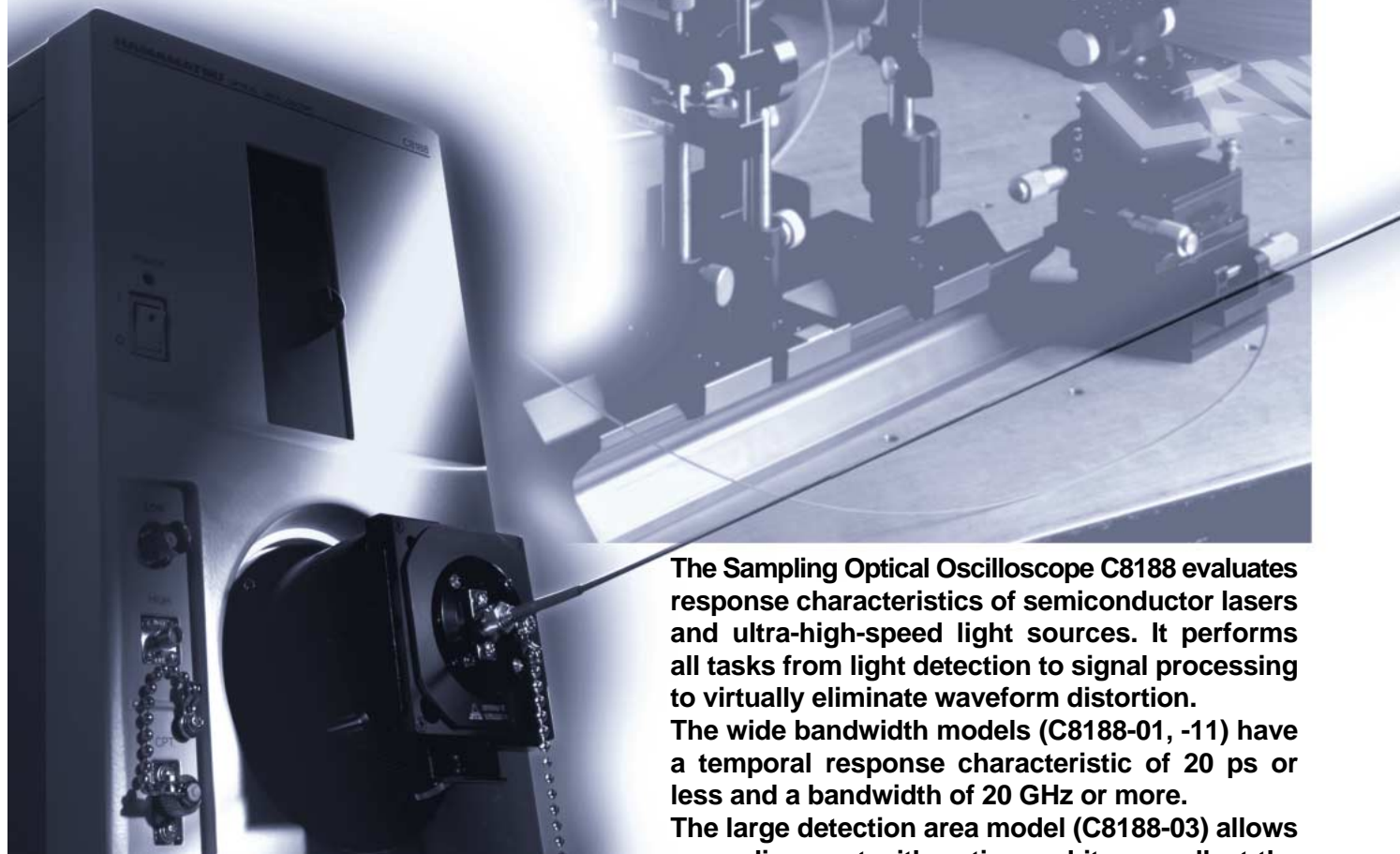


Sampling Optical Oscilloscope C8188

Large detection area of 1 mm
Wide bandwidth of 20 GHz



The Sampling Optical Oscilloscope C8188 evaluates response characteristics of semiconductor lasers and ultra-high-speed light sources. It performs all tasks from light detection to signal processing to virtually eliminate waveform distortion.

The wide bandwidth models (C8188-01, -11) have a temporal response characteristic of 20 ps or less and a bandwidth of 20 GHz or more.

The large detection area model (C8188-03) allows easy alignment with optics and it can collect the entire signal of large aperture sources such as plastic optical fibers (POF).



