



# KI3600WS SERIES

WAVELENGTH SELECTIVE POWER METER

The KI3600WS series Optical Wavelength Selective Power Meter is a precision and cost effective instrument for testing FTTx applications.

They measure multiple downstream wavelengths of 1490 and 1550 nm. Superior measurement confidence is achieved through a combination of tight specifications, ease of use and high availability. It is an ideal tool for FTTx installation & first in maintenance testing.

## OPTICAL COMMUNICATIONS TEST APPLICATIONS

- ✓ Troubleshoot downstream FTTx power levels
- ✓ Construction & commissioning
- ✓ First in maintenance
- ✓ Service activation

## FEATURES

- ✓ Low cost of ownership
- ✓ Simple to use ergonomic design
- ✓ High measurement confidence
- ✓ Very long battery life
- ✓ Interchangeable connectors
- ✓ Compact, rugged & light weight
- ✓ 3 year calibration cycle
- ✓ 3 ~ 7 year warranty





A Point to Multipoint (P2MP) PON network requires transmission power testing at 1490 & 1550 nm at Head-end (Central Switch) and Customer-end (Optical Network Terminal ONT).

KI3600WS series Wavelength Selective Power Meter offers superior measurement confidence through a combination of no warm up, tight specification ease of use and high availability.

For PON network commissioning testing, please refer to KI734x Two-Way Loss & ORL Loss Test Set.

The instrument provides instant drift free and traceable measurements, without meter dark current compensation.

### SPECIFICATIONS

	KI3600WS21-Ge	KI3600WS01-Ge
Calibrated wavelengths (nm)	1490, 1550	1550
<b>Measurement of 1490 nm (downstream)</b>		
Pass band	1480 to 1500 nm	
Isolation of 1550 nm band	> 25 dB	
Isolation of 1310 nm band	> 30 dB	
Max. permitted input level	+18 dBm	
Measurement range	+13 to -67 dBm	
<b>Measurement of 1550 nm (downstream)</b>		
Pass band	1530 to 1625 nm	1530 to 1625 nm
Isolation of 1490 nm band	> 25 dB	> 25 dB
Isolation of 1310 nm band	> 30 dB	> 30 dB
Max. permitted input level	+ 18 dBm	+ 15 dBm
Measurement range	+13 to -67 dBm	+10 to -70 dBm
<b>Measurement accuracy</b>		
Mid range linearity <sup>1</sup>	0.04 dB	
Calibration Accuracy <sup>2</sup>	2%	
Polarization Sensitivity	< 0.005 dB	
Total Uncertainty <sup>3</sup>	0.6 dB	0.5 dB <sup>4</sup>
Reconnection repeatability	0.1 dB	0.0 dB
ORL (dB)	> 55	> 55
Port connection capability	APC	PC & APC
<b>General data</b>		
Operating time from dry batteries	1200 hrs	
Size	165 x 120 x 40 mm (6.5 x 4.7 x 1.6 in)	
Weight	Net: 350 gm (0.8 lb), Shipping: 0.7 Kg (1.5 lb)	
Operating temperature	-15 to 55 °C (5 to 131 °F)	
Storage temperature	-25 to 70 °C (-13 to 158 °F)	
Case	Polycarbonate, 1 metre drop tested	
Power	2 alkaline C cells (7.6 A/Hr) or 2 AA cells using AA-to-C battery size converter. Selectable auto-off, low battery indicator	
Max / min	Recording feature for stability testing	
Warranty	3 years	
Recommended calibration interval	3 years	

Note 1: Mid range linearity excludes top 3 dB and bottom 10 dB of range.

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

Note 3: Includes contributions due to: varying optical connector types, calibration uncertainty, full temperature and dynamic range.

Note 4: Fiber core diameter up to 200µm.

The power level of downstream 1490 nm & 1550 nm can be selected and measured.

Ease of use is achieved with a combination of high display visibility, simple intuitive menu, and a shape that is comfortable to hold.

High availability is the result of 1200 hour battery life, patented interchangeable optical connectors, 3 year calibration cycle and superior reliability.

The combination of features provides superior value to the user.

### ORDERING INFORMATION

Instrument	P/N
Instrument, 1550 Power Meter Ge, Blister Pack	KI3600WS01-Ge-MP
Instrument, 1490/1550 Power Meter Ge, Blister Pack	KI3600WS21-Ge-MP

### STANDARD ACCESSORIES

Description	Quantity
SC metal-free interchangeable connector adaptor (OPT046)	1
Operation manual	1
NATA traceable calibration certificates	1

### INTERCHANGEABLE CONNECTOR OPTIONS

This instrument is supplied with metal-free optical interchangeable connector adaptors, to avoid contamination of connectors used in high power applications. KI3600WS21-Ge works with APC connector only. KI3600WS01-Ge works with both PC and APC connectors. You can order any number of connector adaptors.

### OPTIONAL INTERCHANGEABLE CONNECTOR ADAPTORS

Description	P/N	Description	P/N
E2000/LSH, green	OPT060G	MU	OPT080
E2000/LSH	OPT060	2.5mm universal	OPT081
LSA / DIN47256	OPT071	SMA 905/906	OPT082
LC / F3000	OPT072		

### OPTIONAL ACCESSORIES

Description	P/N
KI 3600 accessory pack, it includes: Soft pouch, Leather holster, 1.25 & 2.5 mm cleaning sticks, connector cleaning cloth, AA-to-C battery size converter	OPT146
Carry case for 2 instruments	OPT153

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



### FTTX INSTALLATION AND COMMISSIONING

An FTTx PON is usually installed and commissioned in several phases, which may not happen in the most obvious order. This may be due to different rates of progress on different segments, and some segments or connections may be installed later as demand increases.

