T2400/2800 Series

Handheld Optical Light Source

Optical Communications Test Applications

- Mixed single mode, multimode & POF testing to 6 λ
- Multi-Fiber polarity checking and fiber identification
- Encircled Flux compliant testing
- Tone source for fiber identifier
- Innovative and useful VisiTester feature

Revision 24

The T2400 / 2800 series Handheld Fiber Sources are used with an Optical Power Meter to test loss on single mode, multimode & POF optical fiber systems, at up to 6 wavelengths.

The 2800 series provide excellent stability, and the 2400 series provide exceptional stability with zero warm up.

High productivity, high availability and ease of use combine to achieve superior measurement confidence.

The innovative and unique VisiTester option is helpful for general loss testing, continuity testing & fault finding.

These Autotest sources can be used with any Kingfisher Autotest optical power meter, loss test set or two-way tester.

Features

- Reliable, rugged & versatile
- Simple to use
- Ideal for mixed MMF & SMF testing
- Up to 6 mixed LED, Laser & VFL sources
- Excellent optical power stability
- Excellent re-connection repeatability
- LCD is large, clear, sunlight readable & backlit
- Autotest compatibility with other instruments
- Optical test tone with Multi-fiber ID function
- VisiTester easily identifies active test channel
- Interchangeable connectors with dust cap / tilt bail
- Encircled Flux compliant multimode LED sources
- Multimode sources supplied with mandrel wraps
- T2400 series is ultra-stable with zero warm up
- Long battery life
- External power / charging via USB
- 3 ~ 7 Year warranty
- ISO 17025 traceable calibration certificate
- Made in Australia

T2400/2800 Series - Hand Held Fiber Source

The T2400 / 2800 Handheld Fiber Sources are used with optical power meters for testing optical loss on single mode and multimode fibers. A Multi-Fiber tone feature makes for handy continuity / polarity testing and fault finding, also for use with clip-on traffic identifiers.

The T2800 source provides excellent general test capability. Alternatively, the T2400 premium source is unique in the industry, with zero warm up, ultrahigh stability, and is unaffected by varying back reflection.

All emitters feature excellent repeatability and stability. Re-connection repeatability is < 0.1 dB, resulting in exceptional test accuracy. Calibration is ISO 17025 traceable.

This instrument meets the general requirements of MIL PRF 28800F class 2. The large display provides the user with an easy view of instrument status and test results.

Practical interchangeable optical connectors are easily changed and are protected with a captive dust cover / tilt bail. Metal free adaptors help avoid contamination of connectors in high power systems.

AA alkaline batteries have long life, and the micro-USB power input ensures high availability. Or use rechargeable batteries with built-in charging.

When used with a Kingfisher Autotest compatible power meter or loss test set, automatic λ identification is achieved, and the nominal source power is displayed on the power meter.

Up to 6 LED / laser sources can be specified, making this a versatile test source for mixed multimode / single mode fiber testing.

Laser options compliant with CWDM standards cover typical cable qualification for O, E, S, C, & L bands, including the water absorption peak, 1625 nm.

Multimode LED sources are Encircled Flux (EF) standards compliant, to provide the most consistent and reliable testing results.

The unique VisiTester option mixes a laser VFL with Autotest, so at the power meter end, the active test fiber winks, making it obvious to the user. It also extends practical fault-finding options.

Please refer to other brochures for our convenient FiberTester kits, comprising groups of instruments and common accessories supplied in a protective field carry case.