Evaluates the temporal response characteristics of a semiconductor laser and the transmission characteristics of an optical fiber !

Features

- **Virtually no waveform distortion**

The Sampling Optical Oscilloscope performs all tasks from light detection to signal processing, eliminating virtually all the waveform distortions that occur in conventional methods involving high-speed optical detectors and oscilloscopes, such as those caused by reflection or ringing.

- **Wide bandwidth (20 GHz)**

The C8188-01 and C8188-11 have a response characteristic of 20 ps or less and a wide bandwidth of 20 GHz or more.

- **Large detection area**

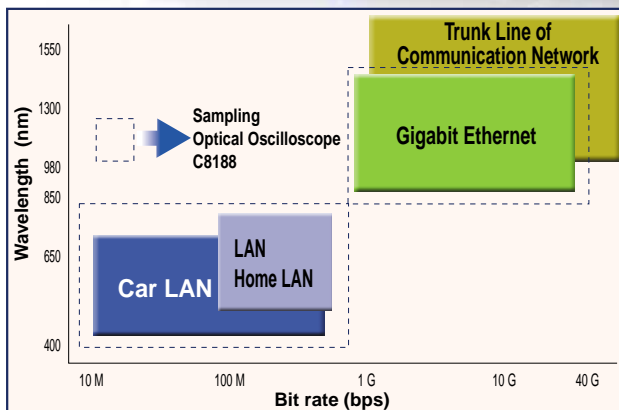
The C8188-03 collects the entire signal from large aperture sources such as a 1 mm POF for a highly accurate measurement with a bandwidth of 2 GHz or more.

- **Easy operation**

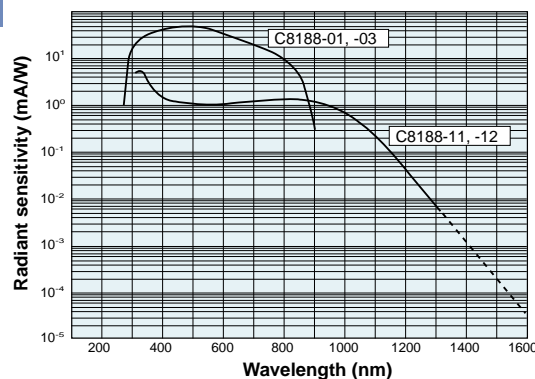
No need to consider matching conditions such as impedance, which are necessary in conventional methods.

- **Control from PC**

The Sampling Optical Oscilloscope is controlled from a PC with a Windows environment to allow easy data storage and connection to a LAN.



Spectral Response



Applications

- Evaluation and inspection of temporal response characteristics of semiconductor lasers and ultra-high-speed light sources
- Evaluation of transmission characteristics of optical fibers
- Evaluation of characteristics of optical link systems

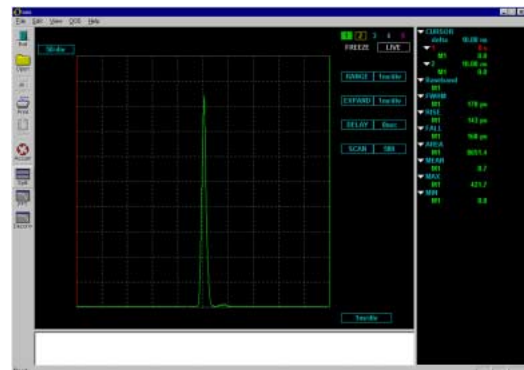
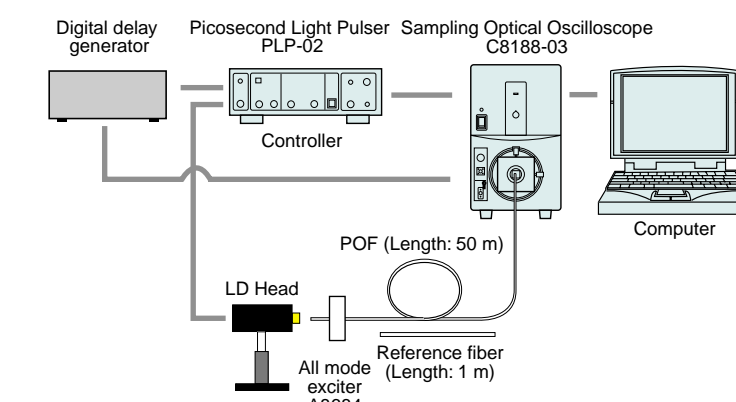
Specifications

