

ETHERNET – Overview

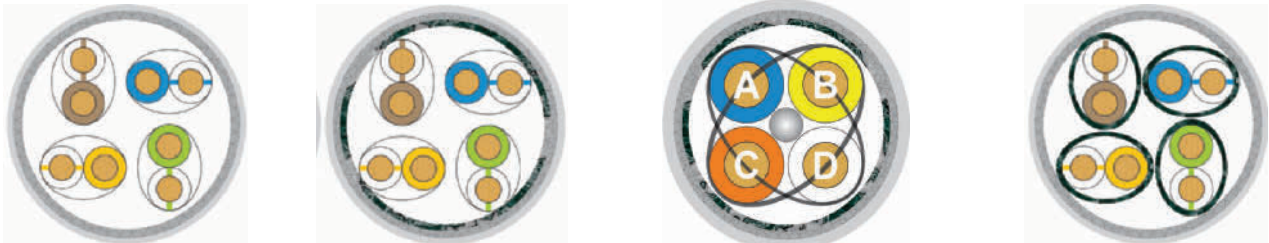
1) Correct Handling and Installation of Network Copper Cable

- Do not subject cable to tension
- Do not kink the cable
- Do not bend the cable more than 90° (See individual specifications for bending radius)
- Strip the cable as short as possible
- Do not crush cable when fastening
- Do not untwist the conductor pairs by more than 0.5 inch
- Terminate the shielding on both ends

2) LUTZE ETHERNET Cables

We recommend shielded industrial ETHERNET cable, such as LUTZE ETHERNET cable, for use in industrial environment to ensure secure connectivity. Motors and other electrical noise producing devices are often located in close proximity to network cabling. EMI (Electro Magnetic Interference) and RFI (Radio Frequency Interference) can distort data transmission on copper-based network cable. To lessen or eliminate interference, called alien-crosstalk, the use of shielded industrial cable and connectors is recommended.

Available LUTZE ETHERNET Cables:



S/UTP	SF/UTP	SF/UTQ	S/FTP
Susceptibility for Interference			
some	low		low
104337 CAT 5e	104335 CAT 5e	104301 CAT 5e	104338 CAT 6 _A
	104336 CAT 5e	104307 CAT 5e	104397 CAT 6 _A
	104396 CAT 5e	104302 CAT 5e	104331 CAT 7
	104349 CAT 5e	104303 CAT 5e	
	104347 CAT 6	104379 CAT 5e	

3) Key for Twisted Pair Cables according to ISO/IEC-11801 (2002)E

XX/YYZ

XX for the outer shielding / **Y** for the pair shielding / **ZZ** for the pair arrangement

U = unshielded / **U** = unshielded / **TP** = twisted pair (regular)

F = foiled shield / **F** = foiled shield / **TQ** = quad pair (star quad)

S = braided shield / **S** = braided shield

SF = braided and foiled shield

In order to utilize EMI/RFI shielding, the shield must be properly terminated at both ends!

4) ProfiNet Star Quad Design and Termination

The star quad is a specific low-impedance cable configuration. Four conductors are twisted on a common axis. The conductors across from each other make a pair.

In **Figure 1** the pairs are as follows:

Pair 1:

Conductor A ←→ Conductor D

Pair 2:

Conductor B ←→ Conductor C

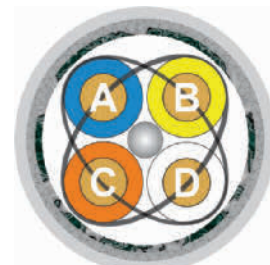


Figure 1

Other terminations than in Figure 1 lead to interferences, decreased connectivity or no connectivity at all.