

## **Circuit Breaker Glossary**

## Advanced Design - Legendary Performance - Superior Circuit Protection - Count on it

Ambient Temperature	Refers to the temperature of the air immediately surrounding the circuit breaker/protector.
Automatic Reset	A device which will automatically open an overloaded circuit. It will also automatically close or complete the circuit after a period of time. If the overload is still present, the device will continue to cycle until either the power or the overload is removed.
Branch Circuit Breaker	A UL listed (UL489) device capable of at least 5000 amps interrupt capacity.
Circuit Breaker/Protector	An automatic switching device that opens the circuit and interrupts the flow of current when an overload condition occurs.
Contact Arc	The electric arc which forms between two parting contacts conducting a current.
Contact Drop	The voltage drop across the contact resistance in a two-contact system.
Contact Resistance	The total excess resistance in a two-contact system, beyond the bulk of body resistance of the contacts.
Creepage	A distance measured across a surface between two parts of a device. Usually this distance is between two electrically conductive parts.
CSA	Canadian Standards Association (similar to UL).
Current Rating	Designation of rating given in amperes at which the device will not trip. A specific temperature is usually assigned.
Dielectric Strength	The ability of an insulating material to withstand an impressed voltage without exceeding minimal leakage current or breakdown. Specified in voltage (VAC), usually between a live metal part and ground or between open contacts of a device.
Fuse	A protective device using a special metal-alloyed conductor which is notched to control the cross-sectional area. A fault current will melt the narrow cross section, interrupting the flow of current.
IEC 934	IEC 934 is an international standard for circuit breakers for equipment.
Interrupt Capacity	The highest level of fault current that a circuit protective system is intended to interrupt. Devices qualified to UL489 must alone clear the fault, be operable afterwards, and be still capable of tripping on 200% overloads. A UL1077 qualified device may have a backup device wherein the combination must successfully clear the fault while leaving the protector in a fail-safe condition (no loss of case integrity, external materials remaining un-ignited by gaseous emissions, and no dielectric path to grounded parts).
Locked Rotor Current	The largest current which flows in the windings of a motor when the rotor is motionless or locked, due to the lack of an internal back EMF which bucks the system drive voltage.
Manual Reset	Refers to those breakers in which the electrical contacts remain open after a trip until someone physically closes or completes the circuit either by pushing a reset button or throwing a switch.
Maximum Ultimate Trip	Current rating at which a circuit protection device will trip within a certain period of time at a specified temperature.



## **Circuit Breaker Glossary**

## Advanced Design - Legendary Performance - Superior Circuit Protection - Count on it

Minimum Ultimate Trip	Current rating for which a circuit protection device will not trip for an extended period of time at a specified temperature
Molded Case Circuit Breaker	These circuit breakers are assembled as an integral unit in a supporting and enclosing housing of insulation materials, and are specifically designed to provide service entrance, feeder, and branch circuit protection.
Nuisance Trips	Those trips caused by a response to non-damaging inrush or start-up current surges, as opposed to an actual overcurrent trip.
Overcurrent	That current which may cause dangerous overheating.
Overcurrent Protection	Protection achieved by limiting the duration and magnitude of exposure to an overcurrent.
Overload	An electrical load or current flow greater than that which a circuit is designed to handle.
Overload Capacity	The highest level of overload current that devices will interrupt and remain in operable condition, capable of clearing additional overloads.
Pre-fault Current	The normal state current which flows in a circuit or device before the occurrence of a fault.
Safety Factor	The allowance added to the steady-state application current to ensure that the protective device selected will be more than sufficient to handle the application without nuisance trips. MP recommends that 15% be the minimum safety factor used.
Slow-Blow Fuse	A dual element fuse that allows for slow response to overloads (less than 10x rating) and fast response to fault currents.
Trip Curve	The graphical presentation of an overcurrent protection device response characteristics. The curve consists of overcurrent magnitudes plotted against ranges of corresponding total clearing times. A trip curve is sometimes referred to as a time-current curve.
Trip Free	A characteristic of certain breakers that provides for independence between the protection mechanism and the operating button or handle, such that a fault cannot be maintained manually.
UL	Underwriter's Laboratories, a not-for-profit corporation that tests and certifies equipment on the basis of established safety standards.
UL489/CSA 22.2-5	Standard (requirements/specifications) for "Circuit Breakers and Circuit Breaker Enclosures."
UL1077/CSA 22.2-235	Standard (requirements/specifications) for "Supplementary Protectors for Use in Electrical Equipment."
VDE	Verband Deutscher Elecktrotechniker—German regulatory agency similar to UL/CSA.
Voltage Drop	The voltage decrease across the protector/breaker due to the internal resistance of the device.