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Network Solutions Designed for the Enterprise

The Network Architecture Your Business Needs

As employees, residents, guests, patients, and students bring more devices into a space, they also bring a new level of connectivity demands. Building owners need networks that can keep up with increasing technology requirements.

Whether you are planning for the next generation of Wi-Fi or adding IP devices like audio/visual, security cameras, building management, or IoT, Corning and Nokia's joint Fiber Optical solutions are built specifically for the needs of your enterprise.

This guide highlights the best practices for a smart technology strategy – one that can go the distance, adapt as network requirements change, and scale as technology plans grow.



Best Practices for a Smarter Technology Strategy

1. Enable Remote Applications with Extended Reach Connectivity Solutions

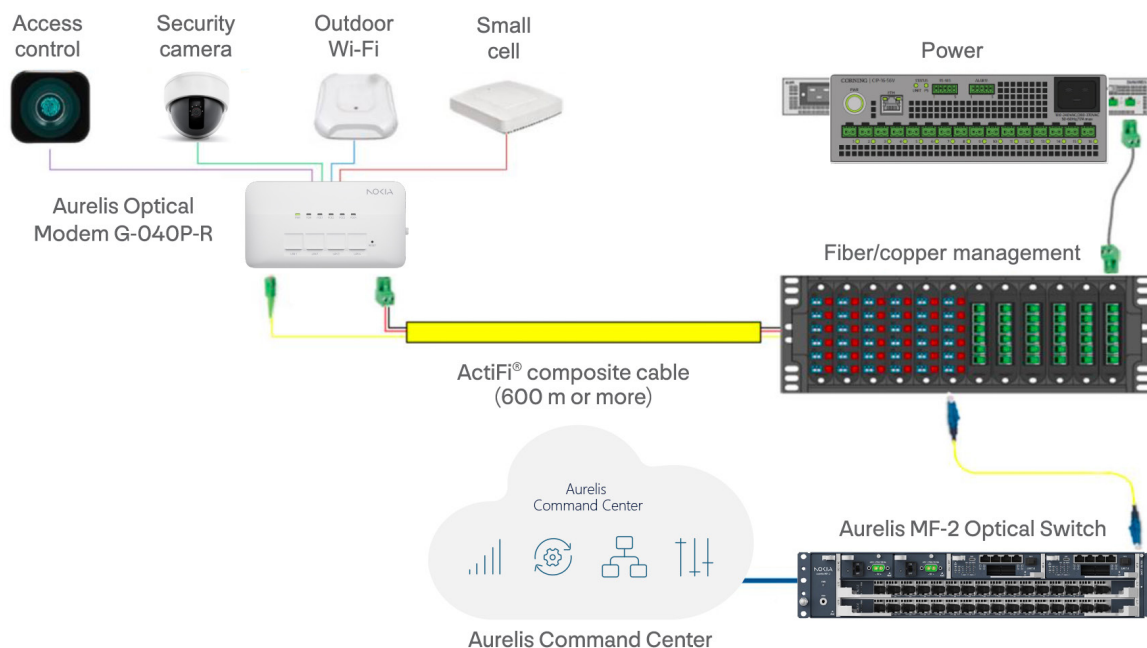
Today's technology demands are testing the limits of legacy category (copper) cable networks. Without long-reach solutions, building owners are faced with space constraints, limited local power, and unplanned connectivity needs that drive up network complexity and deployment costs. To overcome these challenges, Corning and Nokia's joint optical solution replaces outdated infrastructure with a long-reach, high-speed fiber network that converges all services simplifying connectivity, reducing power and space requirements, and delivering Class 2 power and high performance to the very edge.

