



matrIQ-Switch-1003

# matrIQ-Switch™

## Automated Optical Switch

### SPEC SHEET

The matrIQ series of optical switches offer fast and repeatable optical switching in a compact design with simple USB or Ethernet connectivity. With low insertion loss, excellent reliability, and high durability, matrIQ-Switch enables you to automate sequential testing, saving time and streamlining your test procedures.

Its stackable, space-saving design and simple, intuitive software controls make it a perfect choice for the optical lab or test bench.

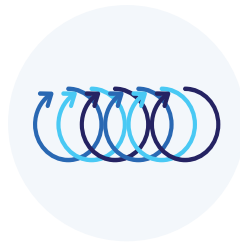


# Features and Benefits



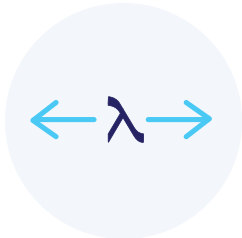
## Low insertion loss

Maximise your power budget with the low insertion loss of SwitchPXIe.



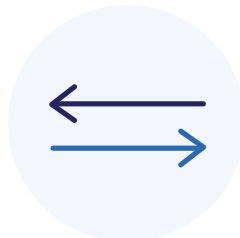
## High repeatability

High repeatability ensures that your measurements are reliable and consistent over time.



## Wide coverage of operational wavelengths

One versatile tool to cover a wide variety of applications.



## Bidirectional

matrIQ-Switches are bidirectional, so you can use it in N x M or M x N configurations for superior versatility.



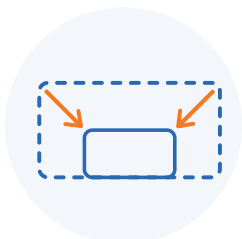
## Supports single-mode and multi-mode applications

Available in either single-mode or multi-mode fiber options for a seamless integration into your setup.



## High durability, > 3 x 10<sup>7</sup> cycles

High switch lifecycle of 30 million operations ensures you get reliable hassle-free usage, for a long time.



## Compact and flexible form factor

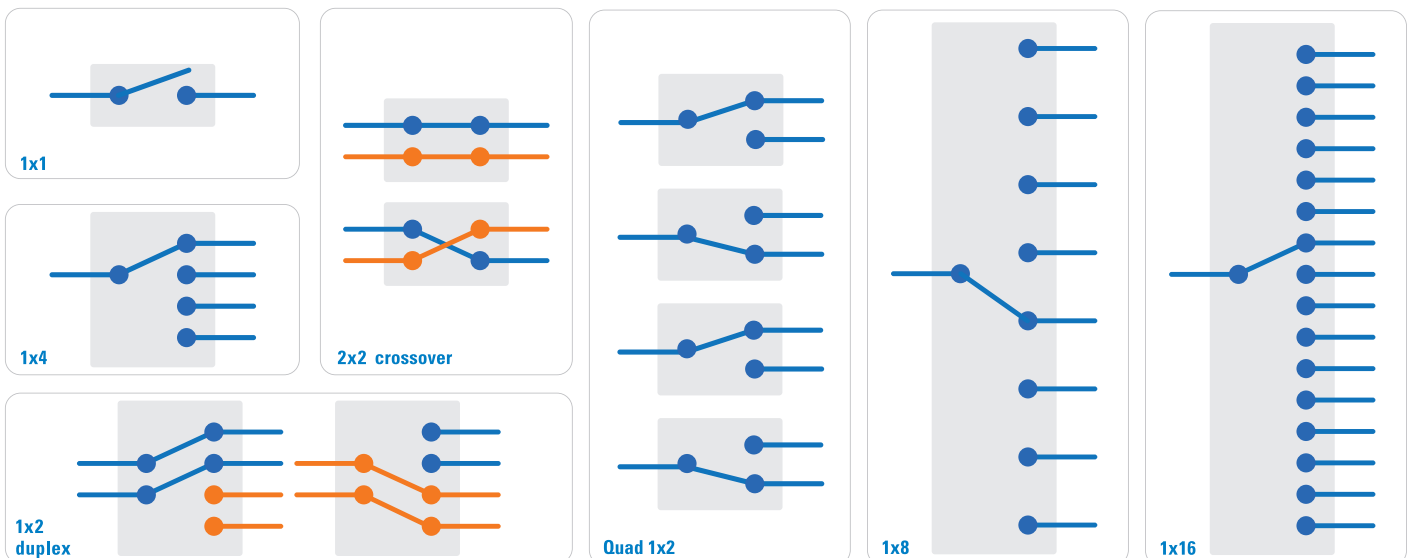
Housed in a compact and robust metallic case, its small footprint helps you utilize your bench space.



