

TAP-6226 Series

Railway trackside 802.11a/b/g IP68 wireless unit



- > 2 dual-band radios, IEEE 802.11a/b/g compliant
- > Railway approved IP68 housing
- > Controller-based Turbo Roaming
- > 2 fiber SFP ports and 4 PoE ports with M12 LAN connectors
- > High transmission power for extended reach
- > Complies with a portion of EN 50155 specifications
- > -40 to 75°C operating temperature range



Introduction

The TAP-6226 trackside wireless unit is designed for train-to-ground wireless communication. It is a highly compact and rugged wireless unit that integrates two access points, a managed fiber switch, and a wide-range AC/DC power supply, all in one box. The IP68 housing can withstand the harshest weather, and M12 connectors make the unit shock and vibration resistant. The TAP-6226 supports advanced controller-based Turbo Roaming technology for applications such as Communication-Based Train Control (CBTC). The unit can supply power to up to 4 PoE devices while providing reliable LAN communication with Moxa's Turbo Chain technology.

Advanced Mobility and Reliability

- Controller-based L3 Turbo Roaming
- Mobile IP support
- 2 dual-band radios: 2.4 GHz and 5.1 to 5.9 GHz
- Turbo Chain support (100 ms recovery time)
- WPA/WPA2 and 802.11i support
- IEEE 802.1X/RADIUS support

Built for Transportation Applications

- Isolated 110 to 220 VDC/VAC power input
- High transmission power, 400 mW
- Supplies power through 4 PoE ports (PSE)
- 2 fiber SFP ports for backbone installation
- Wide temperature (-40 to 75°C) and IP68 housing

Specifications

WLAN Interface

Standards:

- IEEE 802.11a/b/g for Wireless LAN
- IEEE 802.11i for Wireless Security
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseTX
- IEEE 802.3af for Power-over-Ethernet
- IEEE 802.1D for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.1p for Class of Service
- IEEE 802.1Q for VLAN

Spread Spectrum and Modulation (typical):

- DSSS with DBPSK, DQPSK, CCK
- OFDM with BPSK, QPSK, 16QAM, 64QAM
- 802.11b: CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 1 Mbps
- 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps

Operating Channels (central frequency):

- US:
 - 2.412 to 2.462 GHz (802.11a/b/g, 11 channels)
 - 5.18 to 5.24 GHz (802.11a, 4 channels)
 - 5.26 to 5.825 GHz (optional)
- EU:
 - 2.412 to 2.472 GHz (802.11abg, 13 channels)
 - 5.18 to 5.24 GHz (802.11a, 4 channels)
 - 5.26 to 5.825 GHz (optional)

*Special frequency bands (such as 5.9 GHz) is available for customization.

Security:

- SSID broadcast enable/disable
- Firewall for MAC/IP/Protocol/Port-based filtering
- 64-bit and 128-bit WEP encryption, WPA/WPA2-Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP, and AES)

Transmission Rates:

- 802.11b: 1, 2, 5.5, 11 Mbps
- 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps

TX Transmit Power:

- 802.11b:
 - Typ. 26±1.5 dBm @ 1 to 11 Mbps
- 802.11g:
 - Typ. 26±1.5 dBm @ 6 to 24 Mbps, Typ. 25±1.5 dBm @ 36 Mbps, Typ. 24±1.5 dBm @ 48 Mbps, Typ. 23±1.5 dBm @ 54 Mbps
- 802.11a:
 - Typ. 26±1.5 dBm @ 6 to 12 Mbps, Typ. 25±1.5 dBm @ 18 Mbps, Typ. 24±1.5 dBm @ 24 Mbps, Typ. 23±1.5 dBm @ 36 Mbps, Typ. 22±1.5 dBm @ 48 Mbps, Typ. 21±1.5 dBm @ 54 Mbps

RX Sensitivity:

- 802.11b:
 - 97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps
- 802.11g:
 - 93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps
- 802.11a:
 - 90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps

Protocol Support

General Protocols: Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNMP, TCP, UDP, RADIUS, SNMP v1/v2/v3, PPPoE, DHCP, STP/RSTP

