AC Receptacle & Plug—

Safe Connectors

Ian Woofenden

Derivation: From Latin receptaculum, *place to receive and store things.*

We get electricity from a utility, an engine generator, a solar-electric array, a wind generator, or a hydro turbine. The energy is carried to a home's distribution panel, and to the individual appliances via commonplace wiring. At this point, we need a safe, convenient, and effective means to connect and disconnect our appliances to and from the circuit wiring. The same basic method has served this purpose for more than a century—the plug and socket.

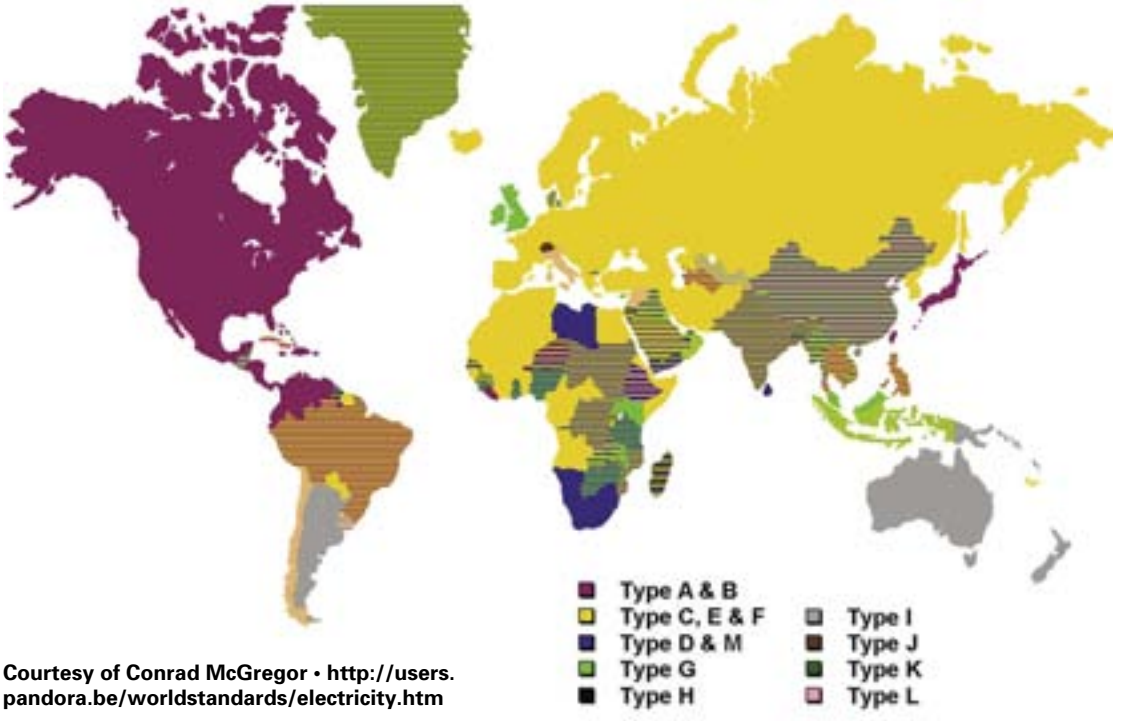
When electricity was first used in homes for operating lights, they were "hard-wired" (not easily disconnected). But as electrical appliances became available, a better connection arrangement was needed. In 1904, Harvey Hubbell (who also invented the pull-chain light socket) developed the first electrical plug and socket. The two-prong plug and socket that we still see on occasion in older homes came into use in the 1920s. Later, a third wire and terminal was added to circuits to allow the equipment to be grounded (or "earthed"), so it won't be "hot" in the case of a wiring fault.

Specific receptacles and plugs are used to prevent plugging into the wrong voltage source. Even high voltage electrical connections can be made with relative safety. The "hot" (electrified) terminals of the receptacle are encased in a plastic housing, with only small slots and holes exposed. By the time the plug contacts the live terminals, most of its metal is no longer exposed. So unless you actually try to get shocked or are careless, it is not likely to happen.

Here in the United States, we take our AC receptacle style for granted—it is "normal" to us. But a wide variety of AC electrical socket configurations are used around the world. See the map and socket diagrams for the variations, and the locations where they are used. The Web site listed below the map provides more information on specific receptacles.

No universal standard has been adopted for AC receptacles. This can be confusing when you travel to different countries, especially in regions that use more than one style of receptacle. But it also is fascinating to see the diversity of configurations that serve the same purpose. It's

AC Receptacles 'Round the World



Courtesy of Conrad McGregor • http://users.pandora.be/worldstandards/electricity.htm

a demonstration of human inventiveness, and the different ways we solve problems.

Whatever the receptacle configuration, the goal is the same—allowing you to easily and safely plug in the appliances you want to use, where you want to use them.

Access

Ian Woofenden, PO Box 1001, Anacortes, WA 98221 •
ian.woofenden@homepower.com