

KEYSIGHT TECHNOLOGIES (AGILENT HP)

83496A

The Keysight Technologies (formerly Agilent) 83496A is a high-performance Optical and Electrical Clock Recovery Module designed for use with the 86100 series Infiniium Digital Communications Analyzer (DCA) mainframes. It provides continuous, ultra-low-jitter clock recovery from high-speed digital communications signals, enabling precise transmitter compliance testing and waveform analysis.

SPECIFICATIONS

General

Interfaces	Internal backplane interface to host mainframe; front-panel RF and optical ports
Display	None (controlled and displayed via host mainframe user interface)

Physical

Power Supply	Powered directly via the host mainframe module slot
Operating Temperature	10 °C to 40 °C °C
Dimensions (W×H×D)	57 mm × 165 mm × 268 mm mm
Weight	1.2 kg kg

Mainframe Compatibility & Integration

Host Mainframe Compatibility	Keysight / Agilent 86100A, 86100B, 86100C, and 86100D Infiniium DCA
Module Slot Occupancy	1 slot

Clock Recovery Performance

Continuous Bit Rate Range (Option 100)	50 Mb/s to 7.1 Gb/s
Continuous Bit Rate Range (Option 200)	50 Mb/s to 13.5 Gb/s
PLL Loop Bandwidth Tuning Range	30 kHz to 6 MHz (configurable up to 10 MHz for higher rates)
Jitter Transfer Peaking	< 0.1 dB (typical)
Residual Jitter (RMS)	< 300 fs (at 10 Gb/s, typical)
Lock Acquisition Time	< 100 ms (typical)
Clock Recovery Acquisition Range	±1% of selected bit rate

Optical Input (Option 101)

Wavelength Range (Option 101)	750 nm to 1600 nm
Fiber Compatibility (Option 101)	Single-mode and multimode (up to 62.5 μ m core diameter)
Maximum Safe Average Optical Input Power	+10 dBm
Minimum Input Level for Lock (10 Gb/s)	-10 dBm (typical, wavelength dependent)
Optical Receiver Fiber Compatibility	9/125 μ m (single-mode), 50/125 μ m & 62.5/125 μ m (multimode)
Optical Return Loss (Multimode)	> 14 dB
Optical Return Loss (Single-Mode)	> 26 dB
Optical Receiver Bandwidth	12.5 GHz (typical)
Minimum Optical Input Level for Lock (155 Mb/s to 3.125 Gb/s)	-20 dBm (10 μ W)
Optical Input Connector Type	Agilent/Keysight universal optical connector

Electrical Input

Electrical Input Connector Type	3.5 mm (female)
Electrical Input Impedance	50 Ω nominal
Electrical Input Coupling	AC coupled
Minimum Electrical Input Amplitude	50 mV p-p to 100 mV p-p (rate-dependent)
Maximum Safe Electrical Input Voltage	2.0 V p-p (+16 dBm damage level)

Recovered Clock & Monitor Outputs

Recovered Clock Output Connector Type	3.5 mm (female)
Recovered Clock Output Impedance	50 Ω nominal
Recovered Clock Output Coupling	AC coupled
Recovered Clock Output Amplitude	> 400 mV p-p into 50 Ω (typical)

Environmental & Mechanical

Non-Operating Storage Temperature Range	-40 °C to +70 °C
Relative Humidity Range	Up to 90% non-condensing (at 40 °C)

Options

Option 300 Jitter Transfer	Adds jitter transfer measurement capability
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Environmental

Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,300 m (50,000 ft)

Compatibility

Required Mainframe Firmware	Revision A.06.00 or higher (for 86100C DCA-J)
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Power

Power Supply Source	Power supplied directly by 86100 series mainframe
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TECHNOLOGY

Optical & Electrical Clock Recovery

APPLICATIONS

High-speed digital transmitter compliance testing, jitter analysis, and waveform characterization

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