

Miniature circuit breaker (MCB)

Electrical installation solutions for buildings

New, patented bidirectional terminal with captive screws for maximum comfort, safety and flexibility. The connection takes place in two chambers (35 mm² and 10 mm²). Two conductors with the same cross-section can be connected in each chamber.

Reliable recognition of the switching status through the new red/green position indicating device that shows the position of the inner contacts.

Laser printing for scratch- and solvent-resistant identification marking



Pole conductor indicator changes when the contact is moved to the rear of the device

Tripping characteristics B, C, D, K, UCC and UCZ.

Rated breaking capacity of 6 kA to 10 kA according to IEC/EN 60898-1 (B, C, D) and 6 kA to 25 kA according to IEC/EN 60947-2 (C and K)

For S400P

2...16 A, AC 240/415 V: 40 kA
20...40 A, AC 240/415 V: 30 kA
50...63 A, AC 240/415 V: 20 kA
according to IEC/EN 60947-2

Miniature circuit breaker (MCB) Properties



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General Information

The SMISLINE miniature circuit-breaker is an energy-restricting circuit-breaker that has high performance values and that is equally suitable for the industrial sector, for commercial use and for installation at home.

If a short-circuit occurs, it guarantees excellent selectivity conditions to upstream overcurrent circuit breakers while the load on equipment that is connected downstream is limited to a minimum amount.

The most important features

- High rated breaking capacity of 6 kA and 10 kA acc. IEC/EN60989-1 and 25 kA, 30 kA and 40 kA acc. IEC/EN 60947-2
- Optimum ease of installation and connection
- The pole conductors are protected against accidental contact
- Tripping characteristic on B, C, D, K, UCZ/UCC

Miniature circuit-breaker in accordance with standard EN 60898-1

This standard is for electrical installation material for household installations and for similar purposes. It regulates the use of miniature circuit-breakers by the layman up to a maximum of 125 A, a voltage of 440 VAC and up to a maximum of 25 kA.

Miniature circuit-breaker in accordance with standard EN60947-2

This standard is for low-voltage material used for industrial purposes. It regulates the use of circuit-breakers (and not miniature circuit-breakers) by qualified personnel up to a maximum voltage of 1000 VAC or 1500 VDC. This standard does not recognise any maximum values when it comes to current and breaking capacity. In practice, the standard is also applied to miniature circuit-breakers.

Miniature Circuit Breaker SUP400 for branch circuit protection acc. to UL 489 File E312425

The miniature circuit breaker SUP400 is ABB's solution for UL 489 branch circuit protection up to 480 Y/277 V AC. This circuit breaker is an all-round device applications for universal use in North American and global markets due to its approvals according standards UL489.

Brief description of tripping

The SMISLINE miniature circuit breakers have a current-limiting operation. They have two different releases acting on the mechanism.

1. Thermal release, operating with a time delay, for overload protection
2. Electro-magnetic release plunger operated for short-circuit protection.

They offer: – high short-circuit breaking capacity
– high selectivity to the back-up fuse
– In the event of short-circuits, low electrodynamic and heating effects on the cable and the point of fault location due to the drastically limited let through energy $\int i^2 dt$.



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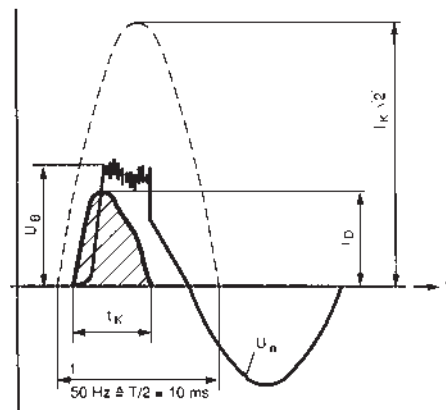


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Oscillogram of a short-circuit current interruption



- $I_k \cdot \sqrt{2}$ = peak value of prospective short-circuit current
- i_0 = Max. peak let through current of circuit breaker S 400
- U_n = Supply voltage
- U_a = Arc voltage of circuit breaker
- t_k = Total interruption time

Miniature circuit breaker (MCB) for IEC

S400M technical features

When installed correctly the requirements of EN/IEC 61439-2 are met.

