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TIA/EIA-568-B Commercial Building Telecommunications Cabling Standards

Purpose: This standard outlines specifications for generic cabling systems. It provides a guideline for the planning and installation of telecommunications cabling topologies, distances, channel media and connectors. The standard addresses the following elements of building cabling: horizontal cabling, backbone cabling, telecommunications room, equipment room, work area and entrance facilities.

This standard supersedes and incorporates the following previous standards:

TIA/EIA-568-A

TIA/EIA TSB67

TIA/EIA TSB72

TIA/EIA TSB75

ANSI/TIA/EIA – 568-A.1, Delay and Delay Skew

ANSI/TIA/EIA – 568-A.2, Miscellaneous Changes

ANSI/TIA/EIA – 568-A.3, Hybrid and Bundling Cables

ANSI/TIA/EIA – 568-A.4, Patch Cords

ANSI/TIA/EIA – 568-A.5, Category 5e

TIA/EIA-IS-729 – Technical Specifications For 100 Ohm Twisted-Pair Cabling

The standard is divided into 3 separate standards:

**TIA/EIA – 568-B.1 – Commercial Building Telecommunications Cabling
Standard – General Requirements**

TIA/EIA – 568-B.2 – 100 Ohm Balanced Twisted-Pair Cabling

TIA/EIA – 568-B.3 – Optional Fiber Cabling Standard

The new ANSI/TIA/EIA-606-A standard will have several new requirements and recommendations for administration. The new standard will have 4 classes of administration:

ADMINISTRATION

Modern buildings require an effective telecommunications infrastructure to support the wide variety of services that rely on the electronic transport of information. This infrastructure can be thought of as the collection of those components (telecommunications spaces, cable pathways, grounding, wiring and termination hardware) that provide the basic support for the distribution of all information within a building or campus. Administration of the telecommunications infrastructure include documentation (labels, records, drawings, reports, and work orders) of cables, termination hardware, patching and cross connect facilities, conduits, and other pathways, telecommunications rooms, and other telecommunications spaces. TIA/EIA606 Administration Standard for the telecommunications infrastructure of commercial buildings was released in August, 1993. This document sets the guidelines for administration of the telecommunications wiring system.

CLASS 1

Fewer than 100 users and 1 TR

CLASS 2

100s of users and multiple TRs in a single building

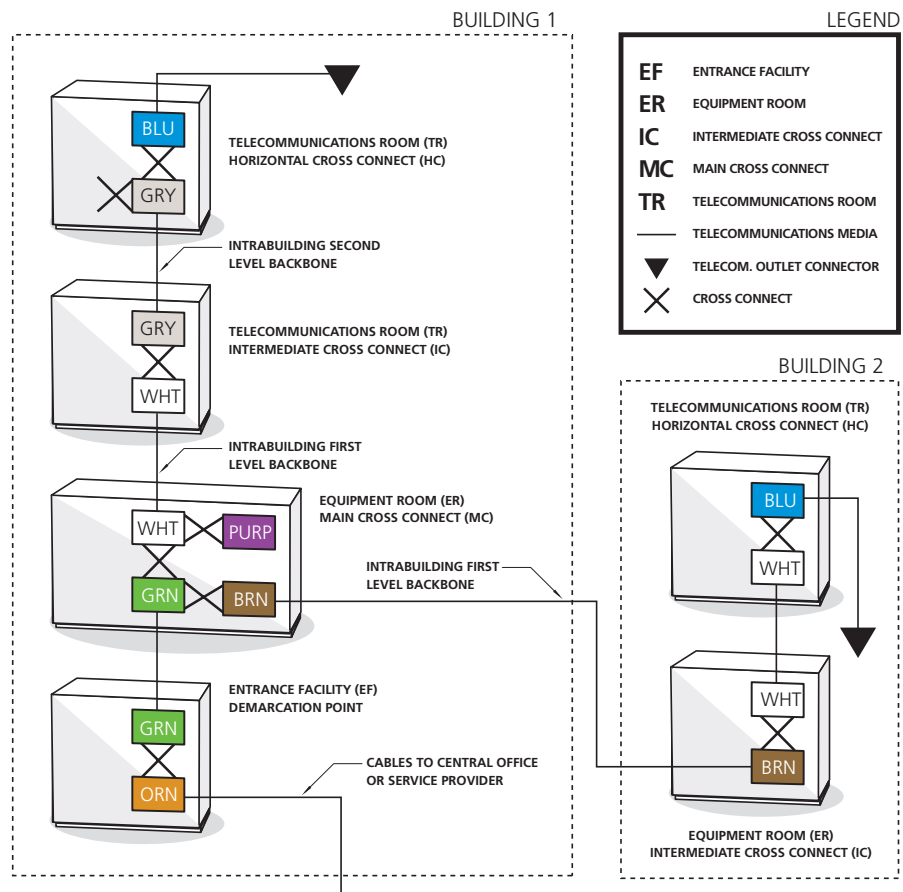
CLASS 3

Campus environment – 1000s of users, multiple buildings, multiple TRs in each building

CLASS 4

Connecting multiple Class 3 installations at different geographic locations

The new standard is designed to accommodate all types of installations. For each Class, there are different labeling requirements and recommendations.



