

Flexible Small Channel Count Switch Module

SQ Series



Key Features

- High optical performance
- High repeatability
- Latching or non-latching
- Field configurable default non-latch channel
- Wide choice of configurations
- Off position (optional)
- Status feedback
- Common package size for all configurations

Applications

- Incorporation into customized switch assemblies for test and measurement applications
- Network monitoring and testing
- Sensor switching
- Source/detection selection
- Research and development (R&D)

Safety Information

- Complies with GR-1073

The JDSU SQ series optical switch is a highly flexible module with high optical performance in latching or non-latching applications. The full feature set and large number of optical configurations available in a common package and interface make it ideal for a wide spectrum of applications.

The switch connects one or two channels to one of several (up to eight) channels. Both single-mode (SM) and multimode (MM) versions are available. This switch is also available in multi-pack configurations, for example 2 x 4, 2 x 6, 2 x 8 D configuration (Duplex 1 x 2, 1 x 3, 1 x 4).

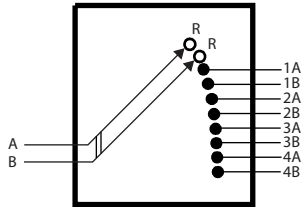
While in operation, the switch connects optical channels by using prisms to redirect the signal from an input port into a selected output port. Using collimating optics minimizes the insertion loss (IL) and improves the repeatability and stability of the optical parameters. The switches are optically passive, and therefore, are transparent to signaling formats.

Configurations can be manufactured for bi-directional performance as a factory option.

2

D Configuration

(SQ switch shown with OFF position option)

**Continued****SQ Series Configurations**

The common package may be ordered in optical configurations as follows:

- 1 x 3 up to 1 x 8
- 2 x 4, 2 x 6, 2 x 8 D configuration (Duplex 1 x 2, 1 x 3, 1 x 4)
- Dual 1 x 2
- SM or MM fiber
- 900 mm buffered fiber or 3 mm cable

All units are customer-configurable as:

- Latching
- Non-latching
- Default channel for non-latch operation

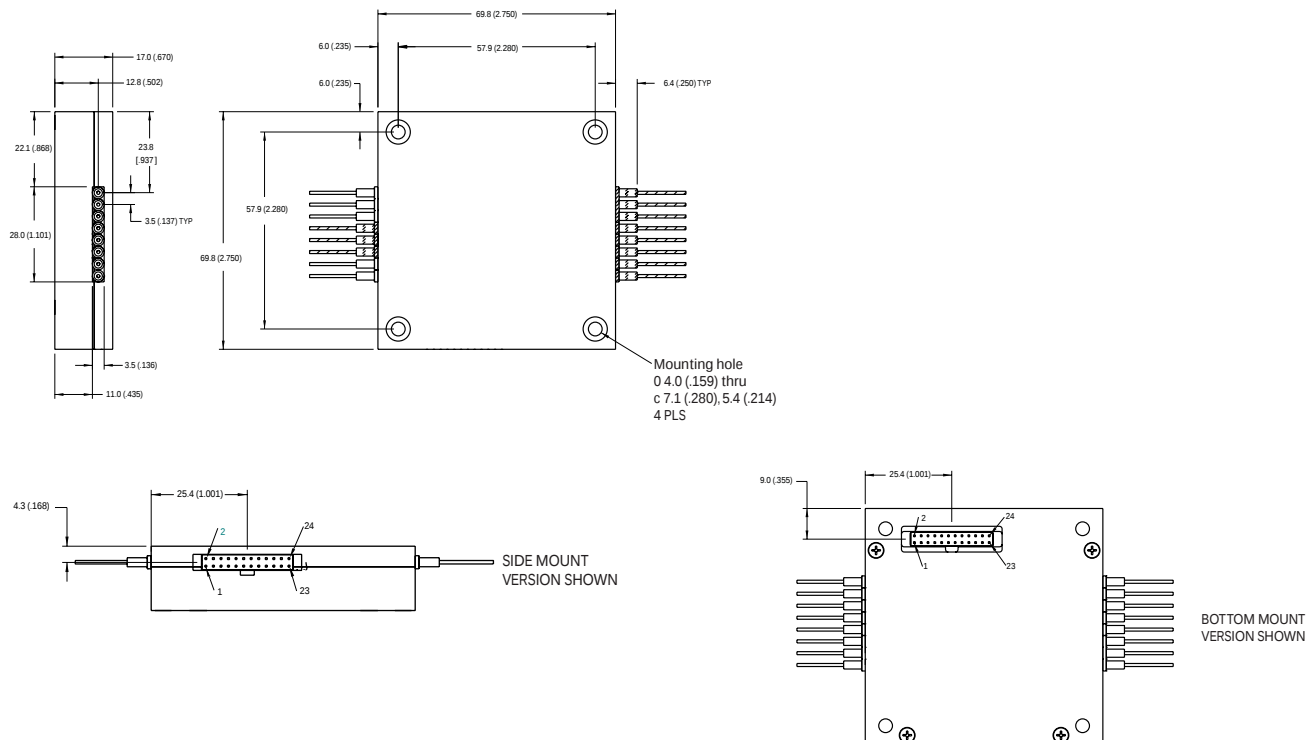
Electrical interfaces available include:

