T2600XL / 9600XL Series

Large Area Detector Power Meter / Radiometer

Optical Test Applications

- Testing optical power, attenuation & continuity
- Duplex, ribbon & POF fiber
- Fiber bundles & free space
- Unusual fiber optic connectors
- Active Area to 5 mm diam or 3.5 x 7 mm
- Power from -70 dBm / 100 pW to + 15 dBm / 32 mW
- Wavelength range 350 ~ 1700 nm



Revision 25

The T2600XL & T 9600XL series Optical Power Meters / Radiometers have large area optical detectors. Typical test applications include specialty fiber optic or free space systems employing multi fiber connectors such as MPO/MT/MTP and MTRJ, large core fiber such as POF, fiber bundles, and high-power pump lasers.

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

Detector & calibration options cover a wide range of optical connectors, fiber types, wavelengths and power levels.

Since these meters are ideal for both free space & fiber applications, they are ideal traceable transfer standards for calibrating fiber optic laboratory equipment.

For T2600XL, powerful TTS software provides a practical logging / acquisition / reporting environment straight out of the box.

Features

- 5 mm diameter Ge, InGaAs & Si detectors
- 7 x 3.5 mm Ge detector
- Very long battery life
- Industry standard screw-on connector adaptors
- Up to 31 genuine 1% traceable calibration wavelengths
- T2600 external power / charger via micro-USB
- T2600 memory with text, timestamp, USB dump, KITS™ data logging / reporting software
- Test Tone Detection
- Max / min recording
- Compact, rugged and light weight
- Sunlight readable display
- ISO 17025 traceable calibration certificate
- 3 years warranty
- 3 years recommended calibration cycle
- Made in Australia

T2600XL / 9600XL Series – Large Area Detector Power Meter / Radiometer

The XL series Large Area Detector Optical Power Meters measure absolute and relative light levels. High accuracy and simplicity of use make them ideal for field and laboratory use.

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. Calibration is ISO 17025 traceable.

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

For fiber optic specific versions of this power meter, or for general features of a particular instrument range, please refer to the general T2600 & T9600 brochures. Please see other brochures for matching light sources, or complete inspection & test kits.

Additional general features of the premium T2600XL range include: more calibration wavelengths, high power capability, external power & charging, captive dust cover for optical connector, larger display, memory, USB key data dump, text naming, computer interface & software featuring live data logging or reporting in multiple languages.

Please see other brochures for POF or MPO applications for these power meters, other versions of these power meters, matching light sources, or complete inspection & test kits.

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

SPECIFICATIONS

Response λ, nm	Damage level dBm	Calibration λ nm	Power range dBm	Tone & Autotest Min dBm[5]	Mid range linearity dB[1]	Calibration Accuracy %[2]	Polarization Sensitivity dB[6]	Total Uncertainty dB[3, 5]	λ Sensitivity ± 30 nm dB[5]	Response uniformity across detector
T2600XL-InGaAs5 (5 mm InGaAs detector):										
600 ~ 1700	+15	*780, 820, 850, 880, 910, 940* **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)
T2600XL-Ge5 (5 mm Ge detector):										
600 ~ 1650	+20	*660,780,820,1590,1610,1625,1650* **850,880,910,940,980,1270,1290,1300, 1310, 330,1350,1370,1390,1410,1430, 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)
T2600XL-Ge7 (7 x 3.5 mm Ge detector):										
600 ~ 1650	+20	*660,780,820,1590,1610,1625,1650* **850,880,910,940,980,1270,1290,1300, 1310,1330,1350,1370,1390,1410,1430, 1450,1470,1490,**1510,1530,1550,1570	*+15 ~-30* +15 ~ -40	-30	0.06	1 % (0.06 dB)	< 0.05	0.5	0.03	2 % (0.09 dB)
T 9600XL-Ge5 (5 mm Ge detector):										
600 ~ 1650	+20	*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)
T 9600XL-Ge7 (7 x 3.5 mm Ge detector):										
600 ~ 1650	+20	*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)
T2600XL-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)
T 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 fiber core diameter up to 1 mm (for 2 mm detector, max NA = 0.3) or fiber 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 4: H3B can sustain the damage level for 2 minutes.

