

**Unlimited** throughput  
over existing  
multimode fibres



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 fibres  
into single-mode fibres

**2 to 10 times  
less expensive**

than optical fibres  
roll-outs

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

## Increased multimode fibre transmission capacity and compatibility with standard equipment

- From 1 Gb/s to 100 Gb/s on multimode fibres over up to several kilometers
- Compatible with OM1 to OM5 fibres (62.5 or 50/125  $\mu\text{m}$ )
- 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 fibre 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 minimised
- Zero configuration, zero maintenance



**5-YEAR**  
warranty





The **AROONA-STAR** solution is available in two different formats, depending on the number of multimode fibres 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 fibre versions

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



Many Local Area Networks (LANs) are wired with **multimode fibres (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 fibre structured cabling infrastructure just by installing a simple box**.

## A few testimonials



AROONA solution approved by  
French Ministry of Defence



### French Army

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

*"This AROONA solution 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**

### Georgia Tech campus

- **Type of fibre: 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



### Deux Alpes ski resort

*"Despite the distance and connection between old generation OM1 fibres 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

## Boost the throughput

of your multimode fibre link with AROONA-STAR



### ISSUE

**Limited bandwidth**  
over multimode fibre



1

**INSTALL**  
the AROONA-STAR box  
in the existing network rack



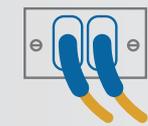
2

**SPLICE**  
the multimode fibres to be upgraded  
to the AROONA-STAR fibres



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 fibre.**

- 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 <b>at one link end only</b>
	<10 km with device installed <b>at both link ends</b>
Fibre type	Exists in 62.5/125 µm (OM1) or 50/125 µm (OM2/OM3/OM4/OM5)
Number of fibres	Exists in 2/4/8/12/24 fibre 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 fibre
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 fibre versions. LC/UPC connector on the front panel of the 19" rack and unconnectorised multimode fibre on the rear panel to be spliced  Compact module for 2 fibre version. ST/SC/LC-UPC connector on the single-mode side. Unconnectorised multimode fibre 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 fibre,  
**optimise 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

In addition, **find out**  
about our solution



**AROONA-POL** enables GPON to be implemented on existing multimode links by replacing the standard optical splitter within the Passive Optical LAN architecture

The AROONA-POL 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 fibre bandwidth record achieved by the Japanese operator KDDI).

## cailabs

SHAPING THE LIGHT

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