

KI 2600XL / 9600XL Series

MPO Optimized Power Meters

Optical Communications Test Applications

- Testing power, attenuation & polarity
- Ribbon fiber connectors like MPO/MT/MTP
- New 16 / 32 fiber MPO
- All common connector types
- Single mode & multimode fiber



Revision 9

The KI 2600XL & KI 9600XL series MPO Optimized Power Meters are an economical, versatile and accurate solution for testing with all types of LC, SC and MPO / MT / MTP connectors.

3 MPO variants are optimized for:

- 850 nm, 12, 24, 36, 48, 56, 64, 72 fiber
- SMF + MMF, 12, 24, 36, 48, 56, 64, 72 fiber
- SMF + MMF, 16, 32 fiber

Up to 1% traceable accuracy, ease of use and high availability combine to achieve superior measurement confidence.

KITS software for the KI 2600XL is a secure, flexible & standards compliant reporting solution for both Enterprise and Service Provider Customers.

Other MPO optimised equipment from Kingfisher includes clean / inspect / test kits, EF compliant test sources, loss test sets and a handheld microscope.

Please refer to other data sheets for more versions of these power meters.

Features

- Much faster & easier than typical power meters, with superior repeatability
- Lower price point & more flexible than MPO-specific meters, & superior accuracy
- Efficient & accurate solution for testing break-out & other cables at multiple wavelengths.
- Calibrations at 9 – 28 wavelengths
- KI 2600 external power / charger via micro USB
- KI 2600 memory with text, timestamp, USB dump
- KI 2600 meter fits simplex / duplex LC/SC leads.
- KITS™ data logging / reporting software
- Up to 12 fiber-specific test tone detection
- Max / min recording
- Compact, rugged and light weight
- Sunlight readable display
- Very long battery life
- Made in Australia
- ISO 17025 traceable calibration certificate
- 3 ~ 7 years warranty
- 3 years recommended calibration cycle

KI 2600XL / 9600XL Series – MPO Optimized Power Meters

The XL series MPO Optimized Power Meters measure absolute & relative light level in multimode & single mode optical communication systems. High accuracy back up by an ILAC/ ISO 17025 traceable certificate & simplicity of use make them ideal for field & laboratory use.

- The 5 mm diameter Si, Ge or InGaAs detectors are ideal for testing MPO connectors with up to 12 x 6 fibers.
- The 7 mm Ge detector is the solution for MPO connectors with 16 or 32 fibers.

Silicon (Si) detectors are optimal for 850 nm multimode applications.

Germanium (Ge) detectors are optimal for mixed multimode and single mode applications.

Indium Gallium Arsenide (InGaAs) detectors are optimal for single mode applications.

These instruments benefit MPO testing, since the user does not have to move the meter connection when testing multiple fibers, greatly enhancing

productivity, accuracy and test confidence. When used with our test light sources, it is easy to achieve the required accuracy and repeatability.

The industry standard 7/8" 28 TPI screw on connector interface can be equipped with almost any connector style.

Operational savings result from up to 1000-hour battery life, and no range changing delays.

The meters display mW, µW, nW, dB, dBm to 0.01 dB resolution. A separate reference for each λ can be stored and displayed.

Tight total uncertainty specifications cover the entire measuring range, operating temperatures, connector types and fiber types.

The handy tone detector is a useful craft aid for fiber identification. The actual modulation frequency is measured and displayed, so that source modulation rates can be checked.

Please see other brochures for matching light sources, or complete inspection & test kits.

Please enquire for non-standard calibration wavelengths or connector styles.

