

# FX41xT

Selective PON Power Meter for  
G-PON and XGS-PON

**VeEX**



## 10G Next-Gen and Legacy PON Optical Power Meter

Provides fast, simple, and precise measurement of G-PON and XGS-PON downstream signals. Miniature filters ensure each wavelength is measured accurately. The tester is well suited for installation, service verification, and troubleshooting of co-existent networks, including IEEE based E-PON and 10G-EPON deployments.



## Key Features

- Downstream signal verification for G-PON and XGS-PON networks
- Simultaneous 1490/1577 nm signal level measurements
- Pass/Fail indication per PON Class or User thresholds
- Alkaline or rechargeable NiMH batteries with Auto-off
- Save over 2000 measurements with date and timestamp
- Save/display test results via NoApp® QR code for mobile device transfer, post-processing, sharing, and upload
- Cloud-based NoApp service (included) allows for data augmentation via mobile phone or tablet. Secured and always up to date. No installation or updates required.
- Micro USB interface for 5V DC powering and battery charging
- High contrast backlit, monochrome display - visible outdoors and indoor with varying light conditions
- Splash and dust resistant keypad and chassis design
- Rugged polycarbonate chassis for demanding field conditions
- Fixed SC/APC connector interface with protective dust caps
- Visual Fault Locator (VFL) option
- Broadband Optical Power Meter (OPM) option

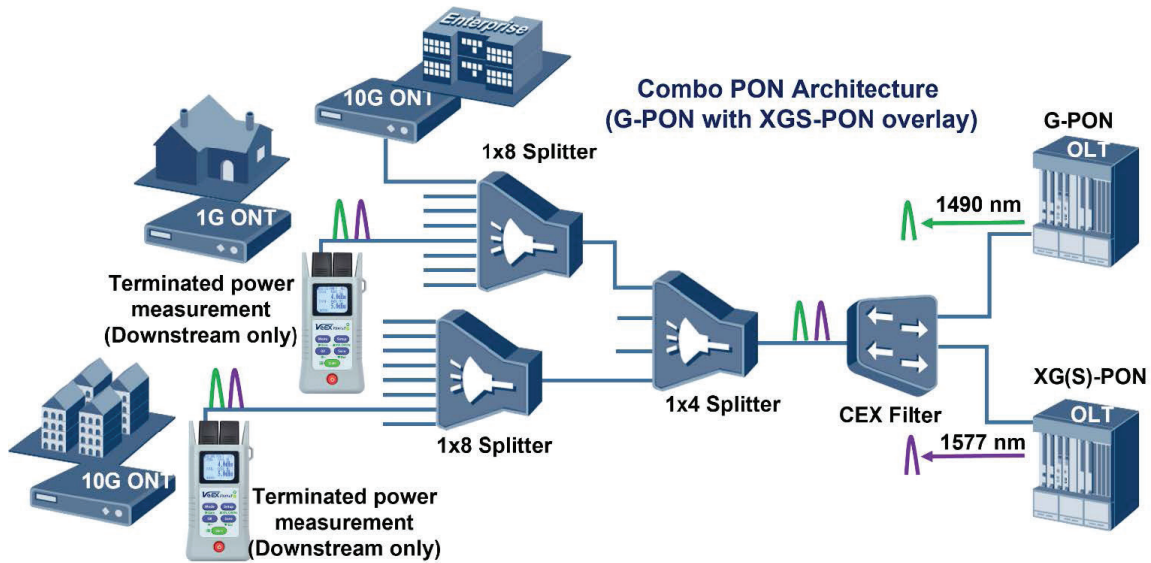
## Key Specifications

- Wavelength-selective level measurements:
  - G-PON per ITU-T G.984.2
  - XGS-PON per ITU-T G.9807.1
  - EPON & 10G-EPON per IEEE 802.3av
- Calibrated PON wavelengths (Downstream):
  - 1490 nm (G-PON)
  - 1577 nm (XGS-PON)
- Narrow, Selective Spectral Passband\*
  - Accurate measurements even in the presence of other wavelengths
  - 1490 nm (1480 to 1500 nm)
  - 1577 nm (1572 to 1582 nm)
- Display resolution: 0.1 dB
- Absolute Accuracy:  $\pm 0.5$  dB
- Communication Interface: Contact-less QR codes
- Battery Charging Interface: Micro-USB
- Battery Operating Time:  $\geq 75$  hours (with backlight)

\*Meets ITU-T and IEEE PON passband specifications

## Coexistent PON Services and Overlay Networks

Check PON service wavelengths to ensure customers are connected correctly and verify downstream levels meet threshold criteria.



