# Which Are the Latest Type of LAN Cables/Ethernet Cables Available?

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## In brief

Technology and high-speed internet connectivity have become necessary in the digital age. Everything from entertainment to communication and data transfer is supported through the Internet.

Technology and high-speed internet connectivity have become necessary in the digital age. Everything from entertainment to communication and data transfer is supported through the Internet. And to support that, the presence of Ethernet cables or LAN cables has become more vital.

Ethernet cables, also known as LAN cables, have been there since the 1980s and have undergone significant evolution. Users today have a higher dependency on technology, and presently, the marketplace is full of different types of LAN Cables/ Ethernets Cables.

LAN Cables/Ethernet Cables have gradually evolved to support higher bandwidths and faster data transfer rates. Today, the latest types of LAN cables available on the market can offer speeds up to 40 Gbps. It allows the cables ideal for server rooms, data centers, high-performance computing, etc.

LAN Cables can differ in various factors, including bandwidth, speed, frequency range, and more. However, with the constant advancements in technology, choosing the latest LAN cable type suitable for the job type is slightly tricky.

That is why we have compiled this article with all the latest types of LAN cables or Ethernet cables, their features, capabilities, and more. So ensure you read the article until the end to make the most out of the information.

## Latest Type of LAN Cables/Ethernet Cables 2023

### 1. Cat6a

Cat6a, or Category 6 Augmented, is an Ethernet cable standard. This improved version of the Cat6 standard was introduced in 2008 and is designed to operate at up to 500 MHz frequencies.

It is twice the frequency support of Cat6 cables. Cat6a LAN cables are known for supporting data transfer rates of up to 10 Gbps at a distance of 100 meters. Their higher frequency aids in faster data performance and thus results in better performance in high-bandwidth applications.

Cat6a cables are thicker when compared to Cat6 and are more suited for industrial environments at a lower price point. One of its key features is improved shielding. Cat6a cables have individually shielded pairs and overall shielding.

This combination aids in reducing crosstalk and electromagnetic interference (EMI). The shielding also makes Cat6a cables ideal for environments with added electrical noise and interference.

Cat6a cables can also be used with Cat5e or Cat6 cables since they are backward compatible. However, remember that the network's performance will be limited depending on the slowest component in the system.

### Other details

- Cable length: Its maximum cable length is 100 meters (328 feet). This is the same as that of Cat5e and Cat6.
- Connector types: It uses RJ45 connectors with eight pins and can fit into a standard Ethernet port.
- Power over Ethernet (PoE): Cat6a cable support PoE and thus allows devices to be powered over the Ethernet connection. This feature can be helpful for devices like wireless access, IP cameras, VoIP phones, etc.

### Pros

- They support a maximum bandwidth of 10 Gbps, twice those of Cat6 Ethernet cables.
- They can transmit data up to 100 meters.
- They offer improved shielding along with minimized external interference and minimized crosstalk.
- They are a future-proof investment, given they support emerging technologies like 10 Gigabit Ethernet.
- They offer a higher signal-to-noise ratio (SNR) than many others.
- They offer clearer and more reliable signals.

### Cons

- Since they have thicker insulation, Cat6a is more expensive than Cat6.
- Given they are thick and less flexible, installing Cat6a can be harder, especially in tight spaces.
- They may not be compatible with equipment that supports only Cat5 or Cat6 standards.
- Their high bandwidth capabilities may be overkill for home networks and small offices.

## 2. Cat7

Cat7 is another Ethernet cable that supports high-speed data transfer rates. It supports up to 10 Gbps over a distance of up to 100 meters. Cat7 comes with a twisted pair of copper wires. Its connectors are even compatible with those used in Cat5e and Cat6 cables. The most highlighted advantage of Cat7 is its improved shielding.

These cables are available in both shielded and unshielded versions. They are ideal for environments like data centers, industrial settings, or facilities with a lot of electronic equipment. Environments with high levels of electromagnetic interference get benefit from them.

Cat7 comes in different lengths and colors as well. However, they are expensive since Cat7 is designed for high-speed data transfer and improved shielding. Also, it is important to learn that most manufacturers and users do not widely adopt these high-performance cables. This is because they have limited usage concerns towards standard office networks majorly.

### Other details

- Cable length: Its maximum length is 100 meters. However, the maximum length may limit to 50 meters due to the use of shielded twisted pair (STP) cables and signal attenuation.
- Connector types: It utilizes GG45 or TERA connectors instead of the traditional RJ45 connectors. GG45 or TERA connectors are better at reducing crosstalk and improving signal quality.
- Power over Ethernet (PoE): They support PoE and thus allow devices to be powered over the Ethernet connection.