2. Stay ahead of future technology needs with a flexible, adaptable network

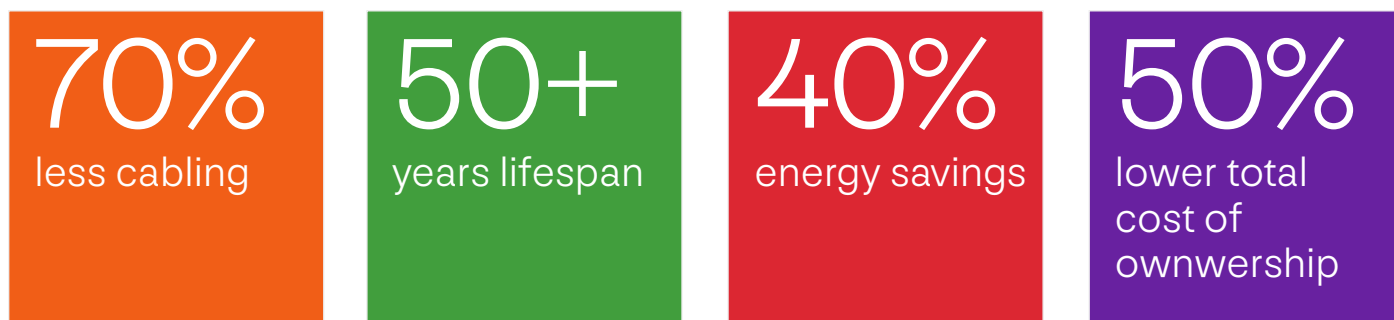
With new technologies like Wi-Fi 7, Cloud applications and IoT emerging at an unprecedented rate, LAN networks that can accommodate these ever-increasing technological demands can help businesses evolve as their technology needs change. Corning and Nokia's joint FTTE and Optical LAN (PON) solutions help transform your technology program into a strategic asset.

3. Expand technology plans with scalable, fiber future-ready connectivity

Smart technology strategies are built on fiber future-ready infrastructure. Building owners who deploy unlimited bandwidth and power to the edge can seamlessly add new technologies to their networks. Unlike legacy category cable networks, Corning and Nokia's joint FTTE and Optical LAN solutions can help building owners protect their technology investment by eliminating routine rip-and-replace infrastructure upgrades.



Optical LAN outperforms traditional copper-based LAN in all the key categories:



Significantly reduced infrastructure

Optical LAN places all network intelligence at the central optical switch, so every optical modem can be managed from one location. Between the switch and the remote modems, only passive components are used. From that central point, fiber cabling fans out across the building or campus, with splitters and modems installed wherever users and devices need service. A single fiber can connect up to 128 endpoints, cutting cabling requirements by as much as 70% and dramatically reducing equipment rooms, cable trays and installation costs.

Long-term value

Fiber infrastructure delivers a service life of 50 years or more, making it a one-time investment with long-term value. Once installed, the passive cabling can support every service for decades, while the active components easily accommodate successive generations of fiber technology without the need for forklift upgrades. The combined benefits of both passive and active components create a value proposition far beyond that of traditional solutions.

Energy efficiency

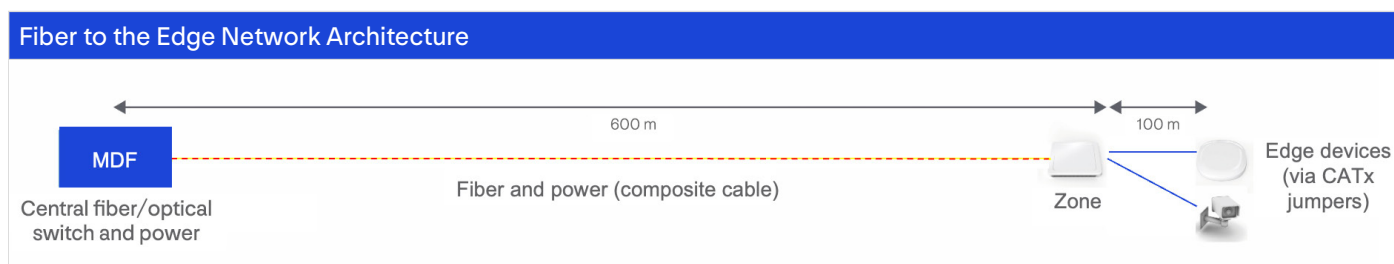
With no active electronics between the optical switch and the modems, the midspan remains fully passive. This architecture lowers power consumption by up to 40% and reduces cooling needs, helping organizations hit ambitious sustainability targets. Optical LAN drives these savings in several ways:

- centralized design: a single optical switch supports the entire network, reducing overall equipment and space requirements
- passive infrastructure: fewer active components mean less energy use
- lower cooling demand: less heat generation cuts HVAC costs and energy use
- fiber efficiency: light-based transmission is 6–8 times more energy-efficient than copper's electrical signals or wireless radio links, delivering the same data with a fraction of the power
- Together, these advantages dramatically reduce both energy consumption and the carbon footprint of enterprise IT operations

Lower TCO

Savings in capital expenditure, power, cooling and maintenance combine to reduce overall TCO by as much as 50%. The result is a high-performance network that's smart, sustainable, and cost-efficient: the ideal solution for today's modern enterprises.

