

## ORIENTEK TPN-35

# Orientek TPN-35 PON Optical Power Meter Tester User Manual

Model: TPN-35 | Brand: ORIENTEK

## 1. INTRODUCTION

This manual provides comprehensive instructions for the safe and effective use of the Orientek TPN-35 PON Optical Power Meter Tester. This device is designed for testing optical power in Passive Optical Network (PON) systems, specifically supporting 1310nm, 1490nm, and 1550nm wavelengths simultaneously. Please read this manual thoroughly before operating the device.

## 2. PRODUCT OVERVIEW

The Orientek TPN-35 is a compact and robust optical power meter designed for field use. It features a high-definition color display and a silicone protective shell for durability.

### 2.1 Key Features

- Simultaneous measurement of 1310nm, 1490nm, and 1550nm wavelengths.
- APC Connector compatibility.
- User-definable test thresholds via management software.
- Automatic shutdown function (cancellable).
- Large capacity data storage (up to 900 groups).
- USB connectivity for data transfer to a computer.
- High-definition color display for clear readings.
- Durable silicone protective shell.

### 2.2 Components and Controls



**Figure 1:** Front view of the Orientek TPN-35 PON Optical Power Meter. Shows the display screen with wavelength readings (1310nm, 1490nm, 1550nm) and control buttons below, including Power, OK, P/F, TH, REF/dB, and navigation arrows.



**Figure 2:** Close-up view of the dual APC fiber optic connectors located at the top of the TPN-35 device, protected by chains.



**Figure 3:** The TPN-35 device shown alongside its removable blue silicone protective case, highlighting the device's portability and protection.

# TPN-35

PON power meter



## Product Characteristics

- The meter test threshold can be set through the management software
- Automatic shutdown (can be cancelled)
- Users can test 1490 in the PON network at the same time nm, 1550nm, 1310nm three wavelengths
- Simultaneously measure and display different PON architectures, data and video signals
- The instrument provides five sets of thresholds to choose from, with pass, warning, and fail modes
- Manual calibration



One-button start



Automatic shut-down



Large-capacity data storage



High-definition color display



Plug and play



3 wavelength detection



USB connection to computer



Silicone protective shell

**Figure 4:** An illustrative diagram detailing the product characteristics of the TPN-35, including one-button start, automatic shutdown, data storage, high-definition display, plug and play, 3-wavelength detection, USB connection, and silicone protective shell.

## 3. SETUP

### 3.1 Power Supply

The TPN-35 operates on 3 AA batteries. Ensure fresh batteries are installed correctly according to the polarity markings inside the battery compartment. The device also supports power via a corded electric connection (USB).

### 3.2 Initial Inspection

Before first use, inspect the device for any visible damage. Ensure the fiber optic connectors are clean and free of dust or debris. Use appropriate fiber cleaning tools if necessary.

### 3.3 Protective Case

The device comes with a silicone protective shell. It is recommended to keep the device in this case during operation and storage to protect it from drops and impacts.

## 4. OPERATING INSTRUCTIONS

### 4.1 Powering On/Off

- To power on, press and hold the **Power** button until the display illuminates.
- To power off, press and hold the **Power** button until the display turns off.
- The device features an automatic shutdown function. This can be enabled or disabled via the device settings or management software.

### 4.2 Connecting to a Fiber Optic Network

1. Ensure the fiber optic cable to be tested has an APC connector.
2. Carefully remove the protective caps from the TPN-35's input ports.

3. Connect the fiber optic cable to the appropriate input port on the TPN-35. Ensure a secure connection.



**Figure 5:** The TPN-35 device shown with a blue fiber optic cable connected to one of its APC input ports, ready for testing.



Figure 6: The TPN-35 being used by a technician to test fiber optic connections within a complex network cabinet, demonstrating its application in real-world scenarios.

### 4.3 Performing Measurements

The TPN-35 automatically detects and displays power levels for 1310nm, 1490nm, and 1550nm wavelengths simultaneously. The display will show the measured power in dBm for each wavelength.

- **P/F (Pass/Fail) Button:** Press this button to toggle between Pass/Fail mode, which indicates if the measured power is within the set thresholds.
- **TH (Threshold) Button:** Use this button to access or adjust the threshold settings. Thresholds can also be configured using the management software on a computer.
- **REF/dB Button:** This button allows you to set a reference power level or switch between absolute (dBm) and relative (dB) power measurements.
- **OK Button:** Confirms selections or saves settings.
- **Navigation Arrows:** Use the arrow buttons to navigate menus and adjust values.