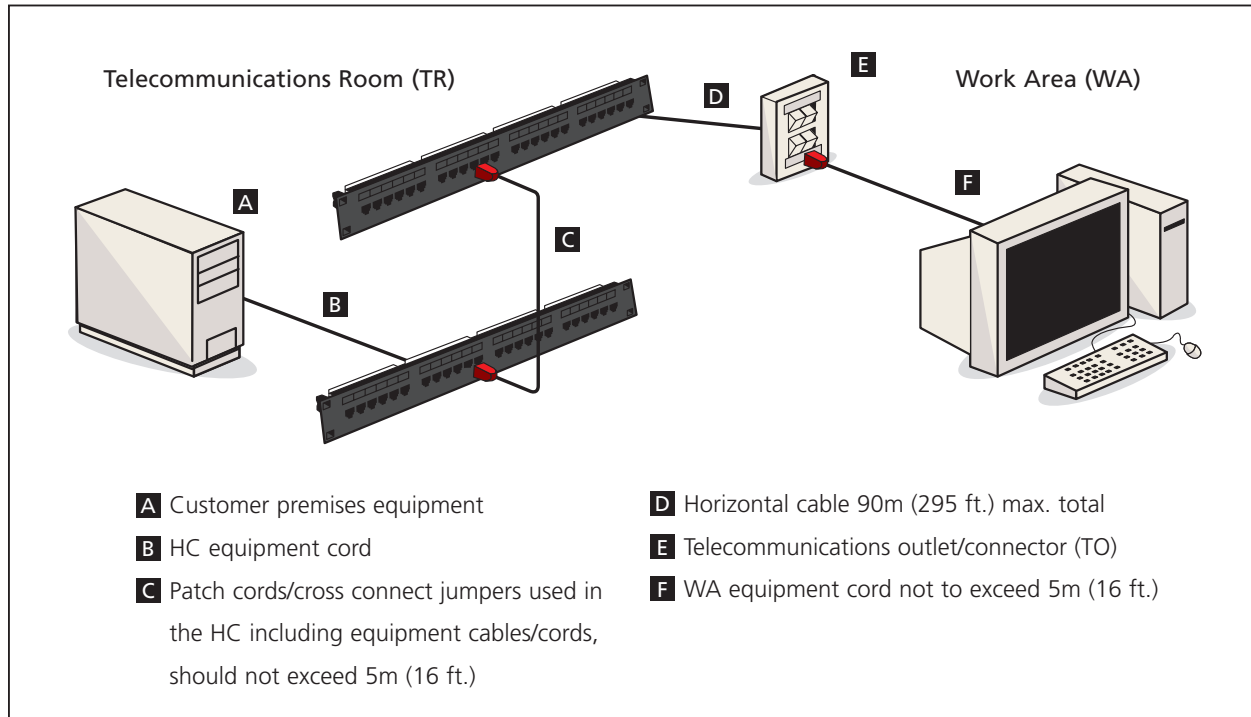
606 Standard Color Chart

TERMINATION TYPE	COLOR	COMMENTS
Demarcation point	Orange	Central office connection
Network connections	Green	Network connections or auxiliary circuit termination
Common equipment	Purple/Violet	Connections to PBX, mainframe, LAN, multiplexer
First level backbone	White	MC-IC cable terminations
Second level backbone	Gray	IC-TR cable terminations
Horizontal	Blue	Horizontal cable terminations in TRs
Interbuilding backbone	Brown	Campus cable terminations
Other	Yellow	Auxiliary, maintenance, alarms, security, etc.
Key telephone systems	Red	Connections to key telephone systems

Horizontal Cabling

Extends from the telecommunications outlet/connector (TO) to the horizontal cross connect (HC).

Horizontal Cabling System Structure



Recognized media:

4-pair 100 Ω unshielded twisted pair (UTP)

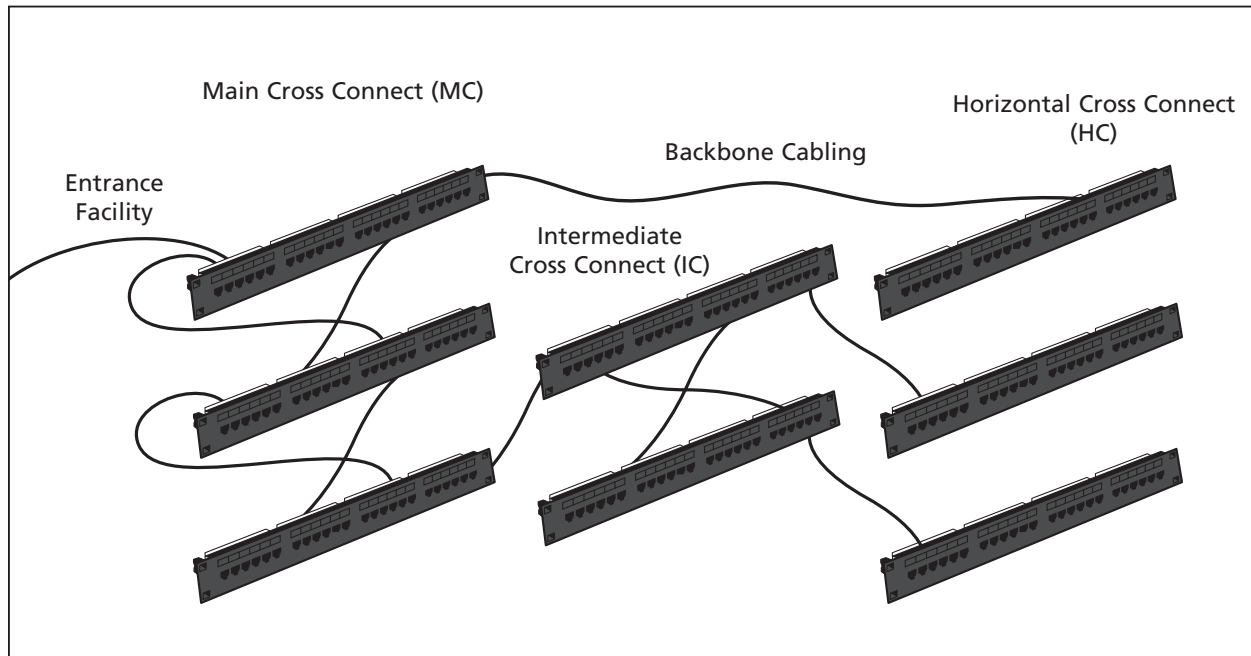
2-pair 150 Ω shielded twisted pair (STP-A)

2-fiber 62.5/125 μ m or 50/125 μ m multimode optical fiber

Backbone Cabling

Provides interconnection between telecommunications rooms, equipment rooms, and entrance facilities.

Backbone Cabling System Structure



Recognized media:

100 Ω unshielded twisted pair (UTP)
 150 Ω shielded twisted pair (STP-A)
 62.5/125 μm or 50/125 μm multimode optical fiber
 Single mode optical fiber

Max Distance (MC to HC)

90 m (295 ft.)
 800 m (2624 ft.)
 2000 m (6560 ft.)
 3000 m (9840 ft.)

