

DEFINITIONS: ELECTRICAL TERMS

These definitions of electrical terms are frequently used in association with electrical fencing. While all the definitions are correct in content, details necessary to make the definition rigorous have frequently been omitted for clarity.

Electricity:	A flow of electrons around a circuit.
Electric Charge:	This is the quantity of electricity -literally the number of electrons. Charge is measured in coulombs.
Voltage:	The electrical pressure that forces electrons around a circuit. A voltage is necessary before any current can flow.
Current:	The rate at which electrons are flowing in a circuit. Current is measured in amperes, but this is commonly shortened to amps.
Power:	Power in electrical form has the same sense as power from an engine. It is the ability to do work at a certain rate and is measured in watts. Power is voltage multiplied by current.
Energy:	Electrical energy is the ability to provide power for a period of time. It is measured in joules, a joule being one watt of power developed for one second. Similarly 1000 watts for one hour is a kilowatt-hour or one unit, the basis of local authority power charges. One kilowatt-hour is equivalent to 3,6 million joules.
Conductor:	A material through which electrons will readily flow (all metals are conductors).
Insulator:	A material that strongly resists the flow of electrons through it. Circuit: A conducting path around which electrons may flow.
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Resistance:	Opposition by an electric circuit to the flow of electrons. Whenever a current flows in a resistor, energy is lost in the form of heat. Resistance is measured in ohms.
Inductance:	Opposition by a circuit to rapid changes in electric current. Energy is not lost but stored in an inductor.
Capacitance:	Opposition by a circuit to slow changes in electric current. Energy is not lost but is stored in a capacitor.
Impedance:	Opposition by a circuit to current flow due to the effects of resistance, inductance and capacitance. Whenever a current flows through an impedance, there is a voltage developed across it. If this impedance is the effective internal impedance of an electric fence energiser, or the impedance of an earth or lead out wire, the voltage developed across it would be considered to be a loss.