Interface

Connector for External Antennas: N-type (female)

Fiber Ports: 2, 100BaseSFP slot

Console Port: M12 A-coded 5-pin male connector

LED Indicators: PWR1, PWR2, PoE1-4, FAULT, STATE, HEAD, TAIL, LAN1-6, WLAN1, WLAN2

Fast Ethernet ports: 4, side cabling, M12 D-coded 4-pin female connector, 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection, 802.1af PoE power budget

Fiber Module: 100Base multi-mode 1300 nm wavelength with LC connector for 4 km transmission (50/125 μm or 62.5/125 μm 800 MHz-km @ 1300 nm wavelength)

Connector Conduit	PG Thread Size
Antenna Ports	PG29
Power Port	PG36

Physical Characteristics

Housing: Metal, IP68 protection

Weight: 9.7 kg (21.38 lb)

Dimensions: 324 x 279 x 156 mm (12.76 x 10.98 x 6.14 in)

Installation: Wall mounting

Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5% to 95% (non-condensing)

Power Requirements

Input Voltage: 110/220 VDC/VAC

Input Current: 0.68 A @ 110 VDC/VAC

Connector: M23

Power Consumption: 74.8 W (max., with PoE ports fully loaded), 15 W (without PoE)

Reverse Polarity Protection: Present

Overload Current Protection: Present

Standards and Certifications

Safety: UL 60950-1, EN 60950-1 (CB)

EMC: EN 55032/24, EN 61000-6-2/6-4

EMI: CISPR 32, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m

IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV

IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

Radio: EN 301 489-1/17, EN 300 328, EN 301 893, FCC ID SLE-WAPA004

Rail Traffic: EN 50155*, EN45545-2, EN 50121-4

*Complies with a portion of EN 50155 specifications.

Note: Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)

Time: 382,735 hrs

Standard: Telcordia SR332

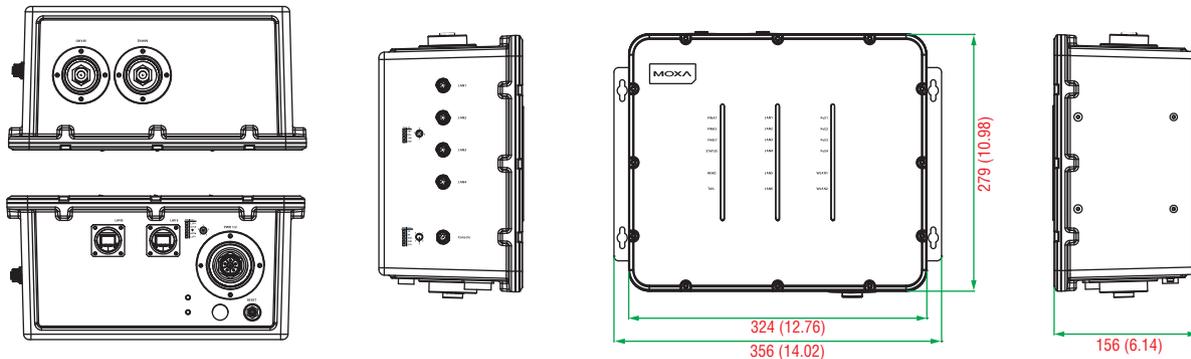
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

TAP-6226-TC-US-T: Rugged trackside wireless access point, US band

TAP-6226-TC-EU-T: Rugged trackside wireless access point, EU band

Optional Accessories (can be purchased separately)

SFP-1FESLC-T: Small form factor pluggable transceiver with 100Base single-mode, LC connector, 40 km, -40 to 85°C operating temperature

SFP-1FELLC-T: Small form factor pluggable transceiver with 100Base single-mode, LC connector, 80 km, -40 to 85°C operating temperature

CBL-M23 (FF 6P)/OPEN-BK-100 IP67: 1-meter M23 to 6-pin power cable with IP67-rated female 6-pin M23 connector

Package Checklist

- TAP-6226 trackside wireless unit
- 5 protective caps for console port and LAN ports
- Fiber panel-mounting kit
- Wall-mounting kit
- Warranty card