

matrIQ-02E-1001

matrIQ-02E™

Optical-to-Electrical Converter

SPEC SHEET

The matrIQ-02E is a compact high-bandwidth, broadband optical to electrical converter available in a range of configurations. It's available with 1 or 2 channels, AC or DC coupling, and various conversion gain and operating wavelength ranges.

With its stackable, compact design and intuitive software controls, matrIQ-02E is a perfect choice for the optical lab or test bench.


coherent
solutions
complexity made simple.

Features and Benefits



DC or AC coupled

Choose from DC or AC coupling to suit your specific test application.



Amplified RF output

Various conversion gain options allow you to easily measure low power, high speed optical signals



High bandwidth

Our high performing O2E allows you to successfully test high baudrate signals with up to 50GHz of bandwidth.



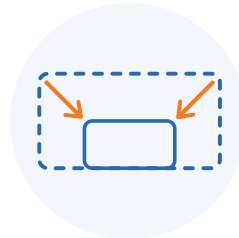
Calibrated readings

Onboard storage of calibration data can be accessed via SCPI commands, making it easier to generate calibrated measurements and scale your measurement capabilities.



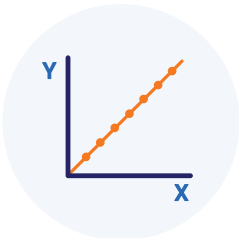
Various wavelength ranges

The O2E can be customized to a wide range of wavelengths and is suitable for single mode and multimode applications.



Compact and flexible form factor

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



Excellent measurement correlation with our optical PXI modules

Shared product architecture lets you validate your system and test requirements in the lab with matrIQ-O2E, and scale up to high-volume automated production testing with the O2EPXIe module.



Simple, intuitive operation with cohesionUI

cohesionUI makes it simple to control matrIQ-O2E from your PC or mobile device. Its cutting-edge design offers a sleek modern interface, cross device compatibility, customizable views and remote network access.

Target Applications

- Optical signal eye diagram measurement
- Relative intensity noise (RIN) measurement
- Optical pulse characterization
- Modulation depth measurement
- Extinction ratio measurement
- Precision timing/triggering
- Frequency response measurement of devices

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.

The screenshot displays the cohesionUI interface for a MATRIQ-SWITCH in SLOT 9. The interface is divided into a left sidebar and a main content area. The sidebar contains navigation icons for HOME, MODULES, SETTINGS, Large Format, and Info. The main content area is titled "MATRIQ-SWITCH | SLOT 9" and includes a version number "1201-2-FA CSL-181202 HW2.00FW1.18". It features two channel control panels, CHANNEL 1 and CHANNEL 2, each with a list of parameters and their current values. CHANNEL 1 parameters are: PDPWR (-100.00 dBm), GAIN (20953.992 V/W), AVERAGING TIME (1.000 s), and WAVELENGTH (1547.000 nm). CHANNEL 2 parameters are: PDPWR (-100.00 dBm), GAIN (22454.000 V/W), AVERAGING TIME (0.020 s), and WAVELENGTH (1550.000 nm). Both channels have a "DARK NULLING" button at the bottom of their respective panels.

Parameter	Channel 1 Value	Channel 2 Value
PDPWR	-100.00 dBm	-100.00 dBm
GAIN	20953.992 V/W	22454.000 V/W
AVERAGING TIME	1.000 s	0.020 s
WAVELENGTH	1547.000 nm	1550.000 nm

MatrIQ-Switch-1201 2 channel control in cohesionUI

Technical Specifications

General Specifications	matrIQ-O2E
Bus connection	USB and Ethernet
Optical connector type	FC/APC, FC/PC, SC/PC, SC/APC
Number of channels	1 or 2
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

Model Number	1001	1101	1201	1301*	1401	1402
Bandwidth	9.5 GHz (typ) 8.5 GHz (min)	25 GHz (typ) 24 GHz (min)	35 GHz (typ) 30 GHz (min)	50 GHz (typ)	9GHz (typ) 8GHz (min)	
Wavelength	750 to 1650nm	950 to 1650nm	800 to 1650nm	1200 to 1650nm	750 to 1650nm	
Calibrated wavelengths	850, 1310, 1490, 1550	1310, 1490, 1550	850, 1310, 1490, 1550	1310, 1490, 1550	1271, 1291, 1311, 1331, 1351, 1371, 1391, 1411, 1310, 1490, 1550	850, 1310, 1490, 1550
RF coupling	DC	AC	DC		AC	
RF connector	SMA (3.5 mm)	K (2.92 mm)	2.4 mm	V (1.85 mm)	SMA	
RF impedance	50 ohms					
Fiber	62.5u core MMF	SMF-28	50u core MMF	SMF-28	62.5u core MMF	
Damage level peak power	7 dBm	4 dBm	8 dBm		7 dBm	
Optical return loss	30dB SMF ¹ 16 dB MMF	30dB SMF ¹	24dB SMF ¹ 14 dB MMF	30dB SMF ¹	16dB	
PDL at 1550 nm		0.25 dB (max)		0.1 dB (typ) 0.2 dB (max)		
Conversion gain	430 V/W (typ) at 1550 nm 450 V/W (typ) at 1310 nm 250 V/W (typ) at 850 nm	900 V/W (typ) at 1550 nm	100 V/W (typ) at 1550 nm 100 V/W (typ) at 1310 nm 70 V/W (typ) at 850 nm	90 V/W (typ) at 1310 nm	10,000 V/W (typ) 7,000 V/W min at 1310nm	
Low frequency cutoff	0 Hz	< 100 KHz	0 Hz		< 100 KHz	
Noise equivalent power	0.15 fW/Hz	0.18 fW/Hz	0.18 fW/Hz	0.16 fW/Hz	0.26pW/Hz	
Average power reading	Yes					

SPECS AS OF FEBRUARY 2019

Notes
¹ SMF at 1550nm
 * Preliminary specs

Ordering Information

O2EMatrIQ - XXXX - X - XX

Model number

1001 = 9.5 GHz, DC coupled,
conversion gain of 430 V/W

1101 = 25 GHz, AC coupled,
conversion gain of 900 V/W

1201 = 35 GHz, DC coupled,
conversion gain of 100 V/W

1301 = 50 GHz, DC coupled,
conversion gain of 90 V/W

1401 = 9 GHz, AC coupled,
conversion gain of 7000 V/W,
CWDM8 calibration

1402 = 9 GHz, AC coupled,
conversion gain of 7000 V/W

Connector type

FC = FC/PC

FA = FC/APC

SC = SC/PC

SA = SC/APC

Number of channels

1 = 1 channel

2 = 2 channels



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.

To find out more, get in touch with us today.

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