

# KI 7000B Series

## Automated Variable Optical Attenuator

### Optical Communications Test Applications

- Field
- Handheld
- Bench
- Embedded
- Temporary Transmission Pad



### Revision 21

The KI 7000B series Automated Variable Optical Attenuator is an easy-to-use instrument for testing optical transmission equipment. It combines superb accuracy with high productivity and numerous useful attributes, resulting in a very versatile instrument.

Instrument versions are available for single-mode, multi-mode and POF fiber types.

Typical applications include optical margin testing, sensitivity testing, linearity testing and to adjust a source output power.

### Features

- Compact, rugged & light weight
- Multiple user defined sequences
- Remote control PC software
- ISO 17025 traceable calibration certificate
- Up to 2 calibrated wavelengths
- Low wavelength sensitivity
- High optical power capability
- Good ORL, PDL & PMD performance
- Interchangeable connectors
- Long battery life & external Power
- 3 years warranty, Made in Australia

## KI 7000B Series - Automated Variable Optical Attenuators

These attenuators provide optimum performance for testing all fiber optic transmission systems, sub systems and components. Many excellent optical characteristics enable confident testing of high speed; high power systems which require superior power handling, ORL, PMD and PDL characteristics.

Very flat wavelength response (see graph on the right) enables confident testing of CWDM / DWDM systems. The instrument wavelength setting is actually irrelevant in most situations up to about 20 dB of attenuation.

Industry leading linearity and absolute accuracy backed up by an ILAC / ISO 17025 traceable calibration certificate, enables precision linearity testing of sub systems and components. Full absolute calibration is performed at all wavelengths and attenuation values.

The patented metal free interchangeable connectors avoid critical contamination of connectors used in high power applications.

Operational modes include: manual, relative, step and remote control via a PC. Step mode is very useful for typical linearity checking applications.

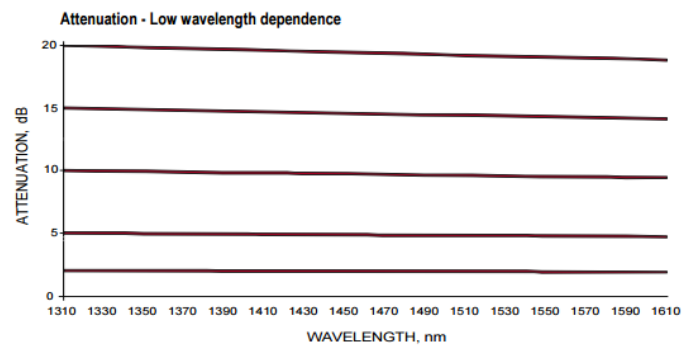
The Labwindows based PC software is used to provide external control, and is free on [www.kingfisherfiber.com](http://www.kingfisherfiber.com). External control

is via an RS232 interface. Alternatively, a simple command set can be used to program the instrument using your own code.

The attenuation remains stable as the instrument is turned on or off, making the device suitable for embedded use in working systems. Power can be supplied externally.

Superior reliability is backed with 3 years of warranty.

The combination of features provides superior value to the user.



### OPTICAL SPECIFICATIONS

Parameters	Single-mode	Multi-mode	POF
Fiber type	9.5 / 125 $\mu$ m	50 /125 $\mu$ m or 62.5/125 $\mu$ m	900 $\mu$ m /1 mm
Range	2.0 ~ 60 dB	3.0 ~ 60 dB	6 ~ 60 dB
Resolution	0.05 dB	0.05 dB	0.05 dB
Linearity <sup>1</sup> / Repeatability	0.03 dB	0.03 dB	0.1 dB
Absolute uncertainty <sup>1,2</sup>	0.3 dB	0.3 dB	1.4 dB
Power capability <sup>5</sup>	+30 dBm	+30 dBm	+30 dBm
Optical return loss <sup>3</sup> (ORL)	60 dB	60 dB	N/A
Polarization dependent loss (PDL)	< 0.1 dB	< 0.1 dB	N/A
Thermal stability over temperature	$\pm$ 0.02 dB	$\pm$ 0.02 dB	$\pm$ 0.02 dB
Polarization Mode Dispersion (PMD)	< 1 ps	N/A	N/A
Operating $\lambda$ range <sup>4</sup>	1200 ~ 1650 nm	700 ~ 1400 nm	N/A
Nominal Calibration $\lambda$	1310, 1550 nm	850, 1300 nm	650 nm
$\lambda$ dependence <sup>4</sup>	1300 ~ 1625 nm: < $\pm$ 0.25 dB up to 15 dB < $\pm$ 0.5 dB up to 20 dB	850 ~ 1300 nm: < $\pm$ 0.5 dB up to 20 dB	N/A
$\lambda$ dependence over DWDM <sup>4</sup> S/C/L band	1490 ~ 1610 nm: < $\pm$ 0.2 dB up to 15 dB < $\pm$ 0.3 dB up to 20 dB	N/A	N/A

