

Optical Sampling Modules

- ▶ 80C01 • 80C02 • 80C03 • 80C04 • 80C05
80C06 • 80C07 • 80C08B • 80C09 • 80C10



CSA/TDS8000 Series Sampling Oscilloscope Optical Modules

The CSA/TDS8000 Series Sampling Oscilloscopes, when configured with one or more optical sampling modules provide complete optical test solutions for Telecom (155 Mb/s to 43.018 Gb/s) or Datacom (Fibre Channel, Gigabit Ethernet, 10 GbE and InfiniBand) applications, as well as general purpose optical component testing.

Each optical module includes all the elements necessary for optical testing.

- ▶ Optical to electrical converter
- ▶ Average power monitor
- ▶ One or more reference receiver filters*¹
- ▶ A full bandwidth optical path
- ▶ A low-noise electrical sampler*²
- ▶ Optional clock recovery
- ▶ Universal optical input connector

*¹Excluding 80C05 and 80C06 which do not include reference receiver filter rates.

*²Excluding 80C06.

80C01 Multi-rate Telecom Sampling

Module – The 80C01 module supports waveform conformance testing of long-wavelength (1100 to 1650 nm) signals at 622, 2488 Mb/s and 9.953 Gb/s as well as general-purpose testing with up to 20 GHz optical bandwidth. With its clock recovery option, the 80C01 provides complete testing solutions for 622 and 2488 Mb/s telecom applications.

80C02 High-performance Telecom

Sampling Module – The 80C02 module is optimized for testing of long-wavelength (1100 to 1650 nm) signals at 9.953 Gb/s (SONET OC-192/SDH STM-64). With its high optical bandwidth of 30 GHz (typical), it is also well-suited for general-purpose high-performance optical component testing. The 80C02 can be optionally configured with clock recovery that supports 9.953 Gb/s telecom standards.

▶ Features & Benefits

Datacom

- 80C03 and 80C08B
Low-noise, High Optical Sensitivity and Broad Wavelength Conformance Testing Solutions for Gigabit Ethernet, Fibre Channel and InfiniBand Datacom Standards up to 10 GbE and 10G FC

Tributary Telecom

- 80C01 and 80C07
Conformance Testing Solutions From 155 Mb/s (OC-3/STM-4) Through 9.953 Gb/s (OC-192/STM-64)
- 80C07 Provides Excellent Signal-to-Noise Performance and Broad Wavelength Test Capability

10 Gb/s Telecom

- 80C02, 80C04 and 80C09
Provide a Comprehensive Suite of Selectable Bandwidth and Long-wavelength Conformance Testing Solutions

40 Gb/s Telecom

- 80C05, 80C06 and 80C10
40 Gb/s Telecom Optical Sampling Modules Provide Highest Optical Bandwidth Capability for Performance Testing and Signal Characterization
- 80C10 Provides Selectable Optical Bandwidth up to 65 GHz and Reference Receiver Filtering for Conformance Testing of 39.813 Gb/s (OC-768/STM-256) and 43.018 Gb/s (ITU-T G.709 FEC) RZ or NRZ Data Formats

▶ Applications

High-speed Optical Communications Testing

Extinction Ratio and Q-factor Measurements

Eye-pattern and Pulse Shape Analysis

Relaxation Oscillation Testing

Optical Signal Analysis

Conformance Testing

NRZ and RZ Pulse Characterization

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80C03 Multi-rate, High-sensitivity

Datacom Sampling Module – The 80C03 module supports waveform conformance testing of both short and long-wavelength (700 to 1650 nm) signals at 1.063, 1.250, 2.488 and 2.5 Gb/s, as well as general-purpose testing with up to 2.5 GHz optical bandwidth. Its amplified optical to electrical converter design enables users to examine very low-level optical signals. The 80C03 can be optionally configured with clock recovery that supports Fibre Channel 1063 (1.063 Gb/s), Gigabit Ethernet (1.250 Gb/s), OC-48/STM-16 (2.488 Gb/s), 2 GbE (2.500 Gb/s) and InfiniBand (2.500 Gb/s) standards.