Fully-Managed, Future-Flexible Networks

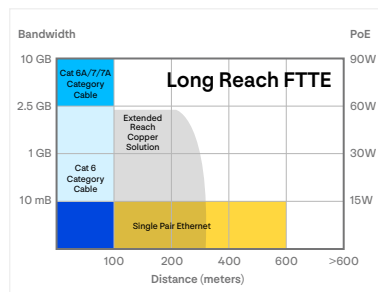
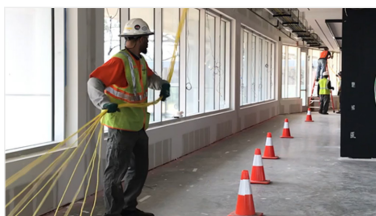




Legacy Category Cable Network



Replaced with ActiFi Cable



Where to position long-reach vs. copper cables

ActiFi® Hybrid Cable

Achieve ultimate flexibility by bringing together the future-ready bandwidth capabilities of single-mode optical fiber and the powering capabilities of copper with Corning's ActiFi hybrid cable. The hybrid cable has both fiber and copper conductors under the same cable jacket to deliver data and power to the very edge of your network.

Advantages

1. Save Pathway Space

Legacy category cable networks rely on routine rip-and-replace upgrade cycles and single-purpose infrastructure, which leads to crowded pathways and complexity. ActiFi hybrid cable streamlines your infrastructure onto a single cable allowing you to overcome space constraints.

2. Protect Your Technology Investment

With a future-ready cable, your business can protect your infrastructure investment by leaving your ActiFi hybrid cable in place during your next technology refresh. Put your technology funds to smarter use by avoiding costly routine rip-and-replace category cable upgrades.

3. Speed Up Your Deployment

Keep your project schedule on track by saving time with your network deployment. ActiFi cable eliminates the need to pull separate cables for data and power, which saves you valuable time.

4. Stay Ahead of Future Technology Needs

Increasing Wi-Fi demands are challenging building owners to design their networks with future-ready infrastructure, like ActiFi hybrid cable. Learn why the next generation of technologies will require optical fiber with this 3-minute read: [Enabling a Wireless World](#).

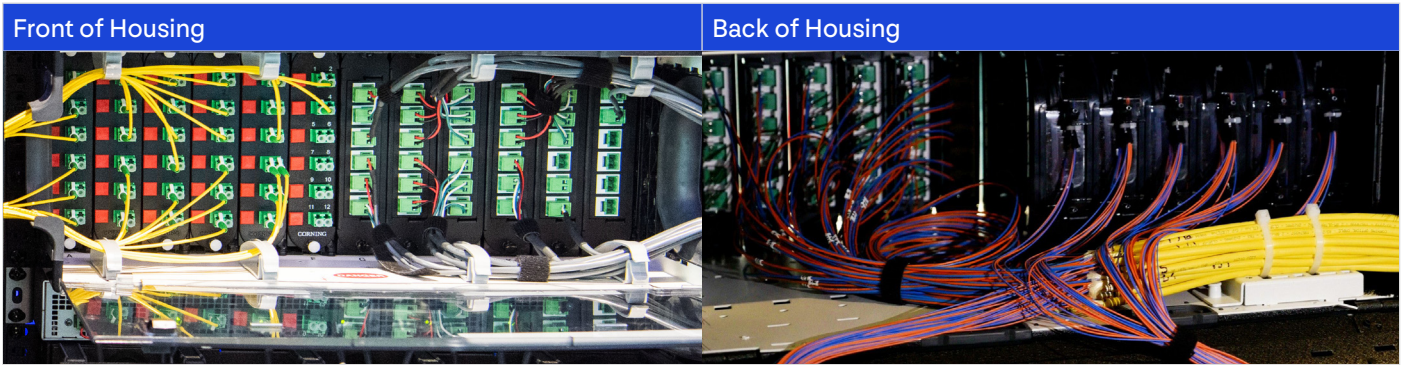
Applications

ActiFi® cable is a Class-3 hybrid cable that supports low voltage (Class 2, 57 VDC/100 V) as well as bulk power solutions. Because ActiFi cable can reach distances over 600 meters, this cabling choice is also ideal for long-reach or remote applications, such as security cameras in a parking area or outdoor campus-wide Wi-Fi.

