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THE ETHERNET BUZZWORD GUIDE
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Ethernet has a zillion buzzwords and plenty of strange abbreviations, acronyms and "short hand" – for example, "10BASE-T" means **10** megabits per second, **base**band, **T**wisted Pair. This guide is a collection of the most common terms that you encounter when you're working with Ethernet and TCP/IP.

1000BASE-CX	Gigabit Ethernet on twinax copper cabling
1000BASE-LX	Gigabit Ethernet for vertical or campus backbones; single or multi-mode fiber
1000BASE-SX	Gigabit Ethernet for low cost, short backbone, or horizontal connections
100BASE-T	Standard "Fast Ethernet" based on twisted pair copper wire
10BASE2	Old "Cheapernet" with thin coaxial cable and trunk/drop topology
10BASE5	Old "Thicknet" with thick coaxial cable and trunk/drop topology
10BASE-FL	10Mbps fiber optic Ethernet
10BASE-T	Standard "Plain Vanilla" Ethernet based on Unshielded Twisted Pair wire
7 Layer Networking	Concept of viewing data in layers: physical, data link, network, transport, session, presentation and application
Application Layer Protocol	The layer of information that gives meaning to transmitted data
ARP Protocol	Address Resolution Protocol - translates TCP/IP addresses to physical MAC addresses
Auto-Negotiation	Hardware feature for automatic adjustment to proper bit rate
Bridging Router	Router that automatically forwards a message it doesn't understand
Classless Subnet Masks	Block of IP addresses with specified notation to indicate how many bits are within a subnet (e.g. 203.14.4.13/27)
Crossover Cable	Cable with transmit/receive pairs reversed so one hub or switch can link directly to another
CSMA/CD	Carrier Sense Multiple Access Collision Detection - arbitration mechanism for competing Ethernet messages
DHCP	Dynamic Host Configuration Protocol - permits auto-assignment of temporary IP addresses for new devices logging in
DNS	Domain Name Server - associates names with IP addresses
Duplex	Communication travelling between two nodes in both directions
EtherNet/IP	Application layer protocol based on (Control and Information Protocol) from DeviceNet/ControlNet
Flow Control	Mechanism used by switches & routers to regulate receipt of heavy traffic loads
Foundation Fieldbus HSE	High Speed Ethernet (100Mbps) implementation of the Foundation Fieldbus protocol for process control
FTP	File Transfer Protocol - the most popular mechanism for bulk movement of files on TCP/IP
Full Duplex	Messages can be sent and received between two nodes simultatneously

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Gateway	Device which links Ethernet to dissimilar networks and transfers data at the application layer level
Half Duplex	Two nodes can send and receive messages with each other, but only one at a time
Hub	Repeater which indiscriminately broadcasts messages to all connected nodes
Industrial Ethernet	IEEE 802.3 Ethernet and TCP/IP with provisions for harsh physical and electrical conditions
IP Address	Address of a TCP/IP enabled device on an Intranet or Internet - in the form xxx.xxxx.xxx.xxx
IP Protocol	Internet Protocol portion of TCP/IP
IP v.4	The current version of the IP protocol, uses 32 bit addresses
IP v.6	New version of the IP protocol with provisions for 128 bit addresses and advanced broadcast features
LAN	Local Area Network
MAC	Media Access Control - the physical components which dissasemble Ethernet message fames
MAC Address	The physical address of an Ethernet node
Magnetics	Transformer which provides voltage isolation and protection for Ethernet hardware
Managed Hub	Hub which can be externally programmed to accept / reject specific types of messages
Mesh	Network topology in which messages can use a variety of routes to reach a destination
Modbus/TCP	Application layer protocol for automation based on Modbus ASCII/RTU
Netstat	Utility that reports active TCP connections, state of servers & sockets, and IP routing tables in use
PHY	Physical component which decodes data and produces signal levels that drive magnetics and cable
PING	Packet Inter Net Groper - very useful utility which probes for the existence of a TCP/IP host
Port	A number in TCP/IP to which services are assigned; e.g. FTP is port 21; SMTP is port 25; HTTP is port 80.
PROFINet	Application layer protocol from Profibus Trade Organization
Private IP Addresses	Range of IP addresses not recognized by Internet routers, designated for private LANs
Protocol	Agreed-upon format for transmitting or storing data
Repeater	Buffer which cleans up, strengthens and re-transmits a signal
Router	Repeater which selectively re-distributes messages based on IP address
Serial Server	Device which converts serial data to Ethernet
Simplex	Communication between two devices that can only travel in one direction
SNMP	Simple Network Management Protocol; allows monitoring and management of a network
Socket	Specific instance of an IP address and Port number that represents a single connection between two applications

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Star Topology	Topology which allows only one device at each end of a wire and requires repeaters for more than two devices
Switch	Repeater which selectively re-distributes messages based on hardware MAC address
TCP Protocol	Transmission Control Protocol - mechanism in TCP/IP that ensures that data arrives intact and in correct order
TCP/IP	Transmission Control Protocol / Internet Protocol - an entire suite of protocols and delivery mechanisms for Internet data
Telnet	Standard interface through which a client may access a host as though it were local
Topology	Physical format of a network
Traceroute	Utility which tells which routers / servers exist between a source and destination
Trunk/Drop Topology	Topology which allows many devices on one cable
Twisted Pair	Standard wire format for Ethernet cables
UDP	User Datagram Protocol - lower overhead alternative to TCP protocol which does not guarantee message delivery

For further information…

- Check out our extensive series of application notes, articles and guides at www.bb-elec.com.
- *Industrial Ethernet: A Pocket Guide* by Perry S. Marshall, ISA Press www.isa.org.
- *Practical TCP/IP & Ethernet Networking for Engineers and Technicians* by Deon Reynders and Edwin Wright, IDC Techbooks, www.idc-online.com.
- *Ethernet: The Definitive Guide* by Charles E. Spurgeon, O'Reilly Press