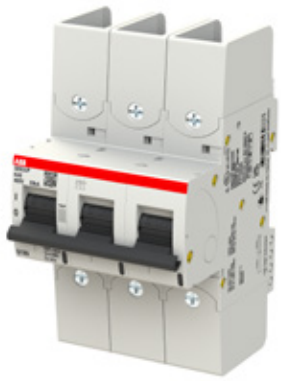
APPLICATION GUIDE

S800UP — Higher performance miniature circuit breaker

Solving the growing high density power demands in modern data centers

The rapid expansion of AI workloads is dramatically increasing power demand in data centers — creating new challenges for power stability, electrical safety and control system reliability.



High density AI hardware draws more energy, produces greater heat and causes more rapid load fluctuations that can strain traditional power and cooling infrastructure. These stresses heighten the risk of equipment overloads, thermal failures and control system errors that can lead to downtime or equipment damage.

Ensuring safe, resilient and scalable infrastructure is essential as data centers evolve to support the expanding AI ecosystem.

Data center requirements for continuous operation

- Higher power density
- Reset capability to reduce downtime (preferred over traditional fuses)
- Current limitation and fast response time
- IP20 touch-safe protection for enhanced operator safety
- Compact footprint to optimize rack and cabinet design
- Support for environmental and carbon reduction targets
- Compatibility with liquid cooling systems, including remote operation accessories
- Support for HVAC systems to maintain temperatures below 20°C

Enhance power and control protection with advanced technology

As AI adoption accelerates, data centers must deploy compact, efficient and reliable power distribution components. The ABB S800UP miniature circuit breaker (MCB) is engineered to meet these stringent requirements.

Its advanced performance characteristics — combined with a compact footprint and UL/IEC compliance — make it ideal for data center developers seeking high performance solutions for modern high density environments.

Key advantages

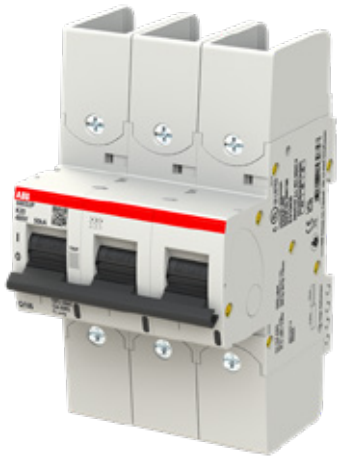
- Fast-acting, current-limiting operation
- Resettable and reusable (unlike fuses)
- IP20 touch-safe terminals
- Compact installation footprint
- High interrupting capacity suitable for high risk, high density zones
- Series rating with Tmax® XT4 and XT5 molded case circuit breakers at 50 kA interrupting rating

Technical specification	S803UP
Standards	UL 489; IEC/EN 60947-2 (internal test)
Number of poles	3P
Tripping characteristics	K
Rated current (In)	20 ... 70 A
Dimensions (H x L x W)	142 x 82.5 x 81 mm
Ambient temperature	-40...70°C
Reference temperature for tripping characteristics	40°C
UL 489 data	
Rated voltage	AC 480Y/277 V
Interrupting rating	AC 480Y/277 V = 50 kA
UL 100% rated	Yes
Cables	60°/75°C rated
IEC/EN 60947-2 data	
Rated operational voltage Ue	AC 240/415 V
Rated ultimate short-circuit capacity Icu	AC 415 V = 50 kA
Rated service short-circuit capacity Ics	AC 415 V = 40 kA

High performance MCB
Interrupting rating 50 kA at 480Y/277 V, with rated current up to 70 A; high energy and current-limiting capacities during short circuit

100% rated
100% rated according to UL 489, enabling use in continuous loads at rated current

Extended operating conditions
Operating temperature range of -40°C to +70°C with reference temperature of 40°C, reducing the derating to apply



Compact solution
High breaking capacity in only 1.5 modules per pole, suitable for DIN-rail installation without an adapter

Easy to install
Supply from top and bottom, high flexibility with interchangeable terminal kit, with easy change from cage to ring terminals

Versatile and expandable
Compatible with a wide range of accessories to add extra features and functionality

Continuous operation
Three-status (on/trip/off) toggle indication for easy identification of tripping caused by overcurrent

Why ABB?

ABB pioneered resettable MCB technology and continues to offer one of the world's most extensive portfolios of circuit protection solutions. Our technologies make data centers more efficient, reliable and scalable.

The S800UP MCB provides reliable protection against overcurrents and is designed to safeguard a wide range of end-use equipment. Its small footprint and high interrupting rating make it especially well suited for tap-off units used in server racks, where thousands of units may be deployed in a single data center facility

Learn more

Visit the ABB website to explore the full lineup of higher performance MCB solutions or consult with ABB technical experts.

Visit the web page

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