

Ethernet Cables

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A.C.S.

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Ethernet Cables Categories



Category	Max. Data Rate	Bandwidth	Max. Distance	Usage
Category 1	1 Mbps	0.4 MHz		Telephone and modem lines
Category 2	4 Mbps	4 MHz		LocalTalk & Telephone
Category 3	10 Mbps	16 MHz	100 m (328 ft.)	10BaseT Ethernet
Category 4	16 Mbps	20 MHz	100 m (328 ft.)	Token Ring
Category 5	100 Mbps	100 MHz	100 m (328 ft.)	100BaseT Ethernet
Category 5e	1 Gbps	100 MHz	100 m (328 ft.)	100BaseT Ethernet, residential homes
Category 6	1 Gbps	250 MHz	100 m (328 ft.) 10Gb at 37 m (121 ft.)	Gigabit Ethernet, commercial buildings
Category 6a	10 Gbps	500 MHz	100 m (328 ft.)	Gigabit Ethernet in data centers and commercial buildings
Category 7	10 Gbps	600 MHz	100 m (328 ft.)	10 Gbps Core Infrastructure
Category 7a	10 Gbps	1000 MHz	100 m (328 ft.) 40Gb at 50 m (164 ft.)	10 Gbps Core Infrastructure
Category 8	25 Gbps (Cat8.1) 40 Gbps (Cat8.2)	2000 MHz	30 m (98 ft.)	25 Gbps/40 Gbps Core Infrastructure



Ethernet Cables Jackets



Jacket Rating	Description	Applications	Fire Rating	Acceptable Substitute
CM/CMG	Communications, General Purpose	Patch cables. In-room cable runs. Not for use in risers and plenum.	Basic Fire resistance	CMR, CMP
Riser (CMR)	Communications, Riser A riser is a vertical space, typically inside walls and between floors	In-wall installation May be required due to insurance or contractual clauses	Stricter fire resistance than CM cables. Low-smoke. Designed to prevent spread of fire between floors.	CMP
Plenum (CMP)	Communications, Plenum Plenum is space above and below floors typically occupied by heating and air conditioning ductwork	Air ducts and plenums above and below floors. May be required due to insurance or contractual clauses.	Highest level of fire resistance. Immunize toxic fumes and minimal smoke.	
Outdoor (CMX)	Outdoor LDPE (low-density polyethylene)	Exterior installation. Buried or exposed to moisture or UV light. Cable runs up to 50-ft.		

- CM – Communications Multipurpose
- CMR – Communications Riser
- CMP – Communications Plenum
- CMX – Communications Multipurpose Extended



Ethernet Cables Shielding



SO/IEC 11801 Designation	Industry Abbreviation	Outer Shielding	Individual Twisted Pair Shielding
U/UTP	UTP or TPP	None	None
F/UTP	FTP or STP	Foil	None
S/UTP	STP	Braiding	None
SF/UTP	SFTP or STP	Braiding & Foil	None
U/FTP	STP	None	Foil
F/FTP	FFTP	Foil	Foil
S/FTP	SFTP	Braiding	Foil
SF/FTP	SFTP or SSTP	Braiding & Foil	Foil
S/STP	SSTP	Braiding	Braiding

Shielding – Entire Cable

↓
X/YTP
↑

Shielding – Individual Twisted Pairs

- U – Unshielded
- S – Braided (Outer Shield Only)
- F – Foil
- TP – Twisted Pair

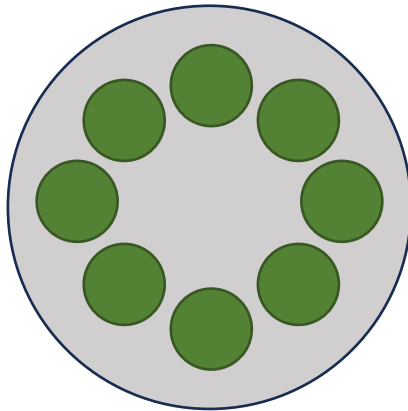


Ethernet Cable

Wire Type

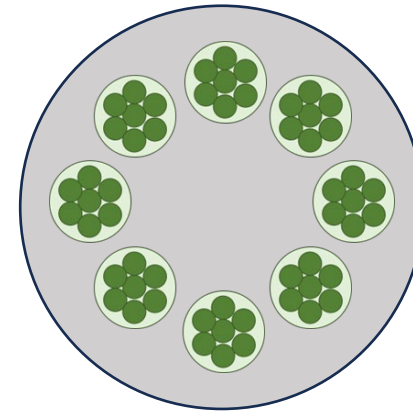
- Solid Wire

- Easy to terminate or Punch Down
- Best for PoE



- Stranded Wire

- Best for patch cables (repeatedly flexed)






Ethernet Cables Labels



**true[®]
CABLE**

Cat6 Riser
Blue - 500FT

- Bandwidth tested up to 550 MHz
- 23 AWG Solid Conductors - 4 Pairs
- Unshielded Twisted Pairs U/UTP
- Exceeds ANSI TIA/EIA 568.2-D Standards
- Supports PoE, PoE+, PoE++ up to 60W & 300V DC
- Indoor Riser Rated (CMR)
- SKU: 6ECMRBLU_500rl

