

Unlimited throughput
over existing
multimode fibers



A simple box to increase network bandwidth
without replacing existing cabling infrastructure

An **efficient** and **effective** solution

Quick and **easy** to install

Passive equipment

Economic benefits



Convert

your multimode fibers
into single-mode fibers

**2 to 10 times
less expensive**

than optical fibers
roll-outs

AROONA-STAR – a **quick** and **easy**
solution for unlimited throughput

Increased multimode fiber transmission capacity and compatibility with standard equipment

- From 1 Gb/s to 100 Gb/s on multimode fibers over up to several kilometers
- Compatible with OM1 to OM5 fibers (62.5 or 50/125 μm)
- Compatible with standard duplex or bidirectional single-mode transceivers
- Wavelength Division Multiplexing (WDM) compatibility for flexible scalability of transmission capacity

Quick and easy to install

- Simplified audit and deployment, without the need for recabling
- Solution operational after a simple fiber fusion splice
- **Passive equipment:** no power supply or electronics needed
- Short-term service interruption (average of 1 hour per link)
- Non-intrusive intervention on patch panels only
- Impact on site activity minimized
- Zero configuration, zero maintenance



5-YEAR
warranty





The **AROONA-STAR** solution is available in two different formats, depending on the number of multimode fibers to be upgraded and the available space in the existing infrastructure.



19" 1U rack
inserted into the network cabinet
for the 4, 8, 12 or 24 fiber versions

Compact module
inserted into the existing patch panel
for the 2-fiber version



Many Local Area Networks (LANs) are cabled with **multimode fibers (MMF) that are limited in bandwidth**. The transmitted throughput cannot exceed 1 Gb/s or even 100 Mb/s and therefore does not meet the growing demand for increased network bandwidth. The various solutions offered by the AROONA series make it possible to **overcome these limitations and transmit tens of Gb/s over an existing multimode fiber structured cabling infrastructure just by installing a simple box**.

A few testimonials



AROONA solution approved by
French Ministry of Defense



French Army

- **Type of fiber: OM1 MMF**
- **40 high bandwidth optical links between 600 and 1500 m [1970 and 4920 ft] in length**

"This AROONA installation, implemented quickly and without constraints, demonstrated a measurable clear improvement in terms of network fluidity, especially for INTRADEF navigation and our business applications."

Military



More than 12 tons of CO₂ saved: only on the production of the cable, not counting the impact of civil engineering avoided

Georgia Tech campus

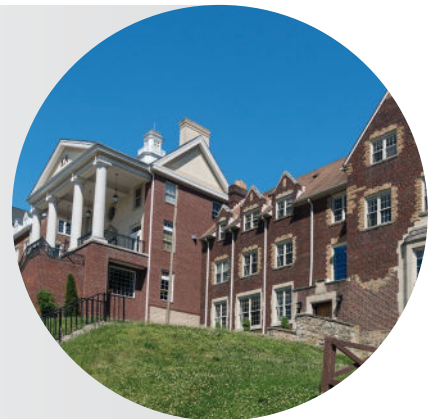
- **Type of fiber: OM1 MMF**
- **35 high bandwidth optical links between 400 and 1100 m [1310 and 3610 ft] in length**

"All houses are up and running on 10 Gb/s network speeds. Thank you for all your help! It is pretty cool to have magical technology in use and functioning so well!"

Robert Toledano, Network engineer III, Georgia Institute of Technology



More than 15 tons of CO₂ saved: only on the production of the cable, not counting the impact of civil engineering avoided



Deux Alpes ski resort

"Despite the distance and connection between old generation OM1 fibers over 3.3 km [2 mi], we now have several links at 10 Gb/s at up to 3200 m [2 mi] of altitude thanks to AROONA. It's allowed us to provide new digital services to our customers and colleagues. To sum up, it is a successful encounter between high mountains and high technology."

