Evanescent Optics Inc.

HIGH PERFORMANCE PM COUPLERS

(index.html)

Fixed Couplers

- 954P Fixed Ratio PM Coupler (products/?id=16)
- 954 Fixed Ratio SM Coupler (products/?id=18)
- 954P-P WDM PM Coupler (products/?id=15)
- 968P Polarization Splitter/Coupler (products/?id=19)

Coupler Arrays

- Spliceless PM Coupler arrays (products/?id=20)

954P Fixed Ratio Polarization Maintaining Evanescent Couplers and Taps

954P Mini-Coupler Spec Sheet

POLARIZATION MAINTAINING COUPLERS

General Product Data:

- Low loss and backreflection
- High isolation
- Small ratio variation with temperature
- Compact package
- Standard polarization maintaining (PM) fibers

Variable Ratio Couplers

- Model 905/905P/905(P)-M (products/?id=21)

Piezo Fiber Stretchers

- 915B (products/?id=22)
- 916B (products/?id=24)
- Model 914 Controller (products/?id=23)

Non-contact Displacement Sensor

- PD-1001 (products/?id=25)

Evanescent Access Blocks

- 953(P)/903(P) (products/?id=27)

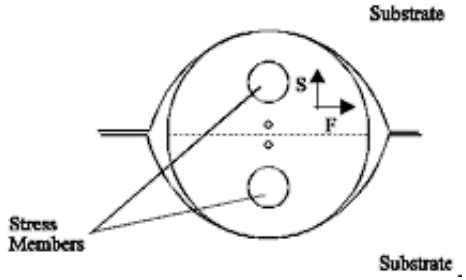
Patch Cords

- Fiber-optic patch cords (products/?id=28)

- Low ratio taps with PM or SM output
- Bandwidth is a function of Coupling Ratio
- Operates on slow and fast axis

Fibers are side polished in glass substrate blocks to remove cladding material on one side of the core without distorting the core region. In the case of PM fibers, one stress member remains. Two polished fibers are placed into optical contact (/technical-info/?id=6) with their polarization axes aligned, and coupling from core to core occurs by the evanescent wave interaction. Precise loading of the substrate blocks ensures the fibers remain in low stress contact over a broad range of temperatures.

Polarization isolation of -30 dB is attainable using this technique.



Evanescent wave couplers offer inherent performance advantages because there is no deformation or tapering of the waveguiding cores. These devices have low loss and backreflection. Also, short interaction lengths (1-2 mm) allow small device packages to be realized.

The interface essentially vanishes with optical contact between identical silica surfaces. There is no intermediate material which can change its refractive index or thickness with age or environmental effects. The coupler behaves optically as if the fibers were fused and is very stable with temperature variations.

Specifications:

Standard PER:

<-25dB, <-23dB with connectors

High Isolation (/technical-info/?id=17) type

Excess Loss:

<0.1dB for wavelengths >980nm, <0.15dB for wavelengths 700 to 980, <0.2dB 590nm to 700nm

Ratio Tolerances: (set at room temperature on slow axis)

Ratio	Standard Tolerance	Also Available
50/50	+/-3%	+/-1%
80/20	+/-2%	+/-1%
90/10	+/-1.5%	+/-1%
99/1	+/-0.25%	

Above table represents the most common ratios, any ratio from 99/1 to 1/99 is possible.

Available wavelengths:

0.450 to 2.04um

Coupler Bandwidth (/technical-info/?id=2)

Operating Temperature:

-15 to +55 degC

Return Loss (Backreflection):

-70 dB typical

Power Handling:

These very low loss couplers allow CW power approaching that of the fiber itself.

The only restrictions we have noted is very high peak power, picosecond and femtosecond pulses that cause non-linear changes in the fiber that increases loss due to reduced guidance.

Packaging & Sleeving:

No sleeving over fiber (coupler unpackaged) dim. 0.59" x 0.1" x 0.1"

Pigtails sleeved in 900 micron HYTREL (coupler in aluminum tubing) dim. Length 1.125" x Dia. 0.19"

Pigtails sleeved with 3mm cable (coupler housed in 2.5" x 2.5" aluminum package (http://www.evanescentoptics.com/userFiles/EOIWeb2_5x2_5-pkg.pdf))

Pigtails:

1 m standard length (longer available - up to 20m in 3mm sleeved configurations)

Terminations:

FC/SPC, FC/APC, LC/APC, SC/APC, SC/PC Standard is keyed to slow axis, keyed to fast axis on request

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