

# Optical-to-Electrical Converters

## P6701B & P6703B Datasheet



Small, conveniently packaged P6701B and P6703B optical-to-electrical analog converters provide an accurate interface for optical pulse shape measurements.

### Features and benefits

- Broad Wavelength Response 500 to 950 nm or 1100 to 1700 nm
- High-bandwidth DC up to 1.2 GHz
- High Gain 1 V/mW
- Low Noise <11 pW/√Hz
- Probe Connects to DPO7000 <sup>1</sup> and DPO/MSO70000 <sup>2</sup> Series
- SONET/SDH and Fibre Channel Reference Receiver Performance:
  - TDS500C/700C (Opt. 3C or 4C)
  - P6701B – Fibre Channel up to 1063 Mb/s
  - P6703B – SONET/SDH up to 622 Mb/s

### Applications

- Eye Pattern Testing of Optical Communication Signals (SONET/SDH and Fibre Channel)

### Product description

The Tektronix P6700 Series optical-to-electrical (O/E) converters change optical signals into electrical signals for convenient analysis on Tektronix DPO7000 and DPO/MSO70000 Series oscilloscopes with appropriate adapters (see footnote 1 and 2), any other Tektronix oscilloscope equipped with a TekProbe interface, or when used with the 1103 TekProbe power supply. The P6700 Series O/E converters are ideal for optical source characterization in the development, manufacture, or service of optical communication systems and devices.

Small, conveniently packaged P6701B and P6703B optical-to-electrical analog converters provide an accurate interface for optical pulse shape measurements. The high gain, large dynamic range, and stable output offset of these O/E converters make them ideal for performing eye pattern analysis and extinction measurements.

The P6701B/P6703B optical input is a 1 meter, 62.5µ Multi Mode fiber with an FC/PC connector. Using the standard assortment of hybrid fiber-optic mating sleeves, these O/Es can accommodate the various industry connector standards.

The TekProbe interface provides power, auto-scaling, auto-termination, and correct units (microwatts) when used with Tektronix DPO7000 or DPO/MSO70000 and earlier TekProbe-equipped Series oscilloscopes.

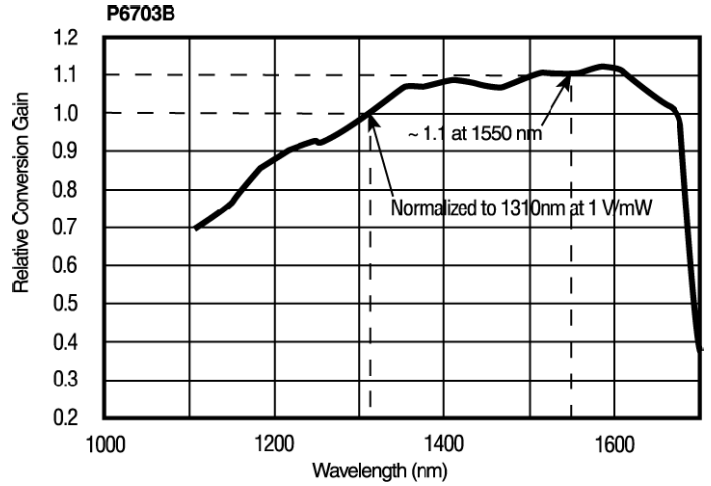
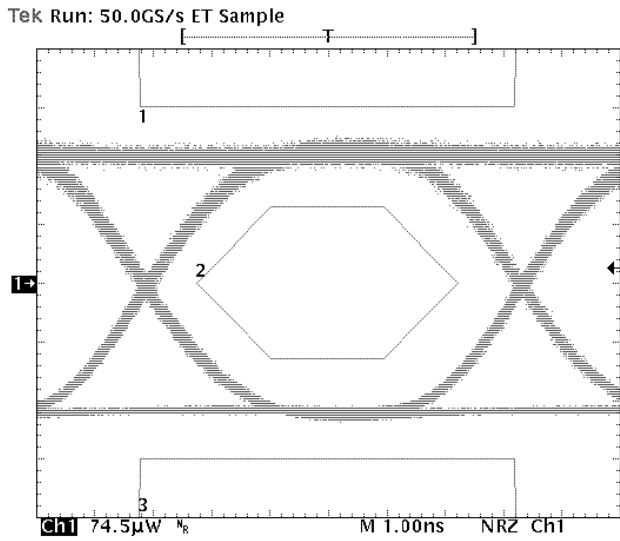
### Performance you can count on

Depend on Tektronix to provide you with performance you can count on. In addition to industry-leading service and support, this product comes backed by a one-year warranty as standard.

