

A solid red circle.

10G-T Copper Transceiver Module FAQ

Chapter 1. General FAQ

1.1 Does the 10G-T module support auto-negotiation for 1G/2.5G/5G speeds?

The FS 10G-T module complies with the IEEE 802.3 standard. The model SFP-10GM-T-30 supports auto-negotiation at 100M/1G/2.5G/5G/10G speeds and is backward compatible with lower-speed ports. However, please note that speed downgrade performance can also depend on the specific mechanisms of the connected device. FS has a large test equipment environment that can generally simulate most scenarios. We strongly recommend that you consult FS [Technical Support](#) for a definitive answer regarding such speed negotiation issues.

1.2 What is the maximum transmission distance of a 10G-T module?

On Cat6a/Cat7 twisted-pair cables, conventional 10G-T modules support 10GBASE-T transmission up to 30 meters. For distances exceeding this, we recommend using optical modules or DAC/AOC cables. FS also offers 10G-T modules with 80/100 meter transmission distances.

1.3 When should I choose a 10G-T module and when an optical module?

If the existing network already has twisted-pair cabling (Cat6a/Cat7) and the link distance is less than 30 meters, 10G-T modules offer greater flexibility and lower cabling costs. If the link length exceeds 30 meters, or if higher power consumption/latency requirements are required, optical modules or DAC/AOC are recommended.

1.4 Are 10G-T modules hot-swappable?

Yes. FS 10G-T modules comply with the SFP+ MSA standard and support online hot-swapping. Replacing them will not affect the normal operation of other ports.

1.5 What's the difference between the FS 10G-T module and a standard Gigabit electrical port module?

The FS Gigabit electrical module (1000BASE-T SFP) supports a maximum rate of 1G only, with low power consumption, making it suitable for Gigabit access. The 10G-T module (e.g., SFP-10GM-T-30 supports multi-rate auto-negotiation from 1G to 10G) is ideal for future network upgrades, though it has relatively higher power consumption.

1.6 How to determine the number of 10G-T modules I should use?

Determine the quantity based on your device's available SFP+ port count, existing cabling environment, and future bandwidth requirements. For short-distance connections to servers or storage equipment, 10G-T is recommended. For backbone networks or long-distance links, optical modules or DAC cables are recommended.

Chapter 2. Deployment & Compatibility

2.1 Are FS 10G-T modules compatible with switches from brands like Cisco, HPE, and Arista?

Yes. FS offers multi-vendor compatible versions that have undergone rigorous compatibility testing. You can verify compatibility for your specific device model using the lookup tool on the FS [Compatibility Test](#).

2.2 If my device model isn't listed on the official website, can I still use the FS 10G-T module?

Some devices may not be listed publicly, but FS can provide custom programming services to ensure compatibility with your device. Please [Contact Us](#) for more details.

2.3 Does the 10G-T module support standard SFP+ slots?

Yes. The FS 10G-T module uses a standard SFP+ form factor and can be directly inserted into any port that complies with the SFP+ MSA standard.

2.4 Can 10G-T modules be used interchangeably with original optical modules or DACs?

Yes. 10G-T modules can be used interchangeably with optical modules and DAC/AOC cables within the same switch without affecting normal communication.

2.5 Does migrating a 10G-T module between different devices require reconfiguration?

No reconfiguration is required. The module's compatibility logic is stored in EEPROM, allowing for plug-and-play operation when inserted into compatible devices.

2.6 If I encounter compatibility issues, does FS provide technical support?

Yes. FS offers 24/7 technical support and compatibility assurance. If your device is unusable due to compatibility issues, we support returns, exchanges, or customized solutions. Please contact FS [Technical Support](#) when you require any assistance.

Chapter 3. Power Consumption

3.1 What is the typical power consumption of the FS 10G-T module?

The typical power consumption of FS 10G-T modules generally ranges from 1.5W to 2.5W, with specific values depending on the model and transmission distance. For example, the SFP-10G-T-30-RP consumes approximately 1.5W, while the SFP-10G-T-100 and SFP-10G-T-30 models consume about 1.8W and 2.5W respectively. It is recommended to verify your equipment's power budget before purchase.

3.2 Why do 10G-T modules consume more power than optical modules?

10GBASE-T technology requires complex signal encoding, high-speed electrical-optical-electrical conversion, and the driving of Cat.5e/6 cables within the module. Consequently, its power consumption is higher than that of optical modules which perform direct photoelectric conversion.

3.3 Will high power consumption affect device stability?

Generally not. As long as the device has good heat dissipation (fans and smooth airflow), and the module power consumption is within the design range of the switch or server, it will not affect operational stability.

3.4 Will the device overheat if multiple 10G-T modules are installed at full capacity?

Generally, if the overall heat dissipation design is appropriate, it won't. However, for devices with high port density, a mixed deployment (partially using optical modules or DACs) is recommended to reduce the overall heat load.

3.5 How can I reduce the power consumption impact of 10G-T modules?

Power consumption can be reduced through the following methods:

- ① Choose the appropriate cabling method, prioritizing DAC/AOC for short distances;
- ② Control the usage ratio, using 10G-T at key access layers;
- ③ Ensure that the equipment has good heat dissipation and air duct design.

3.6 Do FS 10G-T modules meet energy efficiency or power saving standards?

FS modules comply with the IEEE 802.3az Energy Efficient Ethernet (EEE) standard and automatically reduce power consumption when the link is idle or under low load.

Chapter 4. Application & Support

4.1 Is one end of the 10G-T module an optical or electrical port? How do I connect it?

One end of the module has a standard SFP+ connector (for plugging into a switch/server), and the other end has an RJ45 electrical port (for connecting to a Cat6a/Cat7 twisted pair cable).

4.2 Can the 10G-T module be used with regular network cables (Cat5e/Cat6)?

Yes, but the speed and distance will be limited. Cat6 supports a maximum of approximately 10G/30m, while Cat5e generally only stably

supports 1G. Cat6a/Cat7 is recommended.

4.3 How can I confirm that the 10G-T modules are working properly across multiple devices?

You can confirm this using the following methods:

- ① Observe whether the switch port indicator is on;
- ② Check the link status and speed on the device management interface;
- ③ Use tools such as iPerf to test network connectivity and bandwidth.

4.4 Can the 10G-T module be used in a PoE (Power over Ethernet) environment?

Yes. PoE power is supplied by the switch's RJ45 port. The 10G-T module is only responsible for data transmission and does not affect PoE power supply.

4.5 What should I do if my 10G-T module isn't recognized by my device?

You can troubleshoot by following these steps:

- ① Verify the module model is compatible with the device;
- ② Test with a different network cable;
- ③ Insert the module into a different port or device to verify it works properly;
- ④ Contact FS [Technical Support](#) to request a replacement or re-program the compatibility information, if necessary.



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