


Need miniature circuit breakers
that meet world standards?

Try our Multi 9™ system.



Make the most of
your energySM

 **SQUARE D**
by Schneider Electric

Schneider
 Electric

Multi 9 systems

Broad range meets world standards and includes UL 489, UL 489A and UL 1077 circuit breakers for maximum flexibility

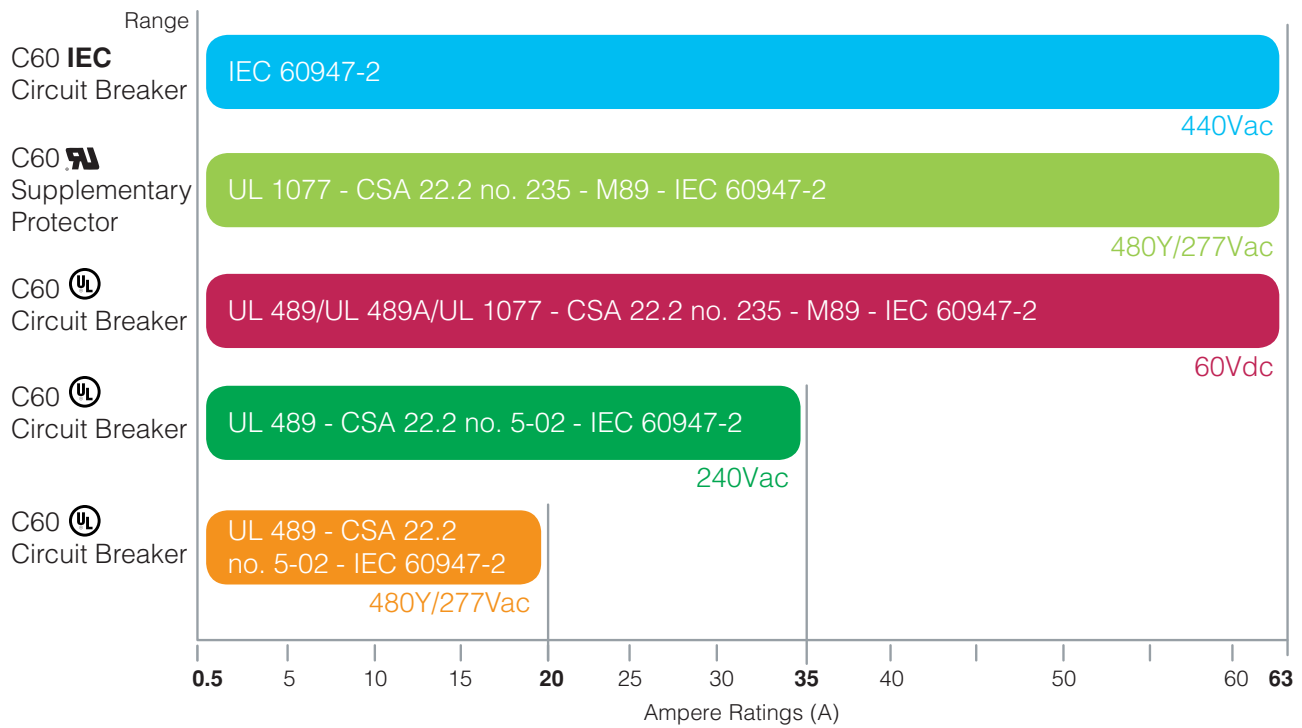
Schneider Electric is committed to helping you by providing solutions based upon an unrivaled understanding of your requirements. We offer the first miniature circuit breaker range in accordance with UL 489/UL 489A ratings to complement UL 1077 supplementary protection. The circuit breakers also comply with CSA and IEC standards. In addition, you benefit from Square D/Schneider Electric's experience in the field of circuit protection.

Ease of installation has been taken into account in the design and development of this circuit breaker range. Designs of products, electrical auxiliaries and accessories are optimized to offer a wide range of possible combinations.

In addition to the UL 489 products, all UL 1077 and UL 489A products also have UL 486-rated connectors. That means you can wire directly from the breaker to the load without the need for terminal strips. UL 486 rating applies to copper and copper-clad wiring.

