OZ OPTICS LTD.

219 WESTBROOK RD, CARP, ON, CANADA, K0A 1L0   TEL:(613) 831-0981   FAX:(613) 836-5089   E-MAIL: sales@ozoptics.com   WEB SITE: www.ozoptics.com

POLARIZATION MAINTAINING CONNECTORS AND PATCHCORDS

FEATURES:
- High extinction ratios: 20dB to 30dB
- Low insertion losses: Typically 0.3dB
- Excellent repeatability: ±0.2dB
- Connectors for non-standard fiber sizes, such as 80 microns, and for non-standard angles, such as Brewster angles
- Field installable and adjustable connectors
- Temperature range: -20°C to +70°C operating, -40°C to +85°C storage
- Fully compatible with standard NTT-FC, Super NTT-FC/PC Ultra NTT-FC/PC, and Angled NTT-FC/PC Connectors
- Patchcords with SC, Angled SC, and AT&T-ST connectors, or special ferrules also available
- **LOW COST!**

APPLICATIONS:
- Interferometric sensors
- Integrated optics
- Fiber amplifiers
- Coherent telecommunications

PRODUCT DESCRIPTION:

Polarization maintaining (PM) connectors are based on a high precision butt-joint style connection technique. The PM axis orientation is maintained by using male connectors with a positioning key, and bulkhead female receptacles with a keyway. The tolerance between the key and the keyway is tightly controlled. This ensures good repeatability in extinction ratios and insertion losses.

The polarization axis of a fiber is aligned with the connector key by rotating the connector frame until the polarization axis is in line with the keyway on the frame. Once the fiber is correctly aligned, the alignment can be fixed with a drop of glue. This rotation technique can also be used with singlemode fibers to minimize insertion losses. OZ Optics minimizes backlash and rotational errors in the PM axis alignment by using specially designed PM ferrules, with a tight machine tolerance between the ferrule notch and the notch key, as shown in Figure 1.

OZ Optics uses a 2.00mm pin for its standard PM connector design. We can also supply connectors with a 2.14mm pin on request. Sleeve through adaptors are also available to connect 2.14mm pin connectors to 2.0mm pin connectors. (Part #: PMPC-03-2.14)

Patchcords are available either unaligned and rotatable, or prealigned and referenced against the connector key for optimum coupling efficiency and extinction ratios. Unless otherwise specified,
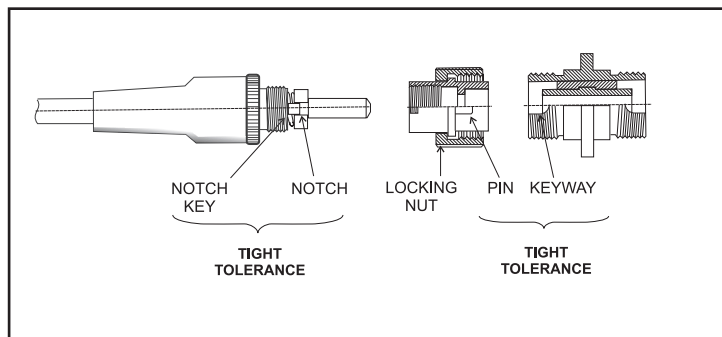

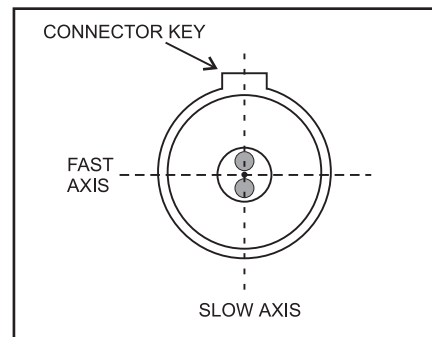**Figure 1:** PM Connector Construction

Figure 2: PM Axis Alignment

prealigned patchcords are oriented such that the slow axis of the fiber is aligned with the key of the connector and locked, as shown in Figure 2. These patchcords maintain polarization to better than 20dB. Higher extinction ratios are available upon request.

Prealigned patchcords are interchangeable with each other. Patchcords can also be constructed using SC and AT&T-ST style connectors.

Unless otherwise specified, OZ Optics uses PANDA style polarization maintaining fiber. Polarizing fibers can also be terminated using our PM connectors.

Our standard length tolerance is ±10%, or ±0.1m, whichever is larger. OZ Optics also provides adjustable delay lines. Contact OZ Optics if tighter length specifications are needed.

OZ Optics offers bulkhead receptacles for both standard and angled PM connectors, as shown in Figures 4 and 5. Angled FC bulkhead receptacles correct for the beam deflection caused by the angled FC connector endface.