Patrick Jullian, Network administrateur, Deux Alpes Loisirs



More than 2.5 tons of CO₂ saved: only on the production of the cable, not counting the impact of civil engineering avoided

Boost the throughput

of your multimode fiber link with AROONA-STAR



ISSUE



Limited bandwidth
over multimode fiber



1

INSTALL
the AROONA-STAR box
in the existing network rack



2

SPLICE
the multimode fibers to be upgraded
to the AROONA-STAR fibers



3

CHECK
the link performance



4

CONNECT
the AROONA-STAR to the single-mode active layer
via single-mode optical patchcords



RESULT



High throughput over MMF
= future-proof infrastructure

Passive media converter function



Beyond the increase in bandwidth on MMF, **AROONA-STAR** can be used as a passive media converter by providing **transparent transmission of high-speed optical signals between single-mode and multimode fiber.**

- Intermediate active layer removed
- Single-mode transceivers on either end of the hybrid link

Technical specifications

PARAMETER	AROONA-STAR
Reach	<800 m with device installed at one link end only
	<10 km with device installed at both link ends
Fiber type	Exists in 62.5/125 μm (OM1) or 50/125 μm (OM2/OM3/OM4/OM5)
Number of fibers	Exists in 1/2/4/8/12/24 fiber versions
Device insertion losses	<2 dB (typical: 1.5 dB)
System capacity	From 1 to 100 Gb/s* (typically: 10 Gb/s) Independent throughput on each fiber
Wavelength	[1250 nm – 1600 nm]
Transceiver compatibility	Duplex or bidirectional single-mode transceiver (1000BASE-LX, 10GBASE-LR/ER/ZR, 25GBASE-LR/ER, 40GBASE-LR4/ER4, 100GBASE-LR4/CWDM4, etc.) Passive device transparent to communication protocol
Packaging and connectors	19" 1U rack for 4/8/12/24 fiber versions. LC/UPC connector on the front panel of the 19" rack and unconnectorized multimode fiber on the rear panel to be spliced Compact module for 2 fiber version. ST/SC/LC-UPC connector on the single-mode side. Unconnectorized multimode fiber to be spliced
Operating temperature	-40°C to +70°C (ETSI EN 300 019-1-3 class 3.4)
Transportation tolerance	ETSI EN 300 019-1-2 class 2.3

*subject to the complexity and condition of the link

Dimensions in mm [inches]

Rack 19" 1U

⊕ 43 [1.7] ⊖ 480 [18.9] ⊙ 250 [9.8]

4m-long MMF on rear panel



Compact module

⊕ 5 [0.2] ⊖ 100 [3.9] ⊙ 12 [0.5]

MMF: 900 [35.4] / SMF: 400 [15.7]



Do not change your fiber,

optimize it!

How to integrate the **AROONA-STAR** device on an existing cabling infrastructure

□ For links less than 400 m: **only one device is required**



□ For links between 400 and 800 m: **only one device is required, as well as changing the multimode connectors of the remote sites to single-mode connectors**



□ For links more than 800 m: **two devices are required (one at each end)**



① Patch panel

② Fusion splice

Implementing **POLAN** on an existing multimode cabling infrastructure

AROONA-STAR allows the implementation of an emerging network architecture of Passive Optical LAN (POLAN) on multimode fibers. This innovative solution is compatible with all active and passive single-mode POLAN devices.

For more information on POLAN applications, please refer to the AROONA brochure dedicated to POLAN.

The AROONA solution has obtained numerous innovation awards worldwide, including:



cailabs

SHAPING THE LIGHT

Founded in 2013, **Cailabs** is a French deep tech company which designs, manufactures and distributes innovative photonic products for telecommunications, free space transmission, industrial lasers, and LANs. A global leader in complex light shaping, its technology is currently protected by 19 patent families. Its innovative optical components are used in a variety of sectors and have contributed to several world records (notably the optical fiber bandwidth record achieved by the Japanese operator KDDI).

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