

Overview

General

Betagard 5SL4 range of MCBs have rated breaking capacity of 10kA. They comply to the latest national and international standards, with current ratings from 0.5A to 63A.

Short circuit operation

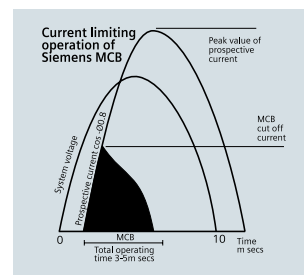
At high values of overcurrent (i.e. short circuit current) a plunger in the solenoid is moved with sufficient force to physically separate the contacts. The greater the short circuit current, the greater the force with which the plunger is moved and faster the circuit is disconnected. A secondary action will ensure that the circuit breaker mechanism is tripped and prevents the contacts from reclosing. It is the rapid speed with which the contacts are forced apart coupled with other features of MCBs, which provides the Current limiting capability and safe interruption up to 10,000A.

The rapid speed at which the contacts are parted prevents the fault current from reaching its prospective value. The arc drawn between the contacts is moved by magnetic forces into the multiple plate arc chamber where the arc is split, rapidly cooled and extinguished. The total operating time of the MCB is between 3 to 5 milliseconds. The energy let through (I^2t) of the device is kept to a minimum thus offering a very high degree of protection.

Current limiting class 3

5SL4 type MCBs significantly limit the let-through current

(when a fault occurs) due to the ultra – fast contact separation and the quick quenching of the emergency arc in the chamber. Thus, generally, they fall below the permissible limiting I^2t values of the energy limiting class 3, specified in DIN VDE 0641 Part II by 50%. This guarantees excellent discrimination with the upstream protective devices and reduces the thermal stress on the downstream connected equipments. Chart indicates the let through energy values of 10kA, 16A MCB according to EN 60898.



This MCB (16Amps) will allow only 50% of 84,000 (A^2S) let-through energy thereby reducing thermal stress to bare minimum value on the downstream equipment.

As these MCBs meet the requirements of current limiting class 3, according to EN 60898 without difficulty, they are therefore marked with symbol



Rated Current	Current Limiting Class according to EN 60898		
	1	2	3
16 A	Permissible let-through I^2t (A^2S)		
	No limit	2,90,000	84,000

Technical Specifications

				Betagard 5SL4
Standards				IS/IEC 60898-1 :2002
Tripping characteristic				C
Number of poles				1P, 2P, 3P, 4P
Rated voltage		V AC		240/415
Operational voltage	min.	V AC/DC		24
	max.	V DC/pole		60 ¹⁾
	max.	V AC		440
Rated breaking capacity	acc. to IS/IEC 60898-1	kA AC		10
Current Rating		Amperes		0.5 - 63
Insulation coordination	• Rated insulation voltage	V AC		264/456
		V DC/pole		60
		• Degree of Pollution for overvoltage category III		
Touch Protection	Acc to EN 50274			Yes
Line load reversibility				Yes
Degree of protection				IP20
CFC and silicone-free				Yes
• Terminal tightening torque, recommended		Nm		2.5 ... 3
Conductor cross-sections	• Solid and stranded • Finely stranded with end sleeve, max.	mm ²		0.75....35
		mm ²		0.75....25
Mounting position				Any
Average Service life (with rated load)				20000 actuations
Ambient temperature		°C		-25 ... +45, occasionally +55, max. 95% humidity, storage temperature: -40 ... +75

¹⁾ The operational voltage 60 V DC/pole takes into account a battery charging voltage with peak value of 72 V