### Pros

- They support up to 10 Gbps data transfer rates, ideal for streaming video and online gaming.
- They reduce interference and crosstalk and have improved shielding then older versions.

### Cons

- They are less common than many earlier Ethernet cable standards. As a result, it is harder to find them. Also, they may not be supported by all network equipment.
- They aren’t suitable for large networks that demand longer cable runs.

## 3. Cat8

Cat8 Ethernet cable is the latest type of LAN Cable/ Ethernet Cable present around. It was introduced as the next generation of Ethernet cabling in 2016. Cat8 is meant to support 25GBASE-T and 40GBASE-T networks. This also makes it an ideal cable for high-speed data centers and enterprise networks. The best part about Cat8 cables is that they utilize shielded twisted pair (STP) design, providing superior resistance against interference and noise.

Cat8 cables offer a maximum bandwidth of 2 GHz. This is four times higher than that of Cat6a cables. Due to increased bandwidth, Cat8 cables facilitate faster data transfer rates and lower latency. Cat8 cables are ideal for virtual reality, 4K video streaming, and online gaming. The highlight of Cat8 Ethernet cables is their backward compatibility.

These cables can be used with Cat6 and Cat5e, making them a very versatile choice. However, since Cat8 Ethernet cables are new, they aren’t yet widespread. But as the demand for faster and more reliable networks grows, Cat8 cables will likely gain popularity in the coming years.

### Other details

- Cable length: Its maximum length is 30 meters for 25GBASE-T and 40GBASE-T networks. The length is less, given the higher signal degradation at higher frequencies.
- Connector types: RJ45 and TERA are two different connector types. The former is more common and is used in most Ethernet networks, whereas the latter is newer and offers higher performance. However, TERA is less common and expensive.
- Power over Ethernet (PoE): It supports PoE.

### Pros

- They support data transfer rates of up to 40Gbps, which are the best for high-bandwidth applications.
- They have lower latency than lower-grade Ethernet cables. This functionality makes them suitable for real-time data transfer applications, including video streaming, video conferencing, online gaming, and more.
- They use improved shielding, which reduces crosstalk and interference. Improved shielding also reduces errors in data transmission and enhances signal quality.
- They are backward compatible with older Ethernet standards and, thus, a good choice for upgrading existing networks.

### Cons

- They are undoubtedly the most expensive among all, probably lower-grade Ethernet cables. The price range can be a barrier for many organizations looking to incorporate Cat8.
- The shorter cable length of Cat8 can be a disadvantage for many.
- Since they are relatively new and not yet widespread, it can be difficult to find them. Unfortunately, less availability also means expensive purchases.

- They have a maximum length of 30 meters for 25GBASE-T and 40GBASE-T networks. However, only a few devices can support 25GBASE-T or 40GBASE-T networks; thus, they may not be fully utilized for some time.

## Most Commonly used Ethernet/LAN Cables

### Cat5

Cat5 is an unshielded twisted pair (UTP) cable for Ethernet networking. It is widely used in networking, data transmission, and phone wiring. Cat 5 cable usually comprises four twisted pairs of copper wire connected by an RJ45 connection. It can transfer data at up to 100 Mbps and is backward compatible with older Ethernet standards.

### Cat5e

Cat5e cables are ten times faster than standard Cat5 cables and meet ANSI/TIA-568 requirements. It is an improved version of Category 5 cable that can carry data rates up to 100 Mbps. Cat5e cable is usually made of four pairs of copper wire surrounded by an outer jacket. Twisted pairs help reduce crosstalk or interference between wires.

### Cat6

Cat6 Ethernet connections use four twisted-pair copper wires with a bandwidth of 250 MHz compared to Cat 5 and Cat 5e’s 100 MHz. In addition, this Ethernet cable must support data transmission rates of up to 10 Gbps (10GBASE-T) over distances of up to 180 feet.

### Cat6e

Cat6a cables are significantly thicker and heavier than standard Cat6 cables. It is a high-performance variant of the Cat6 cable that can transport data at speeds of up to 10 Gbps. It is backward compatible with Cat5e and Cat6 cables and outperforms them in performance.

## Conclusion

This was all for the latest types of LAN cable/ Ethernet cables. The marketplace has various LAN cables, each of which has evolved to support faster data transfer and higher bandwidths. However, regardless of fast they are, it is important to choose the one that is suitable for your job type and can help you achieve optimal performance.