Type No.	C8188-01	C8188-03	C8188-11	C8188-12
Spectral response	350 to 850 nm	350 to 850 nm	400 to 1,300 nm	400 to 1,300 nm
Effective detection area	100 μm \times 3 mm	1 mm \times 3 mm	100 μm \times 3 mm	200 μm \times 3 mm
Bandwidth	20 GHz or more	2 GHz or more	20 GHz or more	5 GHz or more
Optical signal input form	Fixed slit and FC connector	Fixed slit and FC connector	Fixed slit and FC connector	Fixed slit and FC connector
Temporal resolution (rise/fall time)	Better than 17.5ps	Better than 175ps	Better than 17.5ps	Better than 40ps
Time axis	20 ps/div to 1 μs /div	20 ps/div to 1 μs /div	20 ps/div to 1 μs /div	20 ps/div to 1 μs /div
Number of sampling points	1,024	1,024	1,024	1,024
Minimum sampling interval	2.5 ps	2.5 ps	2.5 ps	2.5 ps
Dynamic range	More than 1:1,000	More than 1:100	More than 1:1,000	More than 1:1,000
A/D converter	14bit	14bit	14bit	14bit
Waveform calculation function	Fast Fourier Transform (FFT) operation, rise and fall times, maximum/minimum			
Cursor function	Intensities specified at cursors, intensity ratio, time interval between two specified cursors, area between cursors			
Intensity axis	Linear			
Other functions	Data accumulation, data save and load (text format), print			

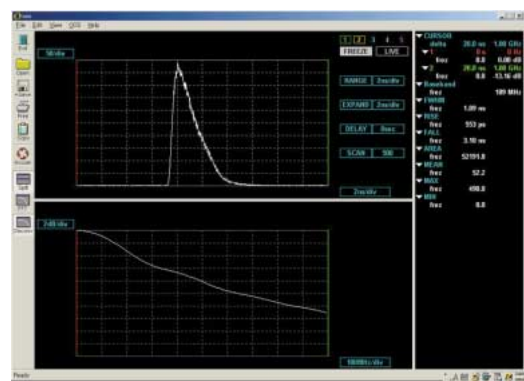
Transmission characteristics of POF

This system measures the transmission characteristics of POF. It consists of the large detection area model C8188-03, the picosecond light pulser PLP-02, and the all mode exciter A8684. All mode light is generated using the PLP-02 and A8684.

The bandwidth characteristics of a POF can be efficiently analyzed by the Fast Fourier Transform (FFT) operation, because all luminous flux of the output light from the POF is detected with the C8188-03.



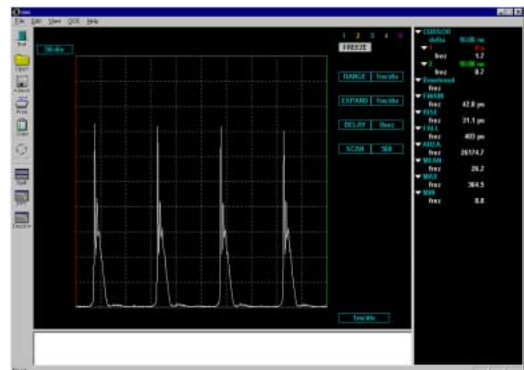
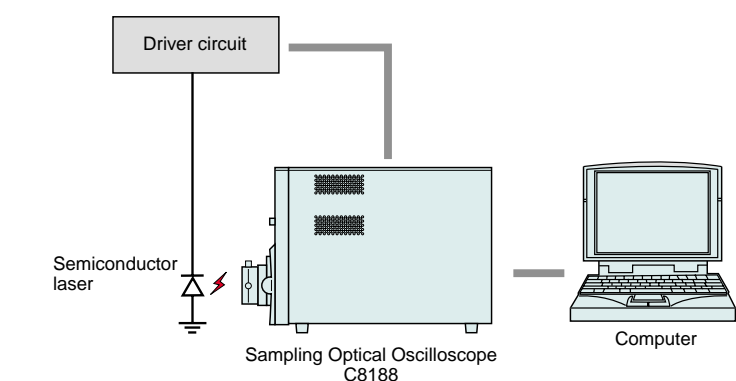
▲ Temporal response of reference fiber (length: 1 m): 1 ns/div