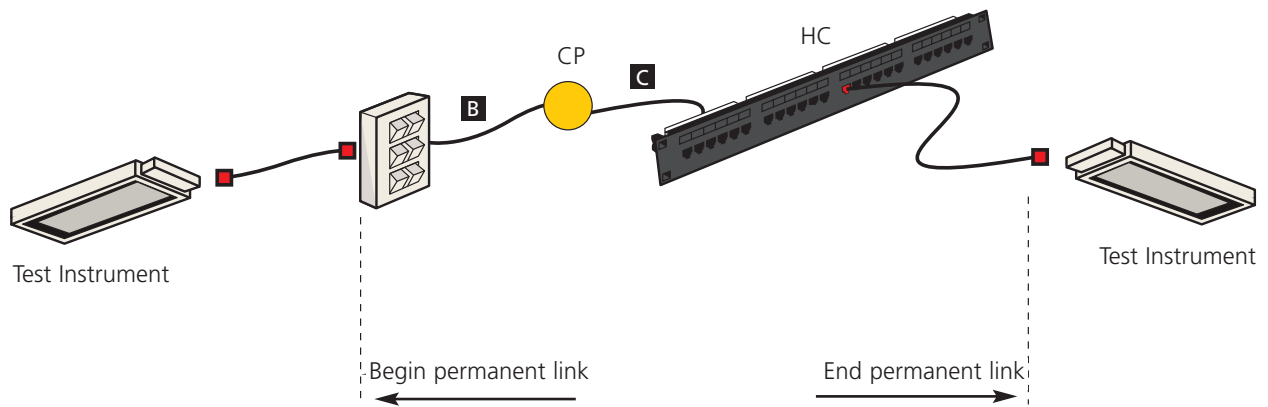
Note:

- Patch cords and jumpers at the main cross connect (MC) and the intermediate cross connect (IC) should not exceed 20 m (66 ft.)

Transmission Performance Specifications for Field Testing of UTP Cabling Systems

Permanent Link Configuration

- Up to 90 meters (295 ft.) of horizontal cable (B,C)
- A telecommunications/outlet connector
- A horizontal cross connect (HC)
- An optional transition/consolidation point (CP)



Maximum Length of B + C = 90 m (295 ft.)

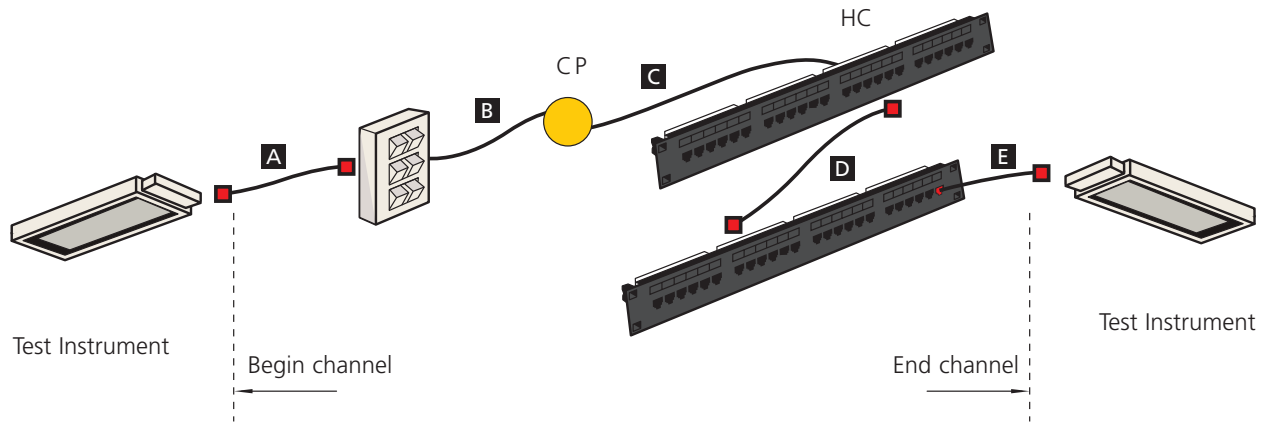
CABLING TYPE	FREQUENCY (MHz)	INSERTION LOSS (ATTENUATION) (dB)	NEXT (dB)	Permanent Link Requirements		
				PSNEXT (dB)	ELFEXT (dB)	RETURN LOSS (dB)
Category 5e	100	20.4	32.3	29.3	18.6	12.0
Category 6	100	18.5	41.8	39.3	24.2	14.0
Category 6	250	30.7	35.3	32.7	16.2	9.0

*Performance as specified in:
 Category 5e: TIA/EIA-568-B.1
 Category 6: TIA/EIA-568-B.2-1*

Channel Configuration

- Up to 90 meters (295 ft.) of horizontal cable (B,C)
- A telecommunications/outlet connector (A)
- Up to 2 horizontal cross connect connections in the telecommunications room (HC)
- A patch cord or jumper (D)
- A work area cord (A)
- A telecommunications room equipment cord (E)
- An optional transition/consolidation point connector (CP)

Note: When a maximum horizontal length of 90 meters is used, then the total length of the equipment cord, patch cord or jumper, and work area cord shall not exceed 10 meters (33 ft.).



Maximum Lengths

B + C = 90 m (295 ft.)

A + B + C + D + E = 100 m (328 ft.)

CABLING TYPE	FREQUENCY (MHz)	INSERTION LOSS (ATTENUATION) (dB)	NEXT (dB)	PSNEXT (dB)	Channel Requirements	
					ELFEXT (dB)	RETURN LOSS (dB)
Category 5e	100	24.0	30.1	27.1	17.4	10.0
Category 6	100	21.3	39.9	37.1	23.3	12.0
Category 6	250	36.0	33.1	30.2	15.3	8.0

Performance as specified in:
 Category 5e: TIA/EIA-568-B.1
 Category 6: TIA/EIA-568-B.2-1

Recommended Installation Practices

UTP Connector Terminations

Strip back only as much cable jacket as is required for termination and maintain pair twists as close as possible to the point of mechanical termination.

