FLS-600 light source & Optical Power Expert PRO

OPTICAL LOSS KIT

EF READY

FTTx Test solutions

TestFlow

Bluetooth®

State-of-the-art power meter (PRO version) combined with the FLS-600 light source for field efficiency.

SPEC SHEET

KEY FEATURES

Automatic wavelength recognition/switching, tone generation/detection

PX1

Proven robust and rugged design

https://www.youtube.com/watch?v=VeJEe05KHvI

Integrated VFL for basic fault finding capabilities.

User-friendly: compact, color touchscreen and intuitive GUI with Bluetooth connectivity for data reporting from the field

45 calibrated wavelengths organized in bundles

Time-saving features: no offset nulling, lightning-fast boot-up

Local data storage of up to 1000 test results

FLS-600

Up to three singlemode wavelengths (1310 nm, 1550 nm, and 1490 nm or 1625 nm) on a single port, or four wavelengths (850/1300 nm and 1310/1550 nm) on two ports

Controlled multimode launching output

APPLICATIONS

Five test kits for specific needs: LAN, OSP, FTTH, CATV and QUAD version (or available as standalone units)

Measuring optical power (dBm) and insertion loss (dB)

Tier-1 certification

Continuity validation

Fiber tracing

RELATED PRODUCTS

Encircled Flux (EF) conditionner
SPSB-EF-C30

Fiber inspection probe
FIP-400B wireless

EXFO

OPTICAL LOSS KITS

The Optical Power Expert PRO optical power meter combined with the FLS-600 light source is designed for optimal efficiency during link loss characterization while offering low cost of ownership through its ruggedness, three-year warranty and recommended calibration interval.

3 YEARS WARRANTY

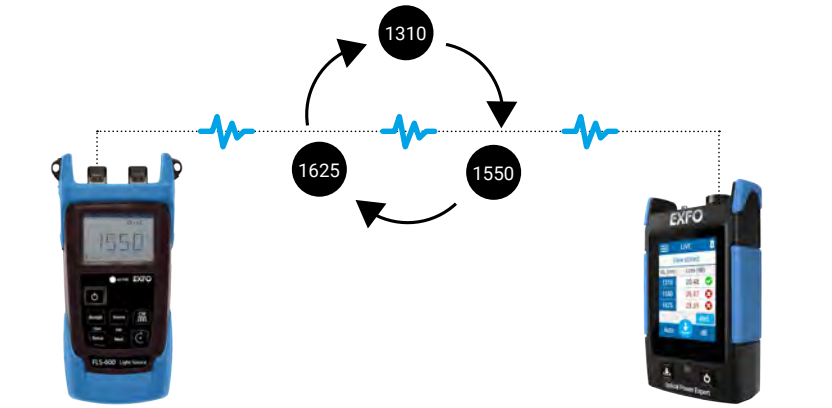
3-year calibration

The power meter comes with best-in-class performance, a wide color touchscreen and an intuitive graphical user interface. Pocket-sized and rugged (IP54 design for water and dust protection), the device is made for extensive use in the field. It has a high capacity data storage for test results.

The FLS-600 light source brings optimal versatility. Laser or LED models and various wavelength options are available. A list of "favorite" wavelengths can be customized for faster testing.

AUTOMATED TESTING = ERROR-FREE TESTING

In combination with the FLS-600 light source in auto-switching mode, the power meter automatically recognizes the wavelength in use and switches to the proper calibration parameter. Results for all wavelengths can be stored at once, by pressing one button.



Auto-wavelength switching
FLS-600 light source

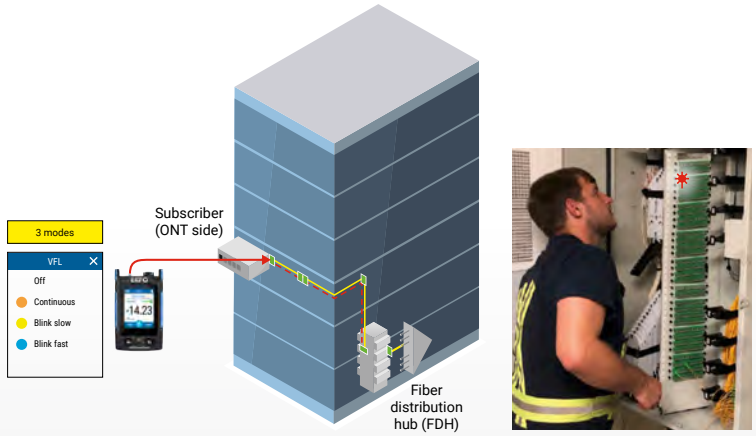
Auto-wavelength recognition
PX1-PRO power meter

