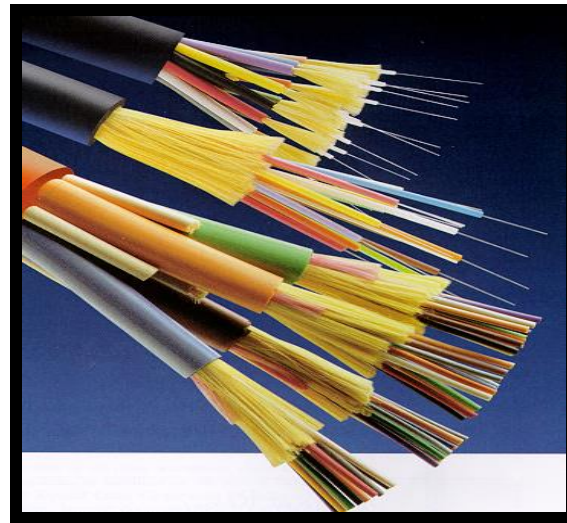
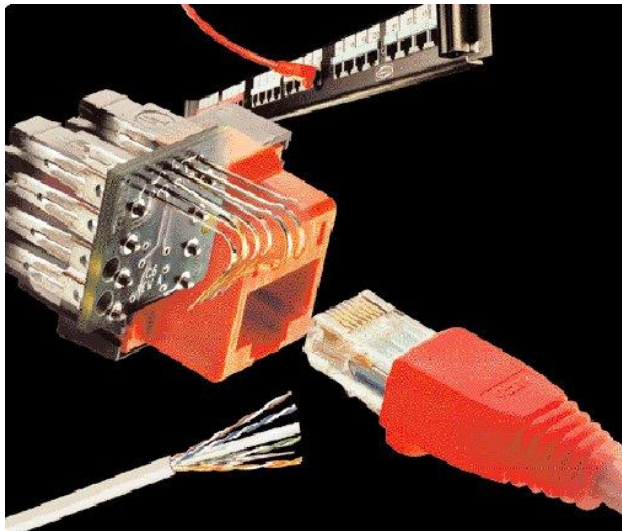
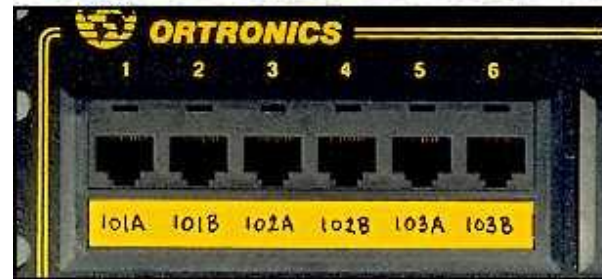


UTP AND FIBER CABLING



Structured Cabling Infrastructure

- Mounted and permanent
- Allows patching
- Comfort that infrastructure is OK
- Components:
 - Information Outlet with Face Plate
 - Patch Panel
 - UTP Cable
 - Patch Cord



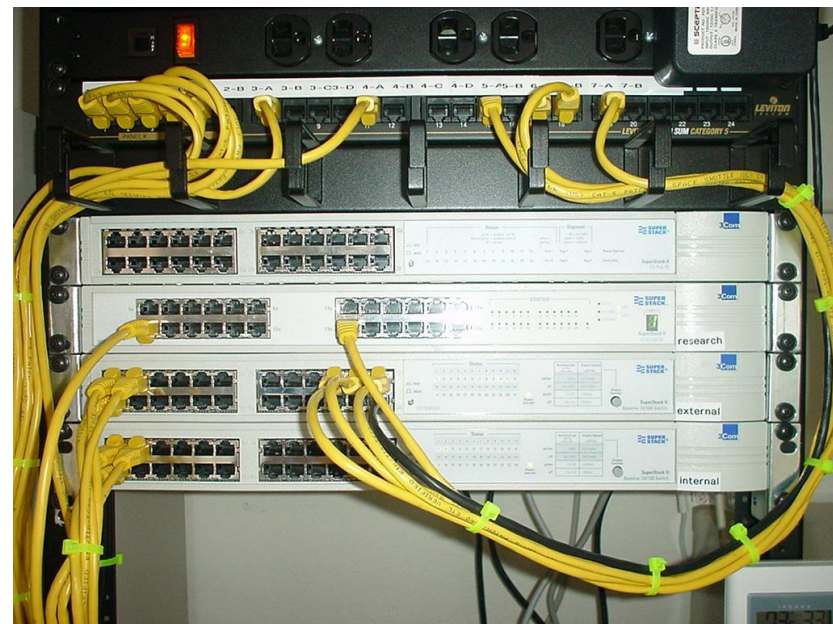
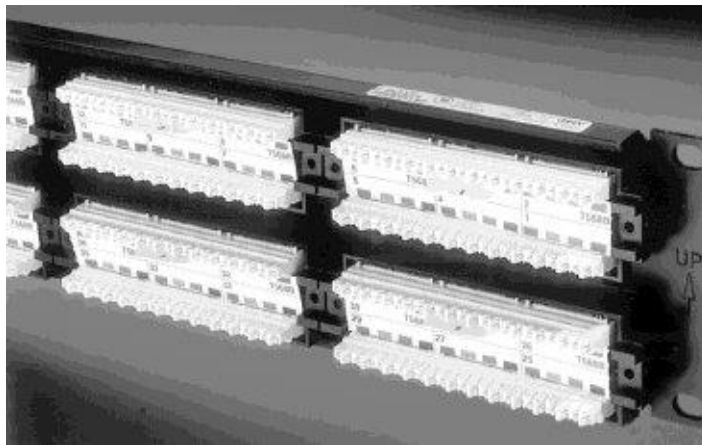
I/O & Faceplates

