

Active Filter

Any of a number of sophisticated power electronic devices for eliminating harmonic distortion.

Alternating Current (AC)

Electrical current that continually reverses direction, with this change in direction being expressed in Hertz, or cycles per second.

Alternating Voltage

A voltage which periodically changes its polarity.

Ambient Temperature

The average temperature of the surroundings.

A or Amp (Ampere)

A unit that measures the strength/rate of flow of electrical current.

Ampere-Hour Capacity

The quantity of electricity measured in ampere-hours (Ah) which may be delivered by a cell or battery under specified conditions.

Ampere-Hour Efficiency

The ratio of the output of a secondary cell or battery, measured in ampere-hours, to the input required to restore the initial state of charge, under specified conditions (also coulombic efficiency).

Battery

Two or more electrochemical cells electrically interconnected in an appropriate series/parallel arrangement to provide the required operating voltage and current levels. Under common usage, the term "battery" is often applied to a single cell.

Black-out

The failure of electric power for a general region.

Brownout

A temporary drop in electric power without the power going completely off. A brownout may make the computer screen flicker, and can cause loss of data that has been entered but not saved yet.

Bypass

A low-resistance connection between two points in an electric circuit that forms an alternative path for a portion of the current. Also called *shunt*.

Capacitance

The property of a capacitor that determines the quantity of electric energy that it can store.

Capacitor

A device consisting of two conducting surfaces separated by an insulator and having the ability of storing electric energy. Also called a condenser.

Capacity

The total number of ampere-hours (or watt-hours) that can be withdrawn from a cell/battery under specified conditions of discharge.

Cell

The basic electrochemical unit used to generate or store electrical energy.

Charge

The conversion of electrical energy, provided in the form of a current from an external source, into chemical energy within a cell or battery.

Circuit

A continuous loop of current (i.e. incoming "hot" wire, through a device, and returned by "neutral" wire).

Circuit Breaker

The most common type of "overcurrent protection." A breaker trips when a circuit becomes overloaded or shorts out.

Continuous Discharge

A test in which a cell/battery is discharged to prescribed cut-off voltage.

Cos phi

Cos phi is also known as Power Factor and represents the proportion between active power (W) and apparent power(VA). The range of cos phi is between 0 and 1 (Ex. Resistive charges such as light bulbs and heating elements have a cos phi = 1. The inductive charges have different cos phi, e.g. electric handtools is $\sim 0,97$; electric motor is $0,7-0,8$; strip light, welding transformer is $\sim 0,5$).

Crest Factor

It is the proportion between the peak value and the efficient value of the current absorbed by the load. In the test on UPS, the norm EN50091 provides for a non linear load a crest factor = 3.

Critical Load

Devices and equipment whose failure to operate satisfactorily jeopardizes the health or safety of personnel, and/or results in loss of function, financial loss, or damage to property deemed critical by the user.

Cumulative Capacity

The total number of ampere-hours (or watt hours) that can be withdrawn from a cell/battery under specified conditions of discharge over a predetermined number of cycles or the cycle life.

Current Distortion

Distortion in the ac line current.

Deep Discharge

Withdrawal of at least 80% of the rated capacity of a cell/battery.

Depth of Discharge

The ratio of the quantity of electricity (usually in ampere-hours) removed from a cell/battery on discharge to its rated capacity (usually expressed in %).

Dip. See Sag.

Distortion. Any deviation from the normal sine wave for an ac quantity.

Direct Current (DC)

DC is the unidirectional flow or movement of electric charge carriers, usually electron. The intensity of the current can vary with time, but the general direction of movement stays the same at all times. As an adjective, the term DC is used in reference to voltage whose polarity never reverses.

Discharge

The conversion of chemical energy of a cell/battery into electrical energy and withdrawal of the electrical energy into a load.

Discharge Rate

The rate, usually expressed in amperes, at which electrical current is taken from the cell/battery.

Dropout

A loss of equipment operation (discrete data signals) due to noise, sag, or interruption.

Dropout Voltage

The voltage at which a device will release to its de-energized position (for this document, the voltage at which a device fails to operate).

Electric Field

A field of force that exists between positively and negatively charged surfaces. In a capacitor, the field is assumed to consist of lines of force which extend through the dielectric from the positive to the negative plate.

Energy Density

The ratio of the energy available from a cell or battery to its volume (Wh./L). Also used on a weight basis (Wh/kg).

Fault

Generally refers to a short circuit on the power system.

Fault, Transient

A short circuit on the power system usually induced by lightning, tree branches, or animals which can be cleared by momentarily interrupting the current.

Field

The windings of an electric generator which are supplied with dc to produce the steady electromagnetic field. Generators used for demonstration purposes may use permanent magnets to produce the magnetic field.

Filter

An electrical circuit which is part of every Lutron dimmer that is intended to reduce radio frequency interference and lamp buzz.

Flicker

Impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or spectral distribution fluctuates with time.

Frequency

The number of cycles of alternating voltage or current which occur during a particular amount of time, usually one second.