## Test Result Saving and Transfer

NoApp® QR code method is used to save and transfer measurement results from the FX41xT power meter. Simply scan the QR code and process the test data directly on your mobile device. The NoApp™ feature eliminates the need to download specialized Android or iOS Apps to your mobile device – the QR code embeds all the necessary reporting, commenting, sharing, and uploading.



## VeSion R-Server® Workforce/Productivity System

A centralized server application designed for medium-to-large service providers facing the enormous challenge of managing and coordinating hundreds or even thousands of installations per day. The VeSion R-Server collects field test results for billing/record keeping purposes and simplifies inventory management. Used in conjunction with QR code test reporting function, this back-office application reduces customer call-backs and associated truck rolls, maximizing workforce efficiency and lowering operational costs.

## Optical Connector Protector (Hardware Option)



**Optical Connector Protector**

The innovative, patent pending field-replaceable optical ferrule system<sup>1</sup> adds an extra layer of protection to the internal end-face of calibrated optical test ports, preventing contamination and accidental damage.

Users can quickly replace the ferrule<sup>2</sup> without the need for any tool while maintaining the integrity of the instrument's factory calibration. This novel approach eliminates the downtime, logistical hurdles and high cost associated with sending test sets to a service center for repair and recalibration.

All components in the system are reusable, with the exception of the small replaceable ferrule, helping to reduce environmental waste.



**Replaceable Ferrule**



**Optical Protector Cover  
(optional)**

*1 Patent pending  
2 Spare ferrules available in  
pack of 4 for APC or UPC*

### Field-Replaceable Optical Ferrule System

#### Universal Adapter

The universal connector adapter allows users to change the optical connector type conveniently whenever needed. Available in FC, SC, ST and LC.

#### Locking Ring

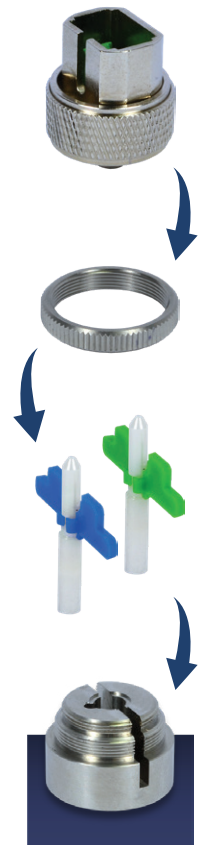
To secure the replaceable ferrule at its optimum location for the best performance.

#### Replaceable Ferrule with APC or UPC End-face

The self-aligned field-replaceable ferrule can be changed out in seconds. Users can select between APC or UPC end-face, ensuring compatibility with any test application requirement.

#### Optical Connector Protector Base

The panel mount protector base is made from high-grade stainless steel using a precision CNC process. This achieves proper alignment of the replaceable ferrule, minimizing insertion loss.