OPTICAL SPECIFICATIONS

Response λ, nm	Damage level dBm	Calibration λ Nm	Power range dBm	Tone & Autotest Min ⁵ dBm	Mid range linearity ¹ dB	Calibration Accuracy ² %	Polarization Sensitivity ⁶ dB	Total Uncertainty dB ^{3,5}	λ Sensitivity ± 30 nm ⁵ dB	Response uniformity across detector
<i>KI 2600XL-InGaAs5 (5 mm InGaAs detector):</i>										
600 ~ 1700	+15	780, 820, 850, 980,1270,1300,1310,1330,1350, 1370,1390,1410,1430,1450,1470, 1490,1510,1530,1550,1570,1590, 1610,1625,1650	+70 ~ -50 +10 ~ -60	-40	0.04	1% (0.06 dB)	< 0.05	0.35	0.03	1% (0.06 dB)
<i>KI 2600XL-Ge5 (5 mm Ge detector):</i>										
600 ~ 1650	+20	635,650,660,780,820,1590,1610,1625,1650, 850,980,1270,1290,1300,1310, 1330,1350,1370,1390,1410,1430, 1450,1470,1490,1510,1530,1550,1570	+15 ~ -30 +15 ~ -40	-37	0.06	1% (0.06 dB)	< 0.05	0.5	0.03	2% (0.09 dB)
<i>KI 2600XL-Ge7 (7 x 3.5 mm Ge detector):</i>										
600 ~ 1650	+20	635,650,660,780,820,1590,1610,1625,1650, 850,980,1270,1290,1300,1310, 1330,1350,1370,1390,1410,1430, 1450,1470,1490,1510,1530,1550,1570	+15 ~ -30 +15 ~ -40	-30	0.04	1% (0.06 dB)	< 0.05	0.5	0.03	2% (0.09 dB)
<i>KI 9600XL-Ge5 (5 mm Ge detector):</i>										
600 ~ 1650	+20	635,650,660,780,1610,1625 850,1300,1310,1390,1490,1550	+10 ~ -30 +10 ~ -40	-37	0.06	2% (0.09 dB)	< 0.05	0.5	0.04	2% (0.09 dB)
<i>KI 9600XL-Ge7 (7 x 3.5 mm Ge detector):</i>										
600 ~ 1650	+20	635,650,660,780,1610,1625 850,1300,1310,1390,1490,1550	+10 ~ -30 +10 ~ -40	-30	0.06	2% (0.09 dB)	< 0.05	0.5	0.04	2% (0.09 dB)
<i>KI 2600XL-Si5 (5 mm Si detector):</i>										
350 ~ 1100	+15	400,430,470,490,520,550,580, 600,635, 650,660,670,700,740,780,820,850, 880,910,940,980	+70 ~ -50 +10 ~ -60	-45	0.04	1% ⁷ (0.06 dB)	< 0.05	0.3	0.03	1% (0.06 dB)
<i>KI 9600XL-Si5 (5 mm Si detector):</i>										
350 ~ 1100	+15	470,520 635,650,660,780,820,850,980	+5 ~ -50 +5 ~ -60	-45	0.04	2% (0.09 dB)	< 0.05	0.3	0.03	1% (0.06 dB)
			Typical	typical	typical	max	typical			

Note 1: Mid-range linearity @ 1550 nm for InGaAs & Ge, or 850 nm for Si. Non-coherent light, with APC connector. Excludes top 5 dB and bottom 10 dB of range.

Note 2: Calibration condition: non-coherent light, -35±5 dBm, 23±3°C, ±1 nm, 10±3 nm FWHM, PC ceramic connector, 100 µm fiber.

Note 3: Includes contributions of: varying optical connector types, calibration uncertainty, linearity over temperature & range, and core diameter up to 1 mm (for 5 mm detector, max NA= 0.5) or fiber core diameter up to 3 mm (for 5 mm detector, max NA= 0.3).

Note 5: At calibration wavelengths in bold type.

Note 6: For APC connectors only.

Note 7: 400, 430 nm are 4% (0.2 dB) accuracy



GENERAL SPECIFICATIONS

Parameters	KI 2600	KI 9600
Battery life	Up to 1000 hours	300 hours
Size / Weight	190 x 165 x 38 mm (7.5 x 6.5 x 1.5") / 420 gm (0.9 lb.)	124 x 81 x 25 mm (4.9 x 3.2 x 1.0") / 150 gm (0.33 lb.)
Operating / Storage / RH	15 to 55 °C / -25 to 70 °C, 0 ~ 95 %	-15 to 55 °C / -25 to 70 °C, 0 ~ 95 %
Recommended calibration cycle	3 years	3 years
Case	Polycarbonate / rubber corners, 1-meter drop test	Polycarbonate / rubber corners, 2.5 meters drop tested
Dust cap	Captive, functions as tilt bail when slid open	(Use connector adaptor)
Tone detection	150 ~ 9900 Hz ± 1 %	200 ~ 2500 Hz ± 2 %
Max / Min	Recording feature for stability testing	Recording feature for stability testing
Power	2x Alkaline / Lithium AA cells or 2x NiMH AA cells, user selectable charging; Ext power input via micro USB; Selectable auto-off, low battery indicator, backlit display	2x alkaline / Lithium AAA cells. Selectable auto-off, low battery indicator
Memory	1000 four- λ tests with date, time & text in internal memory, unlimited on USB memory key	N/A (has display hold function)
USB interfaces	Micro-USB for general USB & power; USB-A type connector for memory key only	N/A

FEATURE AND APPLICATION COMPARISON

5 mm Ge and InGaAs Detector Power Meters:				
Feature	Typical Application	KI 2600XL-Ge5	KI 2600XL-InGaAs5	KI 9600XL-Ge5
Autotest	Simultaneous multi- λ Loss test	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
USB / KITS™ software	Data acquisition, pass /fail, computer display	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
External Power		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Backlight		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 mm Ge or InGaAs	Most connector styles Max fiber exit diameter for NA= 0.2: 3 mm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Power range		+15 ~ -40 dBm	+10 ~ -60 dBm	+10 ~ -40 dBm
Response Range		600 ~ 1650 nm	600 ~ 1700 nm	600 ~ 1650 nm
POF calibration λ		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
MMF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SMF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

