

What's the Difference between Cat 5, Cat 5e, and Cat 6 Cable?

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If you're researching the different types of twisted-pair copper cable used to transmit data in network and home theater applications, then it's likely that you will repeatedly come across the terms Category 5 (Cat 5), Category 5e (Cat 5e) and Category 6 (Cat 6). Organizations such as the Telecommunication Industry Association (TIA) and Electronic Industries Association (EIA) set specific product standards, and these guidelines have resulted in cables being classified into various categories based on their performance levels. Just in case you're not too familiar with cabling terminology, we at CableOrganizer.com would like to provide you with a few straightforward definitions and statistics on these three common grades of network cable, to help you better choose the right one to fit your needs.

Cat 5: Out of the three types of cable we'll be discussing, Category 5 is the most basic. Cat 5 cable is available in two varieties: Unshielded Twisted Pair (UTP), the type widely used in the United States, and Screened Twisted Pair (SCTP), which has shielding to provide a measure of extra protection against interference, but is rarely used outside of Europe. Cables belonging to Category 5 are either solid or stranded: Solid Cat 5 is more rigid, and the better choice if data needs to be transmitted over a long distance, while Stranded Cat 5 is very flexible and most likely to be used as patch cable. Cat 5 cable can support 10 or 100 Mbps Ethernet, and has a capability of up to 100MHz.

Cat 5e: Cat 5e (which stands for Category 5, enhanced) cable goes along the same lines as basic Cat 5, except that it fulfills higher standards of data transmission. While Cat 5 is common in existing cabling systems, Category 5e has almost entirely replaced it in new installations. Cat 5e can handle data transfer at 1000 Mbps, is suitable for Gigabit Ethernet, and experiences much lower levels of near-end crosstalk (NEXT) than Cat 5.

Cat 6: Of the three cable categories we're discussing, Category 6 is the most advanced and provides the best performance. Just like Cat 5 and Cat 5e, Category 6 cable is typically made up of four twisted pairs of copper wire, but its capabilities far exceed those of other cable types because of one particular structural difference: a longitudinal separator. This separator isolates each of the four pairs of twisted wire from the others, which reduces crosstalk, allows for faster data transfer, and gives Category 6 cable twice the bandwidth of Cat 5! Cat 6 cable is ideal for supporting 10 Gigabit Ethernet, and is able to operate at up to 250 MHz. Since technology and standards are constantly evolving, Cat 6 is the wisest choice of cable when taking any possible future updates to your network into consideration. Not only is Category 6 cable future-safe, it is also backward-compatible with any previously-existing Cat 5 and Cat 5e cabling found in older installations.