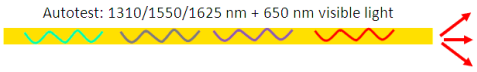
OPTICAL SPECIFICATIONS

	1310/1490/15 50 nm Laser	CWDM[1] Laser	1625 nm Laser	650 nm VisiTester[2]	850 / 1300 nm LED	1310/1550 nm LED	470/520/660 nm LED[5]	Comments
T 2800 series								
Short term stability (dB)	0.04	0.06	0.06	N/A	0.01	N/A	0.01	For 15 min, typical ± Δ 2°C, after warm-up, ORL < -25 dB
Stability over temp (dB)	0.6	0.6	0.6	N/A	0.35	N/A	0.35	Typical
Premium zero warm up & ultra-stable T2400 series[3]								
Short term stability (dB)	0.03	0.05	0.05	N/A	0.01	0.03	N/A	For 15 min, max, ± Δ 3°C no warm- up
Stability over temp (dB)	0.2	0.2	0.2	N/A	0.35	0.2	N/A	Max
Common for both T2400 & T 2800 series								
λ initial tolerance (nm)	20	6.5	20	5	NA	20	15	At 25 °C
λ width, nm	3	< 1	3	3	NA	35 / 48	25	FWHM, typical
λ nm/°C	0.4	0.1	0.4	0.1	0.4	0.4	N/A	Typical
Mode Controlled Source	N/A	N/A	N/A	N/A	Mode controlled	N/A	N/A	50/125 compliant: IEC 61280-4-1 {Ed.1.0}, TIA 526-14A & TIA TSB-178.
Reconnection repeatability[4] dB	0.1	0.1	0.1	0.1	0.05	0.1	N/A	95 % confidence
Modulation	270 Hz, 1 kHz, 2 kHz ± 2 %, 12 Multi-Fiber ID tones, 2 Hz blink for VisiTester							
Output power level	Refer to ORDERING INFORMATION section for output power level of specific model							Laser: adjustable over 7 dB in 0.01 dB steps, LED: fixed
Output power accuracy	± 1 dB (for Laser/eLED @ SMF, Multimode LED @ 62.5 µm, POF @ 1 mm)							

Class 1 Laser / LED infra-red device. Compliant with IEC60825-1.

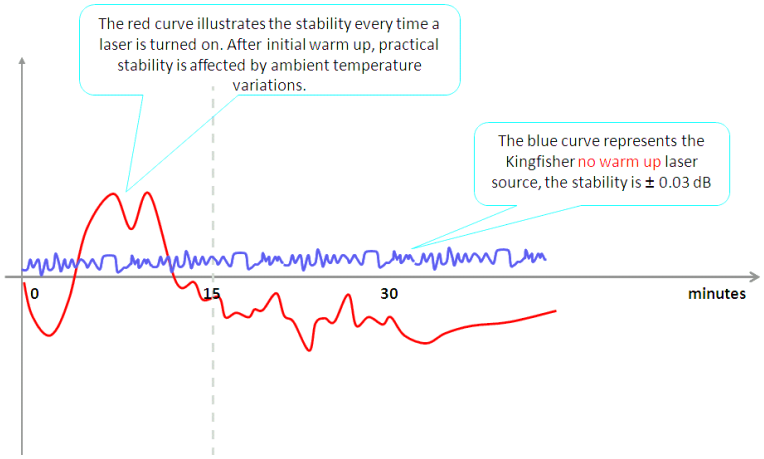
Note 1: CWDM laser wavelengths: 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 nm

Note 2: VisiTester option:

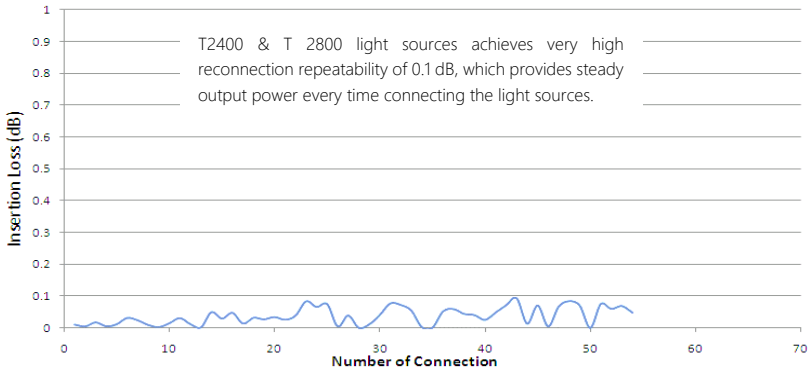


The unique VisiTester option mixes a laser VFL with Autotest, so at the power meter end, the active test fiber winks, maTng it obvious to the user. It also extends practical fault finding

Note 3: Premium Zero Warm Up & Ultra Stable T2400 Series



Note 4: Reconnection Repeatability:



Note 5: Light source model with LED of these wavelengths do not support Autotest.

