



HDBaseT Installation Guide





This document provides the best practices for installing Ethernet cable with HDBaseT setups.

Optimal Cabling for HDBaseT 1.0, 2.0, and 3.0 Performance

- Cat 5e is the minimum requirement for HDBaseT v1.0 and v2.0, albeit with reduced distances compared to Cat 6 or higher. While Cat 5e will work with HDBaseT v3.0, it is not recommended, and will result in non-optimized performance with respect to both maximum distance and resolution.
- Cat 6 is recommended for HDBaseT versions 1.0 and 2.0 to maximize the distances for all resolutions up to 4K UHD at 60Hz 4:2:0 or 30Hz 4:4:4. While Cat 6 will work with HDBaseT v3.0, it is not recommended, and will result in non-optimized performance with respect to both maximum distance and resolution.
- Cat 6A U/FTP is the recommended cable for HDBaseT v3.0, in order to enable long distance 4K UHD at 60Hz 4:4:4 (328 ft). Cat 7 is approximately equivalent when used with RJ45 connectors, and thus, an optional alternative.

Source: [OPTIMIZING CABLING FOR HDBaseT 3.0, HDBaseT Alliance](#)

Optimal Choice: ATEN HDBaseT-Certified [2L-29330](#) Cable

The **2L-29330** is an **HDBaseT certified cable**, verified to meet performance requirements set by the **HDBaseT Alliance** and the **Power over HDBaseT (PoH)** standard.

Key features include:

- **U/FTP design:** Four individually foil-shielded 23 AWG twisted pair conductors for optimal signal integrity.
- **Braid shielding:** Provides protection against electromagnetic interference (EMI) and reduces electrical noise.
- **Pure copper conductors:** Ensure stable high-current transmission.
- **Low-smoke, halogen-free jacket:** Enhances fire safety—ideal for PoH applications.

Whether you're transmitting high-resolution video or high current, the **2L-29330** is the reliable choice for your **HDBaseT solution**.



Recommended Cable Types and Distances

HDBaseT Type	Mode	CAT5e/6	CAT6a/7& ATEN2L-29330 CAT6a	Model
HDBaseT 3.0-Lite ¹	Standard Mode ²	4K2K/30Hz @ 60m 1080P @ 60m	4K2K @ 40 m ³	VE1833/VE2833EUT
HDBaseT 3.0 ¹	Standard Mode	4K2K @ 70 m ³ 1080p @ 100 m	4K2K @ 100 m ³ 1080p @ 100 m	VE1843 / VE1843A / CE840
	Long Reach Mode			VE1843 / VE1843A / CE840
HDBaseT 2.0	Standard Mode	4K2K @ 90 m 1080P @ 100	4K2K @ 100 m 1080P @ 100 m	CE611 ⁴ / CE620 ⁴ / CE624 ⁴ / CE820 / CE920 / CE924 and future products NOTE: For HDBaseT2.0, CAT6/6a/7 on the same segment.
	Long Reach Mode	1080P @ 150 m	1080P @ 150 m	
HDBaseT 1.0 Class A	Standard Mode	4K2K @ 70 m 1080P @ 100	4K2K @ 100 m 1080P @ 100 m	VE811 / VE812 / VE1812 / VE814 / VE814A / VE813 / VE813A / VE2812T / VE2812PR / VE2812AEUT / VE2812AUST / VE816R / CE610 ⁴ / CE610A ⁴ and future products
	Long Reach Mode	1080P @ 150 m	1080P @ 150 m	
HDBaseT 1.0 Class B (Lite)	Standard Mode ²	4K2K @ 35 m 1080P @ 60 m	4K2K @ 40 m 1080P @ 70 m	VE801 / VE802 / VE805R / VE601 ⁴ / VE901 and future products

¹ HDBaseT 3.0 does not support CAT5e or lower cables. Please use HDBaseT 3.0 Certified Cat 6a U/FTP cable or higher.

² HDBaseT1.0 ClassB & HDBaseT3.0-Lite don't support Long Reach mode.

³ HDBaseT 3.0 supports 4Kx2K@60Hz with the highest video quality (4:4:4).

⁴ VE601 and CE611/CE610A/620/624 have a maximum resolution of 1920x1200 & 1600x1200.