Frequency Deviation

An increase or decrease in the power frequency. The duration of a frequency deviation can be from several cycles to several hours.

Frequency Response

In power quality usage, generally refers to the variation of impedance of the system, or a metering transducer, as a function of frequency.

Front Accessible Service Switch (FASS)

An air-gap switch that can be conveniently activated without removing the wallplate of a control. When switch is turned off, power is completely removed from the device's load circuit by an air-gap switch.

Fuses

Removable devices that link a circuit at the fuse box. Fuse connections blow apart and break the circuit if an overload or short occurs.

Generators

Machines used to convert mechanical energy into electric energy. They accomplish this by causing one or a series of interconnected coils to either cut or be cut by a strong magnetic field.

Ground

A conducting connection, whether intentional or accidental, by which an electric circuit or equipment is connected to the earth, or to some conducting body of relatively large extent that serves in place of the earth. Note: It is used for establishing and maintaining the potential of the earth (or of the conducting body) or approximately that potential, on conductors connected to it, and for conducting ground currents to and from earth (or the conducting body).

Harmonic (component)

A component of order greater than one of the Fourier series of a periodic quantity.

Harmonic Content

The quantity obtained by subtracting the fundamental component from an alternating quantity.

Harmonic Distortion

Periodic distortion of the sine wave. See Distortion and Total Harmonic Distortion (THD).

Harmonic Number

The integral number given by the ratio of the frequency of a harmonic to the fundamental frequency.

Harmonic Resonance

A condition in which the power system is resonating near one of the major harmonics being produced by

nonlinear elements in the system, thus exacerbating the harmonic distortion.

Hertz (Hz)

The unit of frequency. One hertz is equal to 1 cycle per second (cps).

Hot, Neutral, Ground

The three most common circuit wires. The hot brings the current flow in, the neutral returns it to the source, and the ground is a safety route for returning current. The ground and neutral are joined only at the main service panel.

Impulse

A pulse that, for a given application, approximates a unit pulse or a Dirac function. When used in relation to the monitoring of power quality, it is preferred to use the term impulsive transient in place of impulse.

Impulsive transient

A sudden non-power frequency change in the steady state condition of voltage or current that is unidirectional in polarity (primarily either positive or negative).

Inductance

The property of a circuit or coil that causes an electro-motive force to be set up due to a change of current in the circuit or coil.

Inductor (L)

A coil of wire which has the property of inductance.

Interharmonic (component)

A frequency component of a periodic quantity that is not an integer multiple of the frequency at which the supply system is designed to operate (e.g. 50 Hz or 60 Hz).

Inverter

An electric or electronic device for producing alternating current from direct current.

ISO 9001

A series of quality standards established by the International Organization of Standardization, that outline the requirements for quality management systems.

Isolated Ground

An insulated equipment grounding conductor run in the same conduit or raceway as the supply conductors. This conductor is insulated from the metallic raceway and all ground points throughout its length. It originates at an isolated ground-type receptacle or equipment input terminal block and terminates at the point where neutral and ground are bonded at the power source. See NFPA 70-1990, Section 250-74, Exception #4 and Section 250-75, Exception.

Isolation

Separation of one section of a system from undesired influences of other sections.

Life

For rechargeable batteries, the duration of satisfactory performance, measured in years (float life) or in the number of charge/discharge cycles (cycle life).

Linear Load

An electrical load device which, in steady state operation, presents an essentially constant load impedance to the power source throughout the cycle of applied voltage.

Load

A load is an energy consuming device. The device can be an actual device such as a bulb of a flash light, radio, cassette player, motor, etc., a resistor or a constant current load.

LI - Line Interactive

UPS with interactive functioning. The inverter works only if necessary.

LIB - Line Interactive By-Pass

MTBF (Mean Time Between Failures)

The MTBF indicates the UPS reliability. It depends on many factors, such as the environmental temperature, the components, the working frequency, the altitude and etc.

Noise

Unwanted electrical signals which produce undesirable effects in the circuits of the control systems in which they occur. (For this document, "control systems" is intended to include sensitive electronic equipment in total or in part.)

Nominal Voltage (Vn)

A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (as 208/120, 480/277, 600).

Nonlinear Load

Electrical load which draws current discontinuously or whose impedance varies throughout the cycle of the input ac voltage waveform.

Normal Mode Voltage

A voltage that appears between or among active circuit conductors.

Ohm

A unit that measures the resistance a conductor has to electricity.

Open Circuit Voltage (OCV)

The difference in potential between the terminals of a cell/battery when the circuit is open (no-load condition).

Oscillatory Transient

A sudden, non-power frequency change in the steady state condition of voltage or current that includes both positive or negative polarity value.

Overvoltage

When used to describe a specific type of long duration variation, refers to a voltage having a value of at least 10% above the nominal voltage for a period of time greater than 1 minute.

Overcharge

Discharge past the point where the full capacity of the cell has been obtained.

