residual operating current (mA)	Rated current (A)									
			C	D				6	10	16	20	25	32	40	50	63	
Series	Electronic	1P+N	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ATH8-63	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ATH8-63	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

The symbol "*" represents an optional item


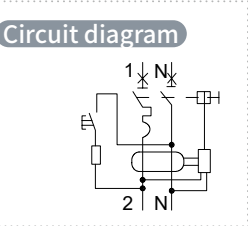
No.	ATH 8 - 63 N 5 C 6 030 AC
	1 2 3 4 5 6 7 8 9
1 series name	ATH : circuit breaker series
2 product name	8 : RCBO
3 current rating of enclosure	63 : 63A
4 breaking capacity	N : 6KA
5 Number of poles	5 : 1P+N
6 Tripping characteristic (instantaneous)	C : 5In~10In D : 10In~20In
7 Rated operational current	6 : 6A, 10 : 10A, 16 : 16A, 20 : 20A, 25 : 25A, 32 : 32A, 40 : 40A, 50 : 50A, 63 : 63A
8 rated residual operating current	030 : 30mA
9 leakage protection type	AC : AC leakage protection

Technical specifications

Type	Parameter
Rated current	6A/10A/16A/20A/25A/32A/40A/50A/63A
Rated voltage	AC230V
Number of poles	1P+N (36mm)
Breaking capacity	6KA
Tripping characteristic	C/D
Leakage protection type	AC
ELE/ELM	ELE (electronic)
Wiring capacity	With wiring nose: Max. 16mm ² (flexible) /25mm ² (hard) Without wiring nose: Max. 16mm ² (hard)
Protection capacity	Leakage protection, overload protection, short circuit protection
Mechanical endurance	20,000 times
Electrical endurance	10000 times
Pollution degree	II
Altitude	2000m
Working temperature	Maximum operating temperature - 20°C ~ +55°C (- 5°C ~ +40°C , without capacity reduction) *
Storage temperature	-20°C ~ +60°C
Rated insulation voltage	500V
Rated surge withstand voltage	4KV
Certification	CCC , CE , CB , CQC , RoHS
Standard	GB/T16917.1, IEC 61009-1
Degree of protection	IP20
Enclosure material	Thermoplastic
Entry manner	Top and bottom
Mounting	Modular structure, DIN rail mountable

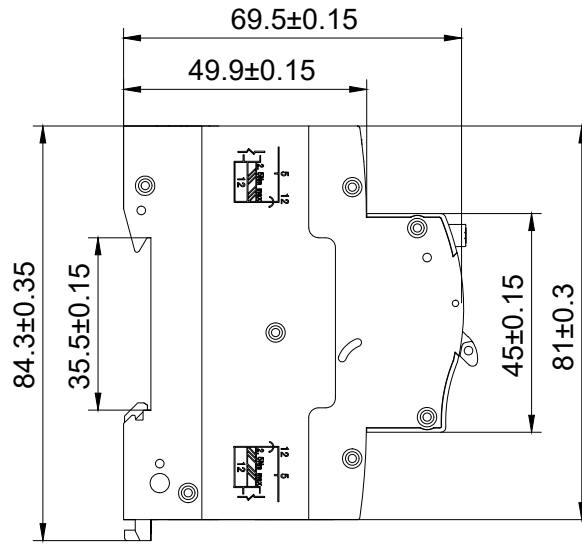
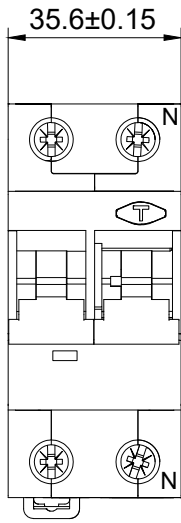
* Correction factors for other temperature conditions are specified in the attached temperature correction factor table.