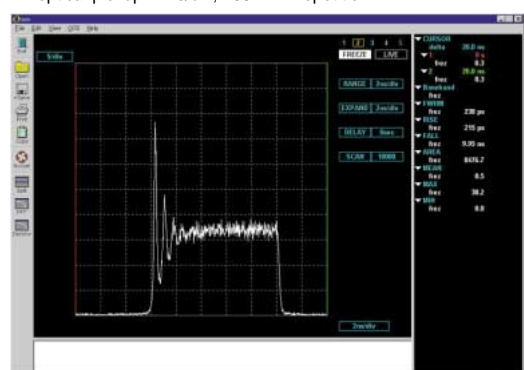
▲ Temporal dispersion and bandwidth characteristics of plastic optical fiber (length: 50 m)
Upper: Temporal dispersion 2 ns/div,
Lower: After FFT operation (Vertical: 1 dB/div, Horizontal: 50 MHz/div)

Temporal response characteristics of semiconductor laser

This system measures high-speed pulse waveforms of semiconductor lasers. A trigger signal is received from the driver circuit of a semiconductor laser to measure the light of the laser.



▲ Pulse response analysis of visible semiconductor laser for optical pickup: 1 ns/div, 400 MHz repetition



▲ Pulse response analysis of visible semiconductor laser: 2 ns/div

Optional

● All mode exciter for optical fiber: A8684

This unit is recommended for bandwidth measurements of optical fibers.



	FC Input / FC Output	FC Input / SMA Output	FC Input / F05 Output
Input NA 0.2 / Output NA 0.2	A8684-01	A8684-11	A8684-21
Input NA 0.2 / Output NA 0.4	A8684-02	A8684-12	A8684-22
Input NA 0.2 / Output NA 0.65	A8684-03	A8684-13	A8684-33

● Optical trigger unit: C7744

This unit can be used for sampling optical oscilloscopes.

Spectral response	400 to 1000 nm
Cutoff frequency	High repetition: 1 GHz Low repetition: 1 MHz
Sensitivity	More than 1E4 V/W (at 800 nm)
Output impedance	50 Ω
Trigger jitter	Within ± 20 ps
Conformity optical connector	FC type
Output connector	SMA type
Maximum input light intensity	10 mW (Continuation input)

● Delay unit: C1097

This unit can be used to align the operation timing of the sampling optical oscilloscope with the target phenomena.

Variable delay range	0.25 to 31.75 ns
The minimum delay time (delay step)	0.25 ns
Input and output impedance	50 Ω
Through delay time	2.5 ns

● Optical fiber connector: A8683

Type No.	A8683-01	A8683-02	A8683-03	A8683-04
Connector	Slit input	FC connector	SMA connector	F05 connector

(A8683-01, -02, and -03 included in standard configuration)

● Optical fiber for all mode exciter: A8685

Use the A8685 to connect the picosecond light pulser and the all mode exciter. A8685: Core size: 20 mm, Length: 3 m, FC/FC connector

● BNC-BNC cable (3D-2V) 1.5 m

Use two cables when using the optical trigger unit C7744 and the delay unit C1097.

● Optical divider: MRP01X02-050/125-25

This is an optical divider with a dividing ratio of 75:25 for branching off a section of an optical signal to use it as an optical trigger signal.

Wavelength region: 400 to 1000 nm

● Plug-in type fixed attenuator set

This is a fixed optical attenuator.

FVFC2-50G-2: GI50/125 optical fiber cable, Length: 2 m

FVFC2-50G-16: GI50/125 optical fiber cable, Length: 16 m

● FC type optical connector adapter

This is an optical connector adapter for fiber connection.

Related Products

Picosecond Light Pulser PLP-02

Ultra-High-Speed Light Source for Optical Fiber Evaluation!



The picosecond light pulser PLP-02 is an ultra-short pulsed light source that utilizes a laser diode (LD) head. It consists of a controller and an LD head. A number of LD heads are available to accommodate various wavelengths, enabling optical output over a broad wavelength range of 405 to 1,550 nm.

The PLP-02 is optimal for frequency characteristic evaluation of POF optical communications and Gigabit Ethernet fiber, and for response characteristic evaluation of a photodetector device.

Features / Specifications

- Ultra-short pulses with FWHM of 40 to 80 ps or less
- Outstanding power stability: 1 % / °C to 2 % / °C
- Outstanding timing stability: 10 ps / °C to 20 ps / °C
- Variable from single repeated frequencies of up to 2 MHz
- Emission wavelength range : 405 to 1,550 nm
- Optical output : Window / FC connector
- Built-in trigger delay
- DC output for optical experiment setup.



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