GENERAL SPECIFICATIONS

Parameters	Value	Parameters	Value
Battery life	Laser/LED source: 90/80 hours in Autotest, typical	Dust cap	Captive, functions as tilt bail when slid open
Size	190 x 105 x 35 mm (7.5 x 4.1 x 1.4")	Operating / Storage	-15 to 55 °C / -25 to 70 °C
Weight	420 gm (0.9 lb.). Shipping 1.5 Kg (3.3 lb.)	Relative humidity	0 ~ 95 %
LCD size	74 x 55 mm / 2.9 x 2.2"	Warranty	3 years
Case	Polycarbonate / rubber edges & corners, moisture resistance, 1-meter drop tested	Power	2 Alkaline AA cells or 2 x NiMH AA cells, user selectable charging; Ext power input via micro-USB; Selectable auto-off, low battery indicator, backlit display

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

ORDERING INFORMATION

Please enquire for non-listed specifications such as: Wavelengths, Power levels, PC / APC Connectors

Description	Power (dBm) @ Fiber Type(μm)					VisiTester	Ports	P/N
	Laser	LED						
	SMF	SMF	50μ	62.5μ	1 mm	SMF		
T 2800 series								
Instrument, Source 850-1300 nm LED	-	-32	-22.5	-20	-	-	1	T2803
Instrument, Source 850-1300 nm LED VisiTester	-	-35	-25.5	-23	-	+2	1	T28603
Instrument, Source 470-520-660 nm LED	-	-	-	-	-7	-	3	T2806[6]
Instrument, Source 1310-1550 nm Laser	0	-	-	-	-	-	1	T2822
Instrument, Source 1310-1550 nm High Power +5dBm Laser	5	-	-	-	-	-	1	T2823
Instrument, Source 1310-1550 nm Laser VisiTester	-3	-	-	-	-	+2	1	T28622
Instrument, Source 850-1300 nm LED, 1310-1550 nm Laser	0	-32	-22.5	-20	-	-	2	T2824
Instrument, Source 850-1300 nm LED, 1310-1550 nm Laser APC	0	-32	-22.5	-20	-	-	2	T2824-APC
Instrument, Source 850-1300 nm LED, 1310-1550 nm Laser VisiTester	-3	-32	-22.5	-20	-	+2	2	T28624
Instrument, Source 850-1300 nm LED, 1310-1550 nm Laser VisiTester APC	-3	-32	-22.5	-20	-	+2	2	T28624-APC
Instrument, Source 850-1300 nm LED, 1310-1550-1625 nm Laser	-3	-32	-22.5	-20		-	2	T2825-APC
Instrument, Source 850-1300 LED VisiTester, 1310-1550 Laser VisiTester	-3	-35	-25.5	-23		+2	2	T28634
Instrument, Source 1310-1550-1625 nm Laser APC	-3	-	-	-		-	1	T28010-APC
Instrument, Source 1310-1550-1625 nm Laser VisiTester APC	-7	-	-	-		+2	1	T28610-APC
Instrument, Source 1310-1490-1550-1625 nm Laser APC	-3	-	-	-		-	1	T28016-APC
Zero warm up & ultra-stable light sources, T2400 series								
Instrument, Source 1310-1550 nm Ultra Stable eLED	-	-20	-	-		-	1	T2419
Instrument, Source 1310-1550 nm Ultra Stable Laser	-4	-	-	-		-	1	T2422
Instrument, Source 1310-1550-1625 nm Ultra Stable Laser APC	-7	-	-	-		-	1	T24010-APC

Note 6: This model does not support Autotest

STANDARD ACCESSORIES

Description	Quantity
SC connector adaptor (OPT046)	1 per port
Operation manual	1
QA certificate	1
ILAC/ NATA traceable calibration certificates	1 set
Carry Pouch	1
Carry strap	1
50 & 62.5 µm fiber mandrel wrap set for Multimode sources (OPT701)	1
USB-A to USB-micro type cable	1

This instrument is supplied with metal-free sleeve interchangeable optical connector adaptors. The ferrule type is fixed as PC or APC depending on the model part number . Green is associated with APC. You can order any number of connector adaptors.