## Simple, intuitive operation with cohesionUI

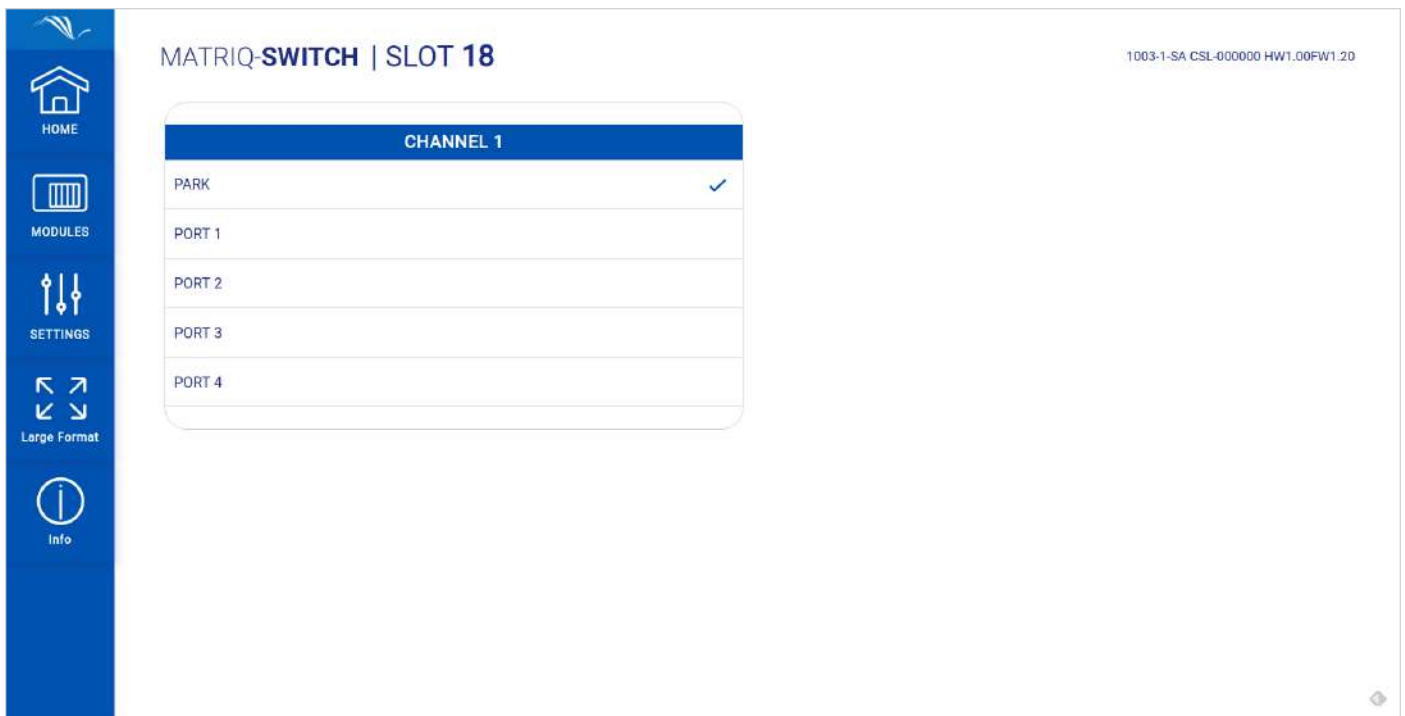
cohesionUI makes it simple to control matrIQ-Switch from your PC or mobile device. Its cutting-edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.