- CAT3 maximum allowed untwisting: 3" (75 mm)
- CAT5e maximum allowed untwisting: 1/2" (13 mm)
- CAT6 maximum allowed untwisting: 1/2" (13 mm)

Cable Management

- Maintain a minimum bend radius of 4 times the cable diameter (UTP max dia=0.25", 4 x .25"=1.0")
- Apply cable ties or grip ties loosely and at random intervals
- Avoid stretching cable
- Use appropriate methods for dressing and securing cables:
 Wire Management BracketsCable Ties
 Cable Management PanelsGrip Ties
- Do not exceed more than 25 lbs. of pulling tension on 4-pair cables
- Never bend cables more than 90 degrees
- Do not use a staple gun to position cables

Keystone Jack Installation Instructions

Prepare cable, cut back sheath to the appropriate length. (fig. 1)

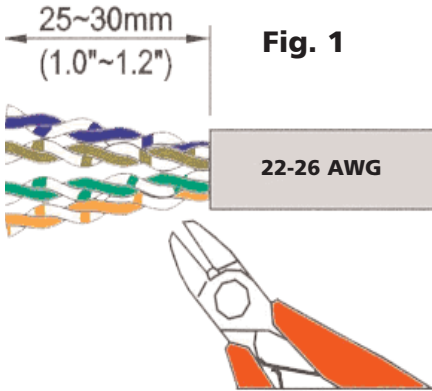


Fig. 1

Lay cable onto outlet and secure with cable tie. (fig. 2)

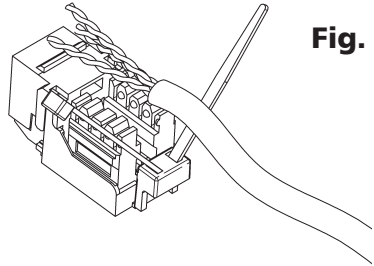


Fig. 2

Punch down pairs nearest to jack first. (fig. 3)

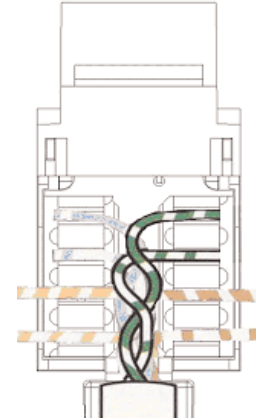
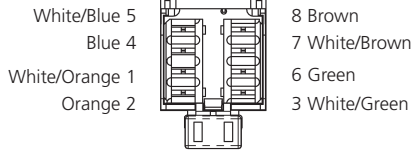


Fig. 3

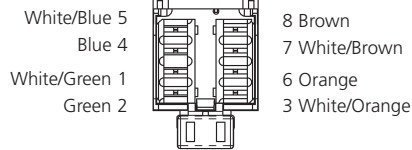
568B

Fig. 4



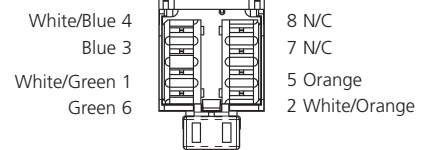
568A

Fig. 5



CAT 3 USOC (6P6C)

Fig. 7



CAT 3 USOC (8P8C)

Fig. 6

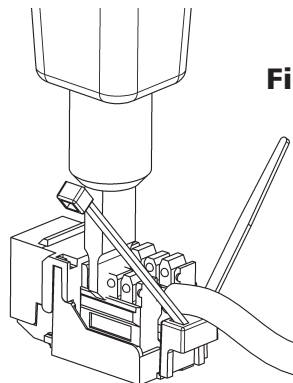
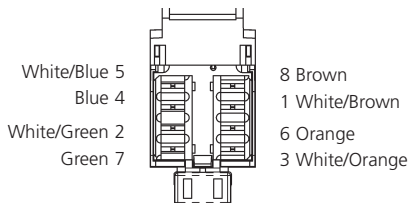


Fig. 8

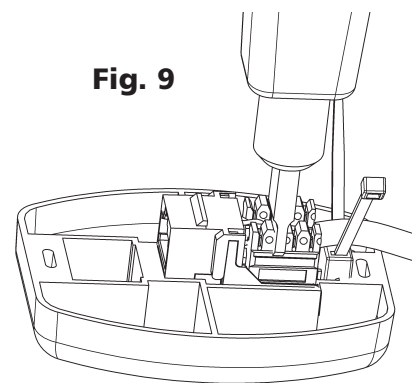


Fig. 9

Shielded Jack Installation Instructions

Tools required:

- Cyclops or no nicks type cable sheath stripping tool
- 110 IDC tool
- Flat sided (PCB trimming) wire cutters
- Hand support tool
(available from HellermannTyton, part no. KSPT)
- Steel metric rule



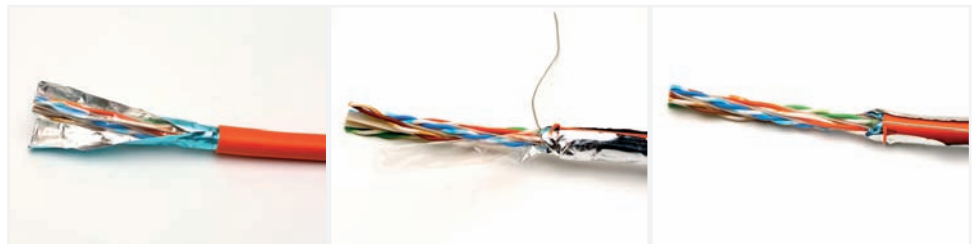
1. Position the connector in the hand support tool.

2. Remove 50mm of the cable sheath, taking care not to damage the shield



3. Carefully fold the foil back over the sheath

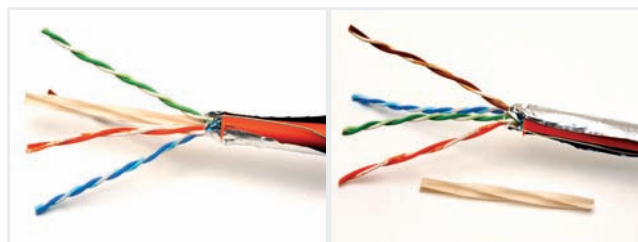
Note: With SFTP (braid and foil screen) the braid should be folded back over the sheath and the foil removed.