Ampere ratings

The Multi 9 C60 range is the first miniature circuit breaker range with UL 489 rating available under 10A.



Time saving
DIN rail mounting



Space saving
All Multi 9 products
are in 9mm wide
increments



Flexibility
Many configurations
of products



Available worldwide

UL 489 branch circuit protection

Three types of connection for UL 489 devices:



Ring tongue terminals (RTT)

Ring tongue terminals make connections easy.



Box lug terminals (complies with UL 486A)

UL 486A allows wiring in the field directly to the protection device without intermediate terminal blocks.

UL 489A branch circuit protection for DC circuits in communication equipment



All UL 489A-rated circuit breakers carry the UL 486 rating for copper and copper-clad wiring.

UL 1077 supplementary protection



UL 1077 rated C60N

When codes permit, the UL 1077 C60N can be used to provide supplementary protection in OEM equipment.



Ring tongue terminal connection kit

Contains two RTT with screws and two shrouds. For C60 UL 489A, C60 UL 1077 and C60 IEC 60947-2.



Comb bus bar

Available in 12 poles (1, 2 or 3 phases). Comb design reduces line side wiring of UL 1077 and IEC devices.

Electrical auxiliaries and accessories



Electrical auxiliaries

Auxiliaries enable remote control and/or status indication.

About standards...

Application of circuit protection devices is dependent on the product standard and electrical installation code. The Multi 9 family provides OEMs with a single family of products to use in their equipment, whether it is destined for the domestic market or for markets outside the United States. Many Multi 9 devices are tested per Underwriters Laboratories (UL) standards to ultimately meet the requirements of the National Electrical Code® (NEC®).

All versions of the Multi 9 are also tested to ensure compliance with International Electrotechnical Commission (IEC) standards in order to guarantee a wider use of Multi 9 products worldwide. To obtain a clear understanding of the product standard for which each component has been evaluated, and to ensure a safe and code-compliant (NEC) final installation, the key points of these standards are listed below:



UL 489

Branch circuit protection: Products evaluated according to the UL 489 standard for molded-case circuit breakers are listed for branch circuit protection. Branch circuit protection must be provided for the conductors supplying utilization equipment in accordance with the NEC. On OEM products, circuits exiting the control panel must be considered as branch circuits, as well as circuits supplying receptacles in the control panel.



CSA C22.2 No. 5-02

The CSA (Canadian standards Association) C22.2 No. 5-02 standard closely corresponds to UL 489. Products evaluated according to this CSA standard are intended to protect branch circuits in accordance with the Canadian Electrical Code (CEC).



UL 489A

Branch circuit protection for DC telecom: UL 489A corresponds to requirements “covering single-pole DC circuit breakers intended for use as branch circuit overcurrent and short-circuit protection in communications equipment.”



UL 1077

Supplementary protection within the equipment: Products evaluated according to UL 1077 standard for supplementary protectors are recognized components which carry conditions of acceptability and therefore have limited application without further investigation by the certification organization listing the final product. Supplementary protectors are used to protect specific loads more closely rated to the utilization equipment. OEM products may use these devices for protecting sensitive electronic equipment or other equipment that requires unique or specific overcurrent protection.

A UL 1077-recognized supplementary protector is not a substitute for a branch circuit overcurrent protective device listed to UL 489. UL 1077-recognized products must be used in conjunction with branch circuit protection when wiring connected to the supplementary protector exits the equipment to external devices such as receptacles or motors.



CSA C 22.2 No. 235

The CSA C22.2 No. 235 standard is equivalent to the UL 1077 standard.



UL 486 standard for connection terminals

The UL 486 standard is used to evaluate connection terminals (lugs) that will be used during field wiring and applies to the compression wiring connection terminals of the Multi 9 products. UL 489 circuit breaker terminals are required to be evaluated according to UL 486. Although it is not a requirement for UL 1077 devices, UL 486-rated terminals are included in those Multi 9 products. This allows the user to apply field wiring directly to any Multi 9 product, without using intermediate, UL-rated terminal blocks. The connectors on Multi 9 devices are rated UL 486A, which applies to copper and copper-clad wiring.



