MikroTik S+RJ10

MikroTik S+RJ10 SFP+ Copper Ethernet Transceiver User Manual

Model: S+RJ10

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the MikroTik S+RJ10 SFP+ Copper Ethernet Transceiver. The S+RJ10 module is designed to enable high-speed network connectivity, offering up to 10 Gbps over standard twisted-pair copper cables, utilizing existing SFP+ ports on compatible devices.

2. PRODUCT OVERVIEW

The MikroTik S+RJ10 is a unique SFP+ module that facilitates 10 Gigabit Ethernet connectivity using conventional RJ45 copper cabling. It allows for an upgrade to 10 Gbps network speeds without the need for optical fiber installation, making it suitable for integrating with next-generation RJ45 hardware. This module is compatible with MikroTik devices equipped with SFP+ ports.

Figure 1: The MikroTik S+RJ10 SFP+ Copper Ethernet Transceiver. This image displays the compact metallic module with its SFP+ connector on one end and the RJ45 port on the other, along with product labeling.

3. KEY FEATURES

- **High-Speed Connectivity:** Supports data rates up to 10 Gbps over standard twisted-pair copper cables.

- **SFP+ Port Compatibility:** Designed for use with MikroTik devices featuring SFP+ ports.

- **Multi-Rate Support:** Compatible with 10 Mbps, 100 Mbps, 1 Gbps, 2.5 Gbps, 5 Gbps, and 10 Gbps link speeds.

- **Extended Distance:** Capable of transmitting data up to 200 meters, depending on cable quality and speed.

- **Jumbo Frame Support:** Accommodates jumbo frames up to 10218 Bytes for improved network efficiency.

- **Accurate Link Speed Reporting:** Provides correct reporting of actual link speeds in the interface menu.

- **DDM Monitoring:** Supports Digital Diagnostic Monitoring for supply voltage and module temperature.

- **Wide Operating Temperature:** Functions reliably in ambient temperatures ranging from -20°C to 60°C.

4. SETUP INSTRUCTIONS

1. **Device Compatibility:** Ensure your MikroTik device has an available SFP+ port.

2. **Insertion:** Gently insert the S+RJ10 module into the SFP+ port until it clicks into place. Ensure it is fully seated.

3. **Cable Connection:** Connect a standard RJ45 Ethernet cable (Cat5e or higher for 1 Gbps, Cat6a or higher for 10 Gbps) from your network device to the RJ45 port on the S+RJ10 module.

4. **Power On:** Power on your MikroTik device. The module should be detected automatically.

5. **Configuration (if necessary):** Access your MikroTik device's RouterOS interface (e.g., via WinBox or web browser) to verify the module's status and configure network settings as required. The module typically operates plug-and-play for basic connectivity.

6. **Cooling Considerations:** For optimal performance and longevity, especially when operating at 10 Gbps, it is recommended to use the S+RJ10 module in MikroTik devices with active cooling. If used in passively cooled devices, additional cooling measures may be necessary to prevent overheating.

5. OPERATING INSTRUCTIONS

Once installed, the S+RJ10 module will automatically attempt to negotiate the highest possible link speed with the connected RJ45 device. The module supports various speeds from 10 Mbps to 10 Gbps.

- **Verifying Link Status:** Within the MikroTik RouterOS interface, navigate to the interface settings for the SFP+ port where the S+RJ10 is installed. You can monitor the current link speed, duplex status, and other relevant parameters.

- **DDM Monitoring:** The module supports Digital Diagnostic Monitoring (DDM). This allows you to view real-time data such as supply voltage and module temperature directly from the RouterOS interface, aiding in performance monitoring and troubleshooting.

- **Jumbo Frames:** If your network infrastructure supports jumbo frames, ensure they are enabled and configured correctly on both the MikroTik device and the connected RJ45 device to take advantage of the S+RJ10's jumbo frame capability.

6. MAINTENANCE

The MikroTik S+RJ10 module is designed for reliable operation with minimal maintenance. Adhering to the following guidelines can help ensure its longevity:

- **Temperature Management:** Monitor the module's temperature via DDM, especially during high-load operations. Ensure adequate airflow around the host device to prevent excessive heat buildup. While the module is rated for up to 60°C ambient temperature, prolonged operation at higher temperatures can affect lifespan.

- **Cleanliness:** Keep the SFP+ port and RJ45 connector free from dust and debris. Use compressed air or a lint-free cloth if cleaning is necessary.

- **Firmware Updates:** Regularly update the firmware of your MikroTik host device. These updates may include improvements for SFP+ module compatibility and performance.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No Link / Link Flapping	- Incorrect cable type or damaged cable. - Incompatible RJ45 device. - Module not fully seated in SFP+ port. - Host device SFP+ port issue.	- Ensure Cat6a or higher for 10 Gbps, Cat5e for 1 Gbps. Test with a known good cable. - Verify the connected device supports the negotiated speed. - Re-insert the S+RJ10 module firmly. - Test with another SFP+ module if available.
Lower than Expected Speed	- Cable quality or length limitations. - Connected device only supports lower speeds. - Network congestion.	- Use shorter, higher-quality cables (e.g., Cat7 for longer 10G runs). - Check the specifications of the connected RJ45 device. - Monitor network traffic on other ports.
Module Runs Hot	- Normal operation for 10GBASE-T SFP+ modules. - Insufficient cooling in the host device.	- This is common. Ensure the host device has adequate ventilation. - If using in a passively cooled device, consider external cooling solutions or ensure the device is in a well-ventilated area. - Monitor DDM temperature readings.
Incorrect Link Speed Reported	Older module revision or host device firmware.	- Ensure you have the latest revision of the S+RJ10 module. - Update your MikroTik device's RouterOS firmware to the latest stable version.

For further assistance, consult the official MikroTik documentation or contact MikroTik support.

8. SPECIFICATIONS

Attribute	Value
Product Model	S+RJ10
Connector Type	RJ45
Data Rates Supported	10 Mbps, 100 Mbps, 1 Gbps, 2.5 Gbps, 5 Gbps, 10 Gbps
Maximum Distance	Up to 200m (dependent on speed and cable quality)
Jumbo Frame Support	Up to 10218 Bytes
Tested Ambient Temperature	-20°C to 60°C
Item Weight	0.704 ounces (approx. 0.02 kg)
Product Dimensions (LxWxH)	2.68 x 0.63 x 0.59 inches

Attribute	Value
Storage Size	256 KB
Storage Type	FLASH
Operating System (Host Device)	RouterOS

9. WARRANTY AND SUPPORT

MikroTik products are covered by a manufacturer's warranty. The specific terms and duration of the warranty may vary by region and retailer. Please refer to the warranty information provided with your purchase or visit the official MikroTik website for detailed warranty policies.
For technical support, product inquiries, or warranty claims, please contact MikroTik customer support through their official website or your authorized reseller. Ensure you have your product model (S+RJ10) and any relevant purchase information available when seeking support.
Official MikroTik Website: https://mikrotik.com