- Faceplate mounts on or in wall or in raceway
- Single or Dual Information Outlet (I/O)
- Provide network connectivity to the Hosts through a Patch Cord

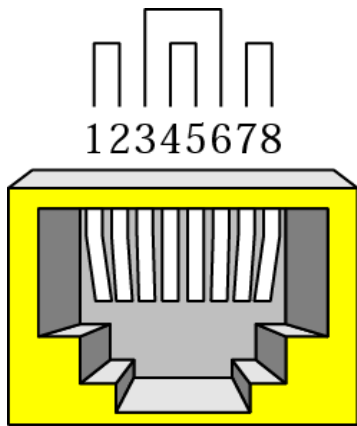


Patch Panel

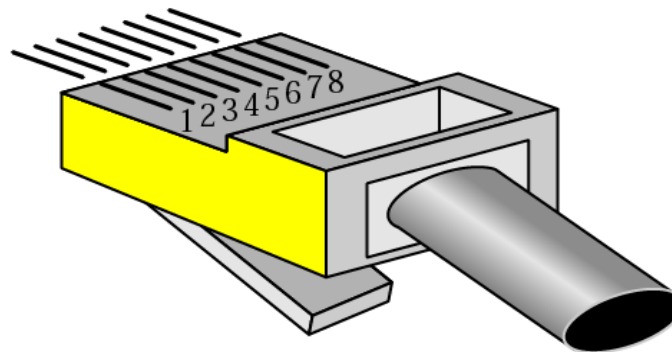
- Termination punchdown in back
- Patch cord plugin in front



Patch Cord & UTP Connectors



RJ-45 Female



RJ-45 Male



Color Codes

■ Data Tx: 1 & 2

■ Data Rx: 3 & 6

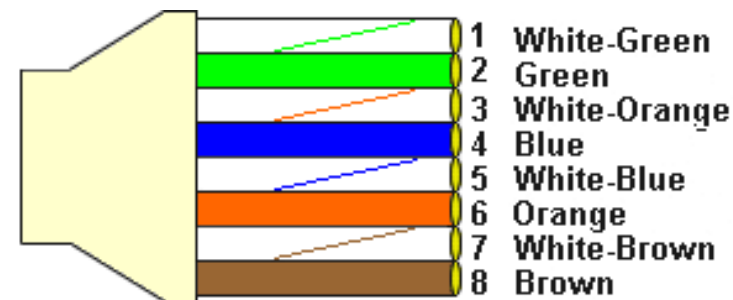
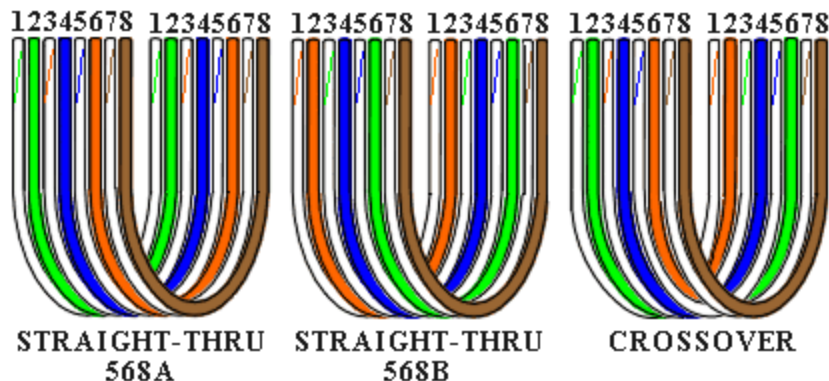
■ Crossover

