MAX Series

User Manual

Pepwave Products:

Transit Pro E

Pepwave Firmware 8.2.1
July 2022

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Introduction and Scope

Pepwave routers provide link aggregation and load balancing across multiple WAN connections, allowing a combination of technologies like 3G HSDPA, EVDO, 4G LTE, Wi-Fi, external WiMAX dongle, and satellite to be utilized to connect to the Internet.

The MAX wireless SD-WAN router series has a wide range of products suitable for many different deployments and markets. Entry level SD-WAN models such as the MAX BR1 are suitable for SMEs or branch offices. High-capacity SD-WAN routers such as the MAX HD2 are suitable for larger organizations and head offices.

This manual covers setting up Pepwave routers and provides an introduction to their features and usage.

Tips

Want to know more about Pepwave routers? Visit our YouTube Channel for a video introduction!

https://youtu.be/13M-JHRAICA

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Glossary

The following terms, acronyms, and abbreviations are frequently used in this manual:

Term	Definition
3G	3rd generation standards for wireless communications (e.g., HSDPA)
4G	4th generation standards for wireless communications (e.g., LTE)
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
EVDO	Evolution-Data Optimized
FQDN	Fully Qualified Domain Name
HSDPA	High-Speed Downlink Packet Access
HTTP	Hyper-Text Transfer Protocol
ICMP	Internet Control Message Protocol
IP	Internet Protocol
LAN	Local Area Network
MAC Address	Media Access Control Address
MTU	Maximum Transmission Unit
MSS	Maximum Segment Size
NAT	Network Address Translation
PPPoE	Point to Point Protocol over Ethernet
QoS	Quality of Service
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
VPN	Virtual Private Network
VRRP	Virtual Router Redundancy Protocol
WAN	Wide Area Network
WINS	Windows Internet Name Service
WLAN	Wireless Local Area Network

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1 Product Features

Pepwave routers enable all LAN users to share broadband Internet connections, and they provide advanced features to enhance Internet access. Our Max BR wireless routers support multiple SIM cards. They can be configured to switch from using one SIM card to another SIM card according to different criteria, including wireless network reliability and data usage.

Our MAX HD series wireless routers are embedded with multiple 4G LTE modems, and allow simultaneous wireless Internet connections through multiple wireless networks. The wireless Internet connections can be bonded together using our SpeedFusion technology. This allows better reliability, larger bandwidth, and increased wireless coverage compared to use only one 4G LTE modem.

Below is a list of supported features on Pepwave routers. Features vary by model. For more information, please see peplink.com/products.

1.1 Supported Network Features

1.1.2 WAN

- Ethernet WAN connection in full/half duplex
- Static IP support for PPPoE
- Built-in cellular modems
- USB mobile connection(s)
- Wi-Fi WAN connection
- Network address translation (NAT)/port address translation (PAT)
- Inbound and outbound NAT mapping
- IPsec NAT-T and PPTP packet passthrough
- MAC address clone and passthrough
- Customizable MTU and MSS values
- WAN connection health check
- Dynamic DNS (supported service providers: changeip.com, dyndns.org, no-ip.org, tzo.com and DNS-O-Matic)
- Ping, DNS lookup, and HTTP-based health check

1.1.3 LAN

- Wi-Fi AP
- Ethernet LAN ports
- DHCP server on LAN

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- Extended DHCP option support
- Static routing rules
- VLAN on LAN support

1.1.4 VPN

- PepVPN with SpeedFusion™
- PepVPN performance analyzer
- X.509 certificate support
- VPN load balancing and failover among selected WAN connections
- Bandwidth bonding and failover among selected WAN connections
- IPsec VPN for network-to-network connections (works with Cisco and Juniper)
- Ability to route Internet traffic to a remote VPN peer
- Optional pre-shared key setting
- SpeedFusion™ throughput, ping, and traceroute tests
- PPTP server
- PPTP and IPsec passthrough

1.1.5 Firewall

- Outbound (LAN to WAN) firewall rules
- Inbound (WAN to LAN) firewall rules per WAN connection
- Intrusion detection and prevention
- Specification of NAT mappings
- Outbound firewall rules can be defined by destination domain name

1.1.6 Captive Portal

- Splash screen of open networks, login page for secure networks
- Customizable built-in captive portal
- Supports linking to outside page for captive portal

1.1.7 Outbound Policy

- Link load distribution per TCP/UDP service
- Persistent routing for specified source and/or destination IP addresses per TCP/UDP service
- Traffic prioritization and DSL optimization
- Prioritize and route traffic to VPN tunnels with Priority and Enforced algorithms

1.1.8 AP Controller

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- Configure and manage Pepwave AP devices
- Review the status of connected APs

1.1.9 QoS

- Quality of service for different applications and custom protocols
- User group classification for different service levels
- Bandwidth usage control and monitoring on group- and user-level
- Application prioritization for custom protocols and DSL/cable optimization

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1.2 Other Supported Features

- User-friendly web-based administration interface
- HTTP and HTTPS support for web admin interface (default redirection to HTTPS)
- Configurable web administration port and administrator password
- Firmware upgrades, configuration backups, ping, and traceroute via web admin interface
- Remote web-based configuration (via WAN and LAN interfaces)
- Time server synchronization
- SNMP
- Email notification
- Read-only user access for web admin
- Shared IP drop-in mode
- Authentication and accounting by RADIUS server for web admin
- Built-in WINS servers*
- Syslog
- SIP passthrough
- PPTP packet passthrough
- Event log
- Active sessions
- Client list
- WINS client list *
- UPnP / NAT-PMP
- Real-time, hourly, daily, and monthly bandwidth usage reports and charts
- IPv6 support
- Support USB tethering on Android 2.2+ phones

* Not supported on MAX Surf-On-The-Go, and BR1 variants

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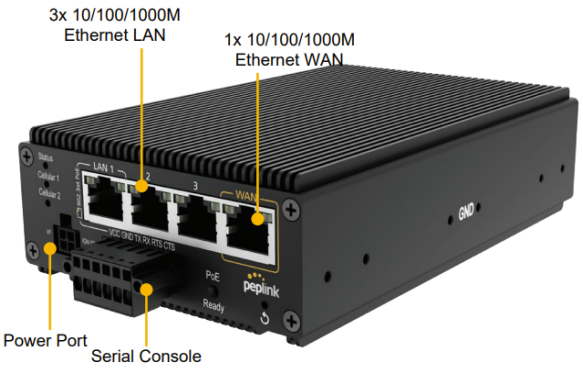
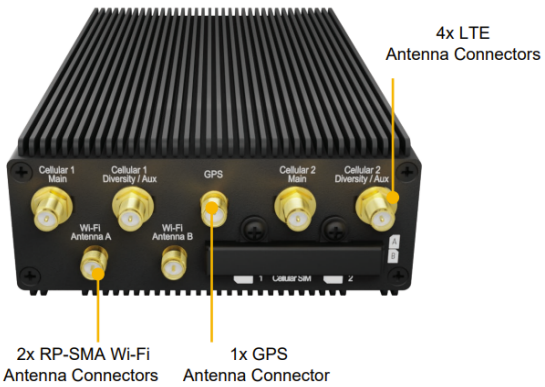
2 MAX Transit Pro E Overview

2.1 Panel Appearance





2.2 LED indicators

The statuses indicated by the front panel LEDs are as follows:

Status Indicators		
Status	OFF	System initializing
	Red	Booting up or busy
	Blinking red	Boot up error
	Green	Ready

LAN 1 Port		
Green LED	ON	POE Enabled
	OFF	POE Disabled
Orange LED	Blinking	10 / 100 / 1000 Mbps and Data is transferring
	OFF	No data is being transferred or port is not connected
Port Type	Auto MDI/MDI-X ports	

LAN 2-3 Port and Ethernet WAN Port		
Green LED	ON	1000 Mbps

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Orange LED	OFF	10 Mbps / 100 Mbps or port is not connected
	ON	Port is connected without traffic
	Blinking	Data is transferring
	OFF	Port is not connected
Port Type	Auto MDI/MDI-X ports	

Cellular Indicators		
Cellular	OFF	Disabled or no SIM card inserted
	Blinking slowly	Connecting to network(s)
	Green	Connected to network(s)

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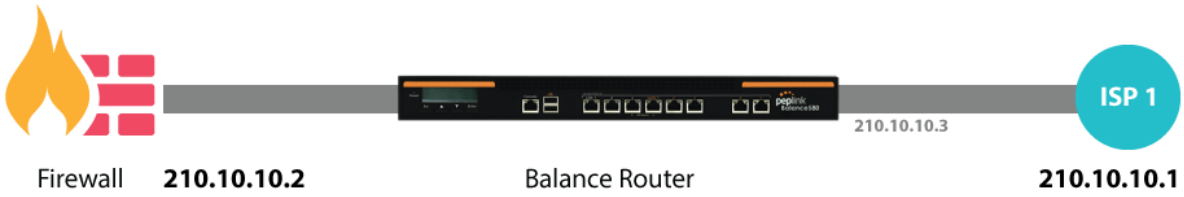
3 Advanced Feature Summary

3.1 Drop-in Mode and LAN Bypass: Transparent Deployment



As your organization grows, it may require more bandwidth, but modifying your network can be tedious. In **Drop-in Mode**, you can conveniently install your Peplink router without making any changes to your network. For any reason your Peplink router looses power, the **LAN Bypass** will safely and automatically bypass the Peplink router to resume your original network connection.

Note: Drop-in mode is compatible for All MAX models except MAX BR1 IP67

3.2 QoS: Clearer VoIP

VoIP and videoconferencing are highly sensitive to latency. With QoS, Peplink routers can detect VoIP traffic and assign it the highest priority, giving you crystal-clear calls.

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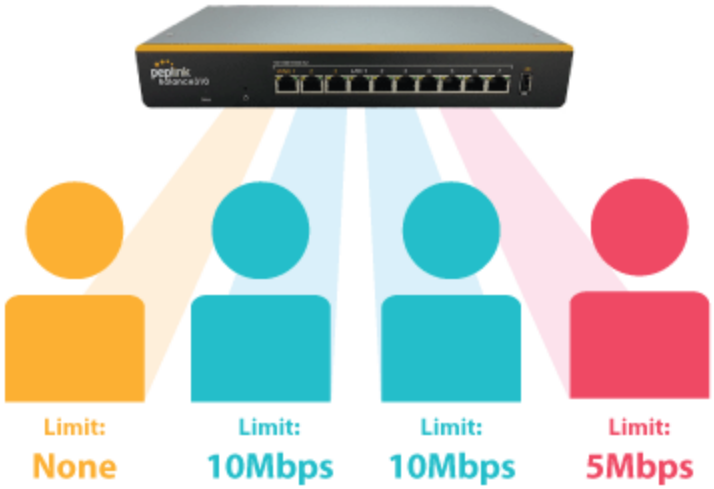
3.3 Per-User Bandwidth Control



With per-user bandwidth control, you can define bandwidth control policies for up to 3 groups of users to prevent network congestion. Define groups by IP address and subnet, and set bandwidth limits for every user in the group.

3.4 High Availability via VRRP

When your organization has a corporate requirement demanding the highest availability with no single point of failure, you can deploy two Peplink routers in High Availability mode. With High Availability mode, the second device will take over when needed.

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Compatible with: MAX 700, MAX HD2 (All variants), HD4 (All Variants)

3.5 USB Modem and Android Tethering

For increased WAN diversity, plug in a USB LTE modem as a backup. Peplink routers are compatible with over 200 modem types. You can also tether to smartphones running Android 4.1.X and above.

Compatible with: MAX 700, HD2 (all variants except IP67), HD4 (All variants)

3.6 Built-In Remote User VPN Support

Use OpenVPN or L2TP with IPsec to safely and conveniently connect remote clients to your private network. L2TP with IPsec is supported by most devices, but legacy devices can also connect using PPTP.

Click here for the full instructions on setting up L2TP with IPsec.
Click here for the full instructions on setting up OpenVPN connections

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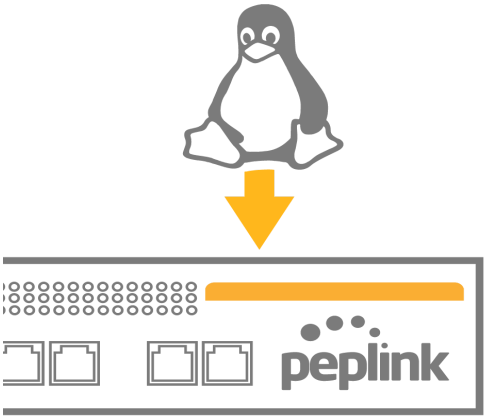
3.7 SIM-card USSD support

Cellular-enabled routers can now use USSD to check their SIM card's balance, process pre-paid cards, and configure carrier-specific services.

Click here for full instructions on using USSD

3.8 KVM Virtualization



KVM is a virtualisation module that allows administrators using our routers to host a large range of virtual machines. KVM is now supported on some MediaFast / ContentHub routers.

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[Click here for the full instructions on how to set up KVM]

[Click here for the full instructions on how to set up KVM with USB Storage]

3.9 DPI Engine

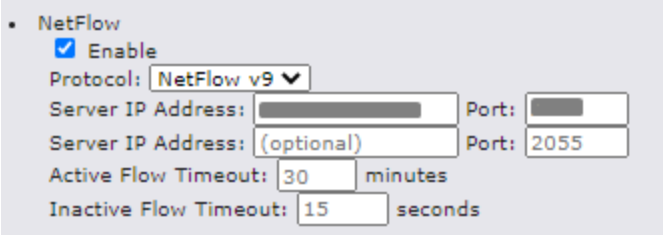
The DPI report written in the updated KB article will show further information on InControl2 through breaking down application categories into subcategories.

https://forum.peplink.com/t/updated-ic2-deep-packet-inspection-dpi-reports-and-everything-you-need-to-know-about-it/29658

3.10 NetFlow

NetFlow protocol is used to track network traffic. Tracking information from NetFlow can be sent to the NetFlow collector, which analyzes data and generates reports for review.

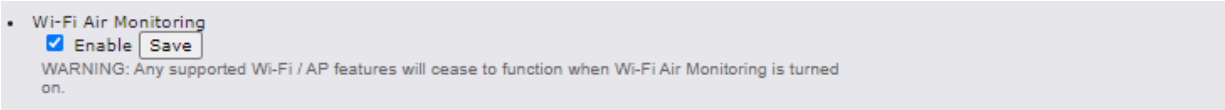
Note: To enable this feature, go to https://<Device's IP>/cgi-bin/MANGA/support.cgi



3.11 Wi-Fi Air Monitoring

Pepwave routers support Wi-Fi "Air Monitoring Mode" which used to troubleshoot remotely and proactively monitor Wi-Fi and WAN performance. The report can be viewed under InControl 2 > Reports > AirProbe Reports after enabling Wi-Fi Air Monitoring.

Note: To enable this feature, go to https://<Device's IP>/cgi-bin/MANGA/support.cgi



3.12 SP Default Configuration

The SP Default Configuration feature written in the updated KB article allows for the provisioning of custom made settings (a.k.a. InControl2 configuration) via the Ethernet LAN port and is ideal for those wanting to do a bulk deployment of many Peplink devices.

Note: If you would like to use this feature, please contact your purchase point (Eg.VAD).

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3.13 SpeedFusion Cloud Relay

Cloud Service Providers often restrict access to certain applications. With SFC Relay, you can route traffic before going out to the Internet, allowing access to previously restricted applications experienced with the public SpeedFusion Cloud nodes. Available as an add-on for your home router or as an upgradable license to your Peplink router, SFC Relay is sure to impress you and any peers you give access to.

https://forum.peplink.com/t/configure-speedfusion-cloud-relay-server-and-client/6215ca9b017e48e0f3ff2479/

3.14 DNS over HTTPS (DoH)

DoH provides the benefits of communicating DNS information over a secure HTTPS connection in an encrypted manner. The protocol offers increased privacy and confidentiality by preventing data interception and man-in-the-middle attacks.

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4 Installation

The following section details connecting Pepwave routers to your network.

4.1 Preparation

Before installing your Pepwave router, please prepare the following as appropriate for your installation:

- At least one Internet/WAN access account and/or Wi-Fi access information
- Depending on network connection type(s), one or more of the following:
    - **Ethernet WAN**: A 10/100/1000BaseT UTP cable with RJ45 connector
    - **USB**: A USB modem
    - **Embedded modem**: A SIM card for 5G/4G LTE service
    - **Wi-Fi WAN**: Wi-Fi antennas
    - **PC Card/Express Card WAN:** A PC Card/ExpressCard for the corresponding card slot
- A computer installed with the TCP/IP network protocol and a supported web browser. Supported browsers include Microsoft Internet Explorer 11 or above, Mozilla Firefox 24 or above, Apple Safari 7 or above, and Google Chrome 18 or above.

4.2 Constructing the Network

At a high level, construct the network according to the following steps:

1. With an Ethernet cable, connect a computer to one of the LAN ports on the Pepwave router. Repeat with different cables for up to 4 computers to be connected.
2. With another Ethernet cable or a USB modem/Wi-Fi antenna/PC Card/Express Card, connect to one of the WAN ports on the Pepwave router. Repeat the same procedure for other WAN ports.
3. Connect the power adapter to the power connector on the rear panel of the Pepwave router, and then plug it into a power outlet.

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4.3 Configuring the Network Environment

To ensure that the Pepwave router works properly in the LAN environment and can access the Internet via WAN connections, please refer to the following setup procedures:

- LAN configuration

  For basic configuration, refer to **Section 8, Connecting to the Web Admin Interface**.

  For advanced configuration, go to **Section 9, Configuring the LAN Interface(s)**.

- WAN configuration

  For basic configuration, refer to **Section 8, Connecting to the Web Admin Interface**.

  For advanced configuration, go to **Section 9.2, Captive Portal**.

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5 Mounting the Unit

5.1 Wall Mount

The Pepwave MAX 700/HD2/On-The-Go can be wall mounted using screws. After adding the screw on the wall, slide the MAX in the screw hole socket as indicated below. Recommended screw specification: M3.5 x 20mm, head diameter 6mm, head thickness 2.4mm.

The Pepwave MAX BR1 requires four screws for wall mounting.

5.2 Car Mount

The Pepwave MAX700/HD2 can be mounted in a vehicle using the included mounting brackets. Place the mounting brackets by the two sides and screw them onto the device.

5.3 IP67 Installation Guide

Installation instructions for IP67 devices can be found here:
http://download.peplink.com/manual/IP67_Installation_Guide.pdf

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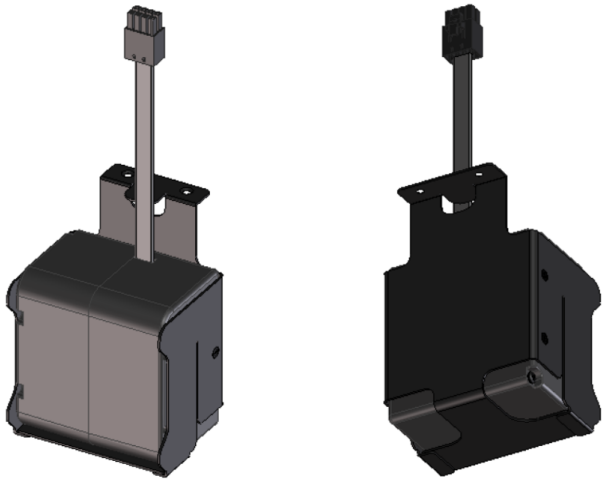
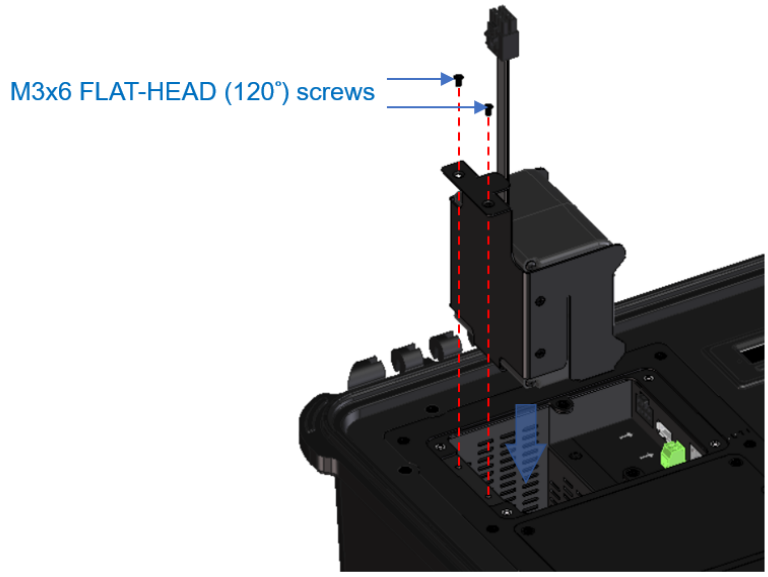
5.4 PDX Accessory Kit Installation Guide

5.4.2 Battery Set appearance



- Step 1: Lock the battery set in the slot with 2 pcs M3 screws.



- Step 2: Plug power cable into the socket

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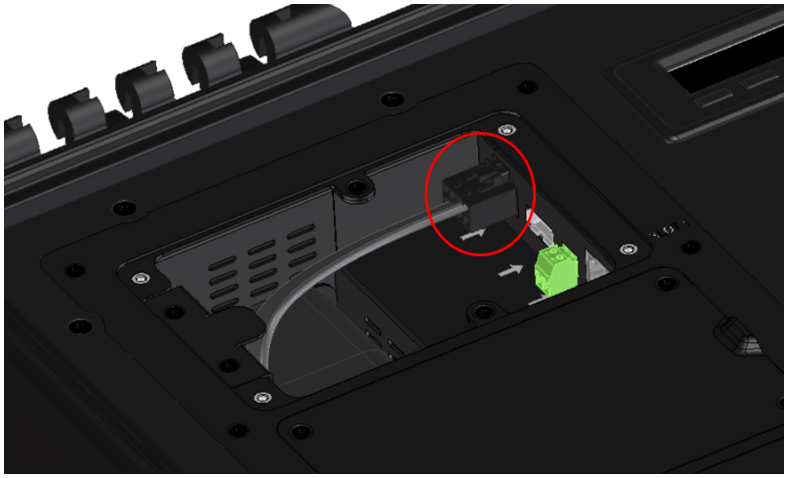
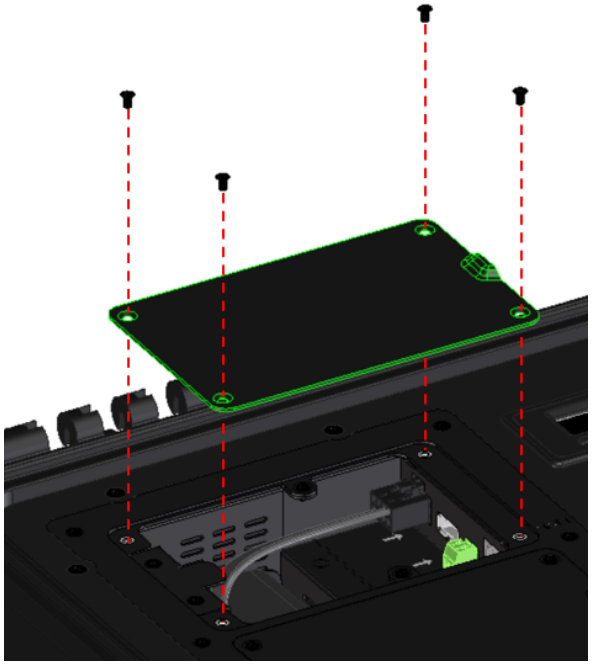


- STEP 3: Lock the slot cover with 4 pcs M3 screws.



5.4.3 SFE-DUO Set appearance

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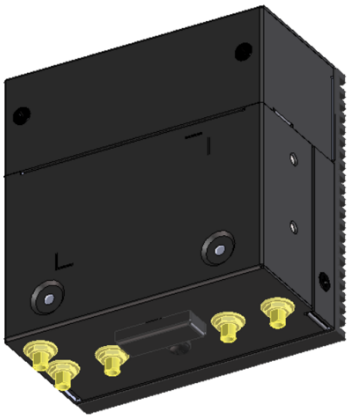
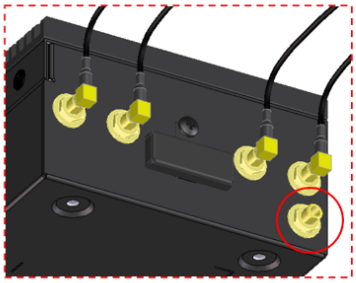


- STEP 1: Assemble SMA cables to the device



GPS port not in use

- STEP 2: Assemble bracket to the device

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