80C04 High-performance Telecom

Sampling Module with Forward Error Correction – The 80C04 module is optimized for testing of long-wavelength (1100 to 1650 nm) signals at either 9.953 Gb/s or 10.664 Gb/s. With its high optical bandwidth of 30 GHz (typical), it is also well-suited for general-purpose high-performance optical component testing. The 80C04 can be optionally configured with clock recovery that supports the 9.953 Gb/s telecom standard or a dual-rate option supporting both the 9.953 Gb/s and 10.664 Gb/s standards.

80C05 40 GHz Optical Sampling Module

– The 80C05 module is optimized for testing long-wavelength (1520 to 1580 nm) telecom signals at 40 Gb/s and with reference receiver filtering provided for 9.953 Gb/s. The 80C05, with its selectable bandwidth, lets the user choose optimal noise vs. bandwidth performance to accurately characterize the signal. With its high optical bandwidth (40 GHz), it is also well-suited for general-purpose high-performance optical component testing.

80C06 55 GHz Optical Sampling Module

– The 80C06 module is optimized for testing long-wavelength (1520 to 1580 nm) high-power, high-bandwidth optical signals that are typical of transmission test for 40 Gb/s NRZ and RZ systems. With its high optical bandwidth, 55 GHz (typical), it is also well-suited for general-purpose high-performance optical component testing.

80C07 Multi-rate, Telecom Optical

Sampling Module – The 80C07 module is a broad wavelength (700 to 1650 nm) multi-rate optical sampling module optimized for testing telecom signals from 155.52 to 2488.32 Mb/s. With its amplified O/E converter design, this module provides excellent signal-to-noise performance, allowing users to examine low-power optical signals. The 80C07 can be optionally configured with clock recovery that supports 155, 622 and 2488 Mb/s rates.

80C08B 10 GbE and 10 G Fibre Channel Datacom Optical Sampling Module

– The 80C08B module is a broad wavelength (700 nm to 1650 nm) optical sampling module providing a complete conformance test solution for 10 GbE applications at 10.3125 Gb/s (10 G Base-R), 9.95328 Gb/s (10 G Base-W), or 10.51875 Gb/s (10 G Fibre Channel). With its amplified optical-to-electrical (O/E) converter design, this module provides excellent signal-to-noise performance and high optical sensitivity, allowing users to examine low-power level optical signals. The 80C08B can be optionally configured with clock recovery options that support 9.953 Gb/s and 10.3125 Gb/s or 10.3125 Gb/s and 10.51875 Gb/s rates.

80C09 High-performance Telecom Optical Sampling Module with G.709 Forward

Error Correction – The 80C09 module is optimized for testing of long-wavelength (1100 to 1650 nm) signals at either 9.953 Gb/s or 10.709 Gb/s. With its high optical bandwidth of 30 GHz (typical), it is well-suited for general-purpose high-performance optical component testing. The 80C09 can be optionally configured with clock recovery that supports 9.953 and 10.709 Gb/s rates.

80C10 65 GHz 40 Gb/s Optical Sampling Module with 43 Gb/s ITU-T G.709 Forward

Error Correction – The 80C10 module provides integrated and selectable reference receiver filtering enabling conformance testing at either 1310 nm or 1550 nm for 39.813 Gb/s (OC-768/STM-256) and 43.018 Gb/s (43 Gb/s ITU-T G.709 FEC) rates. In addition to the filter rates the user may also choose selectable bandwidths of 30 GHz or 65 GHz for optimal noise vs. bandwidth performance for accurate signal characterization.

