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NEWSLETTER
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STRETCH GOALS

Scalable Solutions for Extended Distance Support

Educational institutions, healthcare organizations, and enterprise-level businesses face an increasingly common conundrum. IoT-connected systems like occupancy sensors, smart thermostats, security cameras, wireless access point (WAPs), and air quality monitoring devices are being implemented throughout these organizations' facilities — and occasionally, these devices are located more than 100 meters away from the building's telecommunications room.

Leaders want to know: is there a way to extend the distance of their structured cabling systems beyond the 100 meter standard without sacrificing performance and quality? The short answer is yes; however, most often attempts to do so result in short-term fixes that are heavily dependent on customization and leveraging adequate supporting equipment.

Achieving quality transmissions at distances greater than 100 meters will require you to navigate the causes of signal attenuation, mitigating risk where possible.

Relevant risk factors and parameters include:

- **Transmission speed:** One of two factors that will determine how long your channels can be beyond 100 meters. Higher speed Ethernet systems are less tolerant of extended distances, and will typically offer consistent performance over shorter channels than their lower speed counterparts.
- **Error Rates:** The other issue to be aware of when designing extended distance channels is the Bit Error Rate. Studies have shown that the longer the channel the higher the number of errors and dropped frames, especially for higher speed Ethernet systems.

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LEVITON **POLL**

Which of the following Cat 6A cable attributes are important to you?

67% Electrical performance margins above the Cat 6A standard

40% Ease and speed of installation

37% Ability to achieve high density installation

37% Sustainability

From a September 2024 Leviton poll of 54 network professionals.

Stretch Goals: Scalable Solutions for Extended Distance Support *continued from pg. 1*

- **Active equipment:** Ethernet equipment manufacturers design their transceivers to achieve the target IEEE bit error rate over an assumed worst case 100 meter channel. When operating at longer distances different Ethernet devices have varying degrees of capabilities to function properly at an acceptable error rate.
- **Passive channel components:** Twisted-pair copper cables can be specifically designed to compensate for the additional attenuation introduced by channel lengths beyond 100 meters. Changes in cable insulation materials, conductor gauge, and even twist rates can all contribute to the ability to support longer channel lengths.

Even then, attaining error-free 1000BASE-T transmission at 200 meters is far from guaranteed with current technological limitations — though we are always looking for a way forward.

So much of the conversation around extended distances seems to be centered around estimating how far we can go while preserving a mostly error-free degree of connectivity. Modifying structured cabling systems that adhere to the 100 meter standard takes time, effort, and money – and even if a passable solution results with a minimum of errors in transmission, there's no certainty that such systems will continue to be reliable as networking needs change. The conversation needs to change, to be elevated away from scrappy, immediate fixes and towards sustainable, long-term solutions that support extended distance channels.

ATLAS-X1™ SST

The ATLAS-X1™ SST MILLENNIUM™ cabling system now guarantees 140 meter support for 2.5 Gbps Ethernet, 155 meter support of 1 Gbps Ethernet and 200 meter support of 10 Mbps Ethernet. Ideal for mission-critical applications where superior 10GBASE-T performance is needed, the system provides PoE support up to 100 watts, supports in-building 5G deployments and smart building applications, and offers warrantied support for four-connector extended distance channels.

By using the the ATLAS-X1 SST MILLENNIUM system, enterprises that need extended distance support can now receive it – and not just as a one-off customization, but as a part of an ever evolving, standards based global system with built-in supply chain redundancy, future proofing, and the option for standardization of infrastructure across global business units.

We believe this to be a significant step away from the short-term extended connectivity solutioning we see so regularly, and toward a future where quality connections beyond 100 meters are a feature of scalable, sustainable network infrastructure. For more on our approach to standardizing extended distance support, register for our **webinar here**.

Leviton Recognized with Two Innovators Awards

At the 2024 Cabling Innovators Awards, Cabling Installation & Maintenance awarded Leviton Network Solutions with two Gold Innovators Awards. The awards were given in recognition of our carbon neutrality and sustainability initiatives, and for the new OPT-X™ SDX Splice Modules.

CABLING INNOVATORS AWARDS
GOLD HONOREE

CN2030
Carbon Neutral by 2030

In 2024, Leviton Network Solutions announced that it had attained carbon neutrality, contributing to Leviton's goal of organization-wide **carbon neutrality by 2030**. Network Solutions' sustainability commitments are also reflected by Leviton's investment in clean, energy-focused carbon-offset projects, the removal of plastic waste, and the production of Environmental Product Declarations (EPDs) for Network Solutions' end-to-end global copper systems. As a global company, Leviton believes it is uniquely empowered to contribute in the fight against climate change, and this award is a humbling recognition of our commitment to that ideal. To learn more about our sustainability efforts, check out **leviton.com/sustainability**.