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	T2600	T 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	15 to 55 °C / -25 to 70 °C	-15 to 55 °C / -25 to 70 °C
Relative humidity	0 ~ 95 %	0 ~ 95 %
Warranty	3 years	3 years
Recommended calibration cycle	3 years	3 years
Case	Polycarbonate / rubber edges & corners, moisture resistance, 1-meter drop tested	Polycarbonate / rubber edges & corners, moisture resistance, 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 in internal memory, unlimited on USB memory key	N/A (display hold)
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	T2600XL-Ge5	T2600XL-InGaAs5	T 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, 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	T2600XL-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 Max fiber exit diameter for NA = 0.2: 1 x 5 mm	☑
Power range		+15 ~ -40 dBm
Response Range		600 ~ 1650 nm
POF calibration λ		☑
MMF calibration λ		☑
SMF calibration λ		☑

5 mm Silicon Detector Power Meters:			
Feature	Typical Application	T2600XL-Si5	T 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 Max fiber exit diameter for NA= 0.2: 3 mm. 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 Instrument, Power Meter Ge 5mm	T2600XL-Ge5 T 9600XL-Ge5
Instrument, Power Meter InGaAs 5mm	T2600XL-InGaAs5
Instrument, Power Meter Si 5mm Instrument, Power Meter Si 5mm	T2600XL-Si5 T 9600XL-Si5
Instrument, Power Meter Ge 7mm Instrument, Power Meter Ge 7mm	T2600XL-Ge7 T 9600XL-Ge7

Please enquire for non-standard specifications.

STANDARD ACCESSORIES

	Quantity	
Description	T2600XL-x	T 9600XL-x
Connector Adaptor XL 7/8-28, MTP / MPO 12 x n (OPT227) Connector Adaptor XL 7/8-28, MTP / MPO 16 x n (OPT228)	1 (for T2600XL-Ge7 only) 1 (for T2600XL-Ge7 only)	1 (for T 9600XL-Ge7 only) 1 (for T9600XL-Ge7 only)
Operating manual / Quick guide QA certificate ILAC/ NATA traceable Calibration certificate	1 1 1 set	1 1 1 set
Soft carry pouch Wrist strap	1 1	1 1
USB cable (A-micro type)	1	-
KITS™ Recording/reporting software	Download from website for free	-

OPTIONAL ACCESSORIES

Description	Part number
Option, Carry Case, T2x/T7x/T3x, small (Carry Case for 2 Instruments)	OPT153-CASE*
Option, Carry Case, Cletop, Cleaning Sticks, T2x / T9x, large	OPT154B*

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

OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS

Description	Part number
Option, Connector Adaptor XL 7/8-28, SC	OPT201
Option, Connector Adaptor XL 7/8-28, ST	OPT202
Option, Connector Adaptor XL 7/8-28, LC	OPT226A
Option, Connector Adaptor XL 7/8-28, FC	OPT204
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, Toslink	OPT230
Option, Connector Adaptor XL 7/8-28, Biconic	OPT205
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
Option, Connector Adaptor XL 7/8-28, Senko CS	OPT200[8]
Option, Connector Adaptor XL 7/8-28, SMA 905/906	OPT203
Option, Connector Adaptor XL 7/8-28, POF multi	OPT229[9]
Option, Connector Adaptor XL 7/8-28, POF SC	OPT201-POF
Option, Connector Adaptor XL 7/8-28, POF ST	OPT202-POF
Option, Connector Adaptor XL 7/8-28, POF FC	OPT204-POF
Option, Connector Adaptor XL 7/8-28, POF 2.5 mm universal	POF225-POF
Option, Connector Adaptor XL 7/8-28, HFBR	OPT231

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 7x3.5 mm (-Ge7) detector.

Note 8: Suitable for instrument with 7x3.5 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.



History Record

Revision	Date	Editor	Change Description
25	31Mar2023	TO Ng	Removed calibration wavelengths 635 & 650 nm from e-5 & Ge-7 meters (due to calibration software instability @ these 2 wavelengths).

SPECIFICATIONS

Response λ, nm	Damage level dBm	Calibration λ nm	Power range dBm	Tone & Autotest Min dBm[5]	Mid range linearity dB[1]	Calibration Accuracy %[2]	Polarization Sensitivity dB[6]	Total Uncertainty dB[3, 5]	λ Sensitivity ± 30 nm dB[5]	Response uniformity across detector
KI 2600XL-InGaAs5 (5 mm InGaAs detector):										
600 ~ 1700	+15	*780, 820, 850, 880, 910, 940* **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,* **850,880,910,940,980,1270,1290,1300, 1310, 330,1350,1370,1390,1410,1430, 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,* **850,880,910,940,980,1270,1290,1300, 1310,1330,1350,1370,1390,1410,1430, 1450,1470,1490,**1510,1530,1550,1570	*+15 ~ -30* +15 ~ -40	*-30*	0.06	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	

AUTHORIZED DEALER

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