Ratioplast
Electronics | OptoElectronics

Data sheet **Fiber Optic connector F-SMA connector**

F-SMA connector 50-62.5/125µm multi-mode glass optical fiber cable

1 General

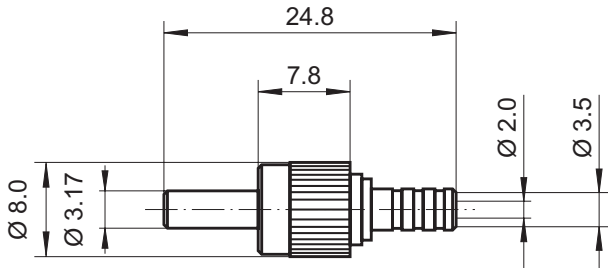
The IEC61754-22 standard SMA connector is especially optimized for fiber optic applications with IEC60793-2-10 A1a and A1b standard multi-mode glass optical fiber 50-62.5/125µm and cable with outer diameter up to 3.0mm, which require quick and easy termination with at the same time very good mechanical and optical characteristics.

2 Application

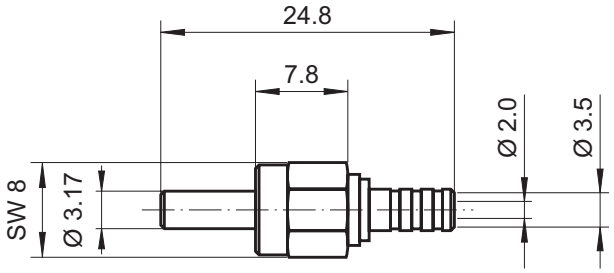
Due to the very good optical characteristics and easy termination technique, these connectors can be used indifferent applications:

- Optical networks
- Industry electronics
- Power electronics
- Consumer electronics

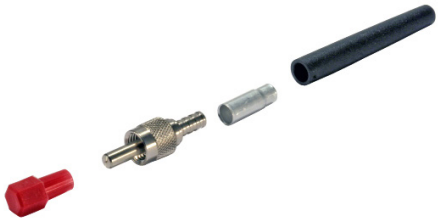
3 Dimensioned drawing



Pic. 1 F-SMA connector knurled nut



Pic. 2 F-SMA connector hexagonal nut



Pic. 3 F-SMA connector with knurled nut

Pic. 4 F-SMA connector with hexagonal nut

4 Ordering information

F-SMA connector for 50-62.5/125µm multi-mode glass optical fiber cable 3.0mm, metal ferrule, crimp sleeve and boot

F-SMA connector with boot for cable 3.0mm

Specification	Part number
Connector with knurled nut	902SS125SM001
Connector with hexagonal nut	902SS125SM003

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F-SMA connector 50-62.5/125µm multi-mode glass optical fiber cable

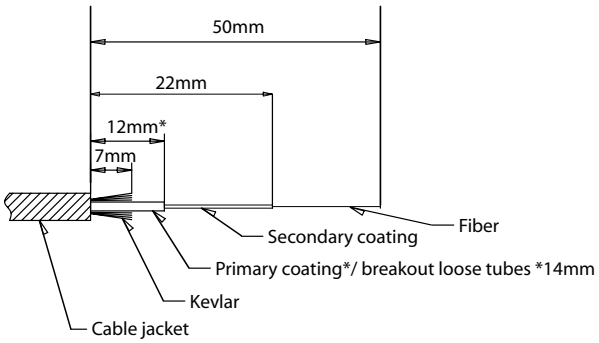
5 Cable assembly

Required tools for termination of F-SMA connector with 50-62.5/125µm fiber optic cable (Pic. 5).