4. With FTP (Foil screened cable) the foil MUST not be damaged, if the foil tears the process of removing the sheath and folding the foil must be repeated.

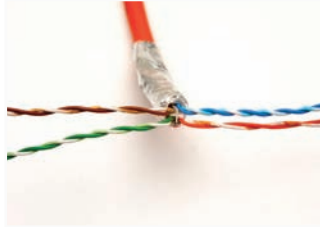


5. Carefully separate the four pairs, and trim the separator back to the sheath.

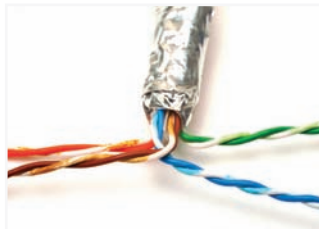


Shielded Jack Installation Instructions

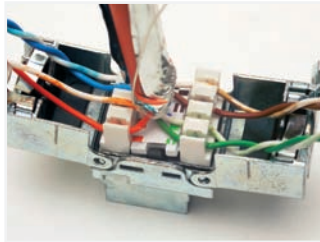
1. At the end of the cable where all four pairs are correct; hold the cable central to the rear of the connector between the IDC contacts. Position the pairs over its correct IDC.



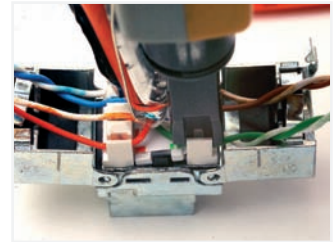
2. At end of the cable where the pair colours are a mirror to the connector carefully without opening the twist on the pairs, cross the Blue & Brown pairs, and then the Green & Orange pairs. Position the pairs over its correct IDC.



3. Working around the connector, push each wire into its correct IDC slot ensuring all the pairs stay in their correct position without opening the twist of the pair.



4. Take the 110 IDC tool and with the cutting blade to the outside of the IDC, punch the pairs down into the bottom of the IDC slot.



5. Using the flat sided cutters, trim any remaining wire from the outside of the IDCs ensuring the wire is as short as possible.



6. Close and lock the rear covers of the connector ensuring the sheath with the screen is located inside the rear of the connector with the screen in contact with the screen contacts in the connector.



7. Trim protruding screen to 5mm from the rear of the connector.



8. Test termination before inserting connector into the outlet or panel.



Shielded Panel Installation Instructions



1. Turn the locking tab to the horizontal position. Then slide the patch panel forward and down for insertion or removal of the keystone shielded outlets



1. Place a screwdriver underneath the module and lever up the module from the steel base of the patch panel.



2. Line up the module with the available panel opening



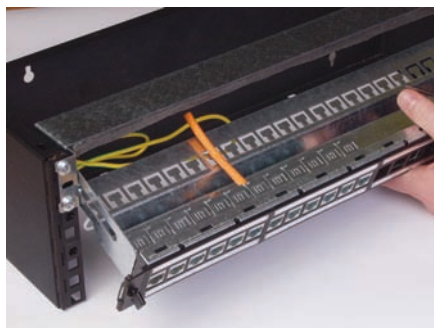
2. Push the module down to release it from the panel front.



3. Carefully push the module forward into the opening



3. Lift the module to separate it from the adjacent modules.



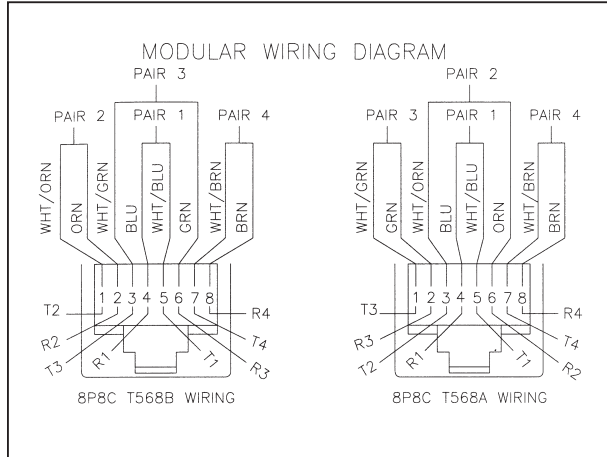
4. Push cover on the module to snap in place.



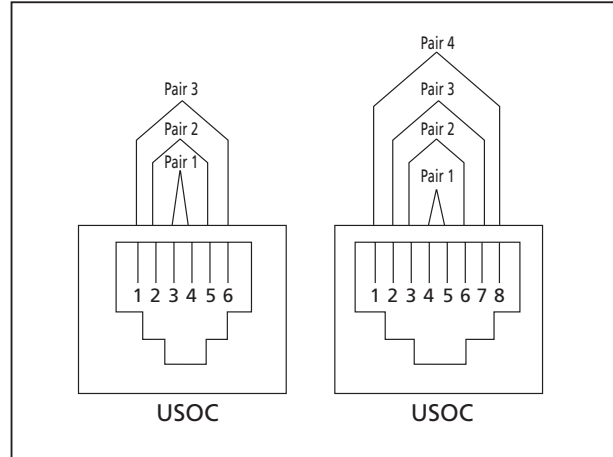
To close the panel, lift up and slide back the patch panel against the cabinet fixing rails. Turn the locking tab to the vertical position to secure the panel shut.