## Optical Specifications<sup>1</sup>

| FX41xT PON-T Power Meter  |  |
|---|--|
| Calibrated Wavelengths (nm)   | 1490/1577  |
| Continuous Data Measurement Range (dBm) - OLT<br>- 1490 nm<br>- 1577 nm | -45 to +13<br>-45 to +13                                     |
| Spectral Passband (nm) <sup>2</sup><br>- 1490<br>- 1577                 | 1480 to 1500<br>1572 to 1582                                 |
| Isolation (dB)<br>-1490 and 1577  | 40   |
| Power Measurement Accuracy, (dB) <sup>3,4</sup>                         | ±0.5   |
| Return Loss (dB)  | 40   |
| Linearity (dB)  | ±0.11  |
| Display Resolution (dB)   | 0.1  |
| Display Result View   | dBm and Pass/Fail (user defined thresholds)                  |
| Connector Interface (with dust cap protection)                          | Fixed SC/APC   |
| Visual Fault Locator (VFL) (Optional)                                   |  |
| Emitter Type  | Laser  |
| Wavelength (nm)   | 655 nm ±5 nm   |
| Output Power (mW) <sup>2</sup>  | 1 mW   |
| Laser Safety  | Class 2  |
| Modulation  | CW, 1 Hz, 2 Hz   |
| Connector Type <sup>5</sup>   | Universal 2.5 mm   |
| Broadband Optical Power Meter (Optional)                                |  |
| Wavelength Range (nm)   | 800 to 1700  |
| Calibrated Wavelengths (nm)   | 1310/1490/1550/1625/1650<br>Optional - CWDM ITU-T 694.2 Grid |
| Detector Type   | InGaAs   |
| Measurement Range (dBm)   | -50 to +25   |
| Power Accuracy, % (dB)  | ±5 (±0.22)   |
| Linearity, % (dB)   | ±2.5 (±0.11)   |
| Display Resolution (dB)   | 0.1  |
| Tone Detection (Hz)   | 270/330/1000/2000  |
| Measurement Units   | dBm, dB or Watt  |
| Wave ID (Auto λ Detection)  | Compatible with VeEX Light Sources only                      |
| Optical Adapters (Interchangeable)                                      | SC, LC, FC, ST, Universal 2.5 or Universal 1.25 ferrule      |

### Notes

- At room temperature
- FWHM (typical)
- Calibration conditions (-10 dBm)
- Typical value
- 2.5 mm to 1.25 mm FC to LC converter available

## Ordering Information

| P/N         | Description   |
|-------------|---|
| Z06-99-255P | FX41xT PON Terminated Power Meter, 1G/10G - 1490/1577 nm with VFL                               |
| Z06-99-256P | FX41xT PON Terminated Power Meter, 1G/10G - 1490/1577 nm with High Power OPM, +25dBm to -50 dBm |

## General Specifications

|               |   |                 |  |
|---------------|---|-----------------|--|
| Size:         | 129 x 61 x 38 mm (H x W x D)                          | Storage:        | >2000 Single wavelength results<br>>1000 Dual wavelength results |
| Weight:       | 200 g (0.44 lbs.) (including batteries)               | Display:        | High contrast, transreflective LCD with backlight                |
| Construction: | Rugged, Polycarbonate chassis,<br>1 meter drop tested | Operating Temp: | -10 °C to +50 °C   |
| Battery:      | Two Alkaline AA or Rechargeable NiMH,<br>2150 mAh     | Storage Temp:   | -20 °C to +70 °C   |
| Power Supply: | Micro USB interface, 5 VDC charger                    | Humidity:       | 0% to 95%, non-condensing  |
| Connectivity: | Micro USB   |                 |  |

# Complementary Products for PON Verification and Troubleshooting

**FL150 FaultScout® Multimeter**



**FL41 Optical Fault Locator**



**FX150+ PON OTDR**



**FX120 PON Analyzer**



## PON Technology Poster

**VeEX** Introduction to Passive Optical Networks (PON) Practical Reference Guide to Field Portable Measurements

The poster is a comprehensive technical document divided into several sections:

- Testing & Best Practices:** Includes tables for 'Optimization Phase', 'Validation Phase', and 'Troubleshooting Phase'.
- Network Architectures:** Shows diagrams for 'FTTH/PON Employing Splitters (1:32)' and 'FTTH/PON Employing Point-to-Point'.
- Wavelength Spectrum:** A graph showing the spectrum from 1260nm to 1625nm, highlighting '1577nm' and '1270nm'.
- Quick Reference to Standards:** Lists various standards like ITU-T G.984, G.987, G.989, and G.980.
- Splitter Losses:** A table showing losses for different splitter types and sizes.
- Top Losses:** A table listing common loss sources and their typical values.
- Performance Parameters (ITU-T & IEEE):** A detailed table of technical specifications for various PON components.
- Glossary:** A list of key terms and their definitions.

A QR code is located in the bottom right corner of the poster.



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 D05-00-208P A04 2025/08