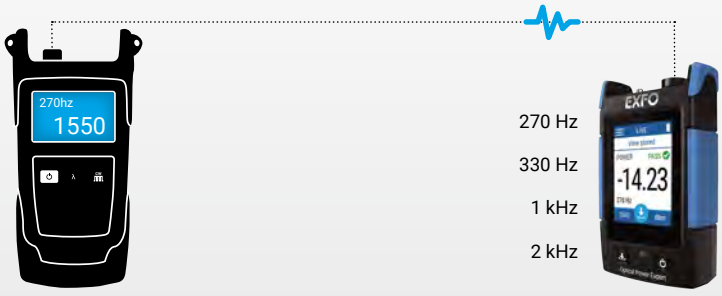
FIBER TRACING

The Optical Power Expert can detect four different tones emitted from the FLS-600 light source: 270 Hz, 330 Hz, 1 kHz and 2 kHz.

When it comes to fiber tracing, the Optical Power Expert with its PRO configuration includes a visual fault locator that emits light in three different modes (continuous, slow blink and fast blink) to trace fibers and identify breaks and macrobends.

In a FTTH use case example, a technician can use the VFL in continuous mode to identify the port and make the cross-connect. Thereafter connecting the FLS-600 for power loss measurement.



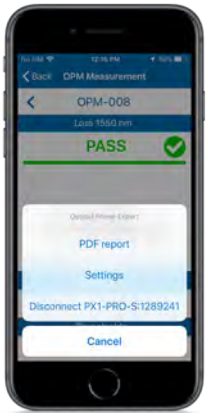


FLS-600 light source

PX1-PRO power meter

FTTx-READY

The FLS-600 allows for testing of passive optical networks (PONs) at 1310 nm, 1490 nm and 1550 nm. These are the three wavelengths recommended by the ITU-T (G.983.3) for PONs.



GO BEYOND WITH THE CLOUD

Pair the PX1-PRO with the TestFlow mobile app and leverage your smart device for:

- Occasional PDF reporting from the field to share on the go via email, text message or your favorite messaging app
- Cloud storage and full job documentation **(Available in fall 2022)**

Available on the App Store

GET IT ON Google play

TROUBLESHOOTING OF HIGH-SPEED MULTIMODE NETWORKS WITH ENCIRCLED FLUX

EF READY

Whether it's for an expanding enterprise-class business or a large-volume data center, new high-speed data networks built with multimode fibers are running under tighter tolerances than ever before. In case of failure, intelligent and accurate test tools are needed to quickly find and fix the fault.

Multimode fibers are the trickiest links to test because the test results are highly dependent on each device's output conditions. Troubleshooting with a different unit than the construction unit may mislead the technician or result in the inability to find the fault, creating longer network downtimes. For multimode fibers, EXFO recommends using an external launch mode conditioner that is encircled flux (EF) compliant. The encircled flux standard (as recommended in TIA-568 via TIA-526-14-B and IEC 61280-4-1 Ed. 2.0) is a way of controlling the source launch conditions so that Tier-2 troubleshooting can be performed with maximum accuracy and consistency.

The use of an external EF-compliant device [a] such as the SPSB-EF-C30 will ensure a fast and easy way to fix faulty networks.

a. The FLS-600 light source is also available with built-in Encircled Flux launch conditions under model FLS-600-NS1548. To get more information about FLS-600-NS1548 or for more detailed information about encircled flux compliance, please read Encircled Flux test solution specification sheet.

FLS-600 SPECIFICATIONS

SPECIFICATIONS[a]

Model		12D	23BL	235BL
Central wavelength (nm)		850 ± 25 1300 +50/–20	1310 ± 20 1550 ± 20	1310 ± 20 1490 ± 10 1550 ± 20
Spectral width[b] (nm)		50/135	≤5	≤5
Output power (dBm)		≥–20/≥–20 (62.5/125 µm)	≥1/≥1	≥1/≥–4.5/≥–3
Power stability[c] (dB)	15 min 8 h	±0.05 ±0.1	±0.03 ±0.1	±0.03 ±0.1
Auto-switching		Yes		
Tone generation		270 Hz, 1 kHz, 2 kHz		
Battery life (hours/typical in Auto mode)		50		
Warranty (years)		3		
Recommended calibration interval (years)		3		

