



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.

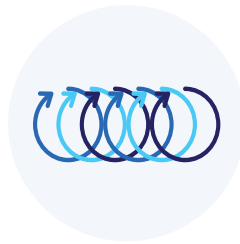


# Features and Benefits



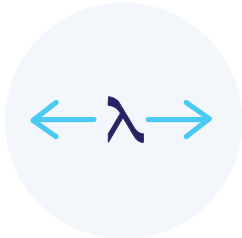
## Low insertion loss

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



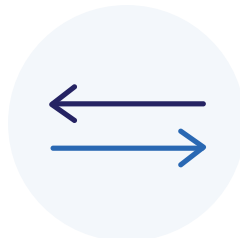
## High repeatability

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.



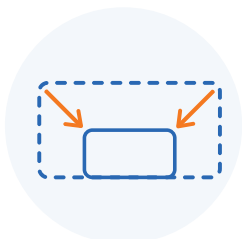
## Supports single-mode and multi-mode applications

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

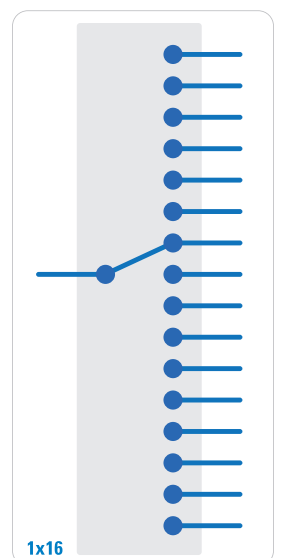
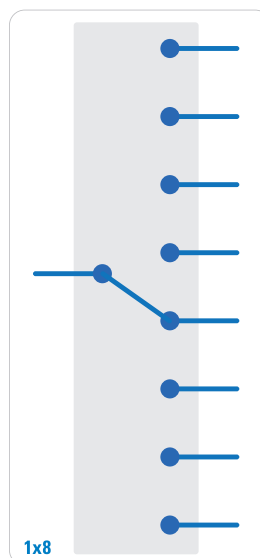
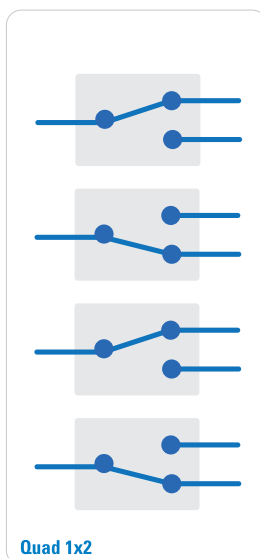
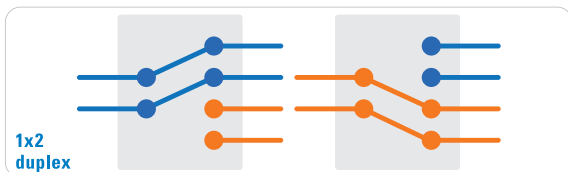
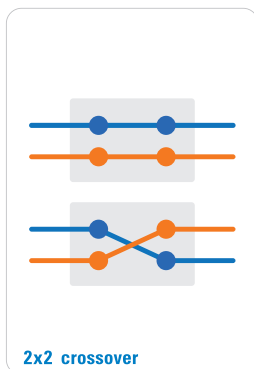
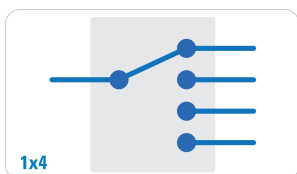
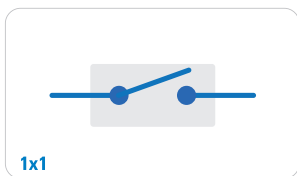
Housed in a compact and robust metallic case, its small footprint helps you utilize your bench space.



## Simple, intuitive operation with cohesionUI

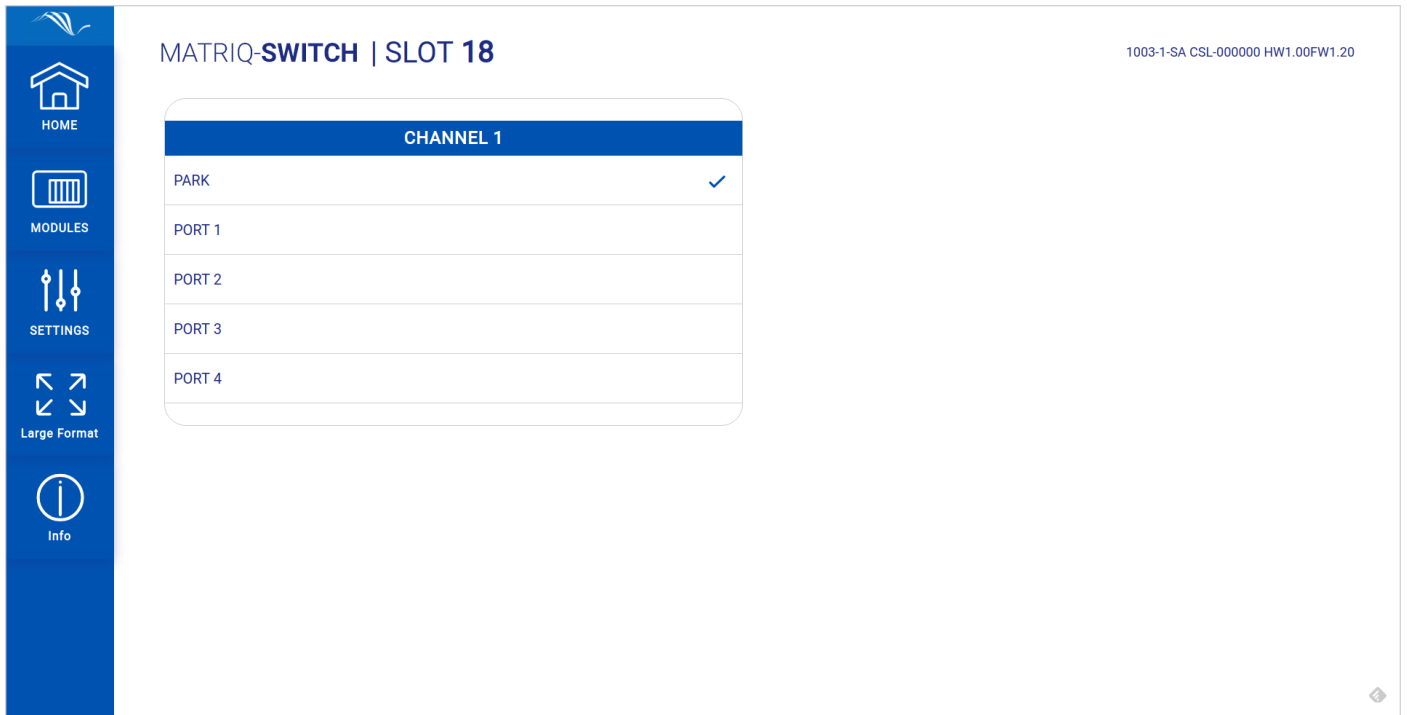
cohesionUI makes it simple to control matrIQ-Switch from your PC or mobile device. Its cutting-edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.

# 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					
<b>1x1 Optical Switch</b>	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		
<b>1x4 Optical Switch</b>	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		
<b>1x8 Optical Switch</b>	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 $\mu$ m 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>			$\pm$ 0.02dB			$\pm$ 0.02 dm
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  $\pm$  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

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