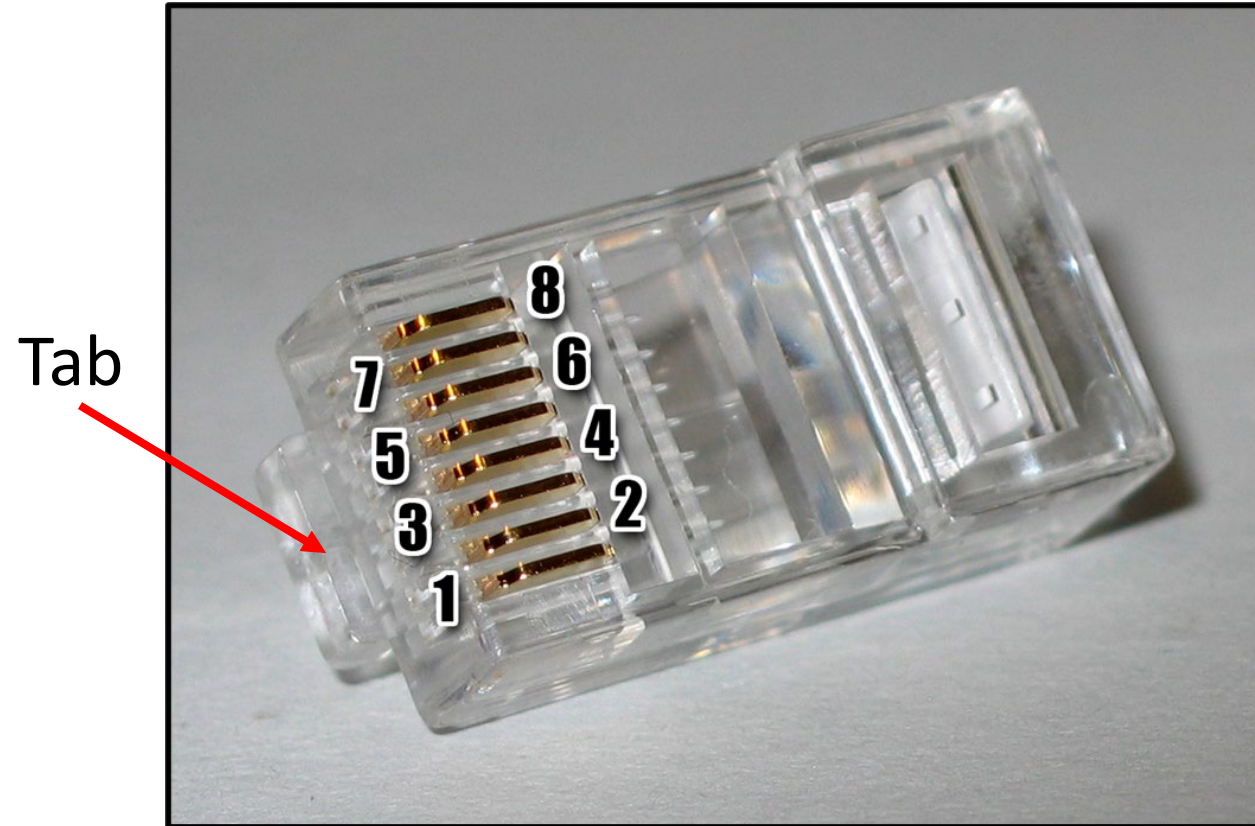
RoHS  **certified**
PURE COPPER

truecable.com



Ethernet Cables

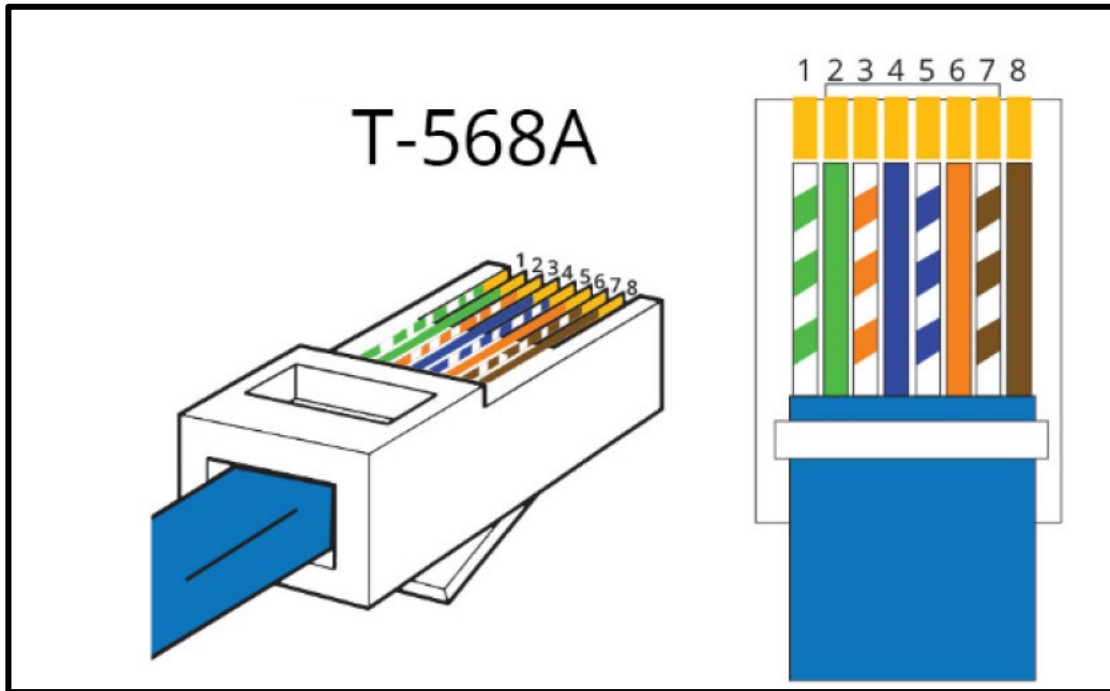
RJ45 – 8P8C



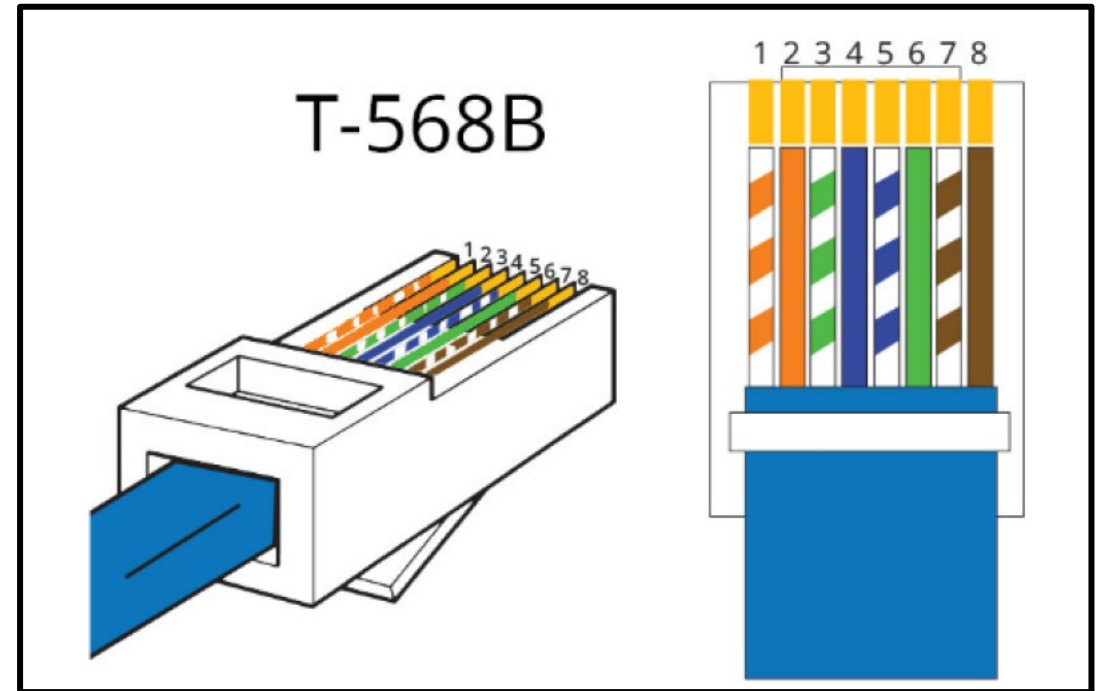
8P8C – Eight Position Eight Contact



Ethernet Cables Pinout



- | | |
|-----------------|----------------|
| 1. White/Green | 5. White/Blue |
| 2. Green | 6. Orange |
| 3. White/Orange | 7. White/Brown |
| 4. Blue | 8. Brown |



- | | |
|-----------------|----------------|
| 1. White/Orange | 5. White/Blue |
| 2. Orange | 6. Green |
| 3. White/Green | 7. White/Brown |
| 4. Blue | 8. Brown |



EIA / TIA (ISDN) STANDARD T568A

PAIR	PIN #	COLOUR CODE
T1	5	White / Blue
R1	4	Blue / White
T2	3	White / Orange
R2	6	Orange / White
T3	1	White / Green
R3	2	Green / White
T4	7	White / Brown
R4	8	Brown / White

AT & T T568B

PAIR	PIN #	COLOUR CODE
T1	5	White / Blue
R1	4	Blue / White
T2	1	White / Orange
R2	2	Orange / White
T3	3	White / Green
R3	6	Green / White
T4	7	White / Brown
R4	8	Brown / White

USOC 4 PAIRS

PAIR	PIN #	COLOUR CODE
T1	5	White / Blue
R1	4	Blue / White
T2	3	White / Orange
R2	6	Orange / White
T3	2	White / Green
R3	7	Green / White
T4	1	White / Brown
R4	8	Brown / White



Back-up