▶ Characteristics

▶ Optical Sampling Module Characteristics

	Application Type	Standards Supported with Reference Receiver Filtering Rates	Number of Input Channels	Effective Wavelength Range	Calibrated Wavelengths
80C01	Tributary Telecom	OC-12/STM-4 (622 Mb/s), OC-48/STM-16 (2.488 Gb/s), OC-192/STM-64 (9.953 Gb/s)	1	1100 nm to 1650 nm	1310 nm and 1550 nm (± 20 nm)
80C02	10 Gb/s Telecom	OC-192/STM-64 (9.953 Gb/s)	1	1100 nm to 1650 nm	1310 nm and 1550 nm (± 20 nm)
80C03	Datacom	Fibre Channel (1.063 Gb/s), GbE (1.250 Gb/s), OC-48/STM-16 (2.488 Gb/s), 2 GbE (2.500 Gb/s), InfiniBand (2.500 Gb/s)	1	700 nm to 1650 nm	780 nm, 850 nm, 1310 nm, 1550 nm (± 20 nm)
80C04	10 Gb/s Telecom	OC-192/STM-64 (9.953 Gb/s), ITU-T G.975 FEC (10.664 Gb/s)	1	1100 nm to 1650 nm	1310 nm and 1550 nm (± 20 nm)
80C05	40 Gb/s Telecom	OC-192/STM-64 (9.953 Gb/s)	1	1520 nm to 1580 nm	1550 nm (± 20 nm)
80C06	40 Gb/s Telecom	—	1	1520 nm to 1580 nm	1550 nm (± 20 nm)
80C07	Tributary Telecom	OC-3/STM-1 (155.52 Mb/s), OC-12/STM-4 (622 Mb/s), OC-48/STM-16 (2.488 Gb/s)	1	700 nm to 1650 nm	780 nm, 850 nm, 1310 nm, 1550 nm (± 20 nm)
80C08B	Datacom	OC-192/STM-64 (9.953 Gb/s), 10GBASE-W (9.95328 Gb/s), 10GBASE-R (10.3125 Gb/s), 10 G Fibre Channel (10.51875 Gb/s)	1	700 nm to 1650 nm	780 nm, 850 nm, 1310 nm, 1550 nm (± 20 nm)
80C09	10 Gb/s Telecom	OC-192/STM-64 (9.953 Gb/s), ITU-T G.709 FEC (10.709 Gb/s)	1	1100 nm to 1650 nm	1310 nm and 1550 nm (± 20 nm)
80C10	40 Gb/s Telecom	OC-768/STM-256 (39.813 Gb/s), ITU-T G.709 FEC (43.018 Gb/s)	1	1310 nm and 1550 nm	1310 nm and 1550 nm (± 20 nm)

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► Optical Sampling Module Characteristics (continued)

	Clock Recovery	Clock Recovery Outputs	Unfiltered Optical Bandwidth* ¹	Absolute Maximum Nondestructive Optical Input	Internal Fiber Diameter
80C01	Optional 622.08 Mb/s, 2.48832 Gb/s (±1000 ppm)	±Clock, ±Data	20 GHz	5 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest relative responsivity	9 µm/125 µm single-mode
80C02	Optional 9.95328 Gb/s (±1000 ppm)	Clock, Clock/16, Data	28 GHz	5mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest relative responsivity	9 µm/125 µm single-mode
80C03	Optional 1.0625 Gb/s, 1.2500 Gb/s, 2.48832 Gb/s, 2.5000 Gb/s (±1000 ppm)	±Clock, ±Data	2.3 GHz	5 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest relative responsivity	62.5 µm/125 µm multi-mode
80C04	Optional 9.95328 Gb/s, 10.664 Gb/s (±1000 ppm)	Option CR1: Clock, Clock/16, Data Option CR2: Clock, Clock/16	28 GHz	5 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest relative responsivity	9 µm/125 µm single-mode
80C05	Not Available	Not Available	40 GHz	10 mW average maximum operational power level (20 mW displayed peak-peak level); 10 mW average absolute maximum non-destruct power level (30 mW displayed peak-peak level)	9 µm/125 µm single-mode
80C06	Not Available	Not Available	<i>55 GHz</i>	15 mW average maximum operational power level (30 mW displayed peak-peak level); 20 mW average absolute maximum non-destruct power level (60 mW displayed peak-peak level)	9 µm/125 µm single-mode
80C07	Optional 155.52 Mb/s, 622.08 Mb/s, 2.48832 Gb/s (±1000 ppm)	±Clock, ±Data	2.3 GHz	5 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest responsivity	62.5 µm/125 µm single-mode
80C08B	Optional 9.95328 Gb/s, 10.3125 Gb/s, 10.51875 Gb/s (±1000 ppm)	Clock, Clock/16	<i>10 GHz</i>	1 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest responsivity	All single-mode and multi-mode fibers up to core diameter of 62.5 µm (non-angled)
80C09	Optional 9.95328 Gb/s, 10.709 Gb/s (±1000 ppm)	Clock, Clock/16	28 GHz	5 mW average absolute maximum non-destruct power level; 10 mW peak power at wavelength of highest relative responsivity	All single-mode and multi-mode fibers up to core diameter of 9 µm (non-angled)
80C10	Future Upgradeable	Future	<i>65 GHz</i>	20 mW average absolute maximum non-destruct power level; 60 mW peak power at wavelength of highest relative responsivity	9 µm/125 µm single-mode (non-angled)

*¹ Values shown are warranted unless printed in an italic typeface which represents a non-warranted characteristic value that the instrument will typically perform to.

