# 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| *KI 2600XL-InGaAs5 (5 mm InGaAs detector):* | | | | | | | | | | |
| 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 | *+10 ~ -50* +10 ~ -60 | -40 | 0.04 | 1 % (0.06 dB) | < 0.05 | 0.35 | 0.03 | 1 % (0.06 dB) |
| *KI 2600XL-Ge5 (5 mm Ge detector):* | | | | | | | | | | |
| 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) |
| *KI 2600XL-Ge7 (7 x 3.5 mm Ge detector):* | | | | | | | | | | |
| 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) |
| *KI 9600XL-Ge5 (5 mm Ge detector):* | | | | | | | | | | |
| 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) |
| *KI 9600XL-Ge7 (7 x 3.5 mm Ge detector):* | | | | | | | | | | |
| 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) |
| *KI 2600XL-Si5 (5 mm Si detector):* | | | | | | | | | | |
| 350 ~ 1100 | +15 | 400,430,**470,490,520,550,580, 600,635,** ***650,660,670,700,740,780,820,850, 880,910,940,980*** | *+10 ~ -50* +10 ~ -60 | *-45* | 0.04 | 1 %[7] (0.06 dB) | < 0.05 | 0.3 | 0.03 | 1 % (0.06 dB) |
| *KI 9600XL-Si5 (5 mm Si detector):* | | | | | | | | | | |
| 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<br>Size / Weight | Up to 1000 hours<br>190 x 165 x 38 mm (7.5 x 6.5 x 1.5") / 420 gm (0.9 lb.) | 300 hours<br>124 x 81 x 25 mm (4.9 x 3.2 x 1.0") / 150 gm (0.33 lb.) |
| Operating / Storage / RH<br>Recommended calibration cycle | 15 to 55 °C / -25 to 70 °C, 0 ~ 95 %<br>3 years | -15 to 55 °C / -25 to 70 °C, 0 ~ 95 %<br>3 years |
| Case<br>Dust cap | Polycarbonate / rubber corners, 1-meter drop test<br>Captive, functions as tilt bail when slid open | Polycarbonate / rubber corners, 2.5 meters drop tested<br>(Use connector adaptor) |
| Tone detection<br>Max / Min | 150 ~ 9900 Hz ± 1 %<br>Recording feature for stability testing | 200 ~ 2500 Hz ± 2 %<br>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 | ☑ | ☑ | |
| USB / KITS™ software | Data acquisition, pass /fail, computer display | ☑ | ☑ | |
| External Power | | ☑ | ☑ | |
| Backlight | | ☑ | ☑ | |
| 5 mm Ge or InGaAs | Most connector styles<br>Max fiber exit diameter for NA= 0.2: 3 mm | ☑ | ☑ | ☑ |
| 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 | | ☑ | | ☑ |
| MMF calibration λ | | ☑ | ☑ | ☑ |
| SMF calibration λ | | ☑ | ☑ | ☑ |

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

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

## 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

| | Quantity | |
|---|---|---|
| Description | 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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