Which uses direct current

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AC and DC current are the two primary methods of electrical transmission. DC most frequently finds a home in battery-powered objects as well as home electronics, while AC forms the basis for the most efficient long-range energy transmission. Appliances often have devices known as inverters for changing AC current, which is only usable by the simplest of devices, into DC current, which is usable in electronics thanks to its stability of flow. AC and DC technology were at one point competing technologies. DC technology is the elder technology by far and dates back as far as the Baghdad battery found in Khujut Rabu in 250 B.C., though scholars can only speculate as to what it was used for.

Direct current is used in any device that has a circuit board because the chips within these devices require a steady, unidirectional flow of electrons to operate and store data. Every home PC has a DC inverter built into the system, which then provides DC style power to the rest of the devices inside the case. Laptops are another story, since they contain a battery that already gives power in the DC format. Anybody who has brought a laptop on the road is familiar with the bulky box located somewhere on the power cord, which is a DC converter as well. DC current is also required to run the majority of electric motors; these motors run everything from the optical disk drive and the spinning of its hard disk in a computer, to the movements of a robotic arm at a manufacturing plant.

The most basic electrical generators create their energy in DC format, which is then changed via transformer into AC format for transmission. The reason for this is DC generators are far simpler to construct and they make the most of the rotary energy that they harness. Another reason that DC generators are more popular is that AC generators require extensive engineering and phase-synchronization equipment placed in series with one another, whereas DC easily lends itself to parallel circuitry.

Direct Current (DC) is a type of electric current that flows in only one direction. It is the opposite of Alternating Current (AC), which periodically changes direction. It is produced by sources such as batteries, fuel cells, and solar cells, which generate a steady flow of electrons in a single direction, especially from a region of high electron density to a region of low electron density. For example, in a battery circuit, direct current is due to the constant flow of electrons from the negative terminal to the positive terminal through the circuit.

Thomas Edison, an American inventor, played a crucial role in popularizing direct current for practical applications. Edison is often associated with developing the direct current electrical system used for lighting and power distribution in the late 19th century. He designed and promoted direct current systems for electric lighting, establishing the first electric utility company in the United States.

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When a direct current flows through a circuit, it encounters various components, such as resistors, capacitors, and inductors, all of which influence its behavior. Resistors restrict current flow. There is no continuous current flow through the capacitor, while the inductor offers almost no resistance to the constant current and acts like a short circuit.

The flow of direct current is governed by Ohm’s Law, which states that the current (I) flowing through a conductor is directly proportional to the voltage (V) applied across it and inversely proportional to the resistance (R) of the conductor. This relationship can be represented by the equation I = V/R.

The symbol commonly used to represent direct current in electrical circuit diagrams is a horizontal straight line with a dashed line below it. Often, a circle encloses the two lines. The line represents the current flow, while the circle indicates the positive terminal of the DC source. This symbol is widely recognized and used in various electrical diagrams and schematics.

Direct current has several applications in our everyday lives. Here are some examples:

Both alternating and direct currents have their distinct advantages and applications. Understanding the differences between the two is essential for grasping the workings of electrical systems, from household appliances to industrial machinery. Here is a concise comparison table:

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