- 2 x 12 male header on the side
- 2 x 12 male (recessed) on the bottom (for PCB mounting)

The 2 x N configuration allows for mass reconfiguration of optical paths. It provides simultaneous connections of 2 inputs to a number of outputs.

Dimensions Diagram

(Specifications in mm [inches] unless otherwise noted.)



3

Specifications

Parameter	Single-mode (SM)	Multimode (MM)
Wavelength range	850 to 1350 nm or 1270 to 1670 nm	850 to 1350 nm
Fiber type	9/125 μm	50/125 μm , 62.5/125 μm
Fiber jacket size	900 μm fiber, 3.0 mm cable	
Configuration	1 x 3 to 1 x 8 Dual 1 x 2 (2 independent 1 x 2's) Duplex 1 x 2 (2 x 4 "D") Duplex 1 x 3 (2 x 6 "D") Duplex 1 x 4 (2 x 8 "D")	
Optical connectors	FC/PC, FC/APC, SC/PC, SC/APC, LC/PC, no connector	
Length	0.3 to 9.9 m (± 5 cm for lengths under 1 m, $\pm 5\%$ for lengths 1 m or greater)	
Test orientation	Standard, bi-directional	
Insertion loss (IL) ² (includes one FC/PC connection)		
1 x 3, 1 x 4, Dual 1 x 2, 2 x 4 "D"	< 1.1 dB	< 1.0 dB
1 x 5, 1 x 6, 1 x 7, 1 x 8, 2 x 6 "D", 2 x 8 "D"	< 1.25 dB	< 1.15 dB
Return loss (RL) (excludes connectors)		
Selected port SM	> 55 dB	> 55 dB
Selected port MM	> 30 dB	> 30 dB
Polarization dependent loss (PDL)		
1 x 3, 1 x 4, Dual 1 x 2, 2 x 4 "D"	< 0.08 dB	-
1 x 5, 1 x 6, 1 x 7, 1 x 8, 2 x 6 "D", 2 x 8 "D"	< 0.10 dB	-
IL stability ³		
1 hour	± 0.02 dB	± 0.02 dB
24 hours	± 0.05 dB	± 0.05 dB
Repeatability ^{4,5}		
1 x 3, 1 x 4, Dual 1 x 2, 2 x 4 "D"	< 0.01 dB (p-p)	(± 0.005 dB)
1 x 5, 1 x 6, 1 x 7, 1 x 8, 2 x 6 "D", 2 x 8 "D"	< 0.02 dB (p-p)	(± 0.01 dB)
Crosstalk/isolation		
Selected port to other ports	< -60 dB	< -50 dB
Bi-directional - non-selected to other non-selected	< -50 dB	< -40 dB
Optical input power	300 mW max	
Lifetime	> 10 million cycles	
Switching time	< 20 ms	
Control interface	Configurable TTL	
Operating voltage (DC) ^{2,6}	5.0 V DC $\pm 10\%$ at 100 mA (300 mA max during switching)	
Qualification testing	GR1073 for Central Office	
	182 g (1 x 8, 1.5 meters of 900 μm fiber, FC/PC connectors)	
Operating temperature	0 to 60 °C	
Storage temperature	-40 to 85 °C	
Humidity (relative, non-condensing)		
Operating	< 90 % at 23 °C, < 20 % at 60 °C	
Storage	< 90 % at 60 °C, < 40 % at 85 °C	
Dimensions (W x H x D)	70 x 17 x 70 mm	
Weight	119 g (1 x 8, 1.5 meters of 900 μm fiber, no connectors)	