IEC 60947-2 standard

In countries utilizing IEC standards, IEC 60947-2 is used for most industrial applications of circuit protection. IEC 60947-2 standard does not differentiate between the two levels of protection equivalent to UL 489-listed circuit breakers and UL 1077-recognized supplementary protectors. The IEC-rated Multi 9 product could be selected for known IEC applications. However, the UL 489 listed Multi 9 circuit breaker provides a single solution for both IEC and UL 489 standards applications.

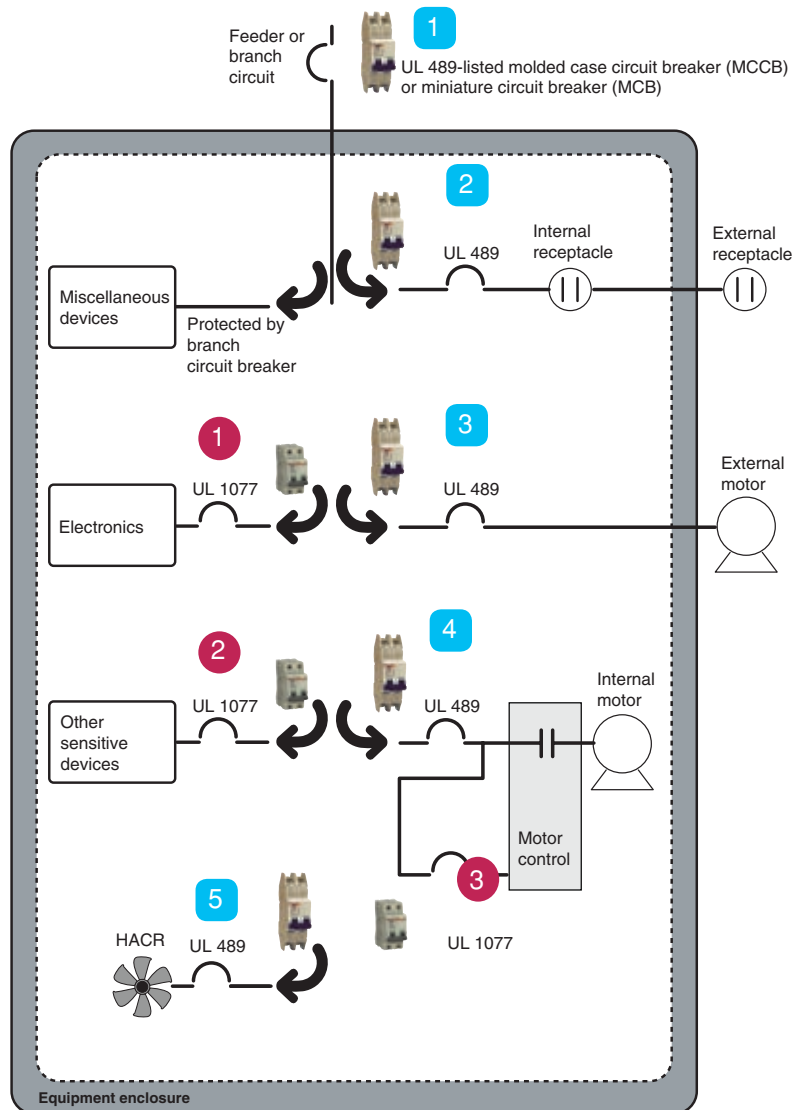
...and their applications

UL 1077 – applications permitting supplementary protectors

- 1 **UL 1077**
Supplements or provides additional protection for sensitive electronics inside the equipment.
- 2 **UL 1077**
Used on the load side of branch circuit protection to protect criteria or sensitive internal circuitry such as:
 - Computers and microprocessors
 - Communications equipment
 - Electronic controllers
 - Power supplies
 - Many other types of equipment
- 3 **UL 1077**
Permitted for protection of motor control circuits NEC 430-72, unless transformers are in circuit, then UL 489.