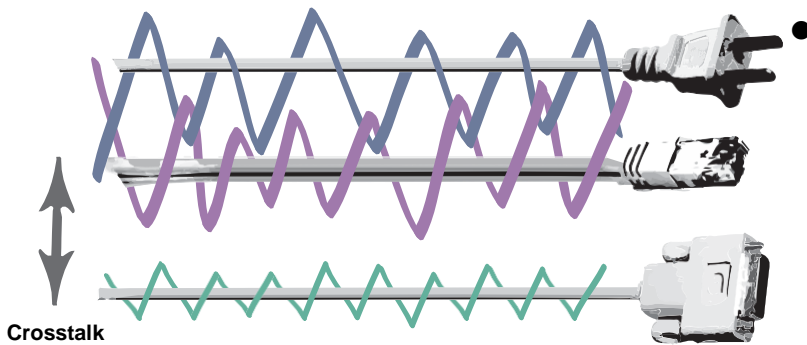
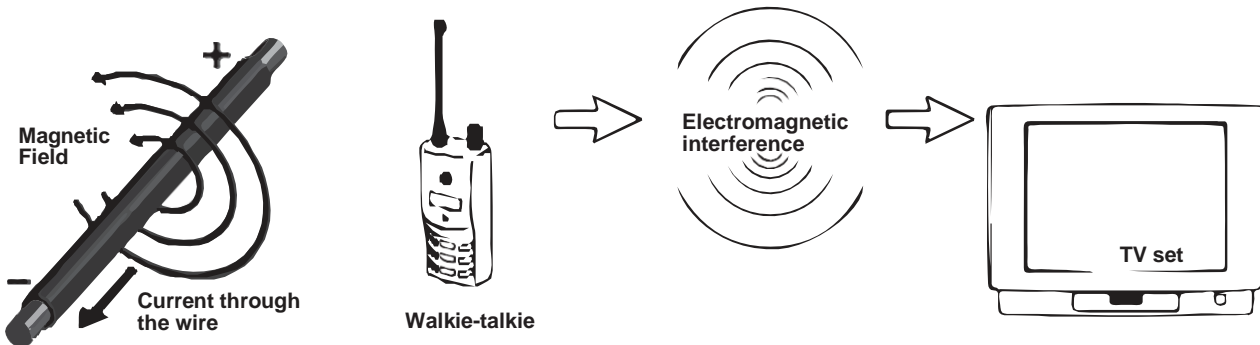
Maximum Number of Cables in a Bundle

Type	30 m	50 m	70 m	100 m
CAT5e/6	6	4	2	1
CAT6a/7/2L-29330	6	6	6	6

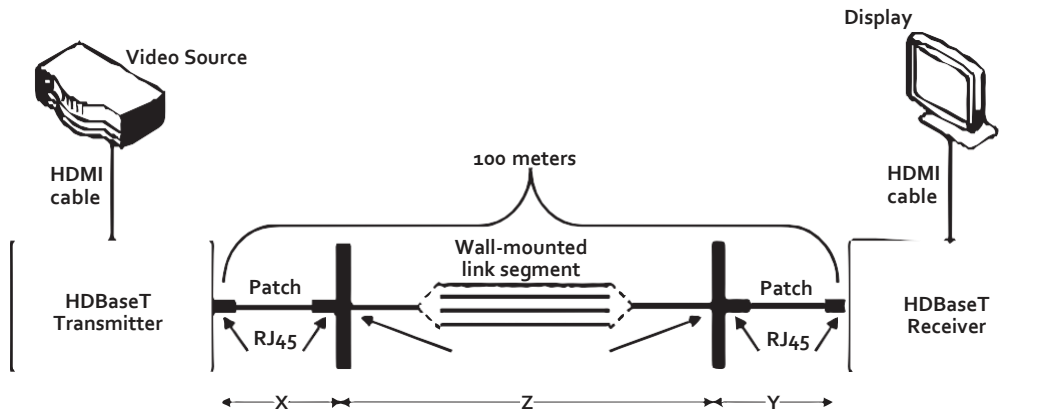


Installation Tips to Ensure Signal Integrity and Longevity

- Tie all cables loosely with appropriate cable wraps, leave space for the cable to move slightly, and do not pull hard on cable because that may cause pairs to untwist and degrade performance. Always try to minimize damage to the cable structure during installation and never drop or install anything on or over an Ethernet cable.
- Always keep cable away from equipment that may cause electromagnetic interference and magnetic fields, such as high voltage electric cables, electric motors, Walkie- Talkies, TVs and elevators.



