

The OIG 501 and OIG 502 are optical impulse generators which offer two types of impulses — a low energy impulse and a high energy impulse. The OIG 501 has 850 nm impulses; the OIG 502, 1300 nm impulses. Both are plug-in units for Tektronix TM500 and TM5000 Power Supplies.



OIG 501/OIG 502

OPTICAL IMPULSE GENERATORS

FEATURES

- **35 ps (FWHM) Low Energy Impulse**
OIG 501 — ≥ 15 mW Optical Output Power
OIG 502 — ≥ 5 mW Optical Output Power
- **300 ps (FWHM) High Energy Impulse**
OIG 501 — ≥ 30 mW Optical Output Power
5 pJoule Pulse Energy
OIG 502 — ≥ 15 mW Optical Output Power
2 pJoule Pulse Energy

- **10 KHz, 100 KHz, or 1.0 MHz Internal Trigger**
- **DC to 1.0 MHz External Trigger**

APPLICATIONS

- **Characterizing high speed optoelectronic communications devices**
- **Measuring high resolution reflection characteristics of fiber waveguides, related optical assemblies and fiber connectors**

The characterization of complex optical components, cables, and connectors can be repeated accurately and easily with the OIG 501 and OIG 502. This high degree of reliability is made possible by a trigger jitter of ≤ 5 ps (RMS) and an impulse amplitude variation of $< \pm 10\%$ at output rates between 10 KHz and 1.0 MHz.

The front panel controls of the OIG are self-descriptive and can be understood at a glance.

Select between external and internal trigger modes. A choice of 10 KHz, 100 KHz, or 1.0 MHz trigger repetition rates is available in the internal mode. The external trigger input allows repetition rates from dc to 1.0 MHz.

Impulse output is delayed 60 ns ± 10 ns after pre-trigger output. This allows viewing of the impulse on oscilloscopes which are not capable of pre-trigger viewing.

Typical Applications

The Tektronix OIG 501 and OIG 502 provide an accurate, reliable reference source for characterizing the dynamic response of high speed optoelectronic communications devices. Obtain a clean, high-speed step response waveform by using the integrate function on the Tektronix 11000 Series Oscilloscopes and the OIG 501 or OIG 502 as a stimulus to the unit under test. This makes evaluation of optical components a straightforward matter.

The OIG 501 and OIG 502 also provide an excellent source for measuring optical reflections which occur in fiber connectors and other optical components. Reflections result in increased noise which reduces the noise margin of a system. The ability to measure and characterize the effects of reflections is essential for system designers.

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SPECIFICATIONS AT 25°C, ±5°C

Environmental Characteristics

Operating Temperature: 0 to +50°C

Non-Operating Temperature: -40 to +71°C

Humidity (operating): 95% RH at 11 to 30°C

Altitude (operating): 4570 km (15,000 ft)

Vibration (operating): 5 to 55 Hz,
0.38 mm, 75 min.

Shock (operating): 30 g, half sine, 11 ms,
18 shocks

Transportation: Qualifies under the National Safe Transit Association's Pre-shipment Test Procedures, Project 1A-B-1 and 1A-B-2

EMC: Within limits of FCC Regulations Part 15, Subpart J, Class A; VDE 0871 Class B, and MIL-461B (1980) for RE01, RE02, CE01, DE03, RS03, CS01, CS02 and CS06.

Electrical Discharge: 6 KV maximum discharge applied to operating instrument from an ESD source per IEC 801-2 (150 Ohms/150 pF)

Physical Characteristics

Dimensions: 12"L x 2.75"W x 5"H

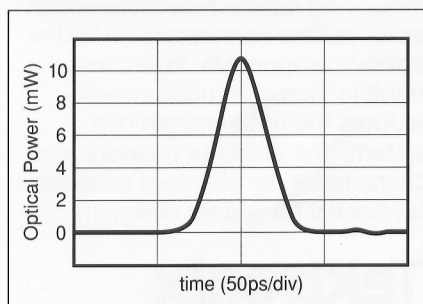
Weight: 875 g

OPTICAL CHARACTERISTICS

Characteristics	Performance	
	OIG 501	OIG 502
Wavelength	850 nm ±50 nm	1300 nm ±20-nm
Peak optical power - Low energy impulse	≥15 mW	≥5 mW
Peak optical power - High energy impulse	≥30 mW (5 pJoule)	≥15 mW (2 pJoule)
Low energy impulse width	35 ps max (FWHM) 25 ps nominal	35 ps max (FWHM) 25 ps nominal
High energy impulse width	300 ps max (FWHM)	300 ps max (FWHM)
Impulse amplitude variation	≤10% - 10 KHz to 1.0 MHz	≤10% - 10 KHz to 1.0 MHz

ELECTRICAL CHARACTERISTICS

Characteristics	Performance
	OIG 501/OIG 502
Pre-trigger output	1 V min step into 50 ohms (negative trigger)
Minimum trigger input step	0.5 V at 5 ns rise
Trigger level	-3.0 V to +3.0 V
Pre-trigger timing	Pre-trigger leads optical pulse by 60 ns ±10 ns
Optical impulse jitter with respect to pre-trigger output	≤5 ns (RMS)



Low Energy Impulse graph.

ORDERING INFORMATION

OIG 501 Optical Impulse Generator

Includes: Instruction manual and two fiber optic connector adapters, one for ST type and one for DIN 47256 type (Instrument comes with FC type connector installed).

Optional Accessories

Optical Cables: 2 m, 62.5 micron fiber (including in-line adapter).

FC/PC to Biconic 174-2323-00

FC/PC to SMA 906 174-2324-00

FC/PC to FC/PC 174-2322-00

OIG 502 Optical Impulse Generator

Includes: Instruction manual and two fiber optic connector adapters, one for ST type, and one for DIN 47256 type (Instrument comes with FC type connector installed).

Optional Accessories

Optical Cables: 2 m, 8/125 micron single mode (including in-line adapter).

FC to Diamond 2.5 174-1497-00

FC to Diamond 3.5 174-1385-00


FC to ST 174-1386-00

FC to FC 174-1387-00

FC to Biconic 174-1388-00

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