▶ Optical Sampling Module Characteristics (continued)

	Optical Return Loss	Fiber Input Accepted	RMS Optical Noise (typical)	RMS Optical Noise (maximum)	Independent Channel Deskew
80C01	>30 dB	single-mode	8.0 μW at 622.08 Mb/s, 2.488 Gb/s, 9.953 Gb/s, 12.5 GHz mode; 15.0 μW at 20 GHz mode	12.0 μW at 622.08 Mb/s, 2.488 Gb/s, 12.5 GHz mode; 25 μW at 20 GHz mode	Standard
80C02	>30 dB	single-mode	6.0 μW at 9.953 Gb/s, 12.5 GHz mode; 15.0 μW at 20 GHz mode; 20.0 μW at 30 GHz mode	10.0 μW at 9.953 Gb/s, 12.5 GHz mode; 20 μW at 20 GHz mode; 30 μW at 30 GHz mode	Standard
80C03	>14 dB (62.5 μm multi-mode) >24 dB (9 μm single-mode)	single- or multi-mode	0.75 μW at 1.063 Gb/s, 1.250 Gb/s; 1.0 μW at 2.488 Gb/s, 2.500 Gb/s	1.0 μW at 1.0625 Gb/s, 1.250 Gb/s; 1.5 μW at 2.488 Gb/s, 2.500 Gb/s	Standard
80C04	>30 dB	single-mode	6.0 μW at 9.953 Gb/s, 10.664 Gb/s; 10.0 μW at 20 GHz mode; 20.0 μW at 30 GHz mode	10.0 μW at 9.953 Gb/s, 10.664 Gb/s; 15 μW at 20 GHz mode; 30 μW at 30 GHz mode	Standard
80C05	>30 dB	single-mode	10.0 μW at 9.953 Gb/s; 15 μW at 20 GHz mode; 25 μW at 30 GHz mode; 50 μW at 40 GHz mode	15 μW at 9.953 Gb/s; 25 μW at 20 GHz mode; 35 μW at 30 GHz mode; 70 μW at 40 GHz mode	Standard
80C06	>30 dB	single-mode	150 μW at 55 GHz mode	192 μW at 55 GHz mode	Standard
80C07	>14 dB (62.5 μm multi-mode) >24 dB (9 μm single-mode)	single- or multi-mode	0.50 μW at 155.52 Mb/s, 622.08 Mb/s; 0.70 μW at 2.48832 Gb/s	1.0 μW at 155.52 Mb/s, 622.08 Mb/s; 1.5 μW at 2.48832 Gb/s	Standard
80C08B	>14 dB (62.5 μm multi-mode) >24 dB (9 μm single-mode)	single- or multi-mode (non-angled)	2.5 μW at all bandwidth settings (1550 nm)	5.0 μW at all bandwidth settings (1550 nm)	Standard
80C09	>30 dB	single-mode (non-angled)	6.0 μW at 9.953 Gb/s, 10.709 Gb/s; 10.0 μW at 20 GHz mode; 20.0 μW at 30 GHz mode	10.0 μW at 9.953 Gb/s, 10.709 Gb/s; 15 μW at 20 GHz mode; 30 μW at 30 GHz mode	Standard
80C10	>30 dB	single-mode (non-angled)	60 μW at 39.813 Gb/s, 43.018 Gb/s (1550 nm); 110 μW at 39.813 Gb/s, 43.018 Gb/s (1310 nm); 45 μW at 30 GHz mode (1550 nm); 82 μW at 30 GHz mode (1310 nm); 100 μW at 65 GHz mode (1550 nm); 182 μW at 65 GHz mode (1310 nm)	75 μW at 39.813 Gb/s, 43.018 Gb/s (1550 nm); 136 μW at 39.813 Gb/s, 43.018 Gb/s (1310 nm); 60 μW at 30 GHz mode (1550 nm); 110 μW at 30 GHz mode (1310 nm); 150 μW at 65 GHz mode (1550 nm); 273 μW at 65 GHz mode (1310 nm)	Standard