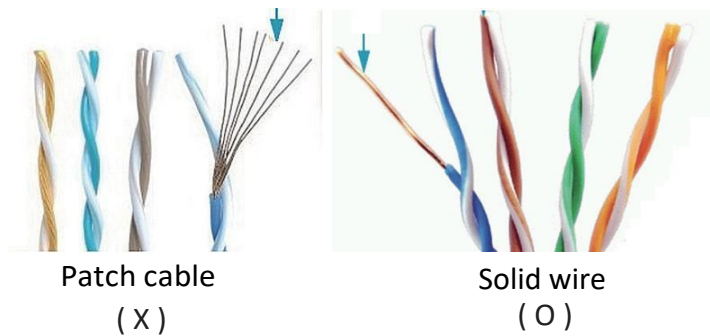
- When installing in an environment with lots of structured cabling, do your best to separate out the Ethernet cable from all other cables to prevent crosstalk with other signals.



X= Left-side patch cable length ≤ 5 [meter] (as short as possible) Y=Right-side patch cable length ≤ 5 [meter] (as short as possible) Z = Wall segment $\leq 100 - X - Y$ [meter]

Note: The exact transmission distances vary based on different criteria; please refer to the HDBaseT type table on Page 2 for details.

- Do not use patch cable for the wall segment. The wall segment requires AWG 24/23 infrastructure cable.

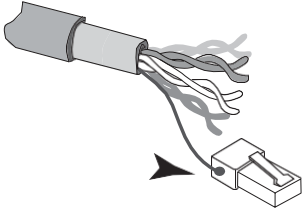


Shielded coupler

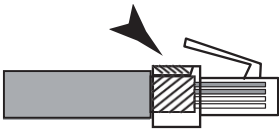
- If pass-through points are required, use shielded couplers.
- Apply T568A or T568B standards for straight through cabling.



HDBaseT 1.0, 2.0 Cabling Installation Requirements



- When using STP/FTP cable, make sure the drain wire is well soldered to the metal casing of the RJ-45 connectors on both ends.



- Make sure the shielding makes tight contact with the top side in the RJ-45 connector.

HDBaseT 3.0 Cabling Best Practice: Use 2A-245G with [2L-29330](#)

For professional AV and networking environments that demand high-speed data transmission, we recommend pairing the 2L-29330 Cat 6A HDBaseT cable with the 2A-245G RJ-45 connector. This combination ensures a secure, high-quality connection optimized for HDBaseT performance.

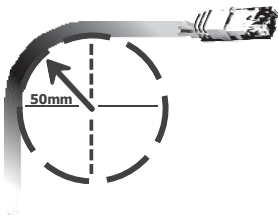
 [Watch the step-by-step installation tutorial](#)



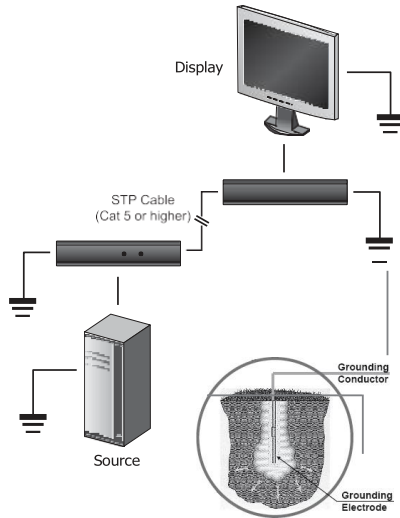
Critical Cabling Do's and Don'ts for HDBaseT Reliability



- Install cable of the shortest length possible between the HDBaseT Transmitter and Receiver while leaving a little wiggle room to ensure the cable does not apply pressure to either device port. Always avoid using unnecessary rolls of cable which will result in performance degradation due to the increased length.



- Do not bend the cable beyond a bend radius of 50 mm.



- Ground all devices.
- Ensure that every source and cable is grounded so that electrical interference does not have a path through your main signal. Ensuring a proper ground will maintain your signal integrity for the life of the installation.



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