



FIBER OPTIC MEMS SWITCH

for specialty fibers
or Polarisation-Maintaining
Fibers



OVERVIEW

The **sercalo** *sn* series are opto-mechanical switches for the most demanding applications in fiber optic sensor systems and instrumentation. The switch is available in 1x1, 1x2, 2x2 and 1x4 variants. The switch mechanism is available in either latching or non latching variants and has a very fast response time below 1 ms and below 1.5 dB insertion loss. The single mode switch is available for a number of specialty fibers covering design wavelengths such as 488 nm, 515 nm, 633 nm, 680 nm, 780 nm, 830 nm, 980 nm and 1064 nm. It can also be made with polarisation maintaining PANDA fibers.

The miniature package withstands rugged environments and is well suited for direct mounting on printed circuit boards. The switch is qualified according to Telcordia GR 1221.

FEATURES

- reliable
- specialty fibers
- 1.5 dB insertion loss
- 1 ms response time
- low PDL
- 60 dB crosstalk
- miniature size
- 2x2, 2x1, 1x1 variants

APPLICATIONS

- Instrumentation
- Source selection

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DESCRIPTION

The **sercalo** switches are composed of an optical subsystem and an electrical driver interface. The optical switching function is realised by a silicon MEMS chip, on which a mirror can be moved in and out of the optical path by electrostatic actuation. In the latching *SL* variants a bistable suspension mechanism keeps the last selected state in power off. In the non-latching *SN* variants the switch returns into the bar state when electrical power is removed.

The absence of fatigue and wear-out allows to achieve a constant switching quality even after billions of actuation cycles. The switch features fast switching below 1 ms and high crosstalk attenuation above 60 dB. Repeatability is better than 0.001 dB. The switch is powered by a 5 V supply voltage. A 5 V TTL or CMOS drive signal is used to control the switching state.

TECHNICAL SPECIFICATIONS				
	Unit	Min	Typ	Max
Switch				
Wavelength Range	nm	Cut off	~Cut Off +200 nm	
Insertion Loss ¹	dB		2.0	3.0
Crosstalk	dB		75	60
Backreflection	dB		55	50
Polarisation Dependent Loss	dB		0.05	0.1
Polarisation Extinction Ratio ²	dB	20	25	
Repeatability ³	dB			0.001
Switching Time	ms		0.5	1
Durability	cycles		1 billion	
Package				
Voltage	V	4	5	5.25
Power Consumption	mW		5	10
Operation Temperature	°C	0		70
Storage Temperature	°C	-40		85
Size (L x W x H)	mm		70x70x9.5	

¹ for 1x4 excluding connector loss. ²with Panda fibers for 1550 nm.
³ value for constant temperature and polarisation