The standard P6701B has a nominal frequency response which follows the fourth-order Bessel-Thompson for Fibre Channel 1063 Mb/s. The 1103 TekProbe power supply can be used to connect these products to the DSA8300 Series sampling oscilloscopes.

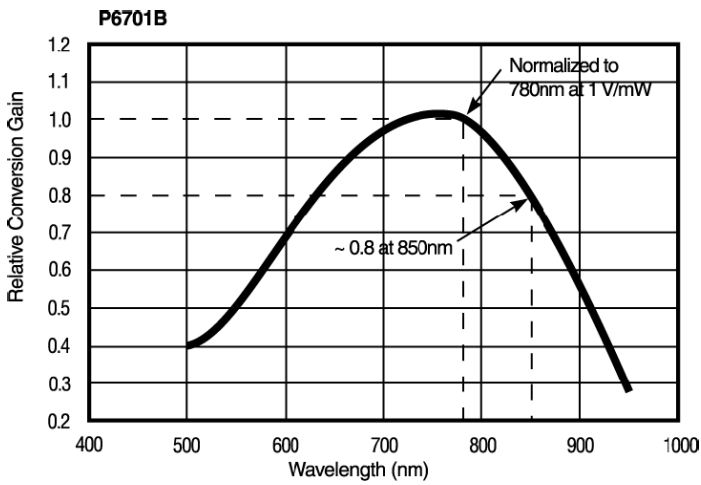
<sup>1</sup> Requires the TPA-to-BNC adapter

<sup>2</sup> Requires the TCA-to-BNC adapter



P6703B: Typical Wavelength-dependent Gain (at 25 °C)

OC-3/STM-1 SONET/SDH Transmitter Eye Pattern Test



P6701B: Typical Wavelength-dependent Gain (at 25 °C)

## Specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all models unless noted otherwise.

### Probe overview

Characteristic	P6701B	P6703B
Wavelength response	500 to 950 nm	1100 to 1650 nm
Bandwidth <sup>3</sup> (Typical)	DC to 1.0 GHz	DC to 1.2 GHz
Rise time (Typical)	≤ 500 ps	≤ 395 ps
Conversion gain	1 V/mW	1 V/mW
Maximum input optical power	1 mW (0 dBm) <sup>4</sup>	1 mW (0 dBm) <sup>4</sup>
	10 mW (10 dBm) <sup>5</sup>	10 mW (10 dBm) <sup>5</sup>
	20 mW (13 dBm) <sup>6</sup>	20 mW (13 dBm) <sup>6</sup>
Maximum output modulation depth for reference receiver performance	≤ 200 mV <sub>p-p</sub>	≤ 200 mV <sub>p-p</sub>
Noise equivalent power	≤ 0.87 Noise Equivalent Power μW (RMS) <sup>7</sup>	≤ 0.59 μW (RMS) <sup>7</sup>
	≤ 28 pW per √Hz	≤ 19 pW per √Hz
Maximum input fiber core diameter	62.5 μm	62.5 μm

## Ordering information

### Models

**P6701B** Optical-to-electrical Converter with FC/PC Connector

**P6703B** Optical-to-electrical Converter with FC/PC Connector

**Both probes include:** Hard case, Instruction manual (English), Certificate of Traceable Calibration, One-year warranty

<sup>3</sup> Optical bandwidth (-6 dB electrical)

<sup>4</sup> Maximum average operating power

<sup>5</sup> Maximum average nondestruct

<sup>6</sup> Maximum peak nondestruct

<sup>7</sup> 1 GHz low-pass filter in series with the output

## Options

### Service options

Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D1	Calibration Data Report
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R3	Repair Service 3 Years (including warranty)
Opt. R5	Repair Service 5 Years (including warranty)

### Power supply

1103 TekProbe Power Supply. Please specify power plug when ordering.



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tek.com](http://www.tek.com).

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