Appendix

CATEGORY 5e/CATEGORY 6



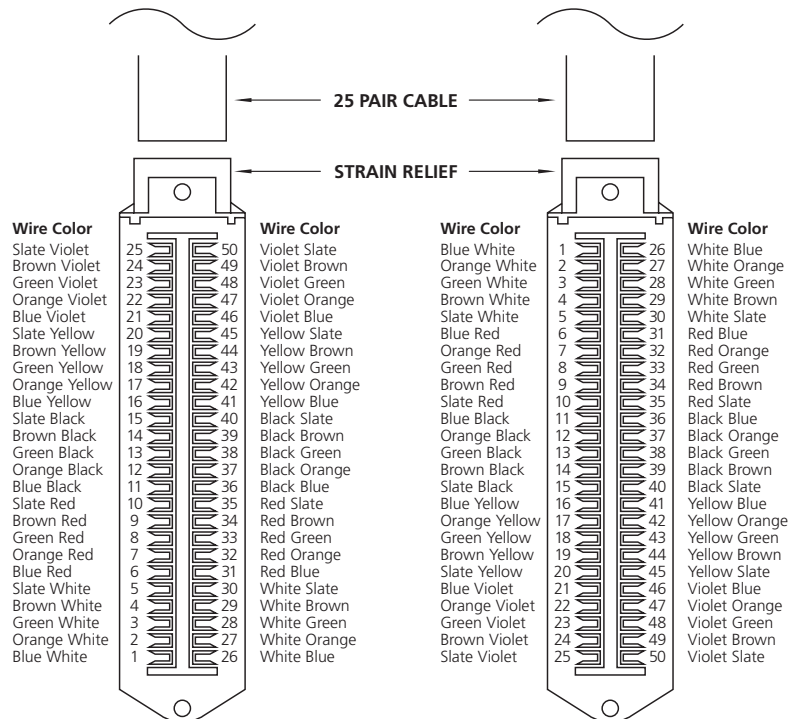
CATEGORY 3



Standard 4 Pair Wire Color Codes

PAIRS	COLOR/CODE	PAIR ID	66 OR 110 POSITION	T568B	T568A	6 CONDUCTOR USOC	8 CONDUCTOR USOC
Pair 1	White/Blue	T1	1	5	5	4	5
	Blue/White	R1	2	4	4	3	4
Pair 2	White/Orange	T2	3	1	3	2	6
	Orange/White	R2	4	2	6	5	3
Pair 3	White/Green	T3	5	3	1	1	2
	Green/White	R3	6	6	2	6	7
Pair 4	White/Brown	T4	7	7	7	-	1
	Brown/White	R4	8	8	8	-	8

TELCO CONNECTOR PIN & COLOR CODING (RJ21X) DESIGN



FEMALE TELCO CONNECTOR

MALE TELCO CONNECTOR

Glossary of Terms

A

Alien CrossTalk (AXT) Signal coupling from disturbing pairs into a disturbed pair of neighboring channel.

Asynchronous Transfer Mode (ATM) Technology selected by the International Telecommunications Union (ITU, formerly CCITT) for broadband ISDN. This communications protocol is also specified by the ATM Forum (Foster City, CA) for 155 Mb/s transmission over twisted pair cable and various bit rate optical fiber cabling applications.

Attenuation A reduction in power or amplitude of the transmitted signal. In cables, it is generally expressed in decibels per unit length.

Attenuation to Crosstalk Ratio (ACR) The difference between attenuation and crosstalk measured in decibels.

B

Backbone Cabling Cable and connecting hardware that comprise the main and intermediate cross connects, as well as cable runs that extend between telecommunications rooms, equipment rooms and entrance facilities.

Balance An indication of signal voltage equality and phase polarity on a conductor pair. Perfect balance occurs when the signals across a twisted pair are equal in magnitude and opposite in phase with respect to ground.

Balanced Signal Transmission Two voltages, equal and opposite in phase with respect to each other, across the conductors of a twisted pair (commonly referred to as tip and ring).

Balun An impedance matching transformer used to convert unbalanced coaxial signals to balanced signals.

Bandwidth A range of frequencies, usually the difference between the upper and lower limits of the range, typically expressed in mega hertz (MHz). It is used to describe the information-carrying capacity of a medium. In copper and optical fibers, the bandwidth decreases with increasing length. Optical fiber bandwidth is specified in megahertz kilometers (MHz-km).

Basic Link Test Configuration Horizontal cable of up to 90 m (295 ft) plus up to 2 m (6.5 ft) of test equipment cord from the main unit of the tester to the local connection, and up to 2 m (6.5 ft) of test equipment cord from the remote connection to the remote unit of the tester. Maximum length is 94 m (308 ft).

Bundled Cable An assembly of two or more cables continuously bound together to form a single unit prior to installation (sometimes referred to as loomed, speed-wrap or whip cable constructions).

Bus Topology A linear configuration where all network devices are placed on a single length of cable. It requires one backbone cable to which all network devices are connected.

C

Cabling A combination of cables, wire, cords and connecting hardware used in the telecommunications infrastructure.

Campus Backbone Cabling between buildings that share telecommunications facilities.

Campus Distributor (CD) The international term for main cross connect the distributor from which the campus backbone cable emanates.

Category

1. ANSI/TIA/EIA-568-B series of documents, the North American standards for cabling describes mechanical properties and transmission characteristics of unshielded twisted pair (UTP) cables and screened twisted pair (SCTP) cables and assigns a unique number classification (Category 3, Category 5, Category 5e, Category 6 and Category 7).
2. ISO/IEC IS 11801 2nd edition, the international standard for cabling and local standardization documents define cabling component categories based on transmission performance parameters such as attenuation and NEXT loss, over a specified frequency range.

Channel The end-to-end transmission path connecting any two points at which application specific equipment is connected. Equipment and work area cables are included in the channel.

Common Mode Transmission A transmission scheme where voltages appear equal in magnitude and phase across a conductor pair with respect to ground. May also be referred to as longitudinal mode.

Consolidation Point (CP) A location for interconnection between horizontal cables that extend from building pathways and horizontal cables that extend into work area pathways.

Cross connect A facility enabling the termination of cables as well as their interconnection or cross connection with other cabling or equipment. Also known as a distributor.

Cross connection A connection scheme between cabling runs, subsystems and equipment using patch cords or jumpers that attach to connecting hardware on each end.

Crosstalk Noise or interference caused-by electro-magnetic coupling from one signal path to another. Crosstalk performance is generally expressed in decibels.

D

Decibel (dB) A standard unit for expressing transmission gain or loss as derived from a ratio of signal voltages or power.

Delay Skew The difference in propagation delay between the fastest and slowest pair in cable or cabling system.

Demarcation Point (DP) A point at which two services may interface and identify the division of responsibility.

Differential Mode Transmission A transmission scheme where voltages appear equal in magnitude and opposite in phase across a twisted pair with respect to ground. May also be referred to as balanced mode.

E

Electromagnetic Interference (EMI) The interference in signal transmission or reception caused by the radiation of electrical and magnetic fields.

