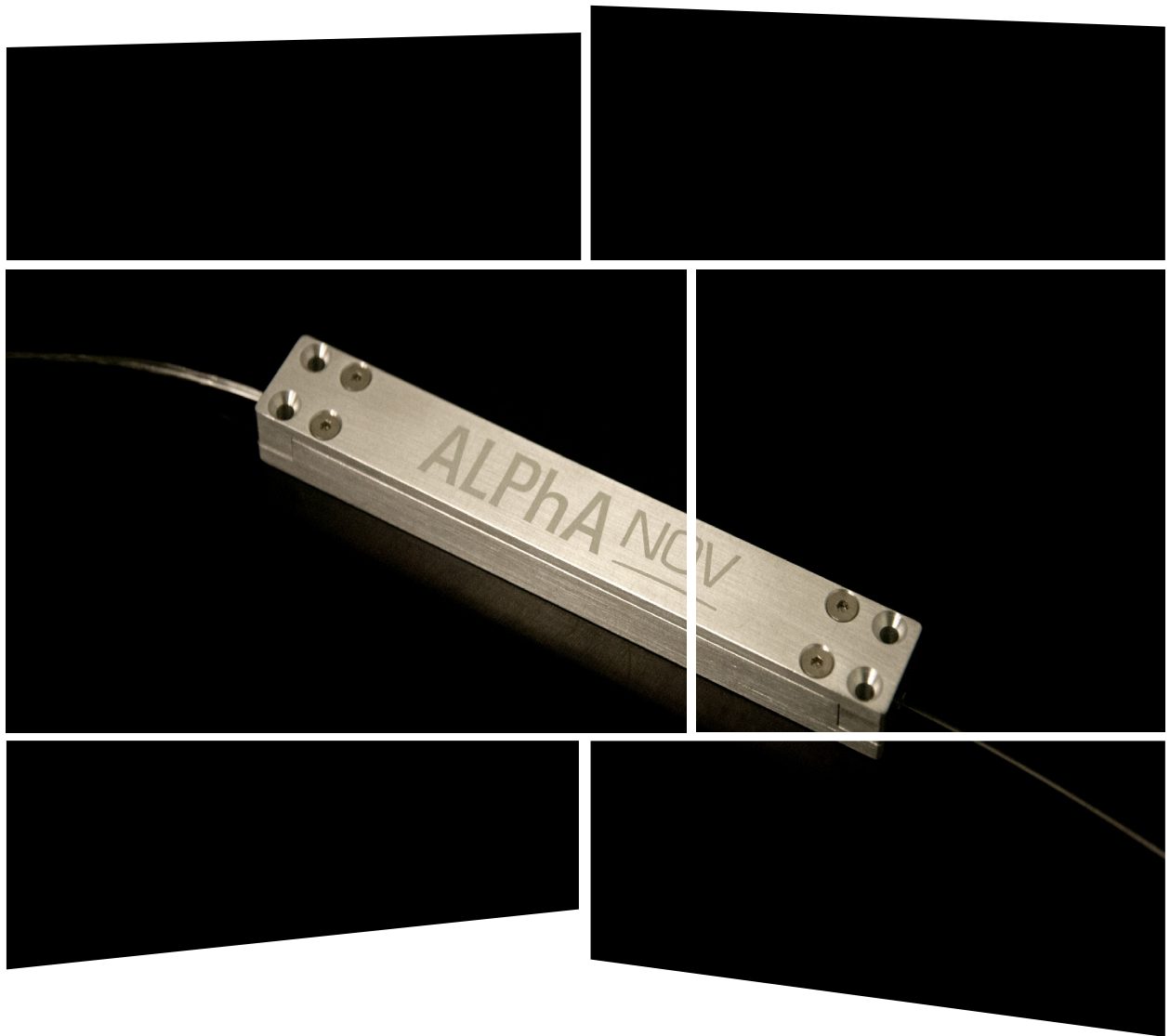


High brightness combiners

kW-class $N+1>1$ combining solution



ALPhA **NOV**

Optics & Lasers Technology Center

High brightness combiners

kW-class $N+1 > 1$ combining solution

ALPhANOV develops custom-made high brightness combiners in the kWatt regime, for multiple operational wavelengths



Based on your technical requirements, ALPhANOV studies and develops kW-class combining solutions at several wavelengths such as 1064nm or 1550nm. To achieve this, particular attention is paid to thermal dissipation, taking into consideration wavelength impact.

As a result of our unique know-how in fiber interfacing and state-of-the-art splicing equipment, we can optimize the brightness of our combiners and treat fibers in order to minimize thermal behavior without an active dissipator. It is by doing this that we can provide an optimized combining solution compatible with kW usage. A specific packaging is also carefully developed for each combining solution.

More precisely, to reduce thermal effects, attention is paid in particular to the cleaning and verification procedure. To splice the pump and signal fibers, ALPhANOV can, for example, rely on the most innovative CO₂ laser treatment, to attain a far superior cleanliness level compared to standard splicing machines using an electrical arc.



Picture of a CO₂ laser splice between a fiber bundle and the output active fiber

Example of a kW-class counter-propagative combiner at 1550nm :

Signal wavelengths	1550nm
Pump operating wavelengths	976nm
Number of pump ports	6 to 8
Singlemode transmission	>90%
Multimode transmission	>97%
Thermal slope	0,04°C/W - without active dissipation

Transmission is also a key factor, and at first it is optimized by design. But ALPhANOV can, for instance, also make use of its unique Mode Field Adaptor (MFA) technology to adapt mode sizes and enhance transmission performance in order to reduce thermal losses.

The MFA is designed and manufactured in-house for better control and parameter adaptability.