1. Unless otherwise specified, all specifications at start of life at 23 °C ± 3 °C and 45 % RH ± 5 %.2. At 23 °C ± 3 °C at specified test wavelengths (850/1310 MM or 1310/1550 SM) and optical input power of -25 to 0 dBm.3. Drift of any channel at ± 3 °C deviation of ambient temperature without changing channels (excludes repeatability).

4. Repeatability as per Telcordia GR-1073-CORE (100 cycles, max-min/peak-to-peak).

5. Measured between two consecutive readings over 100 cycles.

6. At 23°C. Over full temperature range: 5.0 V $\pm 5\%$.

Ordering Information
Sample: SQ141N+137FFPL1.0

SQ

Code	Optical Configurations
13	1 x 3
14	1 x 4
15	1 x 5
16	1 x 6
17	1 x 7
18	1 x 8
D4	Duplex 1 x 2 (2 x 4 D config.)
D6	Duplex 1 x 3 (2 x 6 D config.)
D8	Duplex 1 x 4 (2 x 8 D config.)
22	Dual 1 x 2 (2 of 1 x 2)

Code	Test Configuration
1	Forward
3	Bidirectional

+1

Code	Option
Y	Off position
N	Standard channel config.

Code	Control Interface
3	2 x 12 side header
4	2 x 12 bottom header

Code	Fiber Type (μm)
7	9/125
1	50/125
2	62.5/125

Code	Wavelength (nm)
F	1270 to 1670
Q	850 to 1350 (MM only)

Code	Connector Type
FP	FC/PC
FA	FC/APC
SC	SC/PC
SU	SC/APC
NC	No connector

Code	Pigtail Type
L	3.0 mm jacketed cable
E	900 μm tight buffer fiber

Code	Pigtail Length
0.3	Minimum length
1.0	1.0 meter
1.5	1.5 meters (std)
3.0	3.0 meters
9.0	9.0 meters

.



If the configurations available do not meet your performance requirements, please contact our global sales and customer service team to discuss the potential for specialized solutions.

All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. The user assumes all risks and liability whatsoever in connection with the use of a product or its application. JDSU reserves the right to change at any time without notice the design, specifications, function, fit or form of its products described herein, including withdrawal at any time of a product offered for sale herein. JDSU makes no representations that the products herein are free from any intellectual property claims of others. Please contact JDSU for more information. JDSU and the JDSU logo are trademarks of JDS Uniphase Corporation. Other trademarks are the property of their respective holders. ©2006 JDS Uniphase Corporation. All rights reserved. 21042187 Rev. 005 05/06 FSCCSM.DS.TM.AE

Test & Measurement Regional Sales

NORTH AMERICA TEL: 1 866 228 3762 FAX: +1 301 353 9216	LATIN AMERICA TEL: +55 11 5503 3800 FAX: +55 11 5505 1598	ASIA PACIFIC TEL: +852 2892 0990 FAX: +852 2892 0770	EMEA TEL: +49 7121 86 2222 FAX: +49 7121 86 1222	WEBSITE: www.jdsu.com
---	--	---	---	--