

## 1.0 $\mu$ m (6+1) x1 Pump and PM Signal Combiner

### Key Features

- High Power Transfer Efficiency
- Low signal insertion loss
- High PER
- High power package
- Freely selectable signal and pump wavelength
- Custom Configurations Available

DK Photonics' (6+1) x1 Multimode Pump and PM Signal Combiner is designed for high power applications. It features exceptional optical characteristics. These devices can combine N pump lasers and 1 signal channel into one fiber and create a high-power pump laser source, delivering the combined power for applications in industrial, military, medical and telecommunications markets. It has a heat sink package and a hole for temperature monitoring.

DK Photonics' Multimode Pump and PM Signal Combiners offer efficient power transfer for high power applications like direct diode materials processing and pump cascading with a maximum conservation of brightness. The Multimode Combiners can be designed to meet a wide range of power handling configurations, number of input fibers and adaptation to different fiber types.

### Applications

- Pumping of fiber laser and amplifier
- Pumping of multi-core and large mode area fibers (LMA)
- Pump combiner for Nd-, Yb-, Er-, Ho-, Tm-fiber
- Industrial, Biomedical, Telecommunication
- Metrology, Life Science, Imaging, Quantum optics
- Gravitational wave detection, Atom cooling and trapping



### Performance Specifications (Typical Configuration)

Parameters	Values		
Signal Operating Wavelengths	1020-1080nm	1020-1080nm	1020-1080nm
Pump Operating Wavelengths	780-1000nm	780-1000nm	780-1000nm
Number of Multimode Inputs	6	6	6
Number of Signal Ports	1	1	1
Number of Output Ports	1	1	1
Pump Input Fiber	105/125 $\mu$ m,NA0.2 2	105/125 $\mu$ m,NA0.2 2	200/220 $\mu$ m,NA0.2 2
Signal Input Fiber	PM980-XP	PM10/125 $\mu$ m,NA0 .08/0.46	PM20/400 $\mu$ m,NA0 .06/0.46
Output Fiber	PM10/125 $\mu$ m,NA0 .08/0.46	PM25/250 $\mu$ m,NA0 .06/0.46	PM20/400 $\mu$ m,NA0 .06/0.46
Min. Pump Efficiency	90%	93%	97%
Max. Signal Insertion Loss	0.70dB	0.70dB	0.70dB
Min. Polarization Extinction Ratio	18 dB	17 dB	16 dB
Power per Multimode Input	50W	100W	300W
Optical Return Loss - Pumps		>35dB	
Optical Isolation		>20dB	
Max. M <sup>2</sup>		1.3	
Operating Temperature		0~75 $^{\circ}$ C	
Storage Temperature		-40~85 $^{\circ}$ C	

#### Remark:

\* Other configuration and higher power handling can be customized.

\* Other pump fibers 106.5/125 $\mu$ m, NA0.22, or 135/155 $\mu$ m, NA0.22 can be customized.

\* All combiners default with bare fiber, 0.8m length of pigtail, please contact us for special request.

## For more Info

### Please contact us at:

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## 1.0μm (6+1) x1 Pump and PM Signal Combiner

### General Configuration:

Type	Signal Wave-length(nm)	Pump fiber	Input signal fiber	Output fiber	Max. Signal IL	Min. PER(dB)	Max. Pump Effi.	Max. Power Handling
(6+1) ×1	1020-1080	105/125 0.22	PM980-XP	PM10/125 DC	0.7dB	18dB	90%	25W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM980-XP	PM20/125 DC	0.7dB	18dB	90%	50W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM5/130 DC	PM 10/125 DC	0.7dB	18dB	90%	25W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM6/125 DC	PM 20/125 DC	0.7dB	18dB	90%	50W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM10/125 DC	PM 10/125 DC	0.7dB	18dB	90%	25W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM10/125 DC	PM 25/250 DC	0.7dB	17dB	95%	100W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM10/125 DC	PM 30/250 DC	0.7dB	17dB	95%	200W/leg
(6+1) ×1	1020-1080	105/125 0.22	PM20/125 DC	PM 25/250 DC	0.7dB	17dB	95%	200W/leg
(6+1) ×1	1020-1080	200/220 0.22	PM20/400 DC	PM 20/400 DC	0.7dB	16dB	97%	300W/leg
(6+1) ×1	1020-1080	220/242 0.22	PM20/400 DC	PM 20/400 DC	0.7dB	16dB	97%	300W/leg

Remark:

- \* Other configuration and higher power handling can be customized.
- \* Other pump fibers 106.5/125μm, NA0.22, or 135/155μm, NA0.22 can be customized.
- \* All combiners default with bare fiber, 0.8m length of pigtail, please contacts us for special request.

### Package Information:

Package Type	P1	P2	P3	P4
Dimensions (mm)	Φ4.0x60	65x12x7	80x12x8	100x15x10

\*Due to ongoing design improvements, the package size is subject to change. According to the different configuration, power handling, and fiber core diameter, we will choose the appropriate package size. Please contact DK Photonics for confirmation.

\*High power device package must be mounted onto heat sink (active cooling is suggested) with thermal paste.

### Order information P/N: PMPSC-A-B-C-D-E-F-G-H

When you inquire, please provide the correct P/N number according to our ordering information, and attach the appropriate description would be better. If need any connector, we do not recommend choosing a 250μm bare fiber pigtail.

A	B	C	D	E	F	G	H
Port	Pump Type	Signal Wavelength	Power per Multi-mode Input	Pump Fiber	Signal Fiber	Output Fiber	Fiber length
61: (6+1) X1	F: Forward pump B: Back-ward pump	30:1030nm 64:1064nm	10:10W 25:25W 50:50W XX: Other	XXX (fiber code)	XXX (fiber code)	XXX (fiber code)	08:0.8m(default) 10:1.0m

**Part Number Example:** PMPSC-61-F-64-20-105/125/22-P10/125/08D-P10/125/08D-08

**Description:** (6+ 1) x 1 Pump and PM Signal Combiner, Forward pump, 1064nm signal wavelength,20W per pump power, 105/125μm,0.22NA input pump fiber, PM10/125μm, 0.08/046NA input signal fiber, PM 10/125μm, 0.08/046NA output fiber, 0.8m fiber length.

### Ordering Information for Custom Parts

If you need to customize other specifications, please provide detailed description for your requirement.