Selection rules and ordering code for ATH8

Appearance	product name	Enclosure rating	breaking capacity	Number of poles	Tripping type	Rated current	Residual current	Protection type	Product order code	
	ATH8	63	N	1P+N	C	6	30	AC	ATH8-63N5C6030AC	
						10			ATH8-63N5C10030AC	
						16			ATH8-63N5C16030AC	
						20			ATH8-63N5C20030AC	
						25			ATH8-63N5C25030AC	
						32			ATH8-63N5C32030AC	
						40			ATH8-63N5C40030AC	
						50			ATH8-63N5C50030AC	
	63	ATH8-63N5C63030AC								
		ATH8	63	N	1P+N	D	6	30	AC	ATH8-63N5D6030AC
							10			ATH8-63N5D10030AC
							16			ATH8-63N5D16030AC
							20			ATH8-63N5D20030AC
							25			ATH8-63N5D25030AC
							32			ATH8-63N5D32030AC
							40			ATH8-63N5D40030AC
50							ATH8-63N5D50030AC			
63	ATH8-63N5D63030AC									

ATH8 series RCBO

Dimensional drawings



ATH6 series MCB Accessory

Order code description

No.	ATH <u>6</u> - <u>63</u> AS/FC <u>11</u> NA 1 2 3 4 5 6
1 series name	ATH: circuit breaker series
2 product name	6 : MCB
3 current rating of enclosure	63 : 63A
4 accessory type	AS/FC: alarm (auxiliary) integrated contact
5 contact type	11 : 1NO+1NC
6 applicable scope	NA: 6KA (C/D curve 1-40A) or 4.5KA (C/D curve 50-63A) HA: 6KA (C/D curve 50-63A)

Technical specifications

Type	Parameter
Contact function	AS auxiliary contact /1NO+1NC FC alarm contact /1NO+1NC
Rated voltage	240 V
Frequency	50/60 Hz
Rated current	4A
Rated thermal current	6A
Rated operational current	(AC-12) 4A/240V AC (AC-14) 2A/240V AC (DC-12) 0.5A/110V DC
Rated insulation voltage	250 V AC
Rated surge withstand voltage	2.5 kV
Conditional short circuit current	1kA (with 6A backup fuse) maximum backup fuse, over load and short circuit 4 A gL
Terminal wiring capacity	0.5-2.5 mm ²
Wiring screw	M3
Screw tightening torque	Maximum 0.8 - 1.0 Nm
Mechanical electrical endurance	6050 times
Pollution degree	2
Altitude	2000m
Working temperature	-5~+40 °C
Storage temperature	-20~+60°C
Degree of protection	IP20
Enclosure material	Thermoplastic
Certification	CCC
Standard	GB/T 14048.5