7 x 3.5 mm Ge Detector Power Meters:				
Feature	Typical Application	KI 2600XL-Ge7	KI 9600XL-Ge7	
Autotest	Simultaneous multi- λ Loss test	<input checked="" type="checkbox"/>		
USB / KITS™ software	Data acquisition, pass /fail, computer display	<input checked="" type="checkbox"/>		
External Power		<input checked="" type="checkbox"/>		
Backlight		<input checked="" type="checkbox"/>		
7 mm Ge	Most connector styles Max fiber exit diameter for NA = 0.2: 1 x 5 mm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Power range		+15 ~ -40 dBm	+10 ~ -40 dBm	
Response Range		600 ~ 1650 nm	600 ~ 1650 nm	
POF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MMF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SMF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

5 mm Silicon Detector Power Meters:			
Feature	Typical Application	KI 2600XL-Si5	KI 9600XL-Si5
Autotest	Simultaneous multi- λ Loss test	<input checked="" type="checkbox"/>	
USB / KITS™ software	Data acquisition, pass /fail, computer display	<input checked="" type="checkbox"/>	
External Power		<input checked="" type="checkbox"/>	
Backlight		<input checked="" type="checkbox"/>	
5 mm Si	Most connector styles Max fiber exit diameter for NA= 0.2: 3 mm. POF = 1 mm diameter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Power range		+10 ~ -60 dBm	+5 ~ -60 dBm
Response Range		350 ~ 1100 nm	350 ~ 1100 nm
POF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MMF calibration λ		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

ORDERING INFORMATION

To order Power Meter, please specify:

- 1) Instrument part number
- 2) At least one interchangeable adaptor
- 3) Accessories as required.

Description	Part number
Instrument, Power Meter Ge 5mm	KI 2600XL-Ge5
Instrument, Power Meter Ge 5mm	KI 9600XL-Ge5
Instrument, Power Meter InGaAs 5mm	KI 2600XL-InGaAs5
Instrument, Power Meter Si 5mm	KI 2600XL-Si5
Instrument, Power Meter Si 5mm	KI 9600XL-Si5
Instrument, Power Meter Ge 7mm	KI 2600XL-Ge7
Instrument, Power Meter Ge 7mm	KI 9600XL-Ge7

Please enquire for non-standard specifications.

STANDARD ACCESSORIES

Description	Quantity	
	KI 2600	KI 9600
Operating manual / Quick guide	1	1
QA certificate	1	1
ILAC/ NATA calibration certificate	1	1
Soft carry pouch	1	1
Wrist strap	1	1
USB-A to USB-micro type cable	1	-
KITS™ Recording/reporting software	Download from website for free	

Note: you will need to order at least one style of connector adaptor.

OPTIONAL ACCESSORIES

Description	Part number
Option, Carry Case, KI2x/KI7x/KI3x, small (Carry Case for 2 Instruments)	OPT153*
Option, Carry Case, Cletop, Cleaning Sticks, KI2x / KI9x, large	OPT154B*

Please visit kingfisherfiber.com for a wide range of FiberTester kits.

OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS (ORDER ONE OR MORE)

Description	Part number
MPO optimized adaptors:	
Option, Connector Adaptor XL 7/8-28, MTP / MPO 12 x n	OPT227 ⁷
Option, Connector Adaptor XL 7/8-28, MTP / MPO 16 x n	OPT228 ⁸
Option, Connector Adaptor XL 7/8-28, MT ferrule	OPT232 ⁷
Other adaptors:	
Option, Connector Adaptor XL 7/8-28, SC	OPT201
Option, Connector Adaptor XL 7/8-28, POF SC	OPT201-POF
Option, Connector Adaptor XL 7/8-28, ST	OPT202
Option, Connector Adaptor XL 7/8-28, POF ST	OPT202-POF
Option, Connector Adaptor XL 7/8-28, SMA 905/906	OPT203
Option, Connector Adaptor XL 7/8-28, FC	OPT204
Option, Connector Adaptor XL 7/8-28, POF FC	OPT204-POF
Option, Connector Adaptor XL 7/8-28, Biconic	OPT205
Option, Connector Adaptor XL 7/8-28, 1.25 mm Universal	OPT224
Option, Connector Adaptor XL 7/8-28, 2.5 mm Universal	OPT225
Option, Connector Adaptor XL 7/8-28, POF 2.5 mm universal	POF225-POF
Option, Connector Adaptor XL 7/8-28, LC	OPT226A
Option, Connector Adaptor XL 7/8-28, POF multi	OPT229 ⁹
Option, Connector Adaptor XL 7/8-28, Toslink	OPT230
Option, Connector Adaptor XL 7/8-28, HFBR	OPT231
Option, Connector Adaptor XL 7/8-28, Senko CS	OPT200 ⁸

Adaptors are suitable for both PC and APC polish connectors. Other styles available on request.

Note 7: Suitable for instrument with 5 mm (-Ge5, -InGaAs5, -Si5) or 7 x 3.5 mm (-Ge7) detector.

Note 8: Suitable for instrument with 7 x 3.5 mm (-Ge7) detector only.

Note 9: Suitable for Mini Toslink, unterminated POF cable, HFBR series (simplex and duplex), 2.5mm. The user turns the turret to the required hole size. Actual hole size 3.85, 3.5, 3.2, 2.55, 2.4, 2.3 mm x 8.5 mm deep. Not suitable for SMA connectors, use OPT203 for SMA instead.



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