

Ethernet cables

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Ethernet network cables, specifically twisted pair cables, are essential for connecting devices in local area networks, such as linking a computer to a router or modem.

There are two primary types:

Unshielded Twisted Pair (UTP): This common type features four pairs of color-coded wires twisted together to prevent electromagnetic interference.

Shielded Twisted Pair (STP): This type is similar to UTP but includes an additional foil shield for enhanced protection against interference, often used in industrial settings.

When creating custom cables, wires are arranged according to wiring standards (568A and 568B) before attaching RJ45 connectors. The chosen standard determines the cable's function: a straight cable (both ends wired identically) connects dissimilar devices (e.g., computer to router), while a crossover cable (ends wired differently) connects similar devices (e.g., two computers directly).

Additionally, twisted pair cables are categorized (e.g., Cat 3, 5, 5e, 6, 6a, 7, and 8) based on their maximum speed capacity and the tightness of their wire twists. Higher categories support faster speeds, with Cat 8 being the most recent, capable of 40 gigabits per second.