

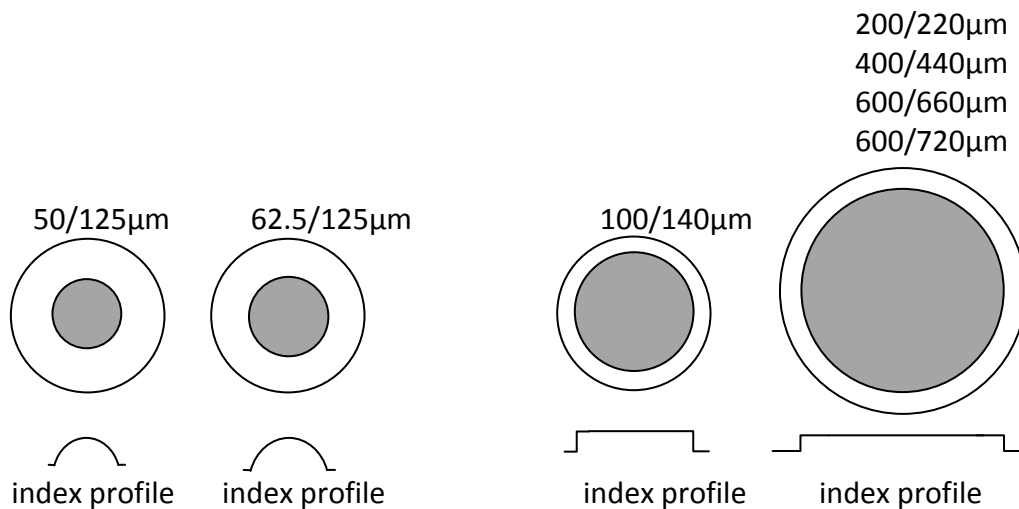
FSM – optical fibers and connectors

Types of optical fibers:

Optical fibers are mainly classified with respect to the lateral dimensions of the light-guiding region, the so-called fiber core. The core diameter together with the refractive index distribution of the core-cladding assembly determines the number of modes the fiber carries. The following figure and table give a rough overview on the different fiber types.

graded-index fiber

step-index fiber



fiber diameter µm	index-profile	wavelength range nm	spectrum	NA*	connector typ	part no. for fiber (without optical connector)
50/125	graded-index	850-1300	-	0,20	SMA, ST, FC/PC, FC/APC, E2000	C-319-**
62.5/125	graded-index	850-1300	-	0,28	SMA, ST, FC/PC, FC/APC, E2000	C-329-**
100/140	graded-index	850-1300	-	0,29	SMA, ST, FC/PC, FC/APC	C-339-**
100/110	step-index	180-1100***	UV, VIS	0,22	SMA, ST, FC/PC	C-230-**
100/140	step-index	600-2600	IR	0,22	SMA, ST, FC/PC, FC/APC	C-130-**
105/125	step-index	600-2600	IR	0,22	SMA, ST, FC/PC	C-120-**
200/220	step-index	180-1100***	UV, VIS	0,22	SMA, ST, FC/PC	C-240-**
200/220	step-index	600-2600	IR	0,22	SMA, ST, FC/PC	C-140-**
400/440	step-index	180-1100***	UV, VIS	0,22	SMA	C-260-**
400/440	step-index	600-2600	IR	0,22	SMA	C-160-**
600/660	step-index	180-1100***	UV, VIS	0,22	SMA	C-280-**
600/720	step-index	600-2600	IR	0,22	SMA	C-185-**

*NA – numerical aperture

**when ordering please use the suffix: ST: -10; SMA: -20, FC/PC: -30, FC/APC: -50, E2000: -60

*** Fibers for wave lengths below 230nm cannot be used without filters (fibers not pre-solarized). Please, contact our team if you use wave lengths below 230nm.

All fibers can be provided with anti –reflection option after request. The anti-reflection option is recommended for spectroscopy application.

Fiber optic connectors types



ST – The ST connector is high-precision, ceramic ferrule. The bayonet style keyed coupling mechanism featuring push and turn locking of the connector prevents overturning and damaging of the fiber end. The insertion loss of the ST connector is less than 0.3 dB.

Drilled-out, metallic ST connectors having insertion losses of > 1 dB are being used with large-core (> 140µm) fibers.

suffix for ordering: -10



FC/PC –This high-precision, ceramic ferrule connector is equipped with an anti-rotation key, reducing fiber endface damage and rotational alignment sensitivity of the fiber. The typical insertion loss of the FC connector is around 0.3 dB.

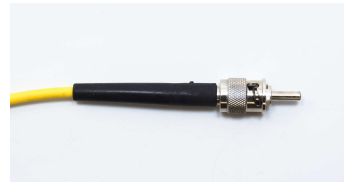
Drilled-out, metallic FC/PC connectors having insertion losses of >1 dB are being used with large-core (>140µm) fibers.

suffix for ordering: -30



E2000 – This fiber optic connector features secure transmission of high bit-rate protocols, zirconia ceramic ferrule fully protected by spring loaded shutter and push-pull locking mechanism for easy installation.

suffix for ordering: -60



SMA – Due to its stainless steel structure and low-precision, threaded fiber locking mechanism, this connector is used mainly in applications requiring the coupling of high-power laser beams into large-core, multimode fibers. The typical insertion loss of an SMA connector is greater than 1 dB.

suffix for ordering: -20



FC/APC –The Angle FC (APC) polish, adds an 8 degree angle to the connector endface; equipped with an anti-rotation key and axially spring-loaded. The typical insertion loss is less than 0.2 dB.

suffix for ordering: -50

Control interfaces

piezosystem jena offers different options for controlling of the fiber switch.

The fiber switches can be controlled easily via TTL signal (high and low) by BCD code. This is the most practical solution for switches which are built in the small size casing (FSM 1 by 2 or 1 by 3 up to 200micron core size diameter).

RS232 interface is included into the fiber switches which are built in the

industrial rack size casing. For the small casing size we offer a separate control box (part. no. Z-950-95) where the interface board is located.

An USB interface is also standard for the switches built into the 19"-industrial rack. Now the line of switches is extended by the addition of an Ethernet interface (part. no. Z-950-100) for all switches that are assembled into a standard 19"-industrial rack. The customers benefit

from the easy installation into existing network systems. Selection of Ethernet interface substitutes the USB interface. In general, for every interface type, the required software comes with the switch. A demo program for Lab-View™ controlling of the switch is also supplied on a CD-Rom when the switch is supplied.