■ 1 ↔ 3

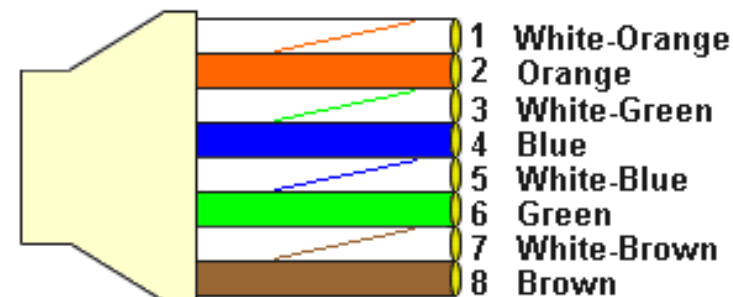
■ 2 ↔ 6

■ PoE +VDC: 4 & 5

■ PoE -VDC: 7 & 8



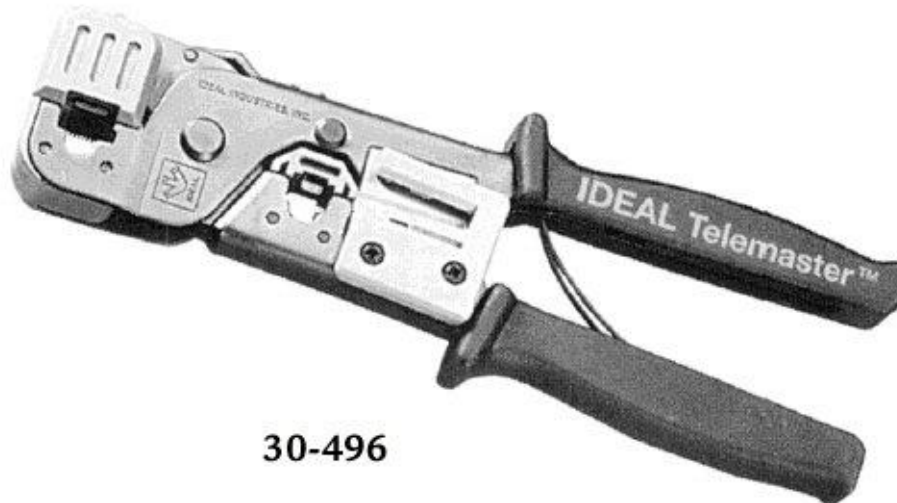
568A CABLE END



568B CABLE END

Cutting, Stripping & Crimping Tools

- Make your own patch cords
- Cuts and strips pairs
- RJ45 end crimped onto ends of wire



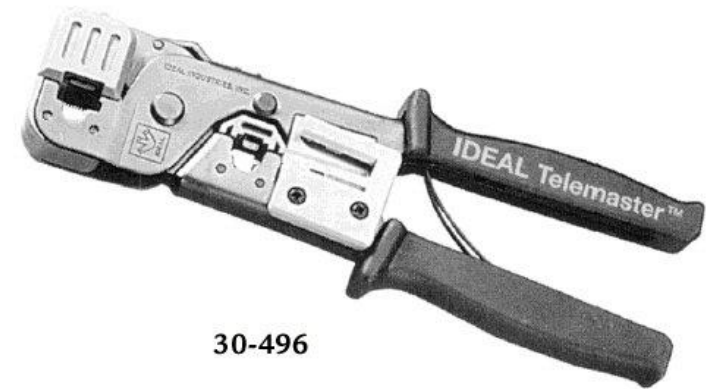
Punching Tool



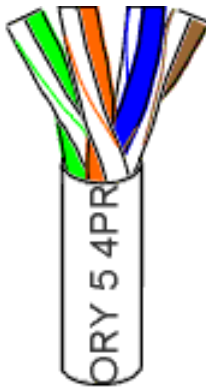
Terminates wires to back of patch panels and in Information Outlets