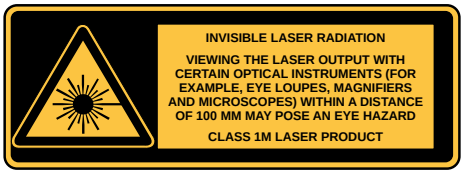
GENERAL SPECIFICATIONS[a]

Size (H x W x D)		190 mm × 100 mm × 62 mm (7 1/2 in × 4 in × 2 1/2 in)
Weight		0.48 kg (1.1 lb)
Temperature	Operating Storage	–10 °C to 50 °C (14 °F to 122 °F) –40 °C to 70 °C (–40 °F to 158 °F)
Relative humidity		0% to 95% non-condensing

STANDARD ACCESSORIES

User guide, certificate of calibration, instrument stickers in six languages, AC adapter/charger, lithium ion battery, shoulder strap and carrying case.

LASER SAFETY



a. Guaranteed unless otherwise specified. All specifications valid at 23 °C ± 1 °C, with an FC connector.

b. rms for FP lasers; and –3 dB width for LEDs (typical values for LEDs).

c. After a 15-minute warm-up period, and using an APC connector on the power meter (except for multimode sources, for which a PC connector is used). Expressed as ± half the difference between the maximum and minimum values measured during the period.

PX1-PRO SPECIFICATIONS

SPECIFICATIONS [a]	
Power measurement range (dBm) Standard High power	 10 to –70 26 to –50 [b]
Power uncertainty	±5 % [c]
Measurement units available	dB, dBm, Watt (W, mW, nW, pW)
Wavelength measurement range (nm)	780 to 1650
Calibrated wavelengths (nm)	45 calibrated wavelengths: 800, 820, 830, 840, 850, 860, 870, 880, 910, 980, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1370, 1390, 1410, 1430, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1577, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650
Auto-wavelength recognition	Yes [d]
Auto-wavelength switching	Yes [e]
Wavelength bundles	Yes
Visual fault locator	Yes (3 modes–continuous, 1 Hz, 4 Hz)
Tone detection	270 Hz, 330 Hz, 1 kHz, 2 kHz

GENERAL SPECIFICATIONS		
Dimension		133 mm x 78 mm x 30 mm (5 ¼ in x 3 in x 1 ⅛ in)
Display size		2.8 in
Weight (with battery)		225 g (0.5 lb)
Display type		Color display with capacitive touchscreen
Battery charging		< 3 hours charging time, when unit is off USB Type C charging port connector AC/DC charger/adapter input: ~ 100 – 240 V; 50/60 Hz; 1.0 A max, output: ⎓ 5 V; 2 A
Battery autonomy		8 h (continuous use)
Interfaces		Bluetooth 5.0 with BLE
Storage capacity		1000 test results for local reading
Reporting		Single test: PDF on TestFlow mobile app Batch of tests: online (TestFlow account required) Fall 2022 for batch report
Warranty		3 years
Calibration interval		3 years
Temperature	Storage [f] Operating	–40 °C to 70 °C (–40 °F to 158 °F) –10 °C to 50 °C (14 °F to 122 °F)

VISUAL FAULT LOCATOR (VFL) (PX1-PRO ONLY)
Laser, 650 nm ± 10 nm
CW/Modulate 1 Hz/Modulate 4 Hz
Typical P_{out} in 62.5/125 µm: > –1.5 dBm (0.7 mW)
Laser safety: Class 2

LASER SAFETY

a. Specifications valid at (23 ± 1 °C), 1550 nm, with an FOAS-22 adapter and FC/UPC connector.
b. Typical.
c. Singlemode fiber or a 50 µm fiber. Bluetooth ON. Charge OFF. Brightness at 75 %. Between 17 dBm to –35 dBm for high-power model. Between 5 dBm to –50 dBm for standard model.
d. Auto-wavelength recognition with FLS-300, FLS-600, FOT-300, FOT-600
e. Auto-wavelength switching with FLS-600, FOT-600
f. Without battery.

WHAT'S IN THE BOX?