ActiFi cable can support devices directly or via a connection to an edge device, such as a media converter. ActiFi cable is compatible with Corning’s Intelligent Power Solutions, 10G HPoE Media Converter, and Nokia’s Aurelis optical LAN.

ActiFi Cable Management

ActiFi cable is also compatible with Corning’s hardware, and housing portfolios, including CCH and EDGE™ solutions. An example below shows how CCH cassettes and housings easily manage ActiFi hybrid cable. Flexible Keystone adapters accept both fiber and power connector types.



Specifications

Find the right cable for your project with Corning’s broad portfolio of ActiFi composite cable. A few key specs are highlighted below. For a complete list of offerings, please visit our [ActiFi Cable Ordering Guide](#).

Highlights	
Configurations	2 fibers and 2 copper conductors
Copper Conductors	20-12 AWG
Environments	Indoor, Indoor/Outdoor
Jacket Ratings	LSZH™, Cca



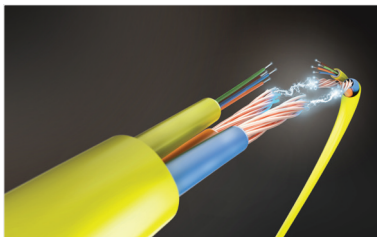
Contact your local Corning Sales Engineer for a complimentary sample of ActiFi cables.



Consolidated power distribution at a single location



Learn more from our expert Steve Letke



Remote Power Overview



Use Cases: Security & Wi-Fi

Intelligent, Remote Power Solutions

Overcome PoE distance limitations of legacy category networks by Injecting DC power into your network. Corning's expanded portfolio of high-density, Class 2 remote power solutions support intelligent power aggregation at the edge to deliver up to 700W of power. Our power solutions are compatible with Corning's ActiFi® hybrid cable, connectivity, hardware, and actives portfolio.

Advantages

1. Solve for Increasing Power Requirements

As buildings get smarter, they demand more power from our networks. Deliver up to 700W of power to the edge to support small to medium power loads such as IP devices and smart lighting.

2. Reduce Deployment Cost

Eliminate costly local power outlets and telecommunication rooms by delivering DC power across distance of 600 meters or more.

3. Save Space

Our new intelligent power solutions deliver up to 167% greater port density to help you solve for more power with a smaller footprint.

4. Gain Flexibility

Our new power supplies are a half-rack unit wide and can be stacked side by side, wall-mounted, or installed inside an enclosure. With an ambient temperature range of -30°C to 65°C, these solutions can be deployed in various locations.

5. Simplify Power Management

With intelligence built in, this new power solution can be managed to allow current/voltage monitoring, faults monitoring, ports on/off control, prioritization, and optimization.

Go the Distance

Extend the reach of your network beyond the 100-meter distance limitation of legacy category networks. Enable remote applications at distances of 600 meters or more with Corning's Intelligent Power Solutions and ActiFi® hybrid cable.

Use this distance table to build the right end-to-end network for your project based on the specific power requirements at the edge. Contact your local Corning Sales Engineer for assistance.

ActiFi® Hybrid Cable Distances 1 Pair Low Voltage (57 VDC)			
	30 Watts	60 Watts	75 Watts
20 AWG	179 m	90 m	71 m
18 AWG	286 m	143 m	114 m
16 AWG	457 m	228 m	182 m
14 AWG	>600 m	362 m	289 m
12 AWG	>600 m	557 m	457 m

NOTE: table assumes delivering 48 VDC at PSE

Specifications

Corning's expanded portfolio of Intelligent Power Solutions includes new power supplies, power aggregators, step down converters, hardware, and accessories.

