

Appendix

Glossary

A-1

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Alternating Current (AC)	Alternating current that reverses direction at regular intervals. AC current does not have a polarity (+ or -).
Amperage (Amps)	Amperage is the flow of electrons (current) through a conductor. Following the water analogy, it would be similar to the flow of water through a hose.
AWG	An acronym for the American Wire Gauge standard defining wire conductor sizes.
Busways	The utility openings, channels, racks or brackets that hold conduit.
Coil	Electromagnets made from tightly wound, varnish-coated wires and used in relays and solenoids.
Conductor	Wires and connections that convey voltage and current to power a device or equipment.
Conduit	Pipes that hold and protect electrical wiring. Usually made of steel or polyvinyl chloride (PVC).
Direct Current (DC)	Current that has a single directional flow of electrons from (-) to (+).
Electrocution	Death due to excessive electricity through the body causing heart failure and/or brain damage.
Ground	A direct pathway to earth for an electrical circuit.
Harmonic distortion	Harmonic currents are caused by non-linear loads connected to the distribution system and the presence of harmonics in electrical systems means that current and voltage are distorted and deviate from sinusoidal waveforms. This condition may lead to overheating of the neutral conductor and motors. May also increase blown fuses and tripped breakers.
Integrated Circuits (IC)	Small compact circuits that are chemically and thermally manufactured and sealed in a plug-in housing.
Kilovolt-amperes (kVA)	The unit used to represent total electrical energy

entering the facility. Kilovolt-amperes is equal to 1,000 volt-amperes.

kilovolt-amperes restive (kVAR)

This is the unit of reactive power, which is the energy used to magnetize the iron cores of coils i.e. motors, transformers, solenoids, and relays.

Milli-amperes (mA)

Milli-amps (0.001 amperes) are used to measure current through an earth fault, which will not cause serious damage at the fault position, or give rise to dangerous touch voltages, or present a fire hazard.

Multimeter

An instrument used to measure parameters of electrical systems i.e. Voltage, amperage, and resistance. An **analog instrument displays electrical readings with a dial armature while a digital** one displays a numeric readout with either a light emitting diode (LED) or liquid crystal diode (LCD).

Neutral

The conductor wire in the circuit that originates from the facility distribution panels and is grounded to give the circuit a reference.

Opens

Break(s) in a circuit path.

Printed Circuit (PC) Board

Printed circuit boards. These are the manufactured circuit boards common to electronic equipment. All the electronic devices are visible and soldered to make the board.

Phase

A conductor or connector with line voltage.

Power

The electrical energy delivered to a facility in watts or Kilowatts. Using the water and hose analogy, power is equivalent to the amount of water received at the end of the hose.

Power Factor

A ratio factor calculated by dividing kilowatts by Kilovolt-amperes. Higher reactive power used in the facilities to operate motor, transformer and magnetic coils causes lower power factors. Capacitors are used to improve power factors.

Resistance

Resistance is the friction of the electrons flowing in the current and is measured in "ohms". Friction reduces pressure and lowers voltage in the conductor.

Transformers

Transformers raise and lower voltage using two tightly wound coils of wire wound side by side in an iron frame.

Transients

A momentary deviation from the normal wave shape: usually a spike or over-voltage.

Volts/Voltage

Voltage is the electrical pressure in an electrical system. Using the water and hose analogy, voltage is analogous to water pressure against the walls of a hose.