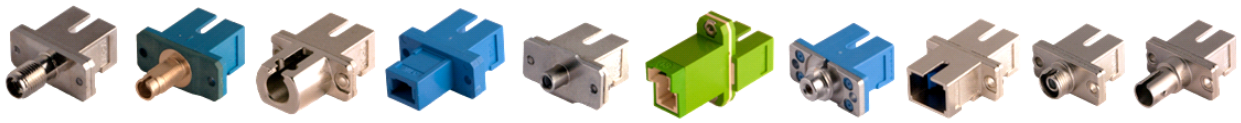
OPTIONAL ACCESSORIES

Description	Part number
Carry Case for 2 Instruments	OPT153
Carry Case includes Cletop-style cleaner & Cleaning Sticks	OPT154B

OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS

Description	Part number	Description	Part number
Option, Hybrid Adaptor, Ceramic Sleeve, SC/FC	OPT051	Option, Hybrid Adaptor, Ceramic Sleeve, SC/MU	OPT080
Option, Hybrid Adaptor, Ceramic Sleeve, SC/ST	OPT040	Option, Hybrid Adaptor, Ceramic Sleeve, SC/LSA-DIN47256	OPT071
Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000	OPT060	Option, Hybrid Adaptor, Metal Sleeve, SC/SMA 905/906	OPT082
Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000 Green	OPT060G	Option, Hybrid Adaptor, Ceramic Sleeve, SC/Universal 1.25 mm	OPT084
Option, Hybrid Adaptor, Ceramic Sleeve, SC/LC, metal body	OPT076	Option, Hybrid Adaptor, Ceramic Sleeve, SC/F3000 or LC Simplex, plastic body	OPT072
Option, Hybrid Adaptor, SC/POF multi	OPT077[7]	Option, Hybrid Adaptor, Ceramic Sleeve, SC/Universal 2.5 mm	OPT081

Note 7: 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



Change Record

Revision	Date	Editor	Change Description
24	28Mar2022	TO Ng	18Sep2020: Change heading of the 2'nd column of the OPTICAL SPECIFICATION table from "1310-1550 nm" to "1310-1550-1490 nm. (1490 nm was missing in revision 23). 23Dec2021: Removed +2 dBm output for T2825-APC which has no VisiTester. 28Mar2022: Added 660 nm LED source to T2806. Output powers of all 3 emitters are spec at -7 dBm.  RE 650nm POF source.msg

AUTHORIZED DEALER

TEMPO COMMUNICATIONS

1390 Aspen Way Vista, CA • 92081 | PHONE: (800)642-2155

Latin America Phone: 1.760.510.0558 | EMEA Phone: +44 (0) 1633 927 050

EMEA Address: Tempo Europe Limited • Brecon House,

William Brown Close, Cwmbran • NP44 3AB, UK

T2600 Series

Hand Held Fiber Meter

Optical Communications Test Applications

- System power testing
- Attenuation testing
- Fiber identification
- Fault Finding & Continuity Testing

Revision 24

A fully featured Hand Held Optical Power Meter used for testing fiber optic communications systems.

Superior measurement confidence is achieved through a combination of excellent basic accuracy, intuitive use, and rugged reliability.

Options cover power levels from +33 to -70 dBm, all useful wavelengths, many connector styles including duplex / ribbon, and large core POF fiber.

Features

- Reliable, rugged & versatile
- Simple to use
- Very long battery life
- LCD is large, clear, sunlight readable & backlit
- Interchangeable connectors with dust cap/tilt bail
- 32 genuine 1% traceable calibration wavelengths
- External power / charger via micro-USB port
- Memory with text, timestamp, and USB dump
- Simultaneous 3 λ loss display with Autotest source
- Flexible real-time PC reporting software
- Multi-Fiber ID tone for fiber identification
- Optional visual fault finder
- Power averaging mode for modulated signal
- Max / Min recording
- ISO 17025 traceable calibration certificate
- External power / charging via USB
- 3 years warranty
- 3 years recommended calibration cycle
- Made in Australia

T2600 Series - Hand Held Fiber Meter

The T2600 Handheld Fiber Meter measures absolute or relative light levels and test tones in fiber optic systems.

Autotest provides fast, easy, and automatic multi λ (wavelength) loss testing up to 6 λ, with up to 3 λ displayed simultaneously, along with the respective source nominal power levels. Any Kingfisher Autotest light source/LTS with matching λ can be used.

