Manuals+ — User Manuals Simplified.

ELAN HDBaseT Best Practices Instructions

Contents

ELAN HDBaseT Best Practices

Product Information

This product is a network cable designed for optimal performance and reliability. It follows the EIA/TIA-568B wiring standard and is available in different types, including CAT, CAT5e, and CAT6. The product offers different performance ratings based on the type of wiring and shielding used. It is important to follow the recommended best practices for network cable installation to ensure a reliable and high-performing data connection.

Product Usage Instructions

Network Cable Installation

- Follow the best practices guide for network cable installation.
- Ensure proper wiring and shielding according to the EIA/TIA-568B standard.
- Use the appropriate type of LAN cable based on your requirements (CAT, CAT5e, or CAT6).

Best Practices Guide for Wiring CATx Cables

- Follow the EIA/TIA-568B wiring standard.
- Use solid or stranded cables based on your specific needs.
- Choose between shielded (STP) or unshielded cables based on your requirements.
- Always use EIA-TIA-568-B termination for reliable performance.

Note: The performance ratings for different types of LAN cables are as follows:

- **CAT:** Not specified
- **CAT5e**: Better performance
- **CAT6:** Best performance

Follow these instructions and best practices to ensure optimal performance and reliability of your network cable connection.

HDBaseT Best Practices

A Guide for Optimal Performance
HDBaseT is a popular technology used for digital signal distribution over long distances in commercial and residential settings. To ensure optimal performance of your HDBaseT system, it is important to follow best practices. This guide will cover essential best practices for HDBaseT installation. Additionally, it is important to carefully plan the installation process, considering issues such as distance, interference, and potential obstacles. Finally, testing the system thoroughly before finalizing the installation is crucial to catch any issues or glitches that may need to be addressed. By following these best practices, you can ensure that your HDMI over CAT5e/6/7 installation will be successful and reliable.

Installation and Troubleshooting

- Ensure all devices are turned OFF and unplugged from the wall during installation or troubleshooting. This includes satellite and cable boxes that are normally ON. Do not work on the system with any unit turned on.
- Ground yourself before handling any equipment and keep doing it throughout the installation. Static electricity built-up from walking on rugs can destroy electronic products. Use rubber gloves or hand/feet ground straps to prevent this.
- Ensure the CAT5e/6/7 cable distance meets the required specifications for HDBaseT and has pin to pin continuity. An Ethernet LAN tester can be utilized to verify this.
- To successfully install CAT5e/6/7 wiring, installers traditionally use CAT5e because of its affordability and flexibility. CAT6 is preferable which offers better performance due to a larger gauge size wire and an increased spacing between adjacent pairs for improved Near-End Crosstalk performance. CAT7 is considered overkill for HDBaseT use.
- A shielded cable (STP) is better than an unshielded cable (UTP). Shielding protects signals from AC, noise,

and electromagnetic interference entering the cable, leading to a stable transmission. The grounding wire must be connected to the metal plug on each end. Shielded wire is especially important when using HDBaseT extenders, as it minimizes ESD (electromagnetic static discharge) and EMI (electromagnetic interference) emitted from other cabling, electronics, and RF (radio frequency) emitting devices in the room which includes fluorescent lighting.

- Although punch-down blocks on the patch panel and wall port jacks are designed for use with solid core cable, it is not recommended for HDBaseT extension. This introduces losses in the transmission and will be susceptible to any ESD or EMI.
- Ensure your HDBaseT device is powered by a stabilized AC power outlet. It is recommended to use a power conditioner if there is dirty power that is causing video dropouts.

Best Practices Guide for Network Cable Installation
When it comes to network cable installation, certain best practices should be followed to ensure optimal performance and reliability. Here are some tips to keep in mind:

- While it is not mandatory to use a Cat6 cable for HDBaseT, it is highly recommended when transmitting high resolutions or operating in noisy environments. To ensure reliable transmission, use a shielded CAT6 cable with metal shielded plugs when in doubt. This will provide extra confidence and allow for deployment in less-than-optimal physical environments and provide an upgrade path for future technical requirements.
- Avoid laying network cables within 12 inches of electrical cable, transformers, and light fixtures. If needed, switch to shielded cable (STP).
- Keep in mind that shielding works by simply filtering out incoming and outgoing noise. Individually shielded twisted pairs also reduce crosstalk within the cable.
- Use CAT6 shielded solid core for new installations as it will provide the greatest distance. Connectors need to be designed differently for the solid core than for the stranded.
- Plugs designed for solid and stranded cores are readily available, and some vendors even offer plugs designed for use with both types.
- For HDBaseT applications, solid CAT5 or CAT6 provides better performance than stranded types. Stranded cables are commonly used as patch cords and other shorter network cables that require frequent flexing and bending during use.
- No matter the rating of your cable, it is classified as either "solid" or "stranded." A solid cable is most used as a backbone cable in walls, ceilings, and conduits, where flexibility isn't needed. Keep in mind that a solid cable's conductors are made of solid metal (usually a single thick copper wire) and the cable is generally more rigid. A stranded cable's conductors comprise many fine metal filaments twisted together to form a larger, thicker wire.

Best Practices Guide for Wiring CATx Cables:

- Consider the transmission distance needed and the potential for cable bending. CAT6 is a worthy investment as it has a lower loss, more bandwidth, and less time delay skew than CAT5.
- While shorter transmission distances are possible with a de-rated length of 25-50%, it's important to use cables that are less likely to break from repetitive bending. Additionally, a 23 AWG cable is better than a 24 AWG cable due to its lower resistance and ability to support longer cable lengths.
- Use EIA/TIA 568B standard termination for HDMI transmission to minimize video sync issues at longer lengths. Hold the cable as if to plug it into a wall jack with the locking tab down and contacts facing you. The contacts

are numbered 1-8 from left to right.

The EIA/TIA-568B wiring standard is as follows:

- **Pin 1:** White/Orange
- **Pin 2:** Orange/White (or just plain Orange)
- **Pin 3**: White/Green
- **Pin 4**: Blue/White (or just plain Blue)
- **Pin 5**: White/Blue
- **Pin 6**: Green/White (or just plain Green)
- **Pin 7**: White/Brown
- **Pin 8:** Brown/White (or just plain Brown)

By following these best practices, you can ensure a reliable and high-performing data connection.

Performance Rating		Type of LAN		
Wiring	Shielding	CAT	CAT5e	CAT6
Solid	Unshielded	***	Better	Best
	Shielded STP	***	Good	Best
Stranded	Unshielded	***	OK	OK
	Shielded STP	***	**	OK

Always use EIA-TIA-568-B termination

Niceforyou.com
©2023 Nice North America LLC. ELAN is a registered trademark of Nice North America LLC. All rights reserved. All other products or name brands are trademarks of their respective holders. **elancontrolystems.com**

Documents / Resources

ELAN HDBaseT Best Practices [pdf] Instructions
HDBaseT Best Practices, HDBaseT, Best Practices, Practices

Manuals+,