Highlights		
New Power Supplies	Achieve ultimate port density to deliver more power with less space.	1 port (127 mm tall, 50 mm wide, 105 mm deep) 16 port (1.5 RU tall, half RU wide)
Aggregators	Aggregate multiple 56 V Class 2 inputs to provide more power (up to 700 W of power to a single device) and redundancy at the edge.	2:1 or 8:1
Step Down Converter	Add this device to support both 56 V and 24 V loads from the same power supply.	x1 output or x2 output
Accessories	Gain deployment flexibility with various mounting options.	DIN rail mounting Rack shelves Cable management



1 Port Corning Intelligent Power Supply (CIP)



16-Port Corning Intelligent Power Supply (CIP)



2:1 Aggregator, 8:1 Aggregator



Step Down Converter x2 outputs



Unmanaged Networks with Extended Reach

Security cameras across a parking area, blanket Wi-Fi throughout a campus, and access controls around a perimeter are just a few examples of technologies that test the 100-meter distance limitation of category cable networks. These network limitations lead to maxed-out pathways, space constraints, and costly local power outlets. Enabling these seemingly simple devices often takes a network deployment that can be quite complex. Corning’s portfolio of unmanaged, long-reach solutions can provide the cost-effective, “set it and forget it” connectivity you need at the edge. We provide two solutions: 10G HPoE Media Converters and an end-to-end Touchless Networking Solution.

10G 90 W HPoE Media Converter

Corning’s all-in-one, 1-port, industrial grade media converter solution, delivers up to 90 W of High Power over Ethernet (HPoE) and supports a diverse range of data speeds from 100MB to 10GB, effectively extending networks beyond 600 meters. New built-in intelligence enhances troubleshooting and monitoring, offering a cost-effective solution that reduces network deployment costs and utilizes fewer materials for a lower carbon footprint.

Specifications

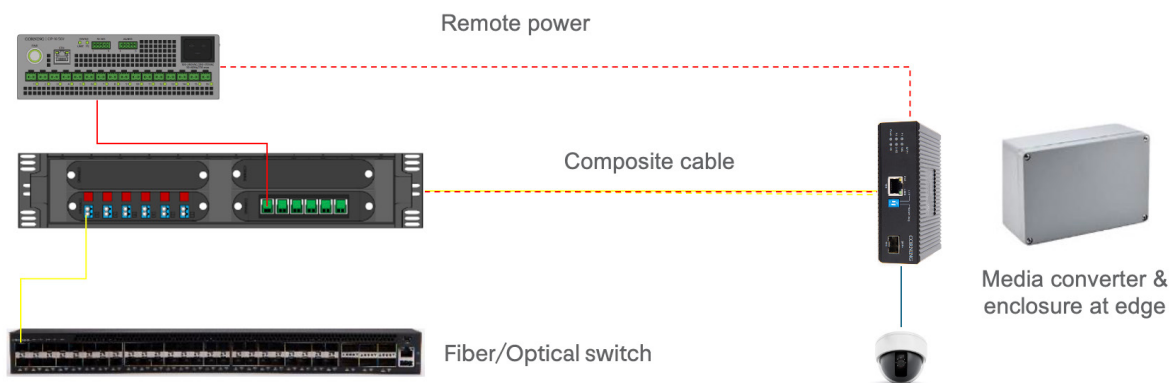
- Supports 90 W PoE++ (HPoE) and is backwards compatible to support PoE, PoE+, PoE++ (60 W) /802.3bt.
- Supports 10G speeds and is backwards compatible to support 1G or 2.5G speeds.
- Allows for deployment flexibility with DIN-rail mounting and small form factor.
- Interoperable with existing copper or fiber switches.
- Features 1G or 10G Auto Negotiation SFP+ port, Link Status.
- Direction and Watchdog features to auto-reset devices.

