

GLOSSARY

[A-F | G-L | M-O | R-V | W-Z]

Acoustic Material: Acoustic material is any material considered in terms of its acoustic properties, especially its properties of absorbing or deadening sound.

Alternator: A synchronous machine used to convert mechanical power into alternating current electric power.

Ampacity: Ampacity is the safe current-carrying capacity of an electrical conductor in amperes as defined by code.

Ampere: The ampere is a unit of electric current flow. One ampere of current will flow when a potential of one volt is applied across a resistance of one ohm.

Annunciator: An annunciator is an accessory device used to give remote indication of the status of an operating component in a system. Annunciators are typically used in applications where the equipment monitored is not located in a portion of the facility that is normally attended. The NFPA has specific requirements for remote annunciators used in some applications, such as hospitals.

Automatic (Exciter) Paralleling: Automatic (Exciter) Paralleling describes a system where two or more generator sets can be started and paralleled while coming up to rated frequency and voltage. Because the generator excitation system is not turned on until the generator set is started (thus the term "dead field"), the generator sets automatically synchronize as they come to rated speed and voltage.

Bonded Neutral: Neutral is connected to ground. Typically used on mobile/portable generators.

Circuit Breaker: A circuit breaker is a protective device that automatically interrupts the current flowing through it when that current exceeds a certain value for a specified period of time. See Air Circuit Breaker, Main Breaker, Molded Case Circuit Breaker and Power Circuit Breaker.

Continuous Load: A continuous load is a load where the maximum current is expected to continue for three hours or more (as defined by the NEC for design calculations).

Current: Current is the flow of electric charge. Its unit of measure is the ampere.

Emergency System: An emergency system is independent power generation equipment that is legally required to feed equipment or systems whose failure may present a life safety hazard to persons or property.

Floating Neutral: Neutral is not connected to ground. Typically seen on permanently mounted generators where a service ground can be used.

Frequency: The number of cycles in a time period (usually one second). Alternating current frequency is expressed in cycles per second, termed Hertz (Hz).

Full-Load Current: The current required for any electrical machine to produce its rated output or perform its rated function. Abbreviated FLA or RLA or electrical appliances.

Fusible Switch: A fusible switch is an isolating switch and overcurrent protective device used for feeder or transfer switch isolation and protection. It is typically a manually operated, stored energy opening and closing, bolted compression blade switch, with provisions for installing current limited fuses. Referred to as a disconnect.

Generator: A generator is a machine which converts rotating mechanical energy into electrical energy.

Insulation: Insulation is non-conductive material used to prevent leakage of electric current from a conductor. There are several classes of insulation in use for generator construction, each recognized for a maximum continuous-duty temperature.

kVA (kilo-Volt-Amperes): kVA is a term for rating electrical devices. A device's kVA rating is equal to its rated output in amperes multiplied by its rated operating voltage. In the case of three-phase generator sets, kVA is the kW output rating divided by 0.8, the rated power factor. kVA is the vector sum of the active power (kW) and the reactive power (kVAR) flowing in a circuit.

kVAR: kVAR (kilo-Volt-Amperes Reactive) is the product of the voltage and the amperage required to excite inductive circuits. It is associated with the reactive power which flows between paralleled generator windings and between generators and load windings that supply the magnetizing currents necessary in the operation of transformers, motors and other electromagnetic loads. Reactive power does not load the generator set's engine but does limit the generator thermally.

kW: This is an abbreviation for kilowatt, an alternate term for rating electrical devices. Generator sets in the United States are usually rated in kW. Sometimes called active power, kW loads the generator set engine.

kW-h(kilo-Watt-hour): This is a unit of electric energy. It is equivalent to one kW of electric power supplied for one hour.

Line-To-Line Voltage: Line-to-line voltage is the voltage between any two phases of an AC generator.

Line-To-Neutral Voltage: In a 3-phase, 4-wire, Y-connected generator, line-to-neutral voltage is the voltage between a phase and the common neutral where the three phases are tied together.

Locked-Rotor Current: Steady-state current taken from the line with the rotor of a motor at standstill and at rated voltage and frequency. Abbreviated LRA.

Main Breaker: A main breaker is a circuit breaker at the input or output of the bus, through which all of the bus power must flow. The generator main breaker is the device, usually mounted on the generator set that interrupts the genset's power output. Main breakers provide overcurrent protection and a single disconnect point for all power in a switchboard or device.

Mains: Mains is a term used extensively outside of the United States to describe the normal power service (utility).

