Gigabit T1 Switch Installation Manual

1. Product Overview

Hangzhou Prevail 1000Base-T1 product series leverages the widely adopted 1000Base-T1 technology from automotive networking, offering controlled costs and stable chip set performance. By utilizing existing coaxial infrastructure in cable networks, it effectively addresses the challenges of fiber-to-the-home deployment, enables bidirectional Gigabit IP transmission, and helps increase the market penetration of Gigabit broadband.

Gigabit T1 Switch (MCU), model WLT-SW-1T2G, is designed for telecom and cable operators to enable Gigabit IP signal transmission and conversion between coaxial cables and RJ45 Ethernet cables. The product is mature, stable, and cost-effective. It integrates Gigabit Ethernet switching technology and Gigabit coaxial transmission technology, featuring high bandwidth, high reliability, and ease of installation and maintenance.

Key Product Features:

- Provides one bidirectional Gigabit coaxial transmission port with power feeding capability
- Provides two LAN ports with 10/100/1000 Mbps auto-negotiation

Gigabit T1 Switch
WLT-SW-1T2G

2. Interface and Indicator Description

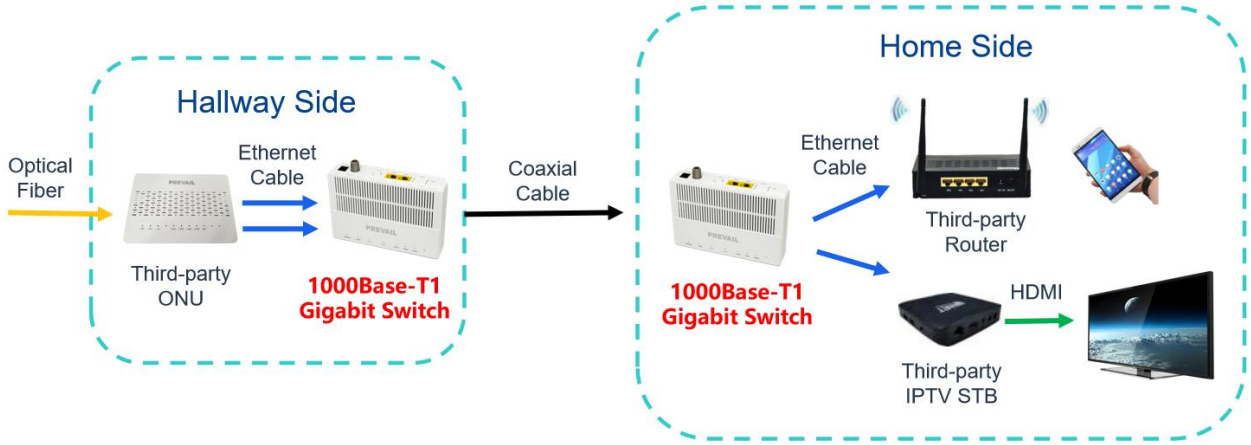
Interface Functions Description

RST	Reset button (built-in)
LAN1~LAN2	Gigabit Ethernet LAN port
T1-1	T1 coaxial F-type port
DC/12V	DC 12V power input port (connected to power adapter)
LAN3 & T1-2	Reserved

Indicator Lights Description

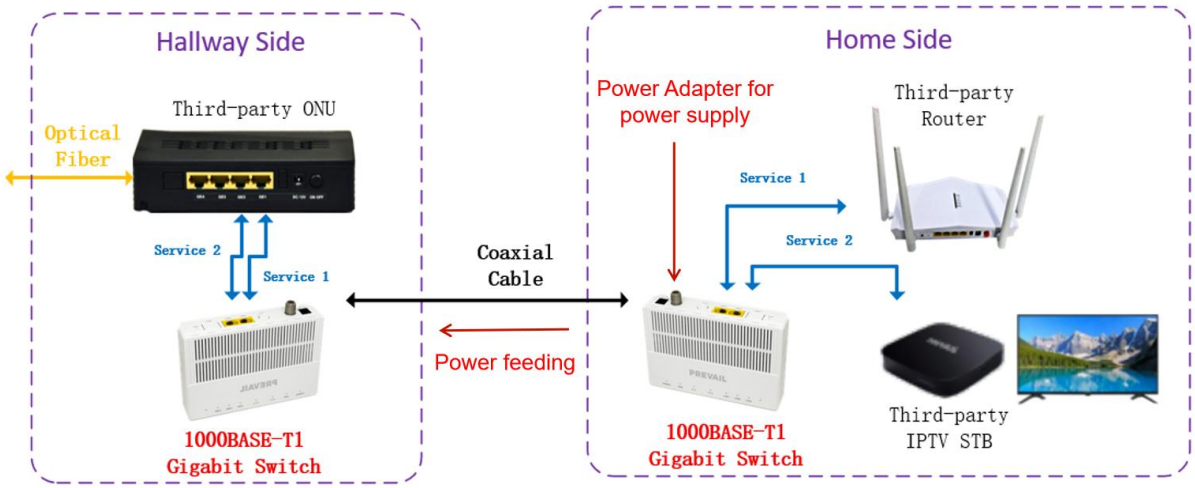
Identification	Status	Definition
PWR	ON	POWER ON
	OFF	POWER OFF
RUN	ON	System startup and operation
	OFF	System not running
T1-1	ON	Gigabit coaxial interface connected
	Slow Flashing	Gigabit coaxial data transmission
	OFF	Gigabit coaxial unused
T1-2		Reserved
LAN1 - LAN2	ON	Ethernet interface is connected
	Flashing	Ethernet data is transmission
	OFF	Ethernet interface is not in use
LAN3		Reserved

3. Application Scenario Example (Multi-Service Home Deployment)



- In an FTTB scenario, existing coaxial infrastructure is reused by deploying 1000Base-T1 Gigabit switches at both the hallway and home sides.
- Enabling IP signal conversion between Ethernet and coaxial cables.
- Supporting multi-service access (Gigabit broadband and IPTV), effectively solving the challenges of FTTH deployment.

Connection Diagram for Power Feeding Mode:



The detailed installation steps for power feeding mode are as follows:

<table>
<tr><td>Step 1</td><td>Check the quality of the coaxial cable</td></tr>
<tr><td></td><td>It is recommended to inspect the quality of the coaxial cable between the hallway and the subscriber side for any damage or aging.</td></tr>
<tr><td></td><td>Measure the resistance of the coaxial cable to determine whether it meets the requirements for using T1 devices. The detailed procedure is as follows:</td></tr>
<tr><td></td><td>Prepare a 75-ohm load, a through-type connector, and a multi-meter.</td></tr>
<tr><td></td><td>Tighten the 75-ohm load and the through-type connector on the hallway side, and connect one end of the coaxial cable.</td></tr>
<tr><td></td><td>On the home side, switch on the multi-meter, set it to resistance (Ω) range, and measure the resistance between the coaxial inner conductor and the shield using the probes.</td></tr>
<tr><td></td><td>By subtracting the 75-ohm termination value from the measured resistance, a parameter R is obtained to evaluate whether the coaxial cable is suitable for T1 device operation. See the table below for details:</td></tr>
<tr><td></td><td>
<table>
<tr><th>R</th><th>Reference Guidelines for Home Installation</th></tr>
<tr><td>0＜ R ≤ 7.0 Ω</td><td>T1 devices can be used, and power feeding is supported.</td></tr>
<tr><td>7.0 Ω ＜ R ≤ 13.0 Ω</td><td>T1 devices can be used, but power feeding is not supported.</td></tr>
<tr><td>13.0 Ω ＜ R</td><td>The coaxial cable is not suitable for T1 device operation.</td></tr>
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</td></tr>
<tr><td>Step 2</td><td>Hallway Side Installation</td></tr>
<tr><td></td><td>Package contents: 1× male-to-male DC power cable, 1× power adapter, 1× T1 Gigabit switch.</td></tr>
<tr><td></td><td>Be sure to use the original power adapter. Using non-original adapters may cause power feeding failure or service degradation.</td></tr>
<tr><td></td><td>Deploy one 1000Base-T1 Gigabit switch on the hallway side.</td></tr>
<tr><td></td><td>Connect the coaxial cable to the T1 coaxial interface on the T1 Gigabit switch.</td></tr>
<tr><td></td><td>Take a photo of the label on the back of the ONU (Optical Network Unit) in the hallway, and record the ONU MAC address / GPON SN.</td></tr>
<tr><td></td><td>Ensure that the ONU is properly connected to the optical fiber.</td></tr>
<tr><td></td><td>Using the provided male-to-male DC power cable, connect the T1 Gigabit switch and the ONU via their power ports to enable power feeding to the ONU.</td></tr>
<tr><td></td><td>Note: Do not forget to press the power button on the ONU.</td></tr>
<tr><td></td><td>Assuming the ONU broadband port is LAN1, use an Ethernet cable to connect it to LAN1 on the T1 switch.
Assuming the ONU IPTV port is LAN2, use an Ethernet cable to connect it to LAN2 on the T1 switch.</td></tr>
<tr><td>Step 3</td><td>Home Side Installation</td></tr>
<tr><td></td><td>Install another 1000Base-T1 Gigabit switch on the home side.</td></tr>
<tr><td></td><td>Connect the T1 coaxial port of the T1 Gigabit switch to the incoming coaxial cable.</td></tr>
<tr><td></td><td>To ensure proper performance and user experience, please use the original power adapter.</td></tr>
</table>

	Use the original power adapter to connect the power port of the T1 Gigabit switch, and plug it into a power outlet.
	At this stage, the home-side T1 Gigabit switch, hallway-side T1 Gigabit switch, and hallway-side ONU should all be powered on through the power feeding system.
	It can be observed that the T1 coaxial status indicator on the home-side T1 Gigabit switch turns green, indicating that the T1 Gigabit switches at both ends of the coaxial cable are successfully connected.
	Contact the OLT/central office staff and report the previously recorded ONU MAC address / GPON SN to verify whether the ONU has been registered, activated online, and provisioned with services.
Step 4	**Home-Side Service Testing**
	Connect an Ethernet cable to LAN1 of the home-side T1 Gigabit switch, and connect the WAN port of the router to the same cable.
	Use a mobile phone or computer to connect to the router, set the PPPoE credentials (username and password), and verify that the Gigabit broadband service is operating normally.
	Connect an Ethernet cable to LAN2 of the T1 Gigabit switch, and connect the IPTV set-top box to the same cable. Check whether the on-demand service is functioning properly.

4. Installation Precautions

1. Use the factory-supplied power adapter to power the T1 switch. In power feeding mode, this requirement must be strictly followed.

2. The two T1 switches support automatic master-slave mode adaptation; no manual configuration is required to distinguish between master and slave devices.

3. The 1000BASE-T1 solution does not support networking via splitters.

4. Paired T1 switches are pre-configured with internal VLAN settings at the factory, supporting plug-and-play operation without additional configuration. For special application scenarios, please refer to the corresponding switch configuration documentation.

5. When power feeding is provided via coaxial cable, the supply voltage to the hallway-side T1 switch and ONU may be affected by the length and material of the coaxial cable. The typical operating voltage for mainstream ONUs should not be lower than 9.5V.

6. In non-power-feeding mode, the installation procedure is basically the same as in power feeding mode. The two T1 switches and the ONU should be powered separately using their own power adapters, and the male-to-male DC power cable is not required.