Our **SDX Splice Modules**, a part of the OPT-X SDX Fiber System, were designed to help installers and network engineers simplify installation and maintenance. SDX Splice Modules eliminate the need for individual splice trays within a fiber enclosure and provide better organization, slack management, and protection of fibers. With features like pre-loaded color-coded pigtails, integrated latching tabs, and patented internal shutters on LC adapters, the splice modules create the least variability in performance and the best splice protection of field-terminated fiber options. For more on our SDX splice modules, visit **leviton.com/SDX.**

At Leviton, we are committed to producing solutions that empower our customers to push the boundaries of what is possible in networking – whether that means reducing deployment time, or contributing towards their own sustainability goals. We would like to express our gratitude to Cabling Installation & Maintenance for their recognition, and we look forward to a future where we will continue to bring you what's next in networking technology.

Size Matters

Five Benefits of Small OD Cat 6A Cabling

Developing the industry's smallest outside diameter Cat 6A cable is no small feat; and with both our FDT and RDT variants available on market in tandem with our global systems, we thought it only fair to explain how these brand new cables offer unique value for our customers. Why does size matter, and what is the benefit of going smaller with your Cat 6A cabling?

When space is at a premium and performance is a must, the size of your network components can have a significant impact on your network's quality, viability, and scalability. Small outside diameter cables unlock:

High-Quality Performance

RDT and FDT deliver excellent guaranteed channel performance above standard when used with ATLAS-X1™ and EXTREME™ connectivity in our MILLENNIUM™ systems, all while supporting the latest PoE standards.

Easy Retrofitting

FDT and RDT cabling can easily reuse existing pathways, enabling seamless 10G upgrades.

Rapid Installation

Both cable variants have been designed to deliver excellent electrical performance without the need for a central cross filler, cutting down on both termination time and jobsite waste.

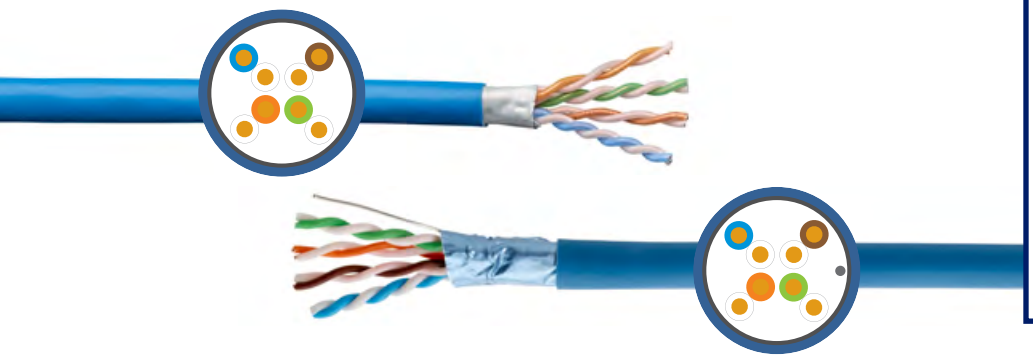
Storage and Savings

In addition to being able to use smaller trays and conduits, RDT and FDT take up less space in the warehouse, during transportation, and on the jobsite, saving you both money and space.

Painless Routing

Where space is at a premium, our small OD cables simplify installation and have the flexibility to traverse challenging pathways.

Our RDT U/UTP and FDT F/UTP cables are both part of MILLENNIUM™ global systems. For an in-depth look at our FDT and RDT cabling, visit **leviton.com/millennium**.



NEWS YOU CAN USE

COMPANY

Leviton Adds New Sustainably Smart Packaging Offerings

Leviton's Sustainably Smart Packaging initiative continues to grow in scope, now including the Cat 6 Small Diameter High-Flex Patch Cord in the US. Sustainably Smart Packaging is entirely recyclable, uses no single-use plastics, and cuts down on installation time by removing jobsite waste. From reusable GREENPACK™ packaging to new pull-box offerings, Sustainably Smart Packaging cuts down your environmental impact while allowing you to ratchet up your efficiency. Explore our **Sustainably Smart Packaging options here**.