NEMA 1 Enclosure: This enclosure designation is for indoor use only-where dirt, dust, and water are not a consideration. Personnel protection is the primary purpose of this type of enclosure.

NEMA 3: Dust tight, rain tight, sleet tight - outdoor

NEMA 3R: Rain tight, sleet resistance - outdoor

NEMA 4: Water tight, dust tight, sleet resistance - indoor & outdoor

NEMA 4X: Water tight, dust tight, corrosion-resistance - indoor & outdoor

NEMA 12: Dust tight and drip tight - indoor

Neutral: Neutral refers to the common point of a Y-connected AC generator, a conductor connected to that point or to the mid-winding point of a single-phase AC generator.

Neutral Current: Neutral current is the current that flows in the neutral leg of a paralleling system. Often, this term is used in reference to circulating currents or cross currents.

Peak Load: Peak load is the highest point in the kilowatt demand curve of a facility. This is used as the basis for the utility company's demand charge.

Phase: Phase refers to the windings of an AC generator. In a three-phase generator there are three windings, typically designated as A-B-C, R-S-T or U-V-W. The phases are 120 degrees out of phase with each other. That is, the instants at which the three phase voltages pass through zero or reach their maximums are 120 degrees apart, where one complete cycle is considered 360 degrees. A single-phase generator has only one winding.

Phase Rotation: Phase rotation (or phase sequence) describes the order (A-B-C, R-S-T, or U-V-W) of the phase voltages at the output terminals of a three-phase generator. The generator phase rotation must match the facility phase rotation. This must be checked prior to operation of the electrical loads in a facility with an on-site generator.

PMG: Permanent Magnet Generator, aids in the starting of large motors and operating electronic devices.

Pole: Pole is used in reference to magnets, which are bipolar. The poles of a magnet are designated North and South. Because magnets are bipolar, all generators have an even number of poles. The number of poles determines how fast the generator will have to be turned to obtain the specified frequency. For example, a generator with a 4-pole field would have to be run at 1800 rpm to obtain a frequency of 60 Hz (1500 rpm for 50 Hz). Pole can also refer to the electrodes of a battery or to the number of phases served by a switch or breaker.

Power: Power refers to the rate of performing work or of expending energy. Typically, mechanical power is expressed in terms of horsepower and electrical power in terms of kilowatts. One kW equals 1.34 hp.

Power Factor: The ratio of watts to vol-amperes of an ac electric circuit.

Prime Power: Continuous power rating with 10% overload available for 1 hour in 12 hours of operation.

RPM: Revolutions Per Minute.

Service Entrance: The service entrance is the point where the utility service enters the facility. In low voltage systems the neutral is grounded at the service entrance.

Shunt Trip: Shunt trip is a feature added to a circuit breaker or fusible switch to permit the remote opening of the breaker or switch by an electrical signal.

Sound Pressure Level (SPL): Sound pressure level is a measurement of the pressure fluctuations of a sound wave as it propagates through the air. Because of the wide range of pressures to which the ear responds, a logarithmic scale is used and is expressed as a ratio of the measured pressure referenced to a pressure of 2×10^{-5} N/m² (20 m Pa) which is the threshold of human hearing at 1000 Hz. The measure is expressed in decibels (dB). The Bel unit is named after Alexander Graham Bell.

Standby P: Assumes a continuous variable load while utility power is interrupted. No overload is available.

Surge: Surge is the sudden rise in voltage in a system, usually caused by load disconnect.

Surge Rating: Surge rating is the rating of a machine, usually in excess of its normal operating level, for which it can provide power for a very short time.

Surge Suppressor: Surge suppressors are devices capable of conducting high transient voltages. They are used for protecting other devices that could be destroyed by the transient voltages.

Synchronization: In a paralleling application, synchronization is obtained when an incoming generator set is matched with and in step to the same frequency, voltage, and phase sequence as the operating power source.

Transfer Switch: A transfer switch is an electrical device for switching loads between alternate power sources. An automatic transfer switch monitors the condition of the sources and connects the load to the alternate source if the preferred source fails.

Volt: The volt is a unit of electrical potential. A potential of one volt will cause a current of one ampere to flow through a resistance of one ohm.

Watt: The watt is a unit of electric power. In direct current (DC) circuits, wattage equals voltage times amperage. In alternating current (AC) circuits, wattage equals effective (RMS) voltage times effective (RMS) amperage times power factor times a constant dependent on the number of phases. 1,000 watts equal one kW.