Electronic Industries Alliance (EIA) An organization that sets standards for interfaces to ensure compatibility between data communications equipment and data terminal equipment.

Entrance Facility (EF) An entrance to a building for both public and private network service cables (including antennae) including the entrance point at the building wall and continuing to the entrance room or space. Entrance facilities are often used to house electrical protection equipment and connecting hardware for the transition between outdoor and indoor cable.

Entrance Facility, Telecommunications An entrance to a building for both public and private network service cables (including antennae) beginning with the entrance point at the building wall and continuing to the entrance room or space.

Entrance Point, Telecommunications The point of emergence of telecommunications conductors through an exterior wall, a concrete floor slab, or from a rigid metal conduit or intermediate metal conduit.

Equal Level Far-end Crosstalk (ELFEXT) Crosstalk measured at the opposite end from which the disturbing signal is transmitted normalized by the attenuation contribution of the cable or cabling.

Equipment Cable A cable or cable assembly used to connect telecommunications equipment to horizontal or backbone cabling.

Equipment Room (ER) A centralized space for telecommunications equipment that serves the occupants of the building or multiple buildings in a campus environment. An equipment room is considered distinct from a telecommunications room because it is considered to be a building or campus serving (as opposed to floor serving) facility and because of the nature or complexity of the equipment that it contains.

F

Far-end Crosstalk (FEXT) Crosstalk measured at the opposite end from which the disturbing signal is transmitted.

Firestop A material, device, or assembly of parts installed in a cable pathway at a fire-rated wall or floor to prevent passage of flame, smoke or gases through the rated barrier (e.g. between cubicles or separated rooms or spaces).

G

Ground A conducting connection, whether intentional or accidental, between an electrical circuit (telecommunications) or equipment and earth, or to some conducting body that serves in place of the earth.

H

Hertz (Hz) A measure of frequency as defined in units of cycles per second.

Home-run Cabling A distribution method in which individual cables are run directly from the horizontal cross connect to each telecommunications outlet. This configuration is also known as star topology.

Horizontal Cabling The cabling between and including the telecommunications outlet and the horizontal cross-connect.

Horizontal Cross-connect (HC) A cross connect of horizontal cabling to other cabling, e.g., horizontal, backbone, or equipment.

Hub Equipment that serves as the centralized connection point for a network or portion thereof. Hubs are used for multiplexing, multi-port bridging functions, switching and test access. They can be either passive or active and are not considered to be part of the cabling infrastructure.

Hybrid Cable An assembly of two or more cables, of the same or different types or categories, covered by one overall sheath.

I

Insertion loss

1. The loss resulting from the insertion of a device in a transmission line, expressed as the reciprocal of the ratio of the signal power delivered to that part of the line following the device to the signal power delivered to that same part before insertion.
2. In an optical fiber system, the loss of optical power caused by inserting a component, such as a connector, coupler or splice, into a previously continuous optical path.

Insulation Displacement Connection (IDC) A wire connection device that penetrates the insulation of a copper wire when it is being inserted (punched down) into a metal contact, allowing the electrical connection to be made.

Intelligent Hub A hub that performs bridging and routing functions in a collapsed backbone environment.

Interbuilding Backbone Telecommunications cable(s) that are part of the campus subsystem that connect one building to another.

Interconnection A connection scheme that provides direct access to the cabling infrastructure and the ability to make cabling system changes using equipment cords.

Intermediate Cross-Connect (IC) The connection point between a backbone cable that extends from the main cross connect (first-level backbone) and the backbone cable from the horizontal cross-connect (second-level backbone).

Intermediate Distribution Frame (IDF) In a central office or customer premises, a frame that (a) cross connects the user cable media to individual user line circuits and b) may serve as a distribution point for multipair cables from the main distribution frame (MDF) to individual cables connected to equipment in areas remote from these frames.

Intrabuilding Backbone Telecommunications cable(s) that are part of the building subsystem that connect one equipment room to another.

J

Jumper Wire An assembly of twisted pairs without connectors on either end used to join telecommunications links at a cross connect.

L

Link An end-to-end transmission path provided by the cabling infrastructure. Cabling links include all cables and connecting hardware that comprise the horizontal or backbone subsystems. Equipment and work area cables are not included as part of a link.

Local Area Network (LAN) A geographically limited data communications system for a specific user group consisting of a group of interconnected computers, sharing applications, data and peripheral devices such as printers and CD-ROM drives intended for the local transport of data, video, and voice.

Local Exchange Carrier (LEC) The local regulated provider of public switched telecommunications services.

Longitudinal Conversion Loss (LCL) A measure (in dB) of the differential voltage induced on a conductor pair as a result of subjecting that pair to longitudinal voltage. LCL is considered to be a measure of circuit balance.

M

Main Cross-connect (MC) A cross connect for first level backbone cables, entrance cables, and equipment cables.

Modular Jack A telecommunications outlet/connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular jacks can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Modular Plug A telecommunications connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular plugs can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Multimedia

1. An application that communicates to more than one of the human sensory receptors.
2. Applications that communicate information by more than one means or cabling media.

Multimode Optical Fiber An optical fiber that will allow many bound modes to propagate. The fiber may be either a graded index or step index fiber. Multimode optical fibers have a much larger core than single mode fibers.

Multi-user Telecommunications Outlet Assembly (MUTOA) A grouping in one location of several telecommunications/outlet connectors.

N

Nanosecond (ns) One billionth of a second.

Near-and Crosstalk (NEXT Loss) The undesired coupling of a signal from one pair of wires to another. Signal distortion as a result of signal coupling from one pair to another at various frequencies.

Network Demarcation Point The point of interconnection between the local exchange carrier's telecommunication facilities and the telecommunications systems wiring and equipment as the end user's facility. This point shall be located on the subscriber side of the telephone company's protector or the equivalent thereof in cases where a protector is not required.

O

Open Office Cabling The cabling that distributes from the telecommunications closet to the open office area utilizing a consolidation point or multi-user telecommunications outlet assembly.

Outlet, Telecommunications A fixed connecting device where the horizontal cable terminates. The telecommunications outlet provides the interface to the work area cabling. Sometimes referred to as a telecommunications outlet/connector.