S400M	
General data	
Tripping characteristics	B,C,D,K
Poles	1P, 1P+NP, 2P, 3P, 3P+NP
Rated current I_n	0.5A... 63A
Rated frequency f	50/60Hz
Rated insulation voltage U_i acc. to DIN EN 60664-1	440VAC
Rated impulse withstand voltage U_{imp} . (1.2/50 μ s)	4kV
Overvoltage category	III
Pollution degree	3
Data acc. to IEC/EN 60898-1	
Rated operational voltage U_e	1P: 230/400VAC; 1P+NP: 230VAC ; 2...3P: 400VAC; 3P+NP: 400VAC; 1P 60VDC; 2P 125VDC
Min. operating voltage	12VAC
Rated short-circuit capacity I_{cn}	10kA
Energy limiting class	3
Reference Ambient Air Temperature for Overload Tripping	B, C, D: 30°C
Data acc. to IEC/EN 60947-2	
Rated operational voltage U_e	1P: 240VAC; 1P+N: 240VAC; 2... 4P: 415VAC; 3P+N: 415VAC; 254/440V
Min. operating voltage	12V AC-12V DC
Rated ultimate short-circuit capacity I_{cu}	25kA (0,5 up to 16A, 240/415V); 0,5 to 2A 50kA on request 15kA (20 up to 63A, 240/415V) 15kA (0,5 up to 16A, 254/440V) 6kA (20 up to 63A, 254/440V)
Rated service short-circuit capacity I_{cs}	15kA (0,5 up to 16A, 240/415V) 7,5kA (20 up to 63A, 240/415V) 6kA (0,5 up to 16A, 254/440V) 3kA (20 up to 63A, 254/440V)
Reference Ambient Air Temperature for Overload Tripping	C: 30°C K: 40°C
Mechanical Data	
Classification acc. To NF F 126-101, NF F 16-102	Acc. to I2/F3
IP Code	IP20, IP40 in enclosure with cover
Endurance	Electrical endurance: 10000ops Mechanical endurance: 10000ops
Shock resistance acc. to IEC/EN 61373	5g – 30ms, 3 shocks
Vibration resistance acc. to IEC/EN 60068-2-6	2...13,2Hz / 1mm 13,2...100Hz / 0,7g, 5 cycles 5...150...5Hz / 1g, 4 waves
Ambient temperature	-25... +60°C
Storage temperature	-40... +70°C
Installation	
Terminal type	Failsafe bi-directional cylinder-lift terminal (shock protected)
Terminal rigid IEC connections (solid/stranded)	Single: 0.75 ... 35mm ² (front slot), 0.75 ... 10mm ² (rear slot) Multiple: 2x0.75 ... 10mm ² (front slot), 2x0.75 ... 6mm ² (rear slot), with cables of same type and size
Terminal flexible IEC connections	Single: 0.75 ... 25mm ² (front side), 0.75 ... 6mm ² (rear slot) Multiple: 2x0.75 ... 10mm ² (front slot), 2x0.75 ... 6mm ² (rear slot), with cables of same type and size
Tightening torque	2.8Nm
Screwdriver	No. 2 Pozidrive
Mounting	Plug in on bus bar system SMISLINE
Mounting position	Any
Supply	Any
Dimensions and weight	
Pole dimensions (HxDxW)	91x18x82
Pole weight	110g

Summary

A brief overview and more useful information

S 400 M-B characteristic (with protected neutral)

Standard: IEC/EN 60898-1,

I_{cn}=10 kA

S 400 M-C characteristic (with protected neutral)

Standard: IEC/EN 60898-1, IEC/EN 60947-2

I_{cn}=10 kA, I_{cu}= 15...25 kA

S 400 M-D characteristic (with protected neutral)

Standard: IEC/EN 60898-1

I_{cn}=10 kA

S 400 M-K characteristic (with protected neutral)

Standard: IEC/EN 60947-2

I_{cu}=15...25 k

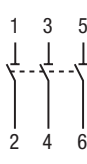
S 401



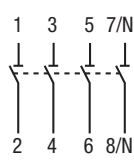
S 402



S 403



S 403 NP



Order Codes

A brief overview and more useful information

The link provided here will redirect you to the **detailed product catalog**, where you can find more **information about the products and the order codes**.

<https://library.e.abb.com/public/0eb24d9b4a824dbab571106fb879ae53/9AKK107492A6192.pdf>