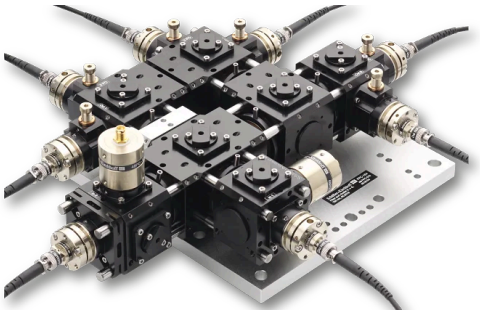
Fiber Port Cluster 2 → x

Compact, rugged and highly efficient opto-mechanical unit for splitting/combining multiple ports



FEATURES

Fiber Port Cluster for two input sources with the same wavelength

- Configuration 2 → x
- Highly efficient coupling into polarization-maintaining fiber cables
- Adjustable splitting ratio
- Compact, rugged, transportable and sealed opto-mechanical units
- Fully fiber-coupled
- Very high long-term stability, efficiency and reproducibility

DESCRIPTION

The Fiber Port Clusters are compact opto-mechanical units that combine two fiber-coupled sources with same wavelengths and then splits the combined radiation into multiple output fiber cables with high efficiency and variable splitting ratio.

Optical Setup
The two input ports are fiber-coupled to PM fiber cables. Polarizers define the input polarization which is necessary for a long term stable splitting ratio.

Two photo diodes right after each input port allow for a continuous monitoring of the radiation. The two input sources are superimposed by means of a polarization beam splitter.

Subsequently, the radiation splitting is achieved by using a cascade of rotary half-wave plates in combination with polarization beam splitters. By use of the rotary half-wave plates, almost any desired splitting ratio can be achieved, see the tech note FiberPortCluster_2-6_Balancing.pdf for the limitations.

At the output ports further polarizers are placed in order to define the polarization at output of the system.

Fiber Couplers
A fundamental component of a Fiber Port Cluster is the Laser Beam Coupler, which is the input into the opto-mechanical unit collimating the input radiation and, finally, couples the radiation back into the polarization-maintaining fiber cables. The stability of the total Fiber Port Cluster is determined by the stability of the laser beam coupler.

ORDER OPTIONS

Order Code	Configuration	Dichroic	Wavelengths
48-FPC-2-3_n-xxx	2 ⇾ 3 n	-	689, 780, and 852 nm (others on request)
48-FPC-2-4-xxx	2 ⇾ 4	-	689 and 780 nm (others on request)
48-FPC-2-6-xxx	2 ⇾ 6	-	589, 671, 767, 773, 780, 852 nm (others on request)
48-FPC-2-8-xxx	2 ⇾ 8	-	589, 671, 767, 773, 780, 852 nm (others on request)

TECHNOTES

- Article - Fiber Port Cluster
  Rugged, modular and fiber coupled beam splitting and combining units

DOWNLOADS

FiberPortCluster_2-6_Balancing.pdf (Technote)

Article_Cluster.pdf (Technote)

This downloads section only includes general downloads for the complete series.
Please access the individual product pages (using the product configurator, the product list, order options or the search button if you have a complete order code). Here you will find specific downloads including technical drawings or stepfiles.

RELATED PRODUCTS

FIBER COLLIMATOR SERIES 60FC-SF	Fiber Collimator/Fiber Coupler with super-fine thread
FIBER COLLIMATOR 60FC-Q	Fiber Collimator for collimating large beam diameters and with integrated quarter-wave plate
POLARIZATION ANALYZER SK010PA	Measurement tool for coupling into polarization-maintaining fiber cables

FIBER PORT CLUSTER

This is a printout of the page https://sukhamburg.com/products/fiberoptics/multicube/systems/cluster/2.html from 5/8/2024

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