

# IOL NETWORKING CABLE GUIDE

## Variations in CAT5, CAT5E, CAT6 and CAT7

### Data Transfer Rates

CAT5 = 100MHz

CAT5E = 100MHz

CAT6 = 250MHz

CAT6A = 500MHz

CAT7 = 600MHz

The 'E' in CAT5E stands for 'Enhanced' and is backward compatible with equipment using CAT5. Its improved electrical performance supports applications requiring more bandwidth, such as video over IP and Gigabit Ethernet.

CAT5E features 100ohm impedance, as well as electrical characteristics that support transmissions up to 100MHz. When it comes to performance, CAT5 and CAT5E differ in many specs, such as attenuation, capacitance, resistance, and frequency. Although the components of CAT5E meet Gigabit Ethernet specs, they will perform below the top standard if the distances are too long, or if parts of the interconnect chain are lower rated components.

The larger diameter and more expensive CAT7 cable is not approved by the TIA, but is recognized by BICSI, NEMA, and the IEEE. CAT5E &/or CAT6 are the most commonly used in networking systems. CAT6 cables are being created with separators that provide improved crosstalk across pairs built with 23AWG conductors, compared to CAT5E's 24AWG.

### 10BASE-T, 100BASE-T and 1000BASE-T

10BASE-T refers to the IEEE standard, which defines transmission of data at 10 Mbps within unshielded twisted pairs of cabling, as well as different aspects in running Ethernet on its cabling.

100BASE-T refers to the IEEE standard, which defines transmission of data at 100 Mbps within unshielded twisted pairs of cabling, as well as different aspects in running baseband Ethernet on its cabling.

1000BASE-T, or Gigabit Ethernet, refers to the IEEE standard, which defines transmission of data at 1000 Mbps within unshielded twisted pairs of cabling.

### Maximum Cable Lengths

Solid conductor UTP (Unshielded Twisted Pair) Ethernet 10baseT & fast Ethernet 100baseT both extend to 100 meters.

When it comes to patch cables made out of stranded conductor cables, both Ethernet 10baseT & fast Ethernet 100baseT reach up to 10 meters.

### **CAT5E Backwards Compatibility**

CAT5E cables function with every 10BaseT and 100BaseT hub and network card. CAT5E also happens to be compatible with CAT5, but your overall network performance will be as fast as it's slowest components.

### **CAT5E Ethernet Cable Outdoor Applications**

Standard CAT5E cables are not made for use outdoors. Whenever possible, run your cables through some type of conduit in order to prevent moisture ingress.

SYNTAX offers a dual jacketed CAT5E cable, [7XLANCAT5PUR](#), suitable for outdoor installations.

### **Ethernet Cable UL Levels**

Three levels exist: the general-purpose level of UL1581, the riser level of UL1666, and the plenum level of UL910.

All three UL file numbers are safety and fire rated.

### **Ethernet Cables**

IOL offers the following high quality networking cable product designs:

- SYNTAX CAT5E Indoor Cable
- SYNTAX CAT5E Outdoor Cable
- IOL High Volume CAT6 Indoor Cable
- IOL CAT6 UberFlex Indoor Cable
- IOL CAT6A Indoor Cable
- IOL CAT7 Indoor Cable