Passive Filter

A combination of inductors, capacitors, and resistors designed to eliminate one or more harmonics. The most common variety is simply an inductor in series with a shunt capacitor, which short-circuits the major distorting harmonic component from the system.

Power Conditioner

A device used to isolate sensitive equipment from the hazards of "dirty power". Varying degrees of protection can be provided for electrical noise and voltage fluctuations like transient (spikes), surges, sags (brownouts) and outages (blackouts).

Power Factor (True)

The ratio of active power (watts) to apparent power (volt-amperes).

Rated Capacity

The number of ampere-hours a cell/battery can deliver under specific conditions (rate of discharge, cut-off voltage, temperature).

Recharge/Charge

The conversion of electrical energy, provided in the form of a current from an external source (charger), into chemical energy within a cell/battery.

Recovery Time

Time interval needed for the output voltage or current to return to a value within the regulation specification after a step load or line change. Also may indicate the time interval required to bring a

system back to its operating condition after an interruption or dropout.

Recovery Voltage

The voltage that occurs across the terminals of a pole of a circuit interrupting device upon interruption of the current.

Rectifier

A device which converts ac to pulsating dc.

Sag

A decrease to between 0.1 and 0.9 pu in rms voltage or current at the power frequency for durations of 0.5 cycles to one minute.

Self Discharge

The loss of useful capacity of a cell or battery due to internal chemical action.

Series

The interconnection of cells or batteries in such a manner that the positive terminal of the first is connected to the negative terminal of the second, and so on. Series connections increase the voltage of the resultant battery.

Service Life

The period of useful life (usually in hours or minutes) of a primary cell/battery before a predetermined cut-off voltage is reached.

Service/Supply Leads

The incoming electrical lines that supply power to the service panel.

Short Circuit

When current flows "short" of reaching a device. Caused by a hot conductor accidentally contacting a neutral or ground. A short circuit is an immediate fault to ground and should always cause the breaker to trip or the fuse to blow. (also see ground fault)

Short Duration Variation

A variation of the rms value of the voltage from nominal voltage for a time greater than one-half cycle of the power frequency but less than or equal to one minute. Usually further described using a modifier indicating the magnitude of a voltage variation (e.g. Sag, Swell, or Interruption) and possibly a modifier indicating the duration of the variation (e.g., Instantaneous, Momentary or Temporary).

Single Phase

The portion of a power source that represents only a single phase of the three phases that are often available.

Single Pole

A single pole dimmer provides full-range dimming from one location only.

Sinusoidal

The graphical plot of the output of an alternator.

Spike

See Surge

Surge

A brief transient wave of voltage, current or power in an electrical circuit, lasting for less than 1% of the power wave cycle duration.

Total Harmonic Distortion (THD)

The ratio of the root-mean-square of the harmonic content to the root-mean-square value of the fundamental quantity, expressed as a percent of the fundamental.

Transformer

An electric device, without moving parts, for transferring electric energy from one or more circuits to one or more other circuits by electromagnetic induction.

Transient

Pertaining to or designating a phenomenon or a quantity which varies between two consecutive steady states during a time interval that is short compared to the time scale of interest. A transient can be a unidirectional impulse of either polarity or a damped oscillatory wave with the first peak occurring in either polarity.

Triplen Harmonics

A term frequently used to refer to the odd multiples of the third harmonic, which deserve special attention because of their natural tendency to be zero sequence.

TVSS

Transient Voltage Surge Suppressor.

Undervoltage

When used to describe a specific type of long duration variation, refers to a measured voltage having a value at least 10% below the nominal voltage for a period of time greater than one minute.

UPS

Uninterruptible Power System is a system that utilizes batteries or other form of energy supply to provide continuous power (ranging from a fraction of a Watt to Mega Watts) during brownouts and blackouts for a predetermined timeframe ranging from seconds to hours.

Volt

A unit that measures the amount of electrical pressure.

Voltage Change

A variation of the rms or peak value of a voltage between two consecutive levels sustained for definite but unspecified durations.

Voltage compensation

Voltage compensation reduces changes in lighting level that occur when air conditioners, refrigerators, and other electrical appliances switch on/off.

Voltage Dip

See Sag.

Voltage Distortion

Distortion of the ac line voltage. See Distortion.

Voltage Fluctuation

A series of voltage changes or a cyclical variation of the voltage envelope.

Voltage Imbalance (Unbalance)

A condition in which the three phase voltages differ in amplitude or are displaced from their normal 120 degree phase relationship or both. Frequently expressed as the ratio of the negative sequence or zero sequence voltage to the positive sequence voltage, in percent.

Voltage Interruption

Disappearance of the supply voltage on one or more phases. Usually qualified by an additional term indicating the duration of the interruption (e.g., Momentary, Temporary, or Sustained.)

Voltage Regulation

The degree of control or stability of the rms voltage at the load. Often specified in relation to other parameters, such as input-voltage changes, load changes, or temperature changes.

Watt

A unit that measures the amount of electrical power.

Waveform Distortion

A steady state deviation from an ideal sine wave of power frequency principally characterized by the spectral content of the deviation.