Cable installation is commonly split into 2 phases, with 3 distinct cable types:

#### CONSTRUCTION PHASE 1:

Both the feeder cable from the local exchange to the splitter point, and the cable connecting the splitter point to a pit in the street, are usually commissioned together and form the fixed cable plant. The splitter may not be installed at this point. Once this cable is connected to the local exchange, transmission at 1490 nm and 1550 nm may start from the exchange end.

#### SERVICE TURN-UP PHASE 2:

If the site is a "greenfield", then this may be merged with Phase 1. If it's an overbuild, this phase will be done later on a per-dwelling basis. In this phase a "drop cable" is connected from the street pit to an Optical Network Unit (ONU) on the outside of the dwelling. Customer equipment is connected to the ONU, the service is turned on, and all equipment is made operational. The drop cable may be a bend-insensitive fiber. Low duty cycle transmission at 1310 nm starts from ONU.

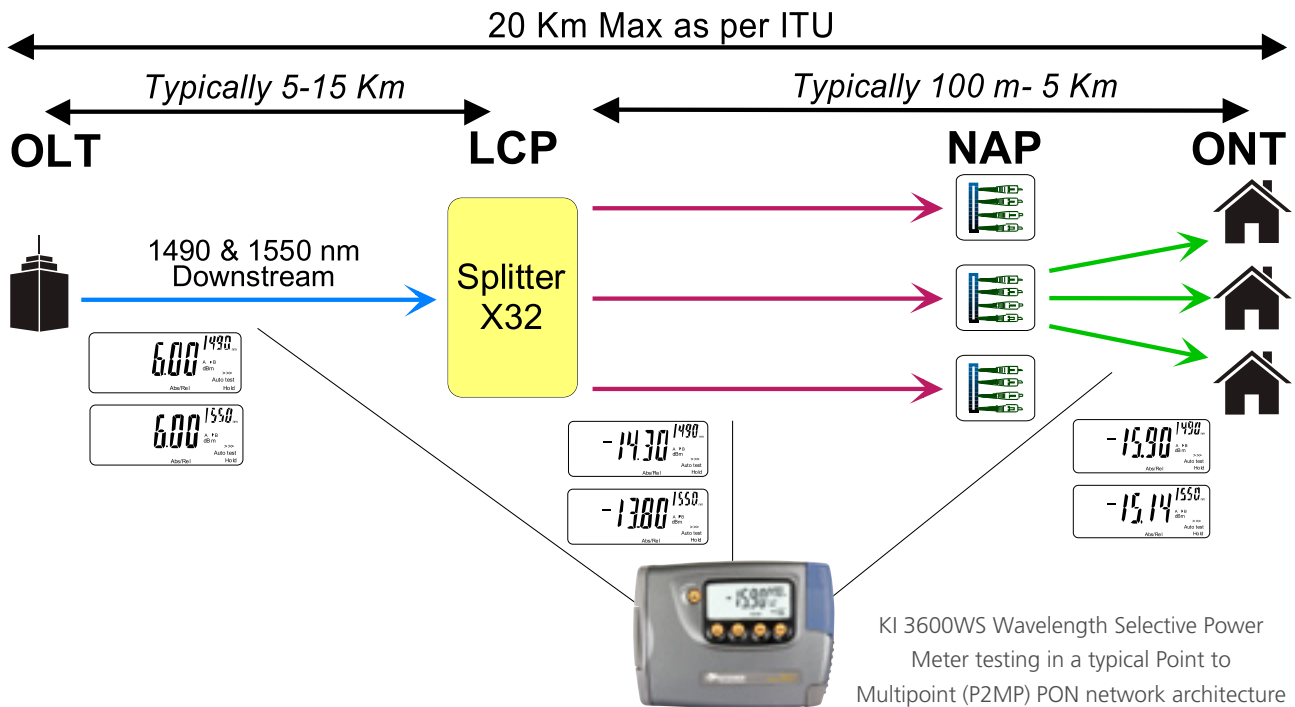
If a traditional optical power meter is used to measure the 1490 / 1550 nm wavelengths, and one wavelength is dropped, then the power meter reading will only drop by 3 dB. So a Wavelength Selective Power Meter (WSPM) is required to separate and measure the wavelengths independently.

In many cases, if the 1550 nm only wavelength is measured, this is adequate. The presence of the 1490 nm can be assumed since if there is a cable or connector problem, the 1550 nm light will be attenuated more than the 1490 nm light.

The Kingfisher KI3600WS is useful in the following installation, service turn-up and maintenance situations:

- At the local exchange: Measure the head end Tx power.
- At any point on the cable system: Measure the head end Tx power.
- Confirm the correct power is going into the ONU.
- Used at any point with a suitable light source to measure optical loss.
- Used with an optical tone source as a simple tone detector / continuity tester.

If the ONU develops a problem, it's assumed that this will be both confirmed and fixed by exchanging this with another ONU.



AUTHORIZED DEALER



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