ATH6 series MCB

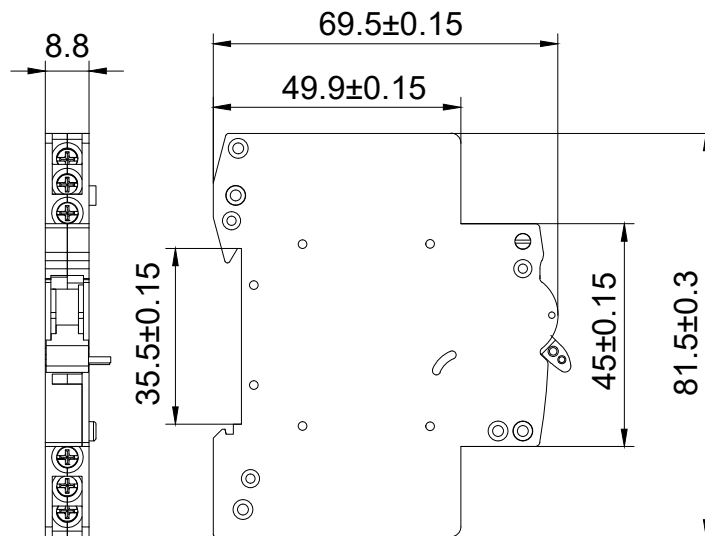
Accessory

Selection rules and ordering code for ATH6 series MCB accessory

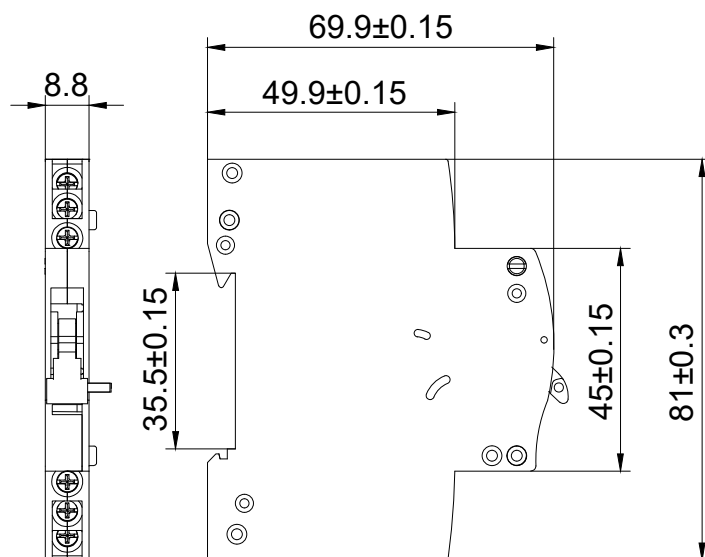
Appearance	product name	Enclosure rating	Accessory type	Contact type	Applicable type	Product order code
	ATH6	63	AS/FC	11	NA	ATH6-63AS/FC11NA
	ATH6	63	AS/FC	11	HA	ATH6-63AS/FC11HA

ATH6 series MCB

Dimensional drawings of accessory



ATH6-63 1P-4P 6KA (C/D curve 1-40A);
4.5KA (C/D curve 50-63A)



ATH6-63 1P-4P 6KA (C/D curve 50-63A)

ATH6 series MCB

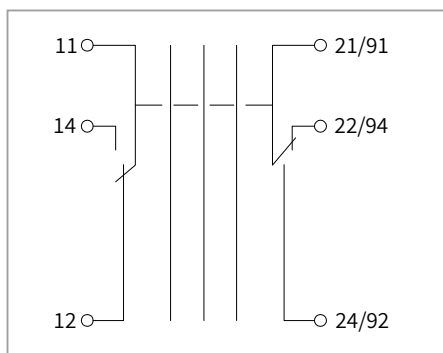
Accessory

Operating characteristics of alarm (auxiliary) contact for ATH6 series accessory

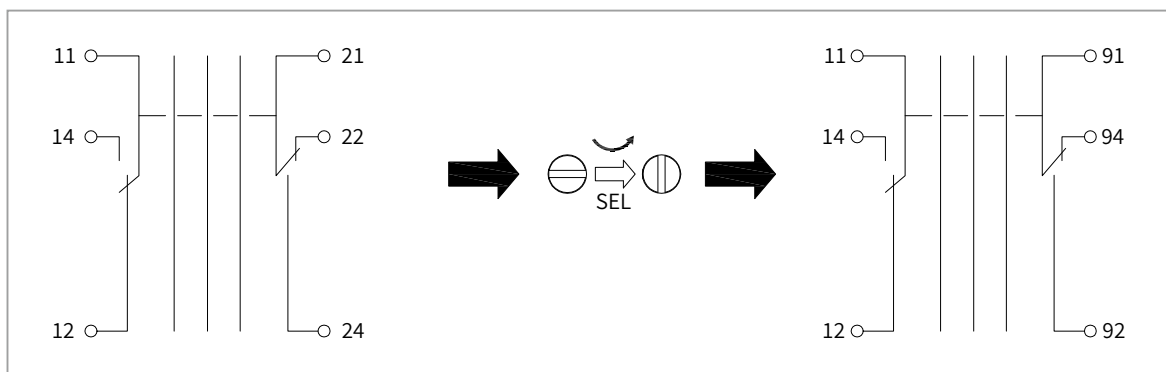
Alarm (auxiliary) contact is usually composed of one set of alarm contacts 91, 92 and 94 and one set of auxiliary alarm contacts. The wiring principle is shown in Figure 1.

