

TAP-M310R Series

Railway train-to-ground Wi-Fi 6 AP/clients



Features and Benefits

- IEEE 802.11a/b/g/n/ac/ax compliant
- Selectable dual-band Wi-Fi with data rates of up to 574 Mbps (2.4 GHz) or 1,201 Mbps (5 GHz)
- Controller-based Turbo Roaming
- Complies with all EN 50155 mandatory test items¹
- Rugged IP67-rated housing and -40 to 75°C operating temperature
- Wireless network redundancy with AeroLink Protection

Certifications



Introduction

The TAP-M310R Series wireless APs/clients are ruggedized IEEE 802.11ax wireless solutions for railway train-to-ground applications, including CBTC and CCTV communications.

Protected by a dust-tight and waterproof IP67-rated housing, the TAP-M310R Series ensures reliable operations in harsh conditions. The TAP-M310R Series comes in four distinct configurations for onboard and wayside applications, including AC or DC power modules and Ethernet switch modules with support for multiple Ethernet/Turbo Chains for easier deployment. The TAP-M310R Series complies with industrial standards and railway approvals, covering operational temperature ranges, power input voltage, surge protection, ESD, and vibration resistance.

Built for Demanding Environments

- IP67-rated metal housing and -40 to 75°C wide operating temperature
- Anti-vibration M12 design with waterproof and dust-tight connectors

Tailored for Railway Applications

- 24 VDC, 110 to 220 VAC, or 24 to 110 VDC power input (depending on the model)
- Fiber ports with Moxa Turbo Chain support
- Controller-based Turbo Roaming handover time under 50 ms² with 3 selected channels (when used with the WAC-M300 only)
- Built-in 2.4 and 5 GHz band-pass filters
- Built-in 2x2 antenna splitters

Specifications

WLAN Interface

WLAN Standards	2.4 GHz: 802.11b/g/n/ax with 1024 QAM support, 20/40 MHz 5 GHz: 802.11a/n/ac/ax with 1024 QAM support, 20/40/80 MHz
Frequency Band for US (20 MHz operating channels)	2,412 to 2,462 GHz (11 channels) 5,180 to 5,240 GHz (4 channels) 5,745 to 5,825 GHz (5 channels)
Frequency Band for EU (20 MHz operating channels)	2,412 to 2,472 GHz (13 channels) 5,180 to 5,240 GHz (4 channels) 5,745 to 5,825 GHz (5 channels)
Wireless Security	SSID broadcast enable/disable WPA2/WPA3 Personal (AES) WPA2/WPA3 Enterprise (IEEE 802.1X/RADIUS, AES)

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Compliance.pdf

2. The Turbo Roaming recovery time indicated herein is an average of test results documented, in optimized conditions, across APs configured with interference-free 20-MHz RF channels, WPA3 security, and default Turbo Roaming parameters. The clients are configured with 3-channel roaming at 200 Kbps traffic load. Other conditions may also impact roaming performance. For more information about Turbo Roaming parameter settings, refer to the product manual.

Transmission Rate	802.11b: 1 to 11 Mbps 802.11a/g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: up to 540 Mbps 802.11ax: 5 GHz up to 1201 Mbps, 2.4 GHz up to 576 Mbps
WLAN Operation Mode	Access point Master Sniffer Client Client-Router Slave
Antenna Connectors	TAP-M310R-NPS-1R and -1P1R models: 2 x N-type (female) TAP-M310R-1P1R1S models: 4 x N-type (female) TAP-M310R-1P2R1S models: 8 x N-type (female)
Transmitter Power for 802.11a	TAP-M310R-NPS-1R and -1P1R models: 22±1.5 dBm @ 6 Mbps 20 MHz 22±1.5 dBm @ 9 Mbps 20 MHz 22±1.5 dBm @ 12 Mbps 20 MHz 22±1.5 dBm @ 18 Mbps 20 MHz 20±1.5 dBm @ 24 Mbps 20 MHz 19.5±1.5 dBm @ 36 Mbps 20 MHz 19±1.5 dBm @ 48 Mbps 20 MHz 19±1.5 dBm @ 54 Mbps 20 MHz TAP-M310R-1P1R1S and -1P2R1S models: 18±1.5 dBm @ 6 Mbps 20 MHz 18±1.5 dBm @ 9 Mbps 20 MHz 18±1.5 dBm @ 12 Mbps 20 MHz 18±1.5 dBm @ 18 Mbps 20 MHz 17±1.5 dBm @ 24 Mbps 20 MHz 17±1.5 dBm @ 36 Mbps 20 MHz 16±1.5 dBm @ 48 Mbps 20 MHz 15.5±1.5 dBm @ 54 Mbps 20 MHz
Transmitter Power for 802.11n (5 GHz)	TAP-M310R-NPS-1R and -1P1R models: 22±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS1 20 MHz 21.5±1.5 dBm @ MCS2 20 MHz 21.5±1.5 dBm @ MCS3 20 MHz 19.5±1.5 dBm @ MCS4 20 MHz 19±1.5 dBm @ MCS5 20 MHz 19±1.5 dBm @ MCS6 20 MHz 18.5±1.5 dBm @ MCS7 20 MHz 22±1.5 dBm @ MCS8 20 MHz 22±1.5 dBm @ MCS9 20 MHz 21.5±1.5 dBm @ MCS10 20 MHz 21.5±1.5 dBm @ MCS11 20 MHz 20.5±1.5 dBm @ MCS12 20 MHz 19.5±1.5 dBm @ MCS13 20 MHz 19.5±1.5 dBm @ MCS14 20 MHz 19±1.5 dBm @ MCS15 20 MHz 22±1.5 dBm @ MCS0 40 MHz 22±1.5 dBm @ MCS1 40 MHz 22±1.5 dBm @ MCS2 40 MHz 21.5±1.5 dBm @ MCS3 40 MHz 21±1.5 dBm @ MCS4 40 MHz 20±1.5 dBm @ MCS5 40 MHz 20±1.5 dBm @ MCS6 40 MHz 19.5±1.5 dBm @ MCS7 40 MHz 22±1.5 dBm @ MCS8 40 MHz 22±1.5 dBm @ MCS9 40 MHz 21.5±1.5 dBm @ MCS10 40 MHz 21.5±1.5 dBm @ MCS11 40 MHz 20±1.5 dBm @ MCS12 40 MHz 20±1.5 dBm @ MCS13 40 MHz 20±1.5 dBm @ MCS14 40 MHz 20±1.5 dBm @ MCS15 40 MHz TAP-M310R-1P1R1S and -1P2R1S models: 18.5±1.5 dBