

periTUNNEL Interface Configuration



Assembly Guide



Abstract

This document describes the DIP-switch configuration of the periTUNNEL clamp module. The configuration determines what communication mode the device uses (Auto, SPE Master or SPE Slave).

The manual is intended for technical users who need to adjust the hardware setup when modifying an existing installation.

Document Information

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1 Interface Modes and Configuration Overview

The perTUNNEL clamp module supports multiple communication modes. It can be configured for:

- **AUTO MODE** — supporting both 2-wire and 4-wire communication Figure 3
- **SPE MASTER MODE** — using the 100BASE-T1 interface
- **SPE SLAVE MODE** — using the 100BASE-T1 interface

The DIP-switch used to select the communication mode is shown in Figure 1. The available switch configurations are illustrated in Figure 2. Figure 1 also includes a pinout of the clamp module's connector.

The connector is divided into three segments: **Port 1**, **Port 2**, and **Power**. SPE (Master or Slave mode) is only available on **Port 1**. AUTO MODE (2-wire) may be used on either **Port 1** or **Port 2**, while AUTO MODE (4-wire) requires both ports.

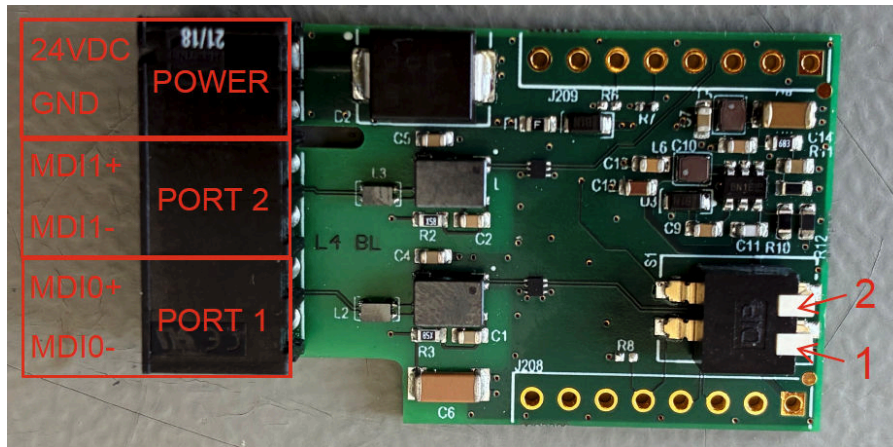


Figure 1: Top view of periTUNNEL clamp module with DIP-switch and connector pinout

MODE	pin2	pin1
AUTO	LOW	ANY
SPE MASTER	HIGH	HIGH
SPE SLAVE	HIGH	LOW

Figure 2: DIP-switch configuration for communication mode selection

Speed	Cabling U/UTP	Range
100Mbit/s	2-wire CAT.5e	300m
100Mbit/s	4-wire CAT 5e	500m
10Mbit/s	2-wire CAT.5e	800m

Figure 3: AUTO MODE: Bus speed in relation to cable length

1.1 periTUNNEL AUTO MODE

The periTUNNEL AUTO MODE is activated by setting **pin 2** of the DIP-switch to **LOW (ON)**. When AUTO MODE is active, **pin 1** is ignored. The **black marker** in the following figures indicates the pin position.

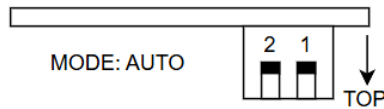


Figure 4: DIP-switch set to AUTO MODE (pin 2 LOW)

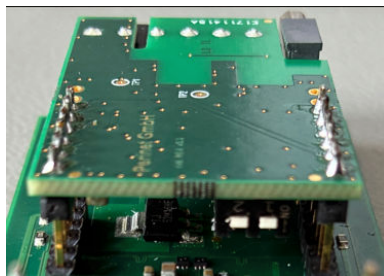


Figure 5: Mounted clamp module with AUTO MODE configuration (pin 2 LOW)

1.2 periTUNNEL SPE MASTER MODE

The periTUNNEL SPE MASTER MODE (100BASE-T1) is activated by setting both **pin 2** and **pin 1** of the DIP-switch to **HIGH (OFF)**.

This configuration is required when the periTUNNEL clamp module is used to communicate to a SPE device set to slave mode. The **black marker on the switch** indicates the pin positions.

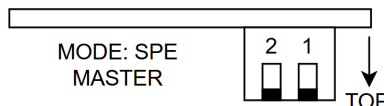


Figure 6: DIP-switch set to SPE MASTER MODE (pin 1 and pin 2 HIGH)

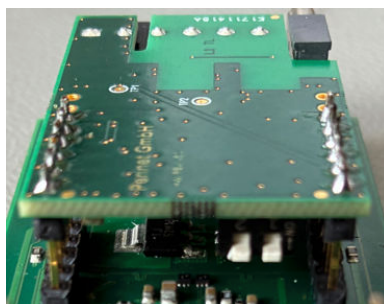


Figure 7: Mounted orientation of the clamp module with SPE MASTER MODE configuration

1.3 periTUNNEL SPE SLAVE MODE

The periTUNNEL SPE SLAVE MODE (100BASE-T1) is activated by setting **pin 2** to **HIGH (OFF)** and **pin 1** to **LOW (ON)**.

This configuration is required when the periTUNNEL clamp module is used to communicate to a SPE device set to master mode. **The black marker on the switch indicates the pin positions.**

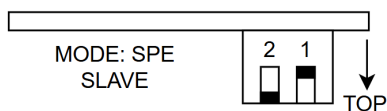


Figure 8: DIP-switch set to SPE SLAVE MODE (pin 2 HIGH, pin 1 LOW)

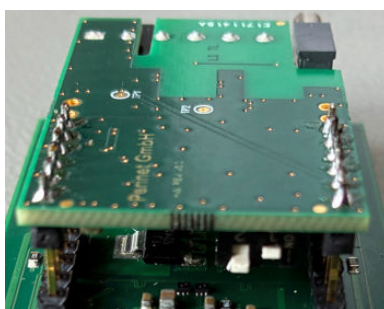


Figure 9: Mounted orientation of the clamp module with SPE SLAVE MODE configuration

2 periTUNNEL Configuration Examples

The periTUNNEL device may have two distinct hardware configurations: RJ45-Clamp, or Clamp-Clamp. The following chapter will show three different examples on how the periTUNNEL may be used.

2.1 periTUNNEL ETH to ETH over Two Devices

The periTUNNEL can be used to extend the range of an Ethernet (ETH) connection or to reuse legacy cabling for Ethernet communication. This setup requires two RJ45-Clamp devices, each configured in **AUTO MODE**.

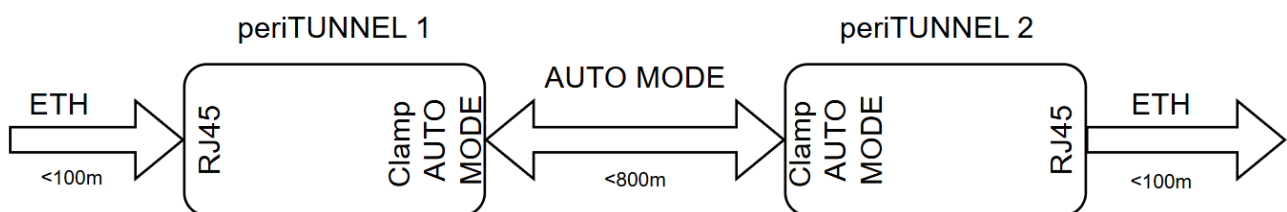


Figure 10: ETH to ETH communication using two periTUNNEL devices in AUTO MODE

2.2 periTUNNEL ETH to SPE over Two Devices

The periTUNNEL can be used to extend the distance between an Ethernet (ETH) source and a Single Pair Ethernet (SPE) device set to slave mode.

This setup requires one RJ45-Clamp device configured in **AUTO MODE**, and one Clamp-Clamp device with one clamp in **AUTO MODE** and the other in **SPE MASTER MODE**.

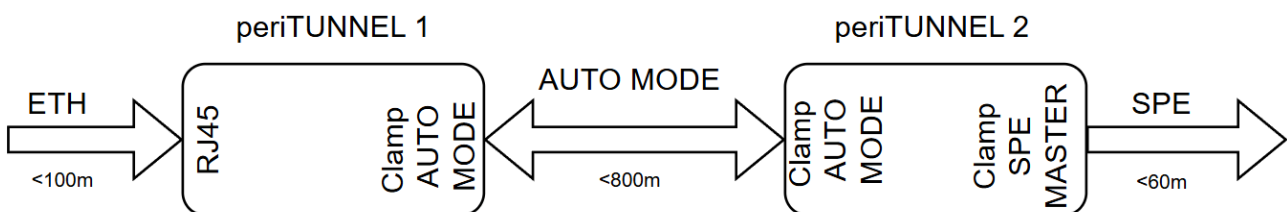


Figure 11: ETH to SPE communication over two periTUNNEL devices using AUTO MODE and SPE MASTER MODE

2.3 periTUNNEL SPE to ETH

The periTUNNEL can also be used to convert a Single Pair Ethernet (SPE) connection into a standard Ethernet (ETH) interface. This may be used for network redundancy.

This setup requires one RJ45-Clamp device configured in **SPE SLAVE MODE**.

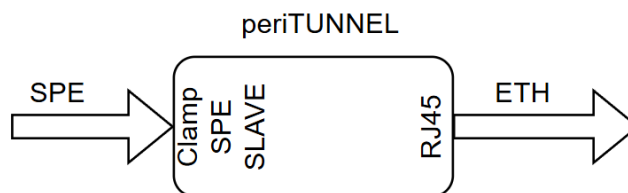


Figure 12: SPE to ETH communication using a single periTUNNEL device in SPE SLAVE MODE

3 Changing the Communication Mode Configuration

If a change to the MODE configuration is required, the following sequence describes how to access and adjust the DIP-switch on the periTUNNEL device.

First, remove the housing on one side and carefully slide the PCBA out of the enclosure. The process is the same for both RJ45-Clamp and Clamp-Clamp devices. The following figures illustrate the procedure using an RJ45-Clamp version.

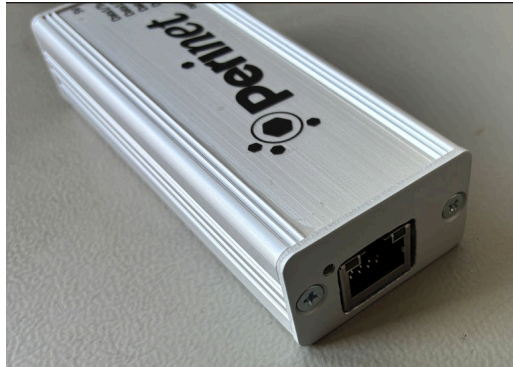


Figure 13: Step 1: Removing one side of the housing

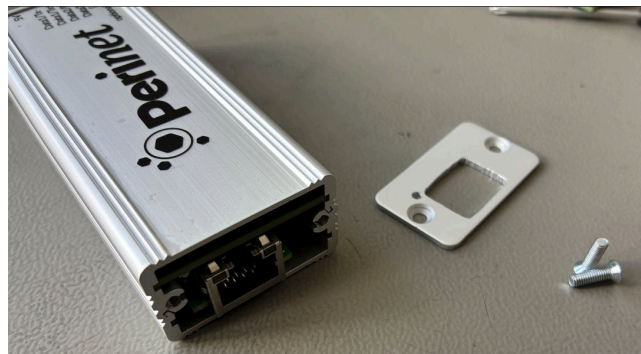


Figure 14: Step 2: Sliding the PCBA out of the housing

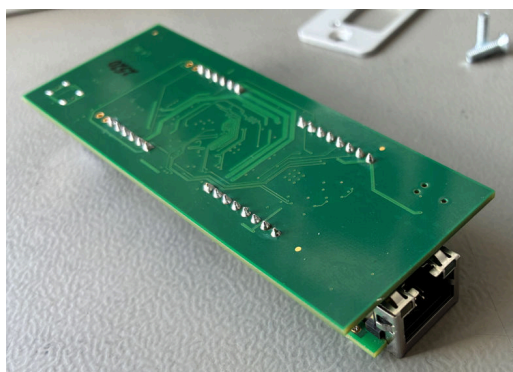


Figure 15: Step 3: PCBA fully removed from the enclosure

Next, rotate the PCBA so that the main carrier board is at the bottom, and the two side-mounted boards are facing upward. The DIP-switch is now visible and accessible, as shown in the following figures from different angles.

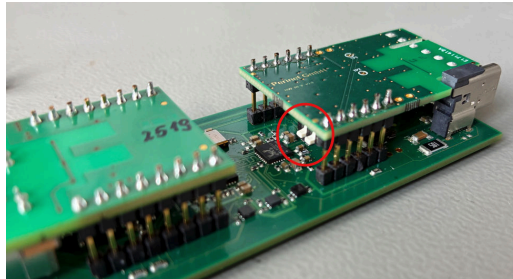


Figure 16: Step 4: Top view with carrier board on the bottom

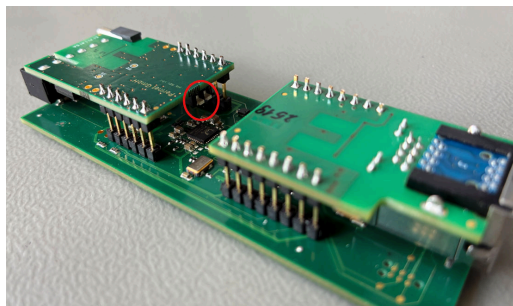


Figure 17: Step 5: Angle view showing switch location

Using a suitable tool such as tweezers, set the DIP-switch according to the required mode. Refer to the chapter Figure 1 for correct DIP-switch positions.

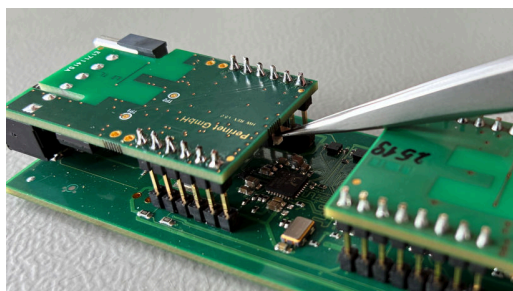


Figure 18: Step 6: Adjusting the DIP-switch configuration

To complete the process, reassemble the device by reversing the disassembly steps. Slide the PCBA back into the housing, close the enclosure, and tighten all screws securely.

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B References

- [1] Karsten Walther. "INTERNET-OF-THINGS MODULE". European pat. 4038350. Perinet GmbH. Sept. 30, 2019. URL: <http://v3.espacenet.com/textdoc?IDX=EP4038350>.

C Revision History

Revision	Date	Author(s)	Description
1	2025-12-01	tnau, ipen, clip	Initial Release