Operating characteristics

- 1) When the alarm (auxiliary) contact is normally closed or open, terminals 91 and 92 are normally closed while terminals 91 and 94 are normally open. After the alarm (auxiliary) contact is closed, if the assembled circuit breaker trips due to a fault, terminals 91 and 92 will open while terminals 91 and 94 will be closed. Once the fault is resolved and the ST switch is turned on, the terminals will return to their normal state, with terminals 91 and 92 being normally closed and terminals 91 and 94 being normally open.
- 2) When the alarm (auxiliary) contact is opened, auxiliary contacts 11 and 12 are normally closed while terminals 11 and 14 are normally open. When the alarm auxiliary contacts are closed, auxiliary contacts 11 and 14 will be connected while contacts 11 and 12 will be disconnected. The connection and disconnection of contacts 11, 12 and 14 are synchronized with the opening and closing of the circuit breaker.
- 3) When rotating the knob of the product (see Figure 2), use a flathead screwdriver to turn the knob to the horizontal position. This will cause ST to lose its alarm function and switch to two groups of auxiliary contacts. The first is composed of the original auxiliary contacts 11, 12, and 14, where contacts 11 and 12 are normally closed and contacts 11 and 14 are normally open. The second group is contacts 21, 22, and 24, where contacts 21 and 22 are normally closed and contacts 21 and 24 are normally open. The opening and closing of the auxiliary contacts are synchronized with the circuit breaker. When it is in the open state, the auxiliary contacts 11, 12; 21, 22 are normally closed, while contacts 11, 14; 21, 24 are normally open. When it is in the closed state, contacts 11, 14; 21, 24 are connected while contacts 11, 12; 21, 22 are disconnected.

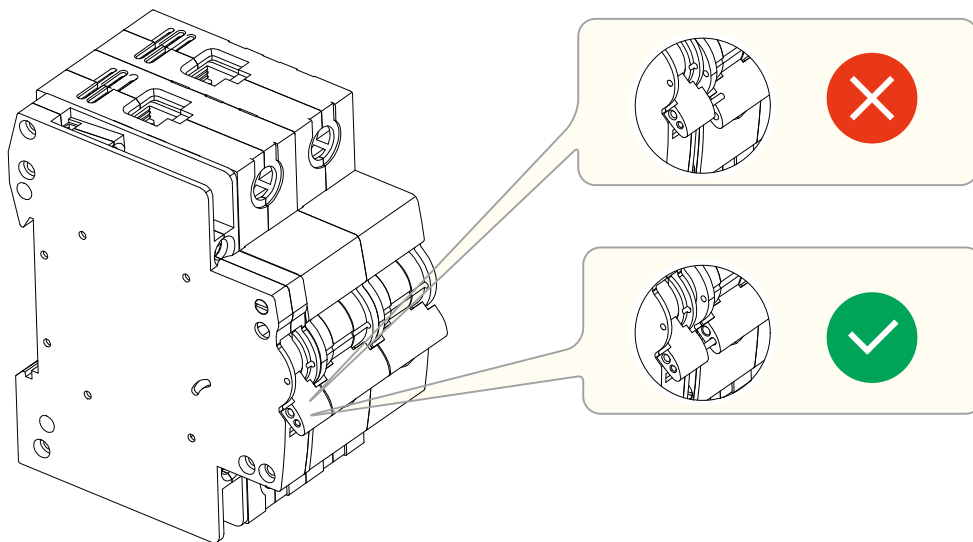


◁ Figure 1



△ Figure 2

Installation diagram for ATH6 series accessory



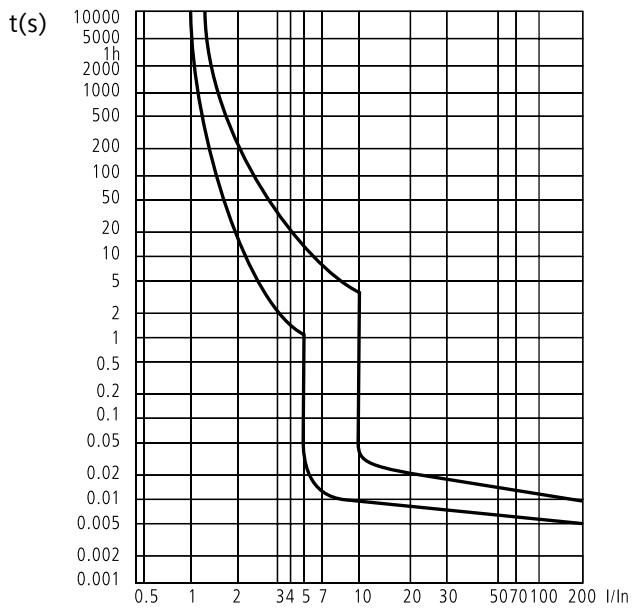
- ▶ When installing the AS/FC auxiliary (alarm) contacts for ATH6 series miniature circuit breakers, align the push rod of the accessory with the slot hole in the circuit breaker handle for installation.
Please pay attention to the installation position of the push rod when installing!

