

User's Guide



CAT 6 Install Kit CAT 6 Patch Cable and Coaxial Skew Cables



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Overview

The Extron CAT 6 Installation Kits include a pretested, plenum or non-plenum, Category 6 (CAT 6) patch cable and whatever coaxial skew cables are necessary to correct measured pair skew. The CAT 6 cable is preterminated with RJ-45 plug connectors. The coaxial skew cable is color coded (red, green, or blue jacket) and is preterminated with BNC connectors.

Termination of CAT 6 Cable

Figure 1 details how the CAT 6 cables in the Installation Kits are terminated in accordance with the TIA/EIA T 568A wiring standards.

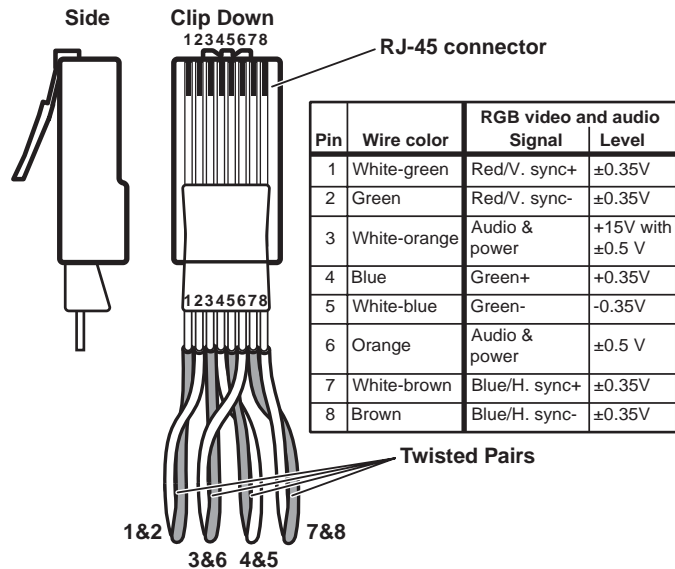


Figure 1 — CAT 6 cable termination

Cable Testing

To ensure proper cable termination, each transmission cable sold as part of an Installation Kit is tested from end to end to give an accurate indication of cable quality.

A complete test measures cable length and tests the wire map, attenuation, NEXT, PSNEXT, ELFEXT, PSELFEXT, return loss, ACR, and PSARC. All of these tests are critical for digital data transfer. While all of these tests are important indicators of the quality of the cable termination, the most critical testing parameters for video transfer are wire map (T-568-A termination) and pair length measurements. The largest concern is equalization of skew between cable pairs. Cable systems of 300

feet or less should exhibit no transmission problems if they pass CAT 6-D5 channel certification testing.

Equalizing Pair Skew

The manufacturing process for CAT 6 cable leads to a condition called pair skew. Skew exists between pairs when the physical length of one wire pair is different from another. As the transmission cable length increases, the amount of skew increases. Skew affects the displayed image when the differential length between wire pairs exceeds 2 feet, causing the timing of the red, green, and blue video signals to appear out of alignment (horizontal registration errors). A white vertical line on a black field can appear as individual red, green, and blue lines that are close together; the signal transmitted on the shortest wire pair leads the other colors and appears to the left on the display.

CAT 6 cable test equipment measures and reports wire pair length. The report on the various pair lengths can be used in equalizing pair skew. The nominal velocity of propagation (NVP — the speed at which the signal travels on the transmission line, measured as a percentage of the speed of light) of CAT 6 cable is very close to that of conventional coaxial cable. The similarity in NVP means that an additional length of coax equal to the length of pair skew, placed on the receiver's output, equalizes the effects of pair skew (figure 2).

The installation kit includes skew compensation cable(s) that compensate(s) for the level of skew observed in testing at Extron.

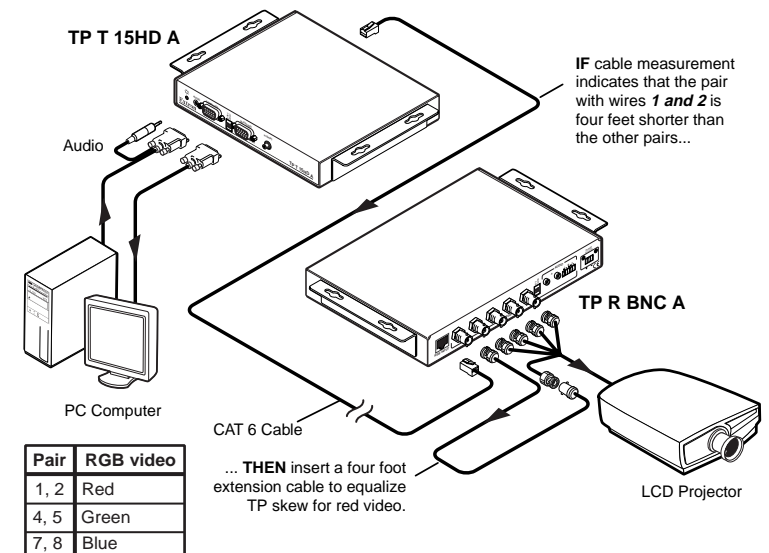


Figure 2 — Pair skew equalization