Technical Reference

Glossary of Terms

AC (Alternating Current) - An electrical current that reverses direction in a circuit at regular intervals, such as normal household current.

Adapter - Device that adapts one form or size of connection to another.

ALCI - Appliance Leakage Current Interrupter. An ALCI is a device intended to be used in conjunction with an electrical appliance whose function is to interrupt both conductors of the electric circuit to a load when a fault current to ground exceeds 4-6 mA and is less than that required to operate the overcurrent protection device of the circuit. The ALCI is intended to be used only in a circuit that has a solidly grounded neutral conductor, and is required. ALCIs are considered "personal protection" devices and contain the following features: a) Can function either line polarity, and b) Other features may or may not be provided.

Ambient Temperature - The temperature of a medium (gas or liquid) surrounding an object.

Ampacity - The current in amperes that a conductor can carry continuously under the conditions of use without exceeding its temperature rating.

Ampere - The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

Attachment Plug - Male contact device for the readily detachable connection of a flexible cord or cable to receptacles, connectors, flanged equipment power outlets, etc.

Auto Reset - GFCI that powers-up automatically upon plug-in and after power loss. User must press the reset button in the event of a ground fault to restore power.

AWG - American Wire Gauge. A relative system for the designation of wire diameter.

Braid - A fibrous or metallic group of filaments interwoven in cylindrical form to form a covering over one or more wires. Typically used to add mechanical strength & abrasion resistance to flexible cord.

Circuit (Electric) - The complete path of an electrical current. When the continuity is broken, it is called an open circuit; when continuity is maintained, it is called a closed circuit.

Collector Ring - A collector ring is an assembly of slip rings for transferring electrical energy from a stationary to a rotating member.

Conductor - An uninsulated wire suitable for carrying electrical current.

Confined Space [1] **-** OSHA defines a confined space as an area that: (1) is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and (3) is not designed for continuous employee occupancy [1].

Contacts - The parts of the connector that actually carry the electrical current, and are touched together or separated to control the flow.

Continuity Check - A test to determine whether electrical current flows continuously throughout the length of a single wire or individual wires in a cable.

Cord - A flexible insulated cable.

Cord Connector - Female contact device used in making a detachable connection to an attachment plug or a flanged equipment power inlet.

1. Source OSHA web site www.osha.gov

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Cord Grip - Means by which the flexible cord entering a device is gripped in order to relieve stress on the terminals from tension applied to the cord.

CSA - Canadian Standards Association. This is a nonprofit, independent organization that operates a listing service for electronic materials and equipment. The Canadian counterpart of the Underwriters Laboratories.

Current Carrying Capacity - The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

DC (Direct Current) - An electric current that flows only in one direction through a circuit, such as battery power.

Damp location - Partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements.

Dead Front - Without live parts exposed to a person on the operating side of the equipment.

Dielectric Strength - The voltage that an insulation can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

Dry Location - A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.

Dustproof - So constructed or protected that dust will not interfere with its successful operation.

EMI - Abbreviation for electromagnetic interference.

Elastomer - Macromolecular material that at room temperature returns rapidly to approximately it's initial dimensions and shape after substantial deformation by a weak stress and release of that stress.

ELCI - Equipment Leakage Current Interrupter. The ELCI is a device intended to provide leakage current protection in appliances and utilization equipment whose function is to interrupt all ungrounded conductors of the supply circuit to electrical equipment in the event a current, in excess of the trip current, occurs between live parts and the grounded enclosure of other grounded parts. An ELCI is not intended to be used in place of a GFCI, ALCI, or IDCI and may have any trip current value greater that **6 mA.** The use of an ELCI is not intended to replace or supersede the overcurrent protection requirements concerning trip current and time. ELCIs are considered "equipment protection" devices, not personal protection devices.

Flame Resistance - The ability of a material not to propagate flame once the heat source is removed.

Gauge - A term used to denote the physical size of a wire. See AWG.

GFCI - Ground Fault Circuit Interrupter, also known as a GFI. A device intended for the protection of personnel as well as equipment. It de-energizes a circuit within an established period of time (25 ms) when a current to ground exceeds some predetermined value (4-6 mA, for a Class A GFCI) that is less than that required to operate the overcurrent protective device of the supply circuit.

GFCI - (Class A) - Denotes a ground fault circuit interrupter that will trip when a fault current to ground is 6 mA or more.

Ground - An electrical term meaning to connect to the earth or other large conducting body to serve as an earth, thus making a complete electrical circuit.

Ground Fault - An unintentional electrical path between a part operating normally at some potential to ground, and ground.

