multimode • fiber • switches  

FSM 1x2

- Fast switching time
- Low insertion loss
- High optical isolation
- Compact design
- Wavelength range 180 nm – 2600 nm

Applications:
- Optical measurement and testing systems
- Spectroscopy
- Optical engineering
- Telecommunications
- Environmental trace analysis

The fiber switches are ideally suited to combine up to two sensor points with just one spectrometer. Therefore, the end-user derives a cost benefit and is able to directly compare different optical channels using only one spectrometer/detector system.

Technical data:

<table>
<thead>
<tr>
<th>Fiber switch part no.</th>
<th>unit</th>
<th>FSM 1x2</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of input fibers</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>number of output fibers</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>fiber core (µm)</td>
<td>Ø50; 62.5;100</td>
<td>Ø50; 62.5</td>
</tr>
<tr>
<td>insertion loss (typ.)</td>
<td>dB</td>
<td>1.0</td>
</tr>
<tr>
<td>cross talk (typ.)</td>
<td>dB</td>
<td>-65</td>
</tr>
<tr>
<td>repeatability (typ.)</td>
<td>dB</td>
<td>0.02</td>
</tr>
<tr>
<td>switching time (typ.)</td>
<td>ms</td>
<td>2</td>
</tr>
<tr>
<td>lifetime (typ.)</td>
<td>cycles</td>
<td>107</td>
</tr>
<tr>
<td>operating temperature</td>
<td>°C</td>
<td>0...+60</td>
</tr>
<tr>
<td>Humidity</td>
<td>%RH</td>
<td>55</td>
</tr>
<tr>
<td>operating voltage</td>
<td>V</td>
<td>7-12VDC or 7-9VAC</td>
</tr>
<tr>
<td>control signal</td>
<td>-</td>
<td>5V TTL</td>
</tr>
<tr>
<td>current</td>
<td>mA</td>
<td>100</td>
</tr>
<tr>
<td>fiber length</td>
<td>m</td>
<td>1</td>
</tr>
<tr>
<td>bulkhead connector</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>housing l/w/h</td>
<td>mm</td>
<td>85x105x44</td>
</tr>
<tr>
<td>housing l/w/h</td>
<td>mm</td>
<td>85x135x45</td>
</tr>
</tbody>
</table>

1) Specifications do not include connector loss
2) RS232 version upon request part no.: Z-950-95
3) Screw slot version
4) Anti-reflection option
5) Input and output fibers mounted on opposite sides

All casings available in a screw slot version upon request. When ordering please use the suffix 94, 94/8°, 95, 93 or 913 instead of -04, -04/8°, -05, -03, -13 respectively.
fig.: F-102-94

fig.: F-102-05

fig.: F-162-13
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

- Diameter: 50/125µm
- Profile: 850-1300 nm
- NA*: 0.20
- Connectors: SMA, ST, FC/PC, FC/APC, E2000
- Part number: C-319**

### step-index fiber

- Diameter: 62.5/125µm
- Profile: 850-1300 nm
- NA*: 0.28
- Connectors: SMA, ST, FC/PC, FC/APC, E2000
- Part number: C-329**

- Diameter: 100/140µm
- Profile: 850-1300 nm
- NA*: 0.29
- Connectors: SMA, ST, FC/PC, FC/APC
- Part number: C-339**

- Diameter: 100/110µm
- Profile: 180-1100 nm
- Spectrum: UV, VIS
- NA*: 0.22
- Connectors: SMA, ST, FC/PC
- Part number: C-230**

- Diameter: 100/140µm
- Profile: 600-2600 nm
- Spectrum: IR
- NA*: 0.22
- Connectors: SMA, ST, FC/PC, FC/APC
- Part number: C-130**

- Diameter: 105/125µm
- Profile: 600-2600 nm
- Spectrum: IR
- NA*: 0.22
- Connectors: SMA, ST, FC/PC
- Part number: C-120**

- Diameter: 200/220µm
- Profile: 600-2600 nm
- Spectrum: UV, VIS
- NA*: 0.22
- Connectors: SMA, ST, FC/PC
- Part number: C-140**

- Diameter: 400/440µm
- Profile: 600-2600 nm
- Spectrum: UV, VIS
- NA*: 0.22
- Connectors: SMA
- Part number: C-260**

- Diameter: 600/660µm
- Profile: 600-2600 nm
- Spectrum: UV, VIS
- NA*: 0.22
- Connectors: SMA
- Part number: C-280**

- Diameter: 600/720µm
- Profile: 600-2600 nm
- Spectrum: IR
- NA*: 0.22
- Connectors: SMA
- Part number: C-185**

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

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