Making Cables



30-496



Wire Testing Equipment

- Test wire for correct termination of 8 wires
- Test for speed capabilities









Cabling Rules

- ❑ Try to avoid running cables parallel to power cables.
- ❑ Do not bend cables to less than four times the diameter of the cable.
- ❑ If you bundle a group of cables together with cable ties (zip ties), do not over-cinch them. You should be able to turn the tie with fingers.
- ❑ Keep cables away from devices which can introduce noise into them. Here's a short list: copy machines, electric heaters, speakers, printers, TV sets, fluorescent lights, copiers, welding machines, microwave ovens, telephones, fans, elevators, motors, electric ovens, dryers, washing machines, and shop equipment.
- ❑ Avoid stretching UTP cables (tension when pulling cables should not exceed 25 LBS).
- ❑ Do not run UTP cable outside of a building. It presents a very dangerous lightning hazard!
- ❑ Do not use a stapler to secure UTP cables. Use telephone wire/RJ6 coaxial wire hangers which are available at most hardware stores.

Fiber Optic Cabling Infrastructure

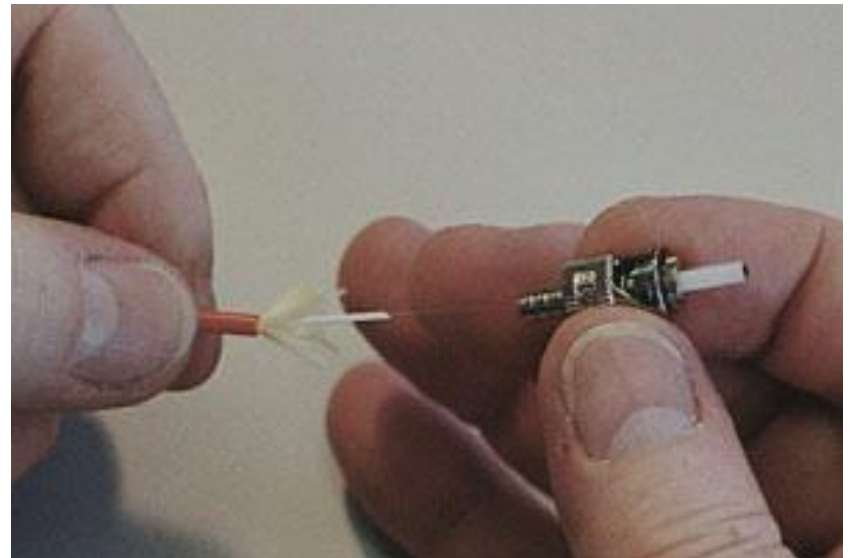
Components:

-  Fiber Cable
-  Fiber Pigtail
-  Fiber Connectors
-  LIU
-  Coupler
-  Fiber Patch Cord



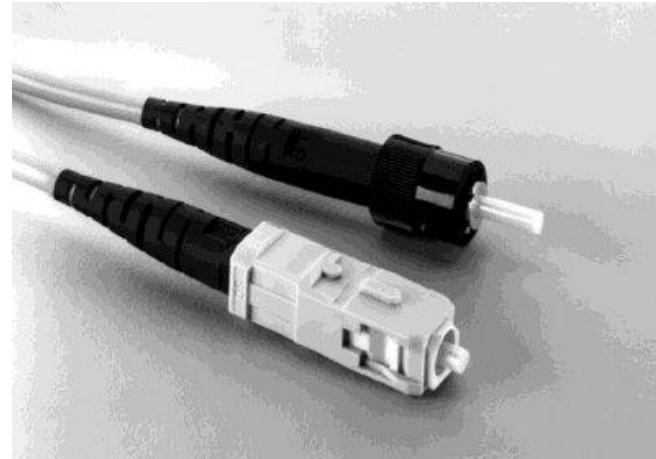
Fiber Optic Connectors

- Terminates the fibers
- Connects to other fibers or transmission equipment

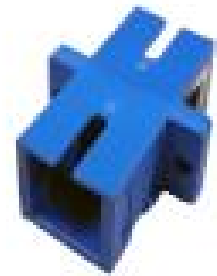


Fiber Patch Cords & Pigtails

- Ends are typically either SC or ST
- Pigtails have connectors on only one side and Patch Cords have it on both sides.
- Pigtails are spliced to the fiber to terminate the fiber
- Patch Cord connects switches to the Fiber cable



LIU & Couplers



Fiber Optic Installation – Outside Plant



Fiber Optic Installation – Outside Plant

- ❑ Fiber is blown in HDPE Pipes, 1 m deep.
- ❑ The HDPE pipes is covered with sand and brick lining
- ❑ Fiber Roles are typically 2 Km. Fiber cables are spliced using Joints
- ❑ Faults like fiber cut are located using OTDR (Optical Time Domain Reflectometer)