Annex

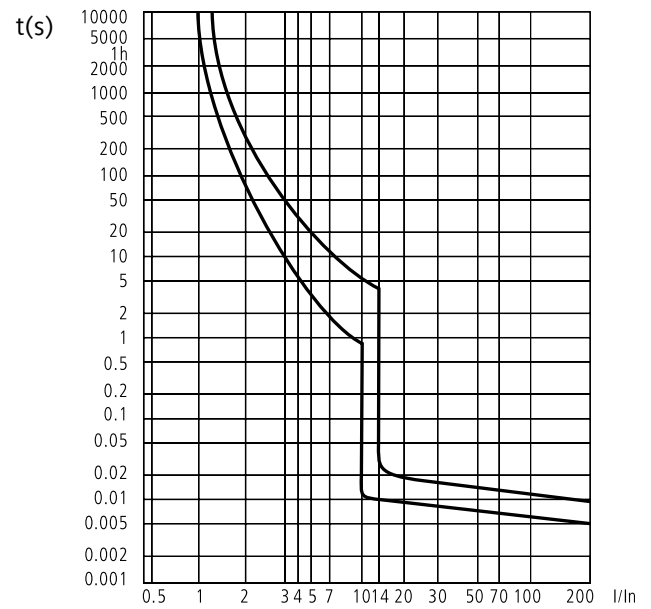
Tripping characteristic

Product series: ATH series miniature circuit breakers

脱扣曲线	C,D
额定电压	Un=230/400Vac
基准温度	30°C



Type C



Type D

Special environment usage

Capacity reduction for corrosive environment usage

The application of OEM equipment is different from that of ordinary building or industrial power distribution. It may often need to be used in environments with certain corrosiveness.

Corrosive environments often affect the internal metal components of circuit breakers, especially copper and silver:

- Cl
- NO₂
- H₂S
- SO₂

Impact of corrosive environment on copper:

- The thickness of copper sulfide coating in a chlorine environment will be twice as thick as that in a normal environment.
- In the presence of NO₂, the situation is similar to this.

Impact of corrosive environment on silver:

- When silver contacts or silver-plated contacts are used in SO₂ and H₂S environments, the contact surface will become dark and form a silver sulfide coating, resulting in an increase in contact temperature and potential damage to the contacts. In a humid environment where chlorine and hydrogen sulfide coexist, the thickness of the coating will increase by 7 times. If H₂S and NO₂ are present simultaneously, the thickness of the silver sulfide coating will increase by 20 times.

Rules for selection of type:

- In the oil refining, steelmaking, papermaking and man-made fiber (nylon) industries, as well as in general sulfur-utilizing factories, equipment is prone to sulfidation, also known as oxidation in the chemical industry.



- Installing equipment in a machine room pit does not guarantee its immunity to oxidation. In order to maintain a slightly higher air pressure in the machine room than the atmospheric pressure, the air inlet is generally short. This can indeed alleviate external pollution to some extent. However, after 5 to 6 years of operation, equipment will inevitably undergo rusting.
- Equipment oxidation is inevitable. Therefore, in factories with corrosive gas environments, equipment should be operated at a reduced capacity, with a reduction factor of 0.6 (maximum 0.8) applied to the rated value. This method can prevent accelerated oxidation due to temperature increase.

Annex

Capacity reduction for plateau

The excellent material selection and electrical performance of the ATH series miniature circuit breakers make them suitable for use in plateau environments. Low-voltage electrical equipment used in plateau environments must comply with GB/T20645-2006 Specific environmental condition - Technical requirements of low-voltage apparatuses for plateau.

Relevant tests are conducted to determine electrical parameters or correction factors at different altitudes.

The following table shows the electrical parameters or correction factors of the ATH series circuit breakers at different altitudes.