# Configuration Diagrams



# cohesionUI™

cohesionUI graphical user interface makes it simple to control PXIe instruments from your PC or mobile device. Its cutting edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.



matrIQ-Switch-1003 1x4 switch control in cohesionUI

# Technical Specifications

General Specifications	matrIQ-Switch
Bus connection	USB and Ethernet
Optical connector type	FC/APC, FC/PC, SC/PC, SC/APC (1006, 1106: SC/PC, SC/APC only)
Dimensions (H x W x D)	45 x 114 x 212 mm   1.7 x 4.5 x 8.3 inch
Weight	~ 1.1 kg   ~ 2.4 lbs
Operating temperature range	5 °C to 45 °C   41 °F to 113 °F
Storage temperature range	-40 °C to 70 °C   -40 °F to 158 °F

1x1 Optical Switch	1001 SMF-28			1101 <sup>8</sup> 50 µm Core MMF		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.5 dB	1.0 dB		0.3 dB <sup>5</sup>	0.6 dB <sup>5</sup>
Return loss <sup>7</sup>		50 dB			TBD	
Polarization dependent loss <sup>2</sup>			< 0.1 dB		TBD	
Wavelength dependent loss			< 0.3 dB		TBD	
Crosstalk		-80 dB			-80 dB	
Repeatability <sup>4</sup>			±0.1 dB			±0.1 dB
Damage level			+27 dBm			+27 dBm
Durability	3x10 <sup>7</sup> cycles			3x10 <sup>7</sup> cycles		

1x4 Optical Switch	1003 SMF-28			1103 <sup>8</sup> 50 µm Core MMF		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.6 dB	0.8 dB		0.8 dB <sup>5</sup>	1.2 dB <sup>5</sup>
Return loss <sup>7</sup>	50 dB			20 dB		
Polarization dependent loss <sup>2</sup>			< 0.1 dB		TBD	
Wavelength dependent loss			0.2 dB		TBD	
Crosstalk			-50 dB		-25 dB	
Repeatability <sup>4</sup>			±0.02 dB			±0.02 dB
Damage level			+27 dBm			+27 dBm
Durability	1x10 <sup>9</sup> cycles			1x10 <sup>9</sup> cycles		

1x8 Optical Switch	1009 SMF-28		
	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm		
Insertion loss <sup>2</sup>		0.7 dB	1.0 dB
Return loss <sup>7</sup>	50 dB		
Polarization dependent loss <sup>2</sup>			< 0.10 dB
Wavelength dependent loss			< 0.20 dB
Crosstalk			-50 dB
Repeatability <sup>4</sup>			±0.05 dB
Damage level			+27 dBm
Durability	1x10 <sup>9</sup> cycles		

<b>1x4 Optical Switch</b>	<b>1113<sup>8</sup></b>		
	<b>62.5 µm Core MMF</b>		
	Minimum	Typical	Maximum
Wavelength range	800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.8 dB <sup>5</sup>	1.2 dB <sup>5</sup>
Return loss <sup>7</sup>	20 dB		
Polarization dependent loss <sup>2</sup>	TBD		
Wavelength dependent loss	TBD		
Crosstalk	-25 dB		
Repeatability <sup>4</sup>	±0.02 dB		
Damage level	+27 dBm		
Durability	1x10 <sup>9</sup> cycles		

<b>2x2 Optical Switch</b>	<b>1004</b>			<b>1104<sup>8</sup></b>		
	<b>SMF-28</b>			<b>50 µm Core MMF</b>		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.8 dB	1.0 dB		0.8 dB <sup>5</sup>	1.0 dB <sup>5</sup>
Return loss <sup>7</sup>		55 dB			TBD	
Polarization dependent loss			< 0.05 dB		TBD	
Wavelength dependent loss			< 0.25 dB		TBD	
Crosstalk		-55 dB			-50 dB	
Repeatability <sup>4</sup>			±0.02 dB			±0.02 dB
Damage level			+27 dBm			+27 dBm
Durability	3x10 <sup>7</sup> cycles			3x10 <sup>7</sup> cycles		