Crimping tool hexagonal	910CZ00100003
Fiber stripper 0.18mm	910AB00118001
Fiber stripper 0.3mm	910AB00130001
Cleaving tool	910FRW0100001
Epoxy mix	9102KKFERTIG1
One-way syringe with needle	910SPRITZ0001
Polishing film 5µm	910PB00105001
Polishing film 0.3µm	910PB00100301
Heat oven	910AO00100001
Polishing disc	910PSSMA00001
Microscope 100x	910MIKRO10002
Adapter	910MIADAST002

5.1 FO cable

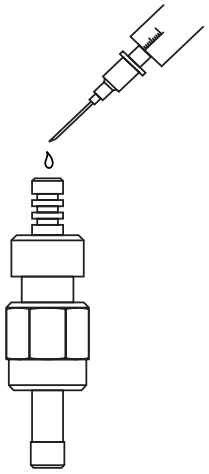
Strip the cable according to the measures mentioned below (Pic. 5) at minimum 50 mm, then cut down the aramid yarn/kevlar to 6 mm and strip the fiber. Remove the 0.5 mm coating with stripping tool 0.3 mm, then remove the 0.25 coating with the fiber stripper 0.18. Clean off gel residuals with a wipe.



Pic. 5 Stripping dimensions

5.2 Pasting

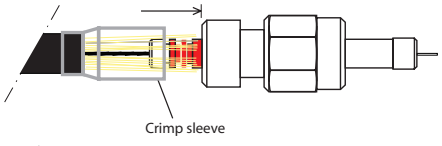
Compound the epoxy mix and fill it into the one-way syringe. Then fill the F-SMA connector from the cable side with two drops (Ø 2mm) (Pic. 6).



Pic. 6 Bonding: F-SMA connector with adhesive

5.3 Strain relief

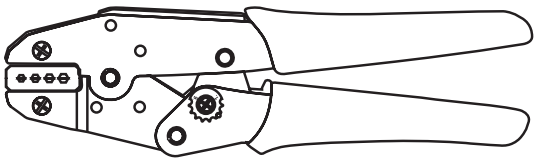
Push the crimp sleeve (stepped diameter) and the bend protection boot upon the cable. After that push the stripped fiber and the cable into the connector up to the end stop. The fiber has to stick out of the ferrule. Afterwards push the crimp sleeve over the kevlar/aramid yarn to the end stop upon the connector (Pic. 7).



Pic. 7 F-SMA connector with crimp sleeve and boot

F-SMA connector 50-62.5/125µm multi-mode glass optical fiber cable

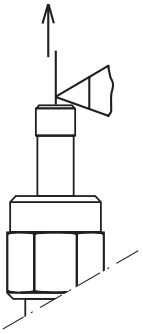
Crimp the sleeve with the allen crimping tool (spanner size 3.3) over the total length and push the bend protection boot onto the sleeve.



Pic. 8 Crimping tool hexagonal

Have the epoxy in the F-SMA connector cured in the heat oven (curing time: min. 1 hour at 70°).

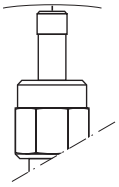
After curing take the connector out off the oven and cleave the overcoming fiber min. 1mm to the end of the ferrule with the cleaving tool (Pic. 9) and break it pulling lightly.



Pic. 9 Cleaving fiber

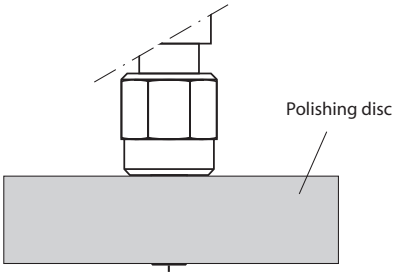
5.4 Fiber endface processing

Grind off carefully the prodtruding fiber end with polishing film 5 µm with low pressure (Pic. 10).



Pic. 10 Fiber grinding

Insert the connector fully into the polishing fixture (Pic. 11) and polish it with polishing film 0.3 µm on hard base (glass plate) for flat polish until the connector is flush with the bottom of the polishing fixture.



Pic. 11 F-SMA connector with polishing disc

- Check the quality of the fiber surface with the microscope
- Repeat polishing if the surface is not free of scratches in the core area.
- After polishing please wipe off the polishing residuals

6 Technical characteristics

Insertion loss	Depending on fiber and processing	typ. IL ≤ 0.25 dB
Material	Ferrule Crimp sleeve, Nut Dust cap, Strain relief sleeve	Arcap AP1D metal plastic
IP protection class		IP20
Mating cycles		> 500 cycles
Pull force	Depending on cable	≥ 150 N
Thermal properties	Transport, Storage, Operation	-40°C to +85°C