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► Optical Sampling Module Characteristics (continued)

	Offset Capability Front of Module	Power Meter	Power Meter Range	Power Meter Accuracy	Mask Test Optical Sensitivity* ²
80C01	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-8 dBm at 622 Mb/s, 2.488 Gb/s, 9.953 Gb/s; -5.0 dBm at 20 GHz mode
80C02	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-9 dBm at 9.953 Gb/s; -7 dBm at 20 GHz; -4 dBm at 30 GHz
80C03	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-22 dBm at 1.063 Gb/s, 1.250 Gb/s; -20 dBm at 2.488 Gb/s, 2.500 Gb/s
80C04	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-9 dBm at 9.953 Gb/s, 10.664 Gb/s; -7 dBm at 20 GHz mode; -4 dBm at 30 GHz mode
80C05	Standard	Standard	+13 dBm to -21 dBm	5% of reading + connector uncertainty + polarization dependent loss	-7 dBm at 9.953 Gb/s; -5 dBm at 20 GHz mode; -3 dBm at 30 GHz mode; 0 dBm at 40 GHz mode
80C06	Standard	Standard	+13 dBm to -21 dBm	5% of reading + connector uncertainty + polarization uncertainty	+5 dBm at 55 GHz mode
80C07	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-22 dBm at 155.52 Mb/s, 622.08 Mb/s; -20 dBm at 2488.32 Mb/s
80C08B	Standard	Standard	0 dBm to -30 dBm	5% of reading + connector uncertainty	-13 dBm at 9.95328 Gb/s, 10.3125 Gb/s, 10.51875 Gb/s (1550 nm)
80C09	Standard	Standard	+4 dBm to -30 dBm	5% of reading + connector uncertainty	-9 dBm at 9.95328 Gb/s, 10.709 Gb/s; -7 dBm at 20 GHz mode; -4 dBm at 30 GHz mode
80C10	Standard	Standard	+13 dBm to -21 dBm	8% of reading + connector uncertainty	0 dBm at 39.813 Gb/s, 43.018 Gb/s; 0 dBm at 30 GHz mode; +3 dBm at 65 GHz mode (1550 nm)

*²Smallest power level for mask test. Values represent theoretical typical sensitivity of NRZ eyes for competitive comparison purposes. Assumes acceptable instrument peak-peak noise is 40 percent of the amplitude of the signal allowing the instrument to consume 100 percent of the mask margin.

Optical Module Application Summary

Application Standard	Eye Conformance Test* ³
SONET/SDH	
155 Mb/s (OC-3/STM-1)	80C07
622 Mb/s (OC-12/STM-4)	80C01, 80C07
2.488 Gb/s (OC-48/STM-16)	80C01, 80C03, 80C07
9.953 Gb/s (OC-192/STM-64)	80C01, 80C02, 80C04, 80C05, 80C08B, 80C09
10.664 Gb/s (ITU-T G.975 FEC)	80C04
10.709 Gb/s (ITU-T G.709 FEC)	80C09
39.813 Gb/s (OC-768/STM-256)	80C05* ⁴ , 80C06* ⁴ , 80C10
43.018 Gb/s (ITU-T G.709 FEC43.02 Gb/s)	80C05* ⁴ , 80C06* ⁴ , 80C10
Gigabit Ethernet	
1.250 Gb/s (GbE)	80C03
2.500 Gb/s (2GbE)	80C03
9.95328 Gb/s (10GBASE-W)	80C08B
10.3125 Gb/s (10GBASE-R) (10GbE)	80C08B
Fibre Channel	
1.063 Gb/s (FC)	80C03
10.51875 Gb/s (10G FC)	80C08B
InfiniBand	
2.500 Gb/s (InfiniBand)	80C03

*³Unless otherwise noted all modules include optical reference receiver filtering (ORR) for conformance testing of the associated application standard.

