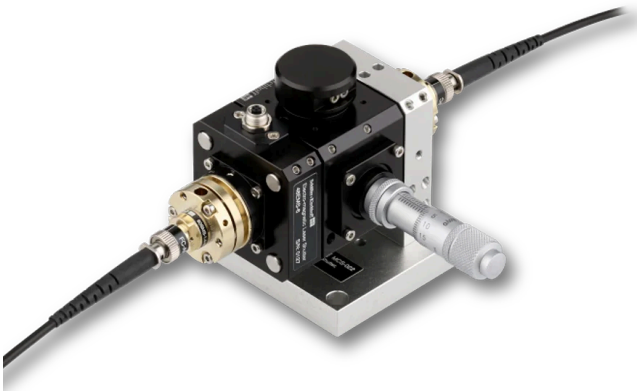


Fiber-to-fiber-coupler with attenuator and electro-magnetic shutter

Compact, rugged and highly efficient opto-mechanical unit for interconnecting two fiber cables



FEATURES

Fiber-to-fiber coupler with attenuator and electro-magnetic shutter

- For single-mode or PM fiber cables
- Insertion loss typically 1.5 dB, extinction > 60 dB
- Adjustable
- Shutter with Min. 25 million cycles
- Bistable, operating frequency max. 15 Hz
- Min. exposure time 11 ms
- Controlled by TTL signal (flank control)
- Electrical connection type M8, 4 pin female
- Suitable shutter controller SK97121 (not included)
- Compact, rugged, transportable and sealed opto-mechanical units
- Very high long-term stability, efficiency and reproducibility
- Can be used as interface between different types of single-mode fibers or connectors

DESCRIPTION

The fiber-to-fiber coupler type 48-MCS-032 is equipped with an attenuator and an electro-magnetic shutter.

Attenuator

The collimated laser beam is constricted by a [precision ball transported by a scaled micrometer screw](#). This mechanically stable attenuation method allows the precise and reproducible setting of the laser power output over a wide range (typically 1.5 to > 60 dB). Unlike a power regulation by modulation of the laser current, the wavelength and polarization status of the laser beam are preserved.

A reproducible power attenuation is only assured for single-mode fibers that have a Gaussian intensity profile.

Electro-magnetic shutter

The integrated electro-magnetic shutter type [48EMS-6](#) is a shutter that can be controlled by means of a TTL signal (flank-controlled). An appropriate controller is available separately.

Fibercouplers

A fundamental component of the Fiber-to-Fiber Coupler 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 second fiber cable. The stability of the total Fiber-to-Fiber Coupler is determined by the [stability](#) of the laser beam coupler.

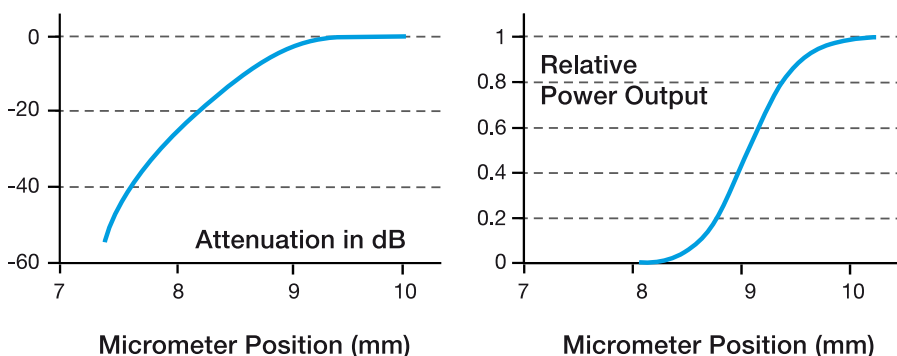
Depending on the choice of [lens type](#) (monochromatic or achromatic) within the Laser Beam Couplers, the system can either be used for a single wavelength or for a wavelength range.

Coupling focal length

The best focal length for the 60SMS Laser Beam Couplers used in these systems is f' 11 - 12 mm. If the effective numerical apertures of the two fiber used with this system are different, you have to use two Laser Beam Couplers with different focal lengths.

Configuration

For selecting the 60SMS Laser Beam Couplers please refer to the [60SMS Laser Beam Couplers site](#).

**TECHNICAL DATA**

Fiber-to-fiber-coupler with attenuator and electro-magnetic shutter

Order code	48-MCS-032
Wavelengths	370 - 1700 nm (depends on coupling optics)
	monochromatic or achromatic optics*
	Different lens types available.
Focal length	11 mm (standard)
Fiber type	single-mode or polarization-maintaining
Connector type	FC APC (standard)

Attenuation	1.5 dB to > 60 dB @ 780 nm
Shutter	bistable
Control	TTL (edge-triggered)
Electrical connector type	M5 (4 pin, female)
Voltage to switch	10.7 V DC
Coil resistance	8 Ohm
Shutter timing	
Min. exposure time	11 ms
Max. operating frequency	15 Hz (continuous)
Min. operating frequency	45 Hz (burst mode)
Operating temperature	-10 - +65°C
Suitable shutter controller	SK97121C
Lifetime	min. 25 million cycles
Weight	xxx gr
* Broadband systems on request	

TECHNOTES

- [Working principle of 48AT-0](#)
[Working principle and attenuation.](#)

DOWNLOADS



[980121131600.pdf \(Dimensional drawing\).](#)



[Adjustment_SMS.pdf \(Manual\).](#)

ACCESSORIES

SHUTTER CONTROL UNIT SK97121C	for electro-magnetic shutters type 48EMS
60EX-4	Eccentric key with a stroke of ± 0.5 mm.
9D-12	Screwdriver WS 1.2
50HD-15	Hex key WS 1.5

13BL1-13Iris diaphragm for fiber collimators with diameter Ø
25/28 mm

RELATED PRODUCTS

**POLARIZATION
ANALYZER SK010PA**Measurement tool for coupling into polarization-
maintaining fiber cables**LASER BEAM
COUPLERS SERIES
60SMS**for coupling into single-mode and polarization-
maintaining fiber cables**FIBER-COUPLED
ELECTRO-MAGNETIC
SHUTTER 48EMS-0****FIBER-COUPLED
ATTENUATOR 48AT-0**Compact, rugged and highly efficient opto-
mechanical unit for interconnecting two fiber cables**FIBER-TO-FIBER
COUPLER 60FF-T**Compact, rugged and highly efficient opto-
mechanical unit for interconnecting two fiber cables**MULTICUBE
COMPONENTS**Multicube Components like mounting plates, cubes
etc.This is a printout of the page <https://sukhamburg.com/products/details/48-MCS-032> from 5/3/2024

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