Ordering Information	
1LAN-FMC-10G-U	Media Converter
1LAN-FMC-DINBRACKETU	DIN Rail Bracket
1LAN-SDAN-DIN1160	DIN Rail
1LAN-D600-FMC-KIT	Mounting kit for 1LAN-FMC-10G into 1LAN-D600-ENC-3 enclosure
1LAN-D600-ENC-3	NEMA4 Enclosure
1LAN-SFPP-10G-BXD-I-U	BiDi SFP+ 1330 nm-TX/1270 nm-RX
1LAN-SFPP-10G-BXU-I-U	BiDi SFP+ 1270 nm-TX/1330 nm-RX
1LAN-SFPP-10LR-U	10Gb/s SFP+ SMF



Long-Reach Fiber Media Converter Deployment Example

Leverage an Existing Fiber Switch

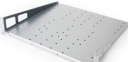


Ordering Information

Media Converter (FMC)	Part Number	GE Ports	10GE Ports	PoE	PoE Budget	Notes
	1LAN-FMC-10G -U Media Converter	1	1	Yes, 90 W	90 W	Media Converter SFP+ Interface LC UPC for 1G/10G Transceiver

Description	Part Number
10GBASE-BX10-D BiDi SFP+ 1330 nm-TX/1270 nm-RX 10 km DOM Transceiver Module	1LAN-SFPP-10G-BXD-I
10GBASE-BX10-U BiDi SFP+ 1270 nm-TX/1330 nm-RX 10 km DOM Transceiver Module	1LAN-SFPP-10G-BXU-I
1G BiDi SFP; 1310Tx/1490Rx	1LAN-SFP-3405BC
1G BiDi SFP; 1490Tx/1310Rx	1LAN-SFP-4305BC
10Gb/s SFP+ Transceiver module, SMF, 1310 nm, 10 km	1LAN-SFPP-10LR
1G SFP TRX, 1000BASE-LXLH, SMF, 1310 nm, 10 km	1LAN-SFP-1GB-LXLH

Power	Part Number	Description
	CIP-16-56V-U	Intelligent Power Supply Unit (16 ports, 56 V)
	CIP-01-56V	Intelligent Power Supply Unit (1 port, 56 V)
	CIP-AGG-2-U	Aggregator: Two Class-2 inputs, Single Class-1 output
	CIP-AGG-8-U	Aggregator: Eight Class-2 inputs, Single Class-1 output
	CIP-VC-56T24	Step down converter: Class-2, 56 VDC to 24 VDC

Accessories	Part Number	Description
	1LAN-SDAN-SMCRD	Surface-Mount Cradle (8293 series)
	1LAN-SDAN-FST0004	Fiber Slack Tray (729x series)
	1LAN-D600-ENC-3	Outdoor enclosure (81XX, 82XX)
	1LAN-D600-ENC-8	Outdoor enclosure (729X, 769X)
	1LAN-D600-CCP2-WH	Power Keystone Adapter (connector style)
	CCHE-CP00-KS	Keystone CCH Panel
	PCBL-1T1-18-2M PCBL-1T2-18-2M PCBL-1T4-22-2M	1 Pair (1:1) power cable 2 Pair (1:2) power cross-connect cable 4 pair (1:4) power cross-connect cable
	CIP-19SHELF-1.5U	CIP 19-in Rack Shelf – 16 Port/1.5 RU



Build Tomorrow's LAN, Today

Aurelis Optical LAN is Nokia's next-generation fiber-based solution for enterprise LAN, purpose-built to meet the evolving needs of in-building and campus connectivity. Designed for long-term performance, operational efficiency, and reliability, it empowers enterprises to scale with confidence, simplify IT operations, and support sustainability goals—all while staying ahead of future demands.

Future-proof

Aurelis Optical LAN delivers multi-gigabit performance today, 1Gb/s, 10Gb/s, and 25Gb/s, with smooth evolution to 50Gb/s and 100Gb/s in the future. Its scalable architecture adapts to your business growth without the need for disruptive upgrades. Build on a foundation that protects your investment, aligns with innovation cycles, and ensures your network is always ahead of demand.

Simple

Aurelis Optical LAN streamlines deployment and operations with intuitive tools and automation that reduce complexity, cut costs, and accelerate time to value. Built on open standards and APIs, it integrates effortlessly with existing third party solutions. The result is a high-performance, flexible infrastructure that evolves with your business.

Reliable

When it comes to reliability, Aurelis Optical LAN stands out. With six nines (99.9999%) availability, end-to-end Quality of Service (QoS), and robust security, Aurelis Optical LAN ensures your network is always on, always dependable. Whether you're supporting critical applications or latency-sensitive services, you can trust a LAN solution that delivers consistent uptime and peace of mind.