The meter displays mW, µW, nW, dB, dBm to 0.01 dB resolution, with no range changing delays. A separate reference for each λ is stored and displayed. Superior high-power performance is achieved.

Unique in the industry, the tight Total Uncertainty specification covers all power levels, temperatures, connectors, and fibers, without warm up or user dark current offset. Calibration is ISO 17025 traceable.

Interchangeable connectors are dust and drop protected. SC adaptors are supplied, with others available including small form factor LC styles. Metal free adaptors avoid contamination of connectors in high power systems.

Loss test results can be stored in the large memory, along with a user-input cable name and timestamp. Results can be copied onto a USB memory key with one button push. Alternatively, live readings can be put directly onto a customer report computer using KITS™ customizable Excel-based reporting software. Reports can be easily customized for any terminology, language, or format. KITS™ also provides a one-button file dump to a PC with Windows OS.

When used with Multi-Fiber ID sources, the Multi-Fiber ID tone feature uniquely identifies up to 12 fibers, in addition to common test tones.

The VFL (Visible Fault Locator) option offers simple fault finding and continuity testing.

Flexible power options include a choice of batteries, with a jumper selectable battery charger. External power is via USB.

Two high-power detector options are provided, H5 for typical high-power systems, and H6 for specialized laboratory testing on SMF. Both detector options use innovative attenuation devices to achieve superior test accuracy.

See alternative brochure for instrument versions with large area detectors up to +33 dBm. For use with e.g., ribbon fiber, MPO/MT/MTP and MTRJ, large core fiber such as POF, fiber bundles, high power pump lasers, other general optical applications etc.

SPECIFICATIONS

Response λ nm	Damage level dBm	Calibration λ nm	Power range dBm	Tone & Autotest Min dBm	Midrange linearity[1] dB	Calibration Accuracy[2] %	Polarization Sensitivity[6] dB	Total Uncertainty dB [3, 5]	λ Sensitivity ± 30 nm[5] dB
InGaAs detector									
600 ~ 1700	+15	*780, 820, 850, 980*	*+10 ~ -60*	*-45*	0.04	1 %	< 0.05	0.3	0.03
			+10 ~ -70	-50		(0.06 dB)			
		1270, 1290, 1300, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1577, 1590, 1610, 1625, 1650							
H5 (InGaAs) detector									
800 ~ 1700	+27[4]	*820, 850, 980*	+24 ~ -50	*-35*	0.04	1 %	< 0.05	0.35	0.03
			+24 ~ -60	-40		(0.06 dB)			
		1270, 1290, 1300, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1577, 1590, 1610, 1625, 1650							
H6 (InGaAs) detector (Corning SMF-28e fiber & PC or APC polish connector)									
800 ~ 1700	+33[4]	**1310, 1480, 1550, 1577, 1610**	+33 ~ -47	-20	0.04	5 % (0.21 dB)	< 0.05	0.35	0.03
Ge detector									
600 ~ 1650	+20	*635, 650, 660, 780, 820, 1590, 1610,* ***1625, 1650***	*+15 ~ -50*	*-40*	0.06	1 % (0.06 dB)	< 0.05	0.5	0.03
		850, 880, 910, 940, 980, 1270, 1290, 1300, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1577	+15 ~ -60	-50					
					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. For H6 detector: SMF & laser, 0 dBm, 23±3°C, ±20 nm.

Note 3: Includes contributions of: varying optical connector types, calibration uncertainty, linearity over temperature & range, and fiber core diameter up to 200 µm. H6 is for SMF use only.

Note 4: H series can sustain high power input level for 2 minutes, to avoid over-heating.

Note 5: At calibration wavelengths in bold type.

Note 6: For APC connector only.

VFL SPECIFICATIONS

Parameters	Value
Output power	+2 ± 1 dBm
Wavelength	650 nm
λ width	3 nm
Modulation	CW, 2, 270, 330, 1k, 2k Hz

Australian and international patents. Technical data is subject to change without notice as part of our program of continuous improvements. The visible laser is a Class 1 Laser product compliant with IEC60825-1 and 21CFR1040.10.