<b>1x16 Optical Switch</b>	<b>1006</b>			<b>1106<sup>8</sup></b>		
	<b>SMF-28</b>			<b>50 µm Core MMF</b>		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.7 dB	1.0 dB			1.6 dB <sup>5</sup>
Return loss <sup>7</sup>	50 dB			20 dB		
Polarization dependent loss <sup>2</sup>			0.15 dB		TBD	
Wavelength dependent loss			0.30 dB		TBD	
Crosstalk			-50 dB			-25 dB
Repeatability <sup>4</sup>			±0.05 dB			±0.04 dB
Damage level			+27 dBm			+27 dBm
Durability	1x10 <sup>9</sup> cycles			1x10 <sup>9</sup> cycles		

<b>1x2 Duplex (2x4) Optical Switch</b>	<b>1005</b>			<b>1105<sup>8</sup></b>		
	<b>SMF-28</b>			<b>50 µm Core MMF</b>		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			800 nm to 1420 nm		
Insertion loss <sup>2</sup>		0.5 dB	1.0 dB		0.3 dB <sup>5</sup>	0.6 dB <sup>5</sup>
Return loss <sup>7</sup>		50 dB			TBD	
Polarization dependent loss <sup>2</sup>			< 0.1 dB		TBD	
Wavelength dependent loss			< 0.3 dB		TBD	
Crosstalk		-80 dB			-80 dB	
Repeatability <sup>4</sup>			±0.1 dB			±0.1 dB
Damage level			+27 dBm			+27 dBm
Durability	3x10 <sup>7</sup> cycles			3x10 <sup>7</sup> cycles		

Quad (1x2) Optical Switch	1008 SMF-28			1108 50 μm Core MMF		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
Wavelength range	1260 nm to 1650 nm			1260 to 1650nm		
Insertion loss <sup>2</sup>		0.5 dB	0.8 dB		0.9 dB	1.1 dB
Return loss <sup>7</sup>	50 dB			20 dB		
Polarization dependent loss			< 0.1 dB			
Wavelength dependent loss			< 0.2 dB		< 0.25 dB	
Crosstalk			-50 dB			-25 dB
Repeatability <sup>4</sup>			±0.02dB			±0.02 dBm
Damage level			+27 dBm			+27 dBm
Durability	1x10 <sup>9</sup> cycles			1x10 <sup>9</sup> cycles		

**SPECS AS OF FEBRUARY 2019**

**Notes:**

- 1 Specifications are valid at 23 °C ± 3 °C
- 2 Excluding connectors. Add 0.2dB for SMF (0.1dB for MMF) per connector
- 3 Power off isolation is same as crosstalk
- 4 Repeatability is defined after 100 cycles
- 5 IL guaranteed at 850 and 1310nm, 23°
- 7 With FC/APC connectors
- 8 Preliminary specs

# Ordering Information

SwitchMatrIQ - XXXX - X - XX

## Model number

- 1001 = 1x1 switch, single mode
- 1003 = 1x4 switch, single mode
- 1004 = 2x2 crossover switch, single mode
- 1005 = 1x2 duplex switch, single mode
- 1006 = 1x16 switch, single mode (SC/PC, SC/APC only)
- 1008 = Quad 1x2 switch, single mode
- 1009 = 1x8 switch, single mode
- 1101 = 1x1 switch, multimode, 50 µm core
- 1103 = 1x4 switch, multimode, 50 µm core
- 1113 = 1x4 switch, multimode, 62.5 µm core
- 1104 = 2x2 crossover switch, multimode, 50 µm core
- 1105 = 1x2 duplex switch, multimode, 50 µm core
- 1106 = 1x16 switch, multimode, 50 µm core (SC/PC, SC/APC only)
- 1108 = Quad 1 x 2 switch, single mode, 50 µm core

## Number of switches

- 1 = 1 switch
- 2 = 2 switches (only available for 1x1 switch type)

## Connector type

- FC = FC/PC
- FA = FC/APC
- SC = SC/PC
- SA = SC/APC



## Product Warranty

This product comes with a 3 year warranty.

## About Coherent Solutions

Coherent Solutions is a world-leader in photonics test and measurement. Our portfolio of benchtop and modular test instruments is rapidly expanding to meet the needs of scientists, engineers and manufacturers around the world. No matter where you are, we'll work with you to solve complex problems with simple, intuitive solutions.

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