**Note 1:** At calibration condition with non-coherent light.

**Note 2:** Absolute accuracy achieved in use will depend on connector performance.

**Note 3:** Using APC connectors, or limited by connector performance, which is typically 45 dB for single mode PC or 28 dB for multimode PC connectors.

**Note 4:** Typical characteristic. POF  $\lambda$  performance is limited by POF fiber  $\lambda$  loss characteristics. The POF attenuator element is  $\lambda$  insensitive.

**Note 5:** Users reported successful use at higher power levels (approx. +35 dBm), however we cannot guarantee reliability there, and these power levels should not be sustained for minutes to avoid general over-heating. We suggest single mode connectors are ordered as APC style for power levels above about +24 dBm.

## GENERAL SPECIFICATIONS

Parameters	Value
Battery life	200 ~ 600 hours
Size	190 x 130 x 70 mm, 7.5 x 5.1 x 2.8"
Weight	0.52kg, 1.146lb. Shipping 1.5kg, 3.31lb.
Operating / Storage	-15 to 55 °C / -25 to 70 °C
Relative humidity	0 ~ 95%
Case	Polycarbonate, 1-meter drop tested
Dust cap	captive
Hidden keypad	For setting advanced functions
RS232	3.5mm jack connector, default baud 9.6K
Power <sup>6</sup>	2 Alkaline C cells (7.6 A/Hour), or external 9~12 V DC with ID2.5mm(+ve)/OD5.5mm plug, selectable auto-off, low battery indicator, backlit display
Recalibration cycle	3 years

**Note 6:** Battery and external power supply are not included

Australian and international patents. Technical data is subject to change without notice as part of our program of continuous improvements.

## ORDERING INFORMATION

Description	Part number
Instrument, Attenuator 1310-1550 nm	KI 7010B
Instrument, Attenuator 1310-1550 nm, APC	KI 7010B-APC
Instrument, Attenuator 850-1300 nm, 50/125	KI 7020B
Instrument, Attenuator 850-1300 nm, 62.5/125	KI 7021B
Instrument, Attenuator 650 nm, POF	KI 7030B

Please enquire for other wavelength combinations.

## STANDARD ACCESSORIES

Description	Quantity
Option, Hybrid Adaptor, Ceramic Sleeve, SC/SC (OPT046)	2
Option, Hybrid Adaptor, Ceramic Sleeve, SC/LC, metal body (OPT076)	2
Option, Hybrid Adaptor, Ceramic Sleeve, SC/ST (OPT040)	2
AA-to-C size battery converter	2
RS232 Cable	1
Carry strap	1
ILAC/ NATA Traceable Calibration certificate	1
QA certificate	1
Operation manual	1
Quick Reference Guide	1
Attenuator control software	Downloadable free from website

## OPTIONAL ACCESSORIES

Description	Part number
Option, Carry Pouch KI7x	OPT143
Option, Carry Case, KI2x/KI7x/KI3x, small	OPT153*

## OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS

Description	Part number
Option, Hybrid Adaptor, Ceramic Sleeve, SC/FC	OPT051
Option, Hybrid Adaptor, Ceramic Sleeve, SC/D4	OPT055
Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000	OPT060
Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000 Green	OPT060G
Option, Hybrid Adaptor, Ceramic Sleeve, SC/LSA-DIN47256	OPT071
Option, Hybrid Adaptor, Ceramic Sleeve, SC/F3000 or LC Simplex, plastic body	OPT072
Option, Hybrid Adaptor, Ceramic Sleeve, SC/MU	OPT080



## AUTHORIZED DEALER