Figure 7: The TPN-35 display showing simultaneous power measurements for 1310nm, 1490nm, and 1550nm wavelengths, along with an indication of the SC dedicated interface.

## 4.4 Data Storage and Transfer

The TPN-35 can store up to 900 groups of measurement data. To transfer data to a computer:

1. Connect the TPN-35 to your computer using a USB cable.
2. Install the provided management software (if not already installed).
3. Follow the software instructions to download and analyze the stored data.

## 5. MAINTENANCE

### 5.1 Cleaning

- **Device Exterior:** Wipe the device exterior with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Fiber Optic Connectors:** Clean the fiber optic connectors regularly using specialized fiber optic cleaning tools (e.g., fiber cleaning pens, lint-free wipes with isopropyl alcohol). Contaminated connectors can lead to inaccurate measurements.

### 5.2 Storage

When not in use, store the TPN-35 in its protective case in a cool, dry place, away from direct sunlight and extreme temperatures. Ensure protective caps are placed on the fiber optic input ports.

### 5.3 Calibration

The device supports manual calibration. Refer to the management software or advanced settings for calibration procedures. Regular calibration ensures measurement accuracy.

## 6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low or dead batteries; incorrect battery installation.	Replace batteries; check battery polarity.
Inaccurate power readings.	Dirty fiber optic connectors; incorrect reference setting; device needs calibration.	Clean connectors; reset reference; perform calibration.
No signal detected.	Fiber cable not properly connected; no optical signal present; damaged fiber cable.	Ensure secure connection; verify signal source; inspect fiber cable for damage.
Data transfer issues.	Incorrect USB cable; driver not installed; software not running.	Use correct USB cable; install necessary drivers; ensure management software is open.

## 7. SPECIFICATIONS

Products Specification			
Model	PON		
Measuring wavelength	1310nm	1490nm	1550nm
Sensor Type	InGaAS		
Linearity	±0.2dB@1550nm>−40dBm		
Isolation With filtering function	1490nm Wavelength > 40dB	1310nm Wavelength > 40dB	1310nm Wavelength > 40dB
	1550nm Wavelength > 40dB	1550nm Wavelength > 30dB	1490nm Wavelength > 30dB
Testing range	−40dBm~+16dBm	−50dBm~+16dBm	−50dBm~+23dBm
Insertion loss in penetration mode (dB)	Less than 1.5dB		
Measurable optical frequency broadband	1260~1360	1480~1500	1539~1565
Inherent uncertainty	0.5dB±1nW@1550nm		
Display resolution	0.01dB		
Threshold setting	5 groups are set by the host computer		
Calibration wavelength	1310nm/1490nm/1550nm		
Data storage	900 groups		
Operating temperature	−10°C~+50°C		
Relative humidity	0%~95%RH		
Interface type	SC/UPC(Other types can be customized)		
Power supply	3 AA batteries		
Standard packaging	Description		
TPN-35	TPN-35 main machine, USB line, warranty card, user guide, package		

**Figure 8:** A detailed table outlining the technical specifications of the Orientek TPN-35, including measuring wavelength, sensor type, linearity, isolation, testing range, insertion loss, measurable optical frequency broadband, inherent uncertainty, display resolution, threshold setting, calibration wavelength, data storage, operating temperature, relative humidity, interface type, power supply, and standard packaging.

Specification	Value
Brand	ORIENTEK
Model	TPN-35
Measuring Wavelengths	1310nm, 1490nm, 1550nm
Measurement Type	Optical Power Meter (PON)
Connector Type	APC (SC/UPC and other types customizable)
Power Source	3 AA batteries, Corded Electric (USB)
Item Weight	1 Kilogram (2.2 Pounds)
Data Storage	900 groups
Operating Temperature	-10°C to +50°C
Relative Humidity	0% ~ 95% RH (non-condensing)

## 8. WARRANTY AND SUPPORT

The Orientek TPN-35 typically includes a manufacturer's warranty. Please refer to the warranty card included in your product packaging for specific terms and conditions. For technical support, troubleshooting assistance beyond this manual, or service inquiries, please contact Orientek customer service or your local distributor.

Manufacturer: Nanjing Orientek Optical Communication Limited