P

Patch Cord A length of cable with connectors on one or both ends used to join telecommunications links at a cross connect.

Patch Panel Connecting hardware that typically provides means to connect horizontal or backbone cables to an arrangement of fixed connectors that may be accessed using patch cords or equipment cords to form cross connections or interconnections.

Pathway A facility (i.e. conduit) for the placement and protection of telecommunications cables. Same as raceway or ducting.

Plenum A compartment or chamber to which one or more air ducts are connected and that forms part of the air distri-

bution system.

Private Branch Exchange (PBX) A private switching system usually serving an organization, such as a business, located on the customer's premises. It switches calls both inside a building or premises and outside to the telephone network, and can sometimes provide access to a computer from a data terminal.

Propagation Delay The amount of time that passes between when a signal is transmitted and when it is received at the opposite end of a cable or cabling.

Punch Down A method for securing wire to a quick clip in which the insulated wire is placed in the terminal groove and pushed down with a special tool. As the wire is seated, the terminal displaces the wire insulation to make an electrical connection. The punch down operation may also trim the wire as it terminates. Also called cut down.

Q

Quick Clip An electrical contact used to provide an insulation displacement connection to telecommunications cables.

R

Raceway See Pathway

Return Loss Noise or interference caused by impedance discontinuities along the transmission line at various frequencies. Return loss is expressed in decibels.

Ring Conductor A telephony term used to describe one of the two conductors in a cable pair used to provide telephone service. This term was originally coined from its position as the second (ring) conductor of a tip-ring-sleeve switchboard plug.

S

Star Topology

1. A method of cabling each telecommunications outlet/connector directly to a cross connect in a horizontal cabling subsystem.
2. A method of cabling each cross connect (HC and IC) to the main cross connect (MC) in a backbone cabling subsystem.

Surge A rapid rise in current or voltage usually followed by a fall back to a normal level. Also referred to as transient.

T

Telecommunications Any transmission, emission or reception of signs, signals, writings, images, sounds or information of any nature by cable, radio, visual, optical or other electromagnetic systems.

Telecommunications Room (TR) An enclosed space for housing telecommunications equipment, cable terminations and cross-connect cabling used to serve work areas located on the same floor. The telecommunications room is the typical location of the horizontal cross-connect and is considered distinct from an equipment room because it is considered to be a floor serving (as opposed to building or campus serving) facility.

Telecommunications Industry Association (TIA) An organization that sets standards for cabling, pathways, spaces, grounding, bonding, administration, field testing and other aspects of the telecommunications industry.

Tip Conductor A telephony term used to describe the conductor of a pair that is grounded at the central office when the line is idle. This term was originally coined from its position as the first (tip) conductor of a tip-ring-sleeve switchboard plug.

Topology The physical or logical layout of links and nodes in a network. These include star, ring and bus configurations.

Transfer Impedance A measure (in Ω) of shield effectiveness.

Transition Point (TP) A location in the horizontal cabling subsystem where flat undercarpet cabling connects to round cabling.

Trunk A communication line between two switching systems. The term 'switching systems' typically includes equipment in a central office (the telephone company) and PBXS. A tie trunk connects PBXS. Central office trunks connect a PBX to the switching system at the central office.

U

Unshielded Twisted Pair (UTP) A cable with multiple pairs of twisted insulated copper conductors bound in a single sheath.

W

Work Area The area where horizontal cabling is connected to the work area equipment by means of a telecommunication outlet. A station/desk which is served by a telecommunication outlet. Sometimes referred to as a work station.

Work Area Cable A cable assembly used to connect equipment to the telecommunications outlet in the work area. Work area cables are considered to be outside the scope of cabling standards.

Acronyms & Abbreviations

ACR	.Attenuation to crosstalk ratio	m	.Meter
ANEX	.Alien near end crosstalk	MAC	.Moves, adds and changes
ANSI	.American National Standards Institute	μm	.Micron, one millionth of meter (0.000001); also micrometer
ATM	.Asynchronous transfer mode	Mb/s	.Megabits per second
AWG	.American wire gauge	MC	.Main cross connect
AXT	.Alien crosstalk	MDF	.Main distribution frame
BER	.Bit Error Rate	MHz	.Megahertz
b/s	.Bits per second	MM	.Multimode
CM	.Common mode	mm	.Millimeter
CP	.Consolidation point	MT-RJ	.Mechanical Transfer Registered Jack
CPE	.Customer premises equipment	MuTOA	.Multi-user Telecommunications Outlet Assembly
CSA	.Canadian Standards Association	NEC	.National Electrical Code
dB	.Decibel	NEMA	.National Electrical Manufacturers Association
DD	.Distribution device	NEXT	.Near end crosstalk
EF	.Entrance facility	NFPA	.National Fire Protection Association
EIA	.Electronic Industries Alliance	Ω	.Ohm
ELFEXT	.Equal level far end crosstalk	nm	.Nanometer
EMC	.Electromagnetic compatibility	PBX	.Private branch exchange
EMI	.Electromagnetic interference	PVC	.Polyvinyl chloride
EMR	.Electromagnetic radiation	SC	.Subscription channel
ER	.Equipment room	SFF	.Small form factor
FCC	.Federal Communications Commission	SM	.Single mode
ft	.Feet	ST	.Straight tip
FEXT	.Far end crosstalk	STP	.Shielded twisted pair
Gb/s	.Gigabits per second	TIA	.Telecommunications Industry Association
GHz	.Gigahertz	TO	.Telecommunications outlet
HC	.Horizontal cross connect	TP	.Transition point
HVAC	.Heating, ventilation and air conditioning	UL	.Underwriters Laboratories Inc.
Hz	.Hertz	USOC	.Universal Service Order Code
IC	.Intermediate cross connect	UTP	.Unshielded twisted pair
IDC	.Insulation displacement connection	WA	.Work area
IDF	.Intermediate Distribution Frame		
IEC	.International Electrotechnical Commission		
IEEE	.Institute of Electrical and Electronic Engineers		
ISDN	.Integrated Services Digital Network		
ISO	.International Standards Organization		
Kb/s	.Kilobit per second		
Km	.Kilometer		
LAN	.Local area network		
LC	.Lucent Connector		
LEC	.Local exchange carrier		