Correction factors (K) for use in plateau

Altitude (m)	2000	3000	4000	5000
Rated current	1	0.93	0.86	0.82
Insulation voltage	1	0.86	0.78	0.72
Power frequency withstand voltage	1	0.86	0.78	0.72
Impulse withstand voltage	1	0.86	0.78	0.72
Rated breaking	1	0.83	0.73	0.63
Breaking capacity	1	0.83	0.73	0.63
Electrical endurance	1	0.83	0.73	0.63

Example: Protection of systems with short-circuit current of 4KA and load current of 40A at an altitude of 4,000 meters :

$I_e=40/0.91=44A$ $I_c=4000/0.78=5128A$, ATH6-C50 product can be used

Table of temperature compensation factors

Product series: ATH series miniature circuit breakers

Trip curve	C,D
Rated voltage	Un=230/400V AC
Reference temperature	30°C

The compensation factors for overload tripping currents at different ambient temperatures. The rated value of the equipment should not be exceeded under normal operating conditions.

Rated value Current (A)	Temp°C																
	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55
1A	1.35	1.33	1.29	1.27	1.24	1.20	1.17	1.14	1.11	1.08	1.04	1.00	0.97	0.95	0.94	0.91	0.88
2A	1.27	1.24	1.23	1.20	1.18	1.16	1.14	1.1	1.08	1.06	1.03	1.00	0.96	0.94	0.92	0.88	0.86
4A	1.27	1.24	1.23	1.20	1.18	1.16	1.14	1.1	1.08	1.06	1.03	1.00	0.96	0.94	0.92	0.88	0.86
6A	1.25	1.23	1.20	1.18	1.16	1.14	1.12	1.10	1.07	1.05	1.03	1.00	0.98	0.95	0.92	0.90	0.87
10A	1.34	1.31	1.28	1.25	1.23	1.20	1.17	1.13	1.10	1.07	1.04	1.00	0.96	0.93	0.89	0.85	0.80
16A	1.26	1.24	1.21	1.19	1.17	1.15	1.12	1.10	1.08	1.05	1.03	1.00	0.97	0.95	0.92	0.89	0.86
20A	1.25	1.22	1.20	1.18	1.16	1.14	1.12	1.10	1.07	1.05	1.02	1.00	0.97	0.95	0.92	0.89	0.87
25A	1.25	1.23	1.21	1.19	1.16	1.14	1.12	1.10	1.07	1.05	1.03	1.00	0.97	0.95	0.92	0.89	0.86
32A	1.25	1.22	1.20	1.18	1.16	1.14	1.12	1.10	1.07	1.05	1.02	1.00	0.97	0.95	0.92	0.89	0.87
40A	1.25	1.23	1.21	1.19	1.17	1.14	1.12	1.10	1.07	1.05	1.03	1.00	0.97	0.95	0.92	0.89	0.86
50A	1.26	1.24	1.22	1.19	1.17	1.15	1.13	1.10	1.08	1.05	1.03	1.00	0.97	0.95	0.92	0.89	0.86
63A	1.28	1.26	1.23	1.21	1.19	1.16	1.14	1.11	1.08	1.06	1.03	1.00	0.97	0.94	0.91	0.88	0.84

Storage and transportation precautions

Storage of miniature circuit breaker products

If miniature circuit breakers and accessory products are stored for a long time (including storage in warehouses and on construction sites), failure to control the storage environment can cause corrosion and rust damage to the internal or external metal and coating parts of the products. Therefore, attention should be paid to the storage of products:

- 1) The products need to be stored in a dry environment at room temperature between 20° C and 25° C, with a relative humidity of 20% to 30%. For environments with high humidity, necessary sealing control is required.
- 2) Do not store the product together with acidic, volatile liquids or acidic gases, nor in environments with excessive dust.
- 3) The product should not be stored for long periods in environments with high temperature and humidity or extremely low temperatures. It should be used with normal power supply as soon as possible.
- 4) It is recommended not to connect wires to the input and output terminals of the product before normal power supply to prevent battery effect and corrosion at the connection terminals due to pre-wiring after prolonged storage.
- 5) For special storage environment, it is necessary to inform the manufacturer and follow their recommendations for proper handling. For example, environments with high temperature and humidity, islands near the equator, and polar regions with extremely low temperatures.