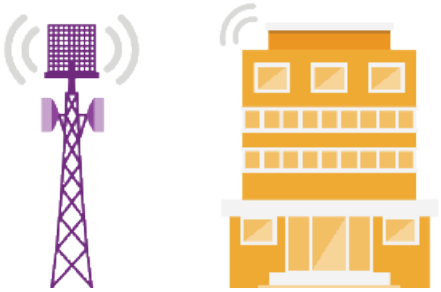
Leviton Expands Fuquay-Varina Plant

Leviton's expanded Fuquay-Varina fiber optic cabling manufacturing facility is officially up-and-running, with the company planning to hold a ribbon-cutting ceremony for the public in April 2025. Part of a five-year investment plan to expand Network Solutions' capacity, Leviton has more than doubled the size of its North Carolina facility, expanding the 55,000 sq ft facility by an additional 94,000 sq ft. The expanded facility fulfills Leviton's mission of shortening time-to-value for global customers, providing additional capacity and cutting lead times — all while investing in the local community of Fuquay-Varina.

TECH TIPS

Active vs. Passive DAS Networks

From the desk of Beyond Bandwidth



Both DAS configurations leverage a network of antennas to boost cellular connectivity throughout a large area; the difference between active and passive DAS is in how this is done.

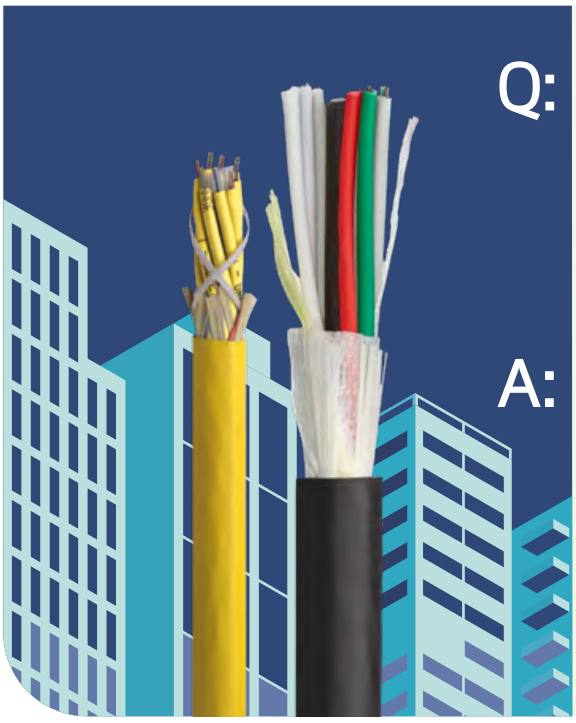
Active DAS networks add cellular capacity and transmit cellular signals over fiber-optic cabling from a centralized source to remote nodes. This is one of the strongest forms of DAS, known to support high-capacity venues and millions of square feet. However, the infrastructure investment required to get an active DAS network up and running can be significant. Also, implementing an active DAS system requires the specific approval of carriers, as they'll certify that your system works well with their macro network.

Passive DAS networks use a donor antenna to receive off-air signals from cell towers, then amplify and transmit that signal with a series of antennas inside the building along with other passive components. Passive DAS networks are typically significantly less expensive to install than their active counterparts, and do not require you to petition carriers for permission to use their networks as long as you are using approved systems. However, a passive DAS network only amplifies existing cellular coverage, it does not add capacity.

Which of the two DAS networks is best suited for you largely depends on your need and your intended infrastructure investment. Organizations that need their network to sustain a high volume of users over a large area might find active DAS more suited to their need. For organizations that don't need coverage over 100,000 sq ft, passive DAS may be a cost-saving alternative that delivers powerful results.

If you still have questions about DAS and how to structure a network that suits your needs, check out our Beyond Bandwidth podcast available on all podcast platforms or at **leviton.com/beyondbandwidth**.

ASK THE **EXPERTS**



Why should I choose ADVENTUM™ dry loose-tube cable for my installation?

Choosing ADVENTUM™ dry loose-tube cabling offers several key advantages. For one, all are designed for both indoor and outdoor deployment. This is thanks to ADVENTUM's top-tier fire safety performance, coupled with its dry water-blocked cable cores, UV-rated sheathing, and operational temperatures down to -40°C. This translates to suitability for a wide variety of environments, including outside plants, campuses, and data centers, all without the need for transition point terminations.

Time and money also play a significant factor in any installation, which ADVENTUM's dry, loose-tube technology cuts significantly. ADVENTUM cabling is available with a Central Dry or Multi Dry Tube design, with or without armor, allowing for both a compact and robust design that suits a variety of needs. These cable cores and buffer tubes then incorporate advanced, gel-free, water-blocking technology, preventing water penetration and doing away with the mess of wet gel constructions. This means fewer consumables are required to clean the fiber, reducing preparation and installation time, whilst the absence of gel and cleaning equipment makes the cable more environmentally-friendly.

Learn more at leviton.com/adventum

Questions? Comments? Ideas?

We want to hear from you!
Email: crosstalk@leviton.com