Solution Overview

Aurelis Optical LAN comprises the Aurelis MF-2 Optical Switch, a comprehensive range of Aurelis Optical Modems, and the Aurelis Command Center.

Aurelis MF-2 Optical Switch

The Aurelis MF-2 (MF-2) is a centralized optical switch for the entire LAN, capable of serving from hundreds to thousands of users and devices.

Here are the key benefits:

- **Space-efficient and flexible:** the compact, modular 2U switch with dual DC and AC power options is designed to maximize space and provide flexibility, allowing you to choose the best power configuration for your needs
- **Future-ready performance:** with current support for 10Gb/s and 25Gb/s, and the ability to scale to 50Gb/s and 100Gb/s, this solution ensures that your network can easily evolve alongside your growing business demands
- **High capacity:** featuring a non-blocking 400G backplane per slot and 80G uplink capacity, this system delivers the highperformance infrastructure required to support demanding services and ensure smooth, uninterrupted operations
- **High density:** the 16-port multi-PON line card (supporting 1Gb/s, 10Gb/s, and 25Gb/s) and 16-port GPON line card (1Gb/s and 2.5Gb/s), with the ability to connect up to 64 optical modems per port, allow you to handle high user density and future growth—without adding complexity to your network
- **High reliability:** offering six nines (99.9999%) availability with no single point of failure, this solution guarantees continuous, reliable performance for critical applications, ensuring your network is always online
- **Built-in redundancy:** redundant power, uplinks, controller and line cards, plus intra/inter-switch protection with sub-second switchover, keep your network up and running, ensuring maximum uptime
- **Energy efficient:** up to 8 times more energy-efficient than traditional copper-based LAN solutions, this system helps reduce operational costs and supports your organization's sustainability goals



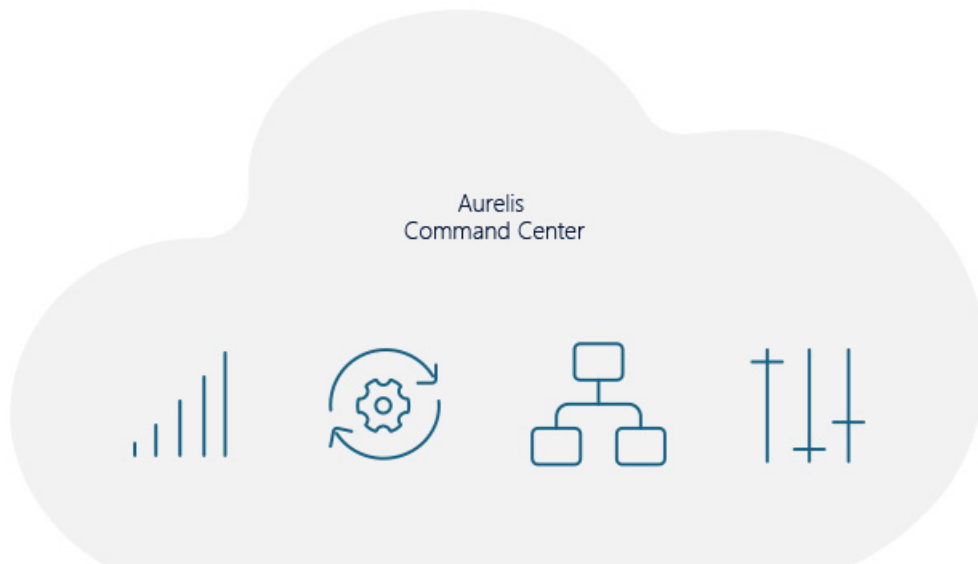
Aurelis MF-2 Optical Switch

Aurelis Optical Modems

Aurelis Optical Modems are designed for enterprise applications and controlled by the Aurelis MF-2 (MF-2) Optical Switch. The optical modems deliver superior services with high bandwidth to every user and device. The wide range of modems meet every use case with variants from 1, 4, 8 and even 24 ports. They can be deployed in a variety of locations and support wired and wireless multi-gigabit connectivity, power over Ethernet (PoE, PoE+ and PoE++), and a selection of user interfaces.

