

Ethernet Cables & Categories

Ethernet cables come with a variety of category or Cat numbers indicating the type version and from this it is possible to understand the performance level. As it is necessary to select the right cable to provide the required performance, this can be very important.

Cat 5

This is not recognised by the TIA/EIA, but it supports 10/100MBPS with a maximum bandwidth of 100MHz.



Cat 5e

The design of the Cat5e cables are an updated version of Cat5. They've been updated to reduce crosstalk between the cables. These cables have been the 'go-to' for many short Ethernet links between computers, routers, printers and the like, especially in home networks for many years.

Cat 6

This cable is defined in TIA/EIA-568-B and it provides a significant improvement in performance over Cat5 and Cat 5e. During manufacture Cat 6 the individual twisted pair wires are more tightly wound than either Cat 5 or Cat 5e and they often have an outer foil or braided shielding.

Cat 6a

The "a" in Cat 6a stands for "Augmented" and was revised in 2008. They are capable of maintaining higher transmission speeds over longer network cable lengths. Cat 6a cables utilise shielding which is sufficient to virtually eliminate crosstalk. However this makes them less flexible than Cat 6 cable.



Cat 7

This is an informal number for ISO/IEC 11801 Class F cabling. It comprises four individually shielded pairs inside an overall shield. It is aimed at applications where transmission of frequencies up to 600 MHz is required.

Cat 8

Cat 8 cables are now becoming available and they provide a huge step up in data rate / bandwidth. Accordingly these Cat 8 cables are generally more expensive than the older versions like Cat 6, or even Cat 7.



Performance Summary

CATEGORY	SHIELDING	MAX TRANSMISSION SPEED (AT 100 METRES)	MAX BANDWIDTH
Cat 3	Unshielded	10 Mbps	16 MHz
Cat 5	Unshielded	10/100 Mbps	100 MHz
Cat 5e	Unshielded	1000 Mbps / 1 Gbps	100 MHz
Cat 6	Shielded or Unshielded	1000 Mbps / 1 Gbps	>250 MHz
Cat 6a	Shielded	10000 Mbps / 10 Gbps	500 MHz
Cat 7	Shielded	10000 Mbps / 10 Gbps	600 MHz
Cat 8	Shielded	25 Gbps or 40Gbps *	2000 MHz

* 25 Gbps for Cat 8.1 and 40 Gbps for Cat 8.2.