GENERAL SPECIFICATIONS

Parameters	Values
Battery life	Up to 1000 hours laser & backlit off / 200 hours laser in blink mode
Size / Weight	190 x 105 x 35 mm (7.5 x 4.1 x 1.4") / 420 gm (0.9 lb.). Shipping 1.5 Kg (3.3 lb.)
LCD size	74 x 55 mm / 2.9 x 2.2"
Operating / Storage	-15 to 55 °C / -25 to 70 °C
Relative humidity	0 ~ 95 %
Case	Polycarbonate / rubber edges & corners, moisture resistance, 1-meter drop tested
Dust cap	Captive, functions as tilt bail when slid open
Tone detection	150 ~ 9900 Hz ± 1 %
Max / min	Recording feature for stability testing
Power	2 x Alkaline / Lithium AA cells or 2 x NiMH AA cells, user selectable charging; Ext power input via micro-USB; Selectable auto-off, low battery indicator, backlit display
Memory	1000 4-λ tests with date & time in internal memory, unlimited on USB memory key
USB interfaces	USB-micro type connector for general USB & power; USB-A type connector for memory key only
Warranty	3 years
Recommended calibration cycle	3 years

ORDERING INFORMATION

Description	Part Number
Instrument, Power Meter InGaAs	T2600-InGaAs
Instrument, Power Meter InGaAs, VFL	T2601-InGaAs
Instrument, Power Meter H5	T2600-H5
Instrument, Power Meter H5, VFL	T2601-H5
Instrument, Power Meter H6	T2600-H6
Instrument, Power Meter H6, APC	T2600-H6-APC
Instrument, Power Meter Ge	T2600-Ge

Please enquire for non-standard specifications

STANDARD ACCESSORIES

Description	Quantity	
	T2600 series	T 2601 series
SC connector adaptor (OPT046)	1	2
Operation manual	1	
QA certificates	1	
ILAC/ NATA traceable calibration certificate	1	
Carry Pouch (OPT149)	1	
Carry strap	1	
USB-A to USB-micro type cable	1	
KITS™ Recording/Reporting software	Download from website for free	

OPTIONAL ACCESSORIES

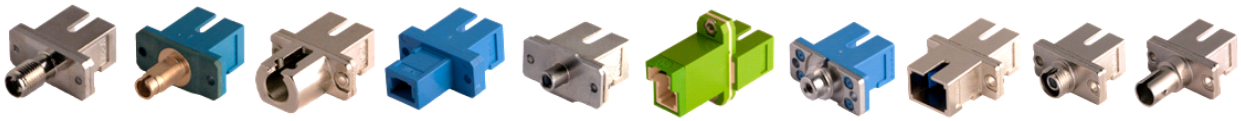
Description	Part number
Option, Carry Case, T2x/T7x/T3x, small (Carry Case for 2 Instruments)	OPT153-CASE*
Option, Carry Case, Cletop, Cleaning Sticks, T2x / T9x, large	OPT154B*

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

OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS

Description	Part number	Description	Part number
Option, Hybrid Adaptor, Ceramic Sleeve, SC/FC	OPT051	Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000	OPT060
Option, Hybrid Adaptor, Ceramic Sleeve, SC/LC, metal body	OPT076	Option, Hybrid Adaptor, Ceramic Sleeve, SC/E2000 Green	OPT060G
Option, Hybrid Adaptor, Ceramic Sleeve, SC/ST	OPT040	Option, Hybrid Adaptor, Ceramic Sleeve, SC/Universal 1.25 mm	OPT084
Option, Hybrid Adaptor, Ceramic Sleeve, SC/D4	OPT055	Option, Hybrid Adaptor, Ceramic Sleeve, SC/Universal 2.5 mm	OPT081
Option, Hybrid Adaptor, Ceramic Sleeve, SC/MU	OPT080	Option, Hybrid Adaptor, Metal Sleeve, SC/SMA 905/906	OPT082
Option, Hybrid Adaptor, Ceramic Sleeve, SC/LSA-DIN47256	OPT071	Option, Hybrid Adaptor, Ceramic Sleeve, SC/F3000 or LC Simplex, plastic body	OPT072

The power meter works with both PC and APC connectors.



History Record

Rev	Date	Editor	Change Description
23	25/5/2023	TO Ng	Added H6 specifications and T2600-H6 & T2600-H6-APC.

AUTHORIZED DEALER