The following Aurelis Optical Modems are available (not exhaustive):

	Part Number	Uplink	User Interface	PoE	Operating Temperature	Application
	Aurelis Optical Modem G-040P-T	GPON	4 x GE	POE+	-5°C TO +45°C	Supports Wi-Fi extension and wired connectivity
	Aurelis Optical Modem G_040P-R	GPON	4 x GE	POE++	-5°C TO +45°C	In-wall deployment Supports Wi-Fi extension and wired connectivity
	Aurelis Optical Modem XS-010S-Q	GPON	1 x 1GE	N	-5°C to +45°C	Pluggable Integrates enterprise switches and endpoint devices (Wi-Fi, CCTV, IoT) into the fiber-LAN network Enables a true fiber-to-the-endpoint setup; no Eth drop cable needed between modem and device
	Aurelis Optical Modem XS-010S-Z	GPON or XGS-PON	1 x 10GE	N	-5°C to +85°C	Pluggable Integrates enterprise switches and endpoint devices (Wi-Fi, CCTV, IoT) into the fiber-LAN network Enables a true fiber-to-the-endpoint setup; no Eth drop cable needed between modem and device
	Aurelis Optical Modem U-490XP-P	GPON or XGS-PON	8 x GE or 1 x 10GE	POE+	-5°C to +60°C	Supports Wi-Fi extension and wired connectivity
	Aurelis Optical Modem U-080XP-P	GPON or XGS-PON	8 x GE	POE++	-5°C to +60°C	Designed for harsh environments
	U-880XP-P	GPON or XGS-PON	8 x POTS & 8 x GE	POE++	-5°C to +60°C	Designed for harsh environments
	U-00240XP-A	XGS-PON or 25G PON	16 x 2.5GE & 8 x 10GE	POE++	0°C TO +55°C	Gradual/phased deployment of optical LAN using existing horizontal copper cabling Future-ready infrastructure designed to support 25G speeds



Aurelis Command Center

The Aurelis Command Center is a cloud-based network management system that simplifies LAN configuration and maintenance. With role- and resource-based access controls, it ensures that only authorized users can manage network resources, enhancing security and compliance. Aurelis Command Center provides centralized management, offering a well-designed, user-friendly interface that eliminates the need for complex configuration and programming. Realistic network device floor plans display real-time network status, enabling quick responses to issues. The system offers simple, streamlined, and fast network rollouts with maximum operational efficiency.

Key Benefits:

- Effortless setup: with single-click installation and zero-touch optical modem activation, deployment is quick and easy, getting your network up and running in no time
- Seamless operations: automated service provisioning streamlines your processes, reducing manual intervention and ensuring smooth, uninterrupted operations
- Smarter visibility: continuous telemetry provides real-time network insights, enabling faster, more informed decision-making to keep your network performing at its best
- Optimized experience: predefined service templates ensure consistency, boost efficiency and deliver an enhanced user experience



Corning Optical Communications is a part of Corning Incorporated, a leading innovator in materials science that has been inventing life-changing products and technologies since 1851. Since pioneering the telecommunications revolution with the invention of low-loss optical fiber in 1970, Corning Optical Communications has continuously innovated to enhance the speed and capacity of optical networks, while reducing installation costs. As network usage proliferates and new technologies develop, causing a skyrocketing demand for bandwidth, Corning is responding with innovations for fiber to the premises (FTTP), enterprise networks, and data centers.

At Nokia, we create technology that helps the world act together. As a B2B technology innovation leader, we are pioneering networks that sense, think, and act by leveraging our work across mobile, fixed, and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs. Service providers, enterprises and partners worldwide trust Nokia to deliver secure, reliable and sustainable networks today – and work with us to create the digital services and applications of the future. Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

Network Solutions Designed for the Enterprise

Whether you face space constraints, require long-reach applications, or need to refresh your technology plans, Corning and Nokia's in-building and campus LAN network solutions are built to help you design the network you need.

Built on the foundation of Fiber to the Edge (FTTE) network and Optical LAN architecture, Corning and Nokia's joint solutions deliver future-flexible data and power to the very edge of your network. This guide will help you choose the connectivity networking solution that best fits your project and assist you to seamlessly upgrade your network as technology plans change without having to routinely rip-and-replace your network infrastructure.

[Learn more by visiting the Corning Next-Gen LAN Knowledge Center](#)

[Learn more by visiting Nokia Aurelis Optical LAN](#)

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