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Grounded Neutral - GFCI will automatically trip if the neutral conductor is grounded on the load side of the device (after sensor). If the load side neutral is shorted to ground and also a ground fault occurred simultaneously, some of the fault current would flow through the neutral wire to the sensor and some would flow through the inadvertent ground path. If such a ground connection occurred, it would be possible for a person to contact a hot wire and ground, having the ground fault current flow through the inadvertent neutral ground and the neutral to the service entrance. Under this condition, there may not be enough imbalance in current through the sensor to cause the GFCI to trip.

Hospital Grade - A device constructed to meet performance requirements of high abuse areas found in hospital locations, tested to "Hospital Grade" requirements of Underwriters' Laboratories Standard UL 498.

Incandescent - Method for producing light by heating a thin filament.

Manual Reset - GFCI that requires the user to press the reset button upon plug-in, after power loss to prevent accidental equipment start-up and in the event of a ground fault to restore power.

Motor - Circuit Switch - A switch, rated in horsepower, capable of interrupting the maximum operating overload current of a motor of the same horsepower rating as the switch at the rated voltage.

NEMA - National Electrical Manufacturers Association.

NEMA 4X - An enclosure rating per UL50 and UL508 indicating that the product is intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.

NFPA - National Fire Protection Association.

Nuisance Trip - Tripping caused by conditions other than those for which the device is intended to respond.

Open Neutral Protection - GFCI will automatically trip when the neutral connection is lost. When the neutral connection is open, this creates an unsafe condition where the available current has lost its normal flow path, thus increasing the potential for the current to flow elsewhere.

OSHA - Occupational Safety and Health Act. Specifically the Williams-Steiger Law passed in 1970 covering all factors relating to safety in places of employment.

Overcurrent - Any current in excess of the rated current of equipment or the ampacity of a conductor. It may result from overload (see definition), short circuit, or ground fault. A current in excess of rating may be accommodated by certain equipment and conductors for a given set of conditions. Hence the rules for overcurrent protection are specific for particular situations.

Overload - Operation of equipment in excess of normal, full load rating, or of a conductor in excess of rated ampacity which, when it persists for a sufficient length of time, would cause damage or dangerous overheating. A fault, such as a short circuit or ground fault, is not an overload (See "Overcurrent").

Primary - The line (Power source) side of a device.

PVC - Polyvinyl Chloride. Compound used in thermoplastic (SJTW - STW) cords.

Rated Voltage - The maximum voltage at which an electrical component can operate for extended periods without undue degradation or safety hazard.

RFI - Abbreviation for radio frequency interference.

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Reverse Polarity - Condition where the Hot and Neutral connections are switched.

Secondary - The load (equipment) side of a device.

SEOW - Extra Hard Service cord. 600v, oil resistant thermoplastic elastomer outer jacket. Weather resistant for outdoor use.

SJEOW - Junior hard service cord. 300v, oil resistant thermoplastic elastomer outer jacket. Weather resistant for outdoor use.

SJTW - Hard Service cord. 300v thermoplastic outer jacket. Weather resistant for outdoor use.

SOW - Hard service cord. 600v rubber outer jacket. Weather resistant for outdoor use.

SPT-1 - Thermoplastic constructed, parallel jacketed. 300 volt 2 or 3 conductor, 18 gauge.

SPT-2 - Same as SPT-1 but heavier construction. 18-16 gauge.

SPT-3 - Same as SPT-2 but heavier construction. 18-10 gauge.

STW - Extra Hard Service cord. 600v thermoplastic outer jacket. Weather resistant for outdoor use.

SVT - Vacuum cleaner service cord. All plastic construction, 2 or 3 conductors.

Thermoplastic - A material that softens when heated and becomes firm on cooling.

Thermoset - A material that hardens or sets when heat is applied and that, once set, cannot be resoftened by heating. The application of heat is called "curing".

TPE - Abbreviation for thermoplastic elastomer. A compound used in Portable/flexible cords (SEOW, SJEOW).

Trip - Denotes automatic interruption by the GFCI of the electrical circuit to load.

Trip Time - The elapsed interval between the time when the ground fault current is first applied and the time when the circuit is interrupted.

UL - Abbreviation for Underwriters Laboratories, a non-profit independent organization that operates a listing service for electrical and electronic materials and equipment.

UL Listed - Indicates an item has been tested and approved to the safety standards established by Underwriters' Laboratories.

UL Recognized - Refers to products that have been tested and approved to the safety standards established by Underwriters' Laboratories & are typically used as components of a final assembly.

VRMS - Voltage (root mean square).

Voltage - The term most often used in place of electromotive force, potential, potential difference, or voltage drop to designate the electrical pressure that exists between two points and is capable of producing a current when a closed circuit is connected between two points.

Weatherproof - So constructed or protected that exposure to the weather will not interfere with successful operation. Rainproof, raintight, or watertight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice dust, or temperature extremes, are not a factor.

Wet location - Installations underground or in concrete slabs or masonry in direct contact with the earth, andlocations subject to saturation with water or other liquids, such as locations exposed to weather and unprotected.