Included accessories

FLS-600

- Calibration certificate
- GP-1001–Rechargeable battery
- GP-36–AC adapter/charger
- GP-1012–Shoulder strap
- GP-10-061–Medium-size soft carrying case
- EUI-XX–Connector adapter (FC, ST, SC or LC available) [a]

GP-1001

GP-10-061

GP-36A

GP-1012

EUI-91

PX1-PRO

- Calibration certificate
- GP-3157–Wrist strap
- GP-2295–Rechargeable battery
- FOAS-XX–Connector adapter (FC, ST, SC or LC available) [b]
- GP-2269–USB cable (compatible with any AC USB charger)
- GP-2227–USB AC adapter
- GP-2267–Soft carrying pouch

GP-2227

GP-2269

GP-2267

GP-3157

FOAS-54

a. Example of EUI-91 (SC connector adapter).

b. Example of FOAS-54 (SC connector adapter). Light source and power meter can be configured with either SC, FC, ST or LC connector adapters (same selection for both item). Additional adapters can be ordered individually, or it remains possible to order the light source and power meter individually for complete flexibility (please refer to specific product spec sheet).

ORDERING INFORMATION

TEST KIT (PER USE CASE/APPLICATION)

Use case / Application	Local area network (LAN)	Outside plant (OSP)	FTTH	CATV	QUAD
Part number (XX refers to connector type ordering)	**OPTICAL-LOSS-KIT-LAN-XX**	**OPTICAL-LOSS-KIT-OSP-XX**	**OPTICAL-LOSS-KIT-FTTH-XX**	**OPTICAL-LOSS-KIT-CATV-XX**	**OPTICAL-LOSS-KIT-QUAD-XX**
Included	**PX1-PRO-S power meter** • InGaAs detector • Visual fault locator (VFL) • 45 calibrated wavelengths • Soft pouch **FLS-600-12D light source** • 850/1300 nm LED source (62.5/125 µm)	**PX1-PRO-S power meter** • InGaAs detector • VFL • 45 calibrated wavelengths • Soft pouch **FLS-600-23BL light source** • 1310/1550 nm single port laser (9/125 µm)	**PX1-PRO-H power meter** • High-power InGaAs detector • VFL • 45 calibrated wavelengths • Soft pouch **FLS-600-235BL light source** • 1310/1490/1550 nm single port laser source (9/125 µm)	**PX1-PRO-H power meter** • High-power InGaAs detector • VFL • 45 calibrated wavelengths • Soft pouch **FLS-600-23BL light source** • 1310/1550 nm single port laser source (9/125 µm)	**PX1-PRO-S power meter** • InGaAs detector • VFL • 45 calibrated wavelengths • Soft pouch **FLS-600-12D-23BL light source** • 850/1300 nm LED source (62.5/125 µm) • 1310/1550 nm laser source (9/125 µm)
	Light source and power meter can be configured with either FC, ST, SC or LC connector adapters (same selection for both devices)				
	Carrying case (GP-10-061)				

FLS-600 AND PX1 ARE ALSO AVAILABLE STAND ALONE

FLS-600-XX-XX

Model
FLS-600-12D = 850/1300 nm LED source 62.5/125 µm[a]
FLS-600-23BL = 1310/1550 nm laser 9/125 µm
FLS-600-235BL = 1310/1490/1550 nm laser 9/125 µm
FLS-600-12D-23BL = 850/1300 nm LED source 62.5/125 µm, 1310/1550 nm laser 9/125 µm[a]

Connector[b]
EI-EUI-28 = UPC/DIN 47256
EI-EUI-76 = UPC/HMS-10/AG
EI-EUI-89 = UPC/FC narrow key
EI-EUI-90 = UPC/ST
EI-EUI-91 = UPC/SC
EI-EUI-95 = UPC/E-2000
EI-EUI-98 = UPC/LC
EA-EUI-28 = APC/DIN 47256
EA-EUI-89 = APC/FC narrow key
EA-EUI-91 = APC/SC
EA-EUI-95 = APC/E-2000
EA-EUI-98 = APC/LC

Example: FLS-600-23BL-EI-EUI-89

PX1-XX-XX

Model
PX1-S-PRO = Pro configuration with standard power measurement range
PX1-H-PRO = Pro configuration with high power measurement range

Connector adapter
FOAS-22 = FC connector adapter
FOAS-32 = ST connector adapter
FOAS-54 = SC connector adapter
FOAS-98 = LC connector adapter

Example: PX1-S-PRO-FOAS-22

a. For multimode light source model (12D), connector interface is only available in UPC (EI=UPC, EA=APC).
b. EXFO universal interface is protected by US patent 6,612,750.

Note: For other models, please refer to their specification sheets.

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SPFLS600/PX1PRO.1AN Printed in Canada 21/06