ORDERING INFORMATION:

Part Number	Description
PMJ-*XY*-*W*-*a/b*-*JD*-*L*-*A*	Polarization maintaining fiber patchcord.
PZJ-*XY*-*W*-*a/b*-*JD*-*L*-*A*	Polarizing fiber patchcord.
PMPC-*2X*-*b*-*JD*	Butt joint style PM connector with 2.0mm diameter pin.
SMPC-*2X*-*b*-*JD*	Butt joint style PM connector with 2.1mm diameter pin.
PMPC-03	Sleeve through adapter for PM connector, with 2.06mm keyway.
PMPC-03-2.14	Sleeve through adapter for PM connector, with 2.06mm keyway on one side, 2.14mm keyway on the other side.
SMPC-03	Sleeve through adapter for PM connector, with 2.14mm keyway.
PMF-*b*	All zirconia PM connector ferrule, with a 2.5mm OD, and with a flat endface.
PMS-*b*	All zirconia predomed PM connector ferrule, with a 2.5mm OD, for Super NTT-FC/PC connectors.
PMPC-02-*JD*	Polarization maintaining connector housings with 2.0mm pins.
SMPC-02-*JD*	Polarization maintaining connector housings with 2.1mm pins.
HPLC-NTT/FC-PM	Bulkhead NTT-FC receptacle for PM connectors, with 2.06mm keyway.
HPLC-NTT/FC-SM	Bulkhead NTT-FC receptacle for PM connectors, with 2.14mm keyway.
HPLC-NTT/FC-PM-SL3.7	Bulkhead Angled NTT-FC receptacle for PM connectors, with 2.06mm keyway.
GEL-01	5cc syringe of index matching gel.
GLUE-P1	Low stress glue for terminating PM fibers, in 5cc syringe.
OFOC-P1-3	Termination kit for PM connectors.

Where: **X,Y** are the input and output male connector types (3 for NTT-FC, 3S for Super NTT-FC/PC, 3U for Ultra NTT-FC/PC, 3A for Angled NTT-FC/PC, SC for SC, SCA for Angled SC, 8 for AT&T-ST, X for bare fiber).

W is the operating wavelength in nm.

a,b are the fiber core and cladding diameters respectively, in microns (Ferrule hole tolerance:+1,-0μm).

JD is the fiber jacket type. 1 for uncabled fiber, 3 for 3mm OD loose tube Kevlar, 3A for 3mm OD armored, 3AS for 3mm OD stainless steel armored, 5A for 5mm armored, and 5AS for 5mm OD stainless steel armored cable.

L is the fiber length in meters.

A is 1 for prealigned and locked connectors, 0 for unaligned connectors. Note: Angled NTT-FC/PC connectors must be locked. Unless otherwise indicated, the slow axis is aligned with the pin.

Note: **Add "-ER=25" or "-ER=30" to the end of the patchcord part number for output extinction ratios of 25dB or 30dB. (Available for 1300nm or 1550nm only).**

Example: A customer requires a 2 meter long, 3mm OD Kevlar cabled PM fiber patchcord with one end terminated by a Super NTT-FC/PC connector, while the other end is terminated with an Angled NTT-FC/PC connector. Both ends have the PM slow axis aligned and locked with respect to the connector key.
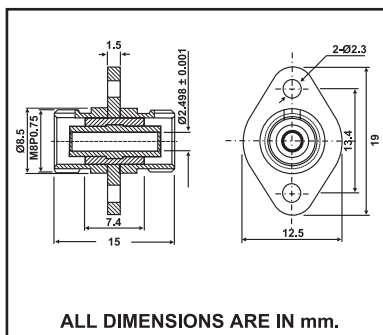OZ Optics part number: **PMJ-3S3A-1550-9/125-3-2-1**

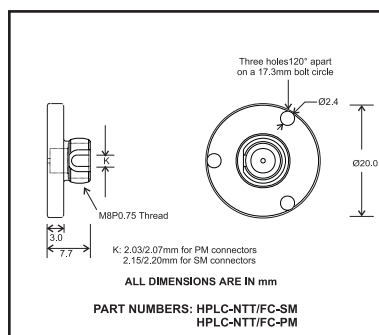

Figure 3: PMPC Sleeve-Thru Adaptor
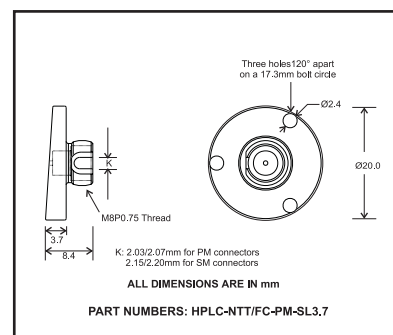

Figure 4: PM Bulkhead Receptacles

Figure 5: APC Bulkhead Receptacles