*⁴Optical reference receiver filtering (ORR) not provided.

Physical Characteristics for Optical Sampling Modules

	Dimensions (mm/in.)			Weight (kg/lbs.)
	Width	Height	Depth	Net
80C01	165/6.5	25/1.0	305/12.0	<2.61/<5.75
80C02	165/6.5	25/1.0	305/12.0	<2.61/<5.75
80C03	165/6.5	25/1.0	305/12.0	<2.61/<5.75
80C04	165/6.5	25/1.0	305/12.0	<2.61/<5.75
80C05	165/6.5	25/1.0	305/12.0	>2.61/>5.75
80C06	165/6.5	25/1.0	305/12.0	>2.61/>5.75
80C07	165/6.5	25/1.0	305/12.0	<1.36/<3.0
80C08	165/6.5	25/1.0	305/12.0	<1.36/<3.0
80C09	165/6.5	25/1.0	305/12.0	1.22/2.7
80C10	165/6.5	25/1.0	305/12.0	>2.61/>5.75

► Ordering Information

80C01

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 622, 2488 and 9953 Mb/s reference receiver operation.

Opt. CR – 622 and 2488 Mb/s clock recovery.

80C02

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 9.953 Gb/s reference receiver operation.

Opt. CR – 9.953 Gb/s clock recovery.

80C03

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 1.063, 1.250 and 2.488 Gb/s reference receiver operation.

Opt. CR – 1.063, 1.250, 2.488 and 2.500 Gb/s clock recovery.

80C04

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 9.953 and 10.664 Gb/s reference receiver operation.

Opt. CR1 – 9.953 Gb/s clock recovery.

Opt. CR2 – 9.953/10.664 Gb/s dual-rate clock recovery.

80C05

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 9.953 Gb/s reference receiver operation.

80C05E1 – Bundled ordering configuration includes 80C05 plus one 80E01 single-channel 50 GHz electrical module.

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80C06

Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

80C06E1 – Bundled ordering configuration includes 80C06 plus one 80E06 single-channel 70+ GHz electrical module.

80C07

Multi-rate Telecom Optical Sampling Module.

Includes: User Manual, FC/PC Optical Connector.

Frequency Response curves for 155, 622 and 2488 Mb/s reference receiver operation.

Opt. CR1 – 155/622/2488 MHz clock/data recovery.

80C08B

Multi-rate, Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 9.953, 10.31 and 10.52 Gb/s data rates.

Opt. CR1 – 9.953 Gb/s and 10.31 Gb/s clock recovery.

Opt. CR2 – 10.31 Gb/s and 10.52 Gb/s clock recovery.

80C09

Telecom Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 9.953 and 10.709 Gb/s reference receiver operation.

Opt. CR1 – 9.953, 10.709 Gb/s clock recovery.

80C10

Multi-rate Optical Sampling Module.

Includes: User manual, FC/PC optical connector.

Frequency response curves for 39.813 and 43.108 Gb/s data rates.

80C10E1 – Bundled ordering configuration includes 80C10 plus one 80E06 single-channel 70+ GHz electrical module.

Service Options

Opt. C3 – Three years of Calibration Service.

Opt. C5 – Five years of Calibration Service.

Opt. D1 – Calibration data report.

Opt. D3 – Three years of calibration data reports.

Opt. D5 – Five years of calibration data reports.

Opt. R3 – Extended repair warranty to three years.

Opt. R5 – Extended repair warranty to five years.

Optical Connector Accessories (80C01, 80C02, 80C03, 80C04 only)

While the FC/PC connector is standard with the 8000 Series optical sampling modules, the input connector type can be interchanged with any of the following standard adapters:

ST/PC – Order 119-4513-00.

D4/PC – Order 119-4514-00.

Biconic – Order 119-4515-00.

FC/PC – Order 119-5115-00.

SMA 2.5 – Order 119-4517-00.

SC/APC – Order 119-5116-00.

DIN/PC 47256 – Order 119-4546-00.

HP/PC – Order 119-4556-00.

SMA – Order 119-4557-00.

DIAMOND 3.5 – Order 119-4558-00.

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09/02 HB/XBS

85W-13964-5