UL 489 – applications requiring branch circuit protection

- 1 **UL 489**
Protects conductors entering the OEM equipment. This required UL 489 device may be provided integral to the OEM equipment or be external as part of the distribution system. May act as branch circuit protection if it protects the conductor to the utilization equipment.
- 2 **UL 489**
Required to protect convenience receptacle circuits (internal or external).
- 3 **UL 489**
Required to protect an external load circuit leaving the equipment.
- 4 **UL 489**
Required for motors in the equipment.
- 5 **UL 489**
HACR equipment (heating, air conditioning and refrigeration).



Example of applicable UL 489 circuit breakers and UL 1077 supplementary protectors



In countries complying with IEC standards, the IEC-rated Multi 9 devices can be used in all of the functions shown above. Therefore, use of the UL 489-listed Multi 9 devices, which also have the IEC rating, helps the OEM to produce equipment that may be used worldwide.

Multi 9 systems

Advanced design of the Multi 9 system provides current limiting performance for advanced protection

Standard		Rated current	Type	Number of poles	Curve	Voltage
77°F/25°C						
UL 489 CSA 22.2 No. 5-02 IEC 60947-2	AC	0.5-35A	C60	1	C, D	120Vac
		0.5-35A	C60	1, 2, 3	C, D	240Vac
	DC	0.5-35A	C60	1	C	60Vdc
		0.5-35A	C60	2 (in series)	C	125Vdc
UL 489 CSA 22.2 No. 5-02 IEC 60947-2	AC	0.5-20A	C60	1	C, D	120Vac
		0.5-20A	C60	1, 2, 3	C, D	240Vac
		0.5-20A	C60	1, 2, 3	C, D	277Vac
		0.5-20A	C60	1, 2, 3	C, D	480Y/277Vac
UL 489A	DC	0.5-63A	C60	1	C	60Vdc
77°F/25°C						
UL 1077 CSA 22.2 No. 235 IEC 60947-2	AC	0.5-63A	C60	1	B, C, D	120Vac
		0.5-63A	C60	1, 2, 3, 4	B, C, D	240Vac
		0.5-63A	C60	1	B, C, D	277Vac
		0.5-63A	C60	2, 3, 4	B, C, D	480Y/277Vac
	DC	0.5-63A	C60	1	B, C	65Vdc
		0.5-63A	C60	2	B, C	125Vdc
104°F/40°C						
IEC 60947-2[†]	AC	1-40A	DPN	1	B, C	230Vac
		0.5-63A	C60N	1, 2, 3, 4	B, C, D	440Vac
		0.5-63A	C60H	1, 2, 3, 4	B, C, D	440Vac

A comprehensive range to meet all your applications

- Semiconductor
- Telecommunications
- Control panel
- Food/beverage
- Metal working
- Packaging
- Cranes
- Conveyors
- Pumps and compressors
- Refrigeration
- HVAC
- Engine generators



Interrupting ratings as per UL (kA rms)			Connection type (upstream/downstream)		RTT* connection kit
5	6	10	Box lug/Box lug	RTT/RTT*	
		×	×	×	
		×	×	×	
		×	×		
		×	×		
		×	×	×	
		×	×	×	
		×	×	×	
		×	×	×	
		×	×		×
		×	×		×
		×	×		×
×			×		×
×			×		×
		×	×		×
		×	×		×
	×		×		×
	×		×		×
		×	×		×

*RTT

† Interrupting ratings as per IEC 60947-2



Electrical auxiliaries



Undervoltage release (MN)



Auxiliary switch (OF)



Alarm switch (SD)



Shunt trip and auxiliary switch (MX + OF)



Permanently installed lock-off attachments



Left lock-off attachment



Right lock-off attachment



Ground fault protection



Residual current circuit breaker IEC 61009 rated

=



C60 circuit breaker

+



Vigi module (residual current device)

or



ID residential current switch

Other low-voltage circuit protection products



PowerPact® molded case circuit breaker

15-3000A molded-case circuit breakers comply with UL 489 and IEC 60947-2. Electronic trip circuit breakers with Micrologic® trip units are available from 100-3000A.



Masterpact® circuit breaker

Universal power circuit breakers: 800-6000A for ANSI C37; 800-6000A for UL 489; 800-6300A for IEC 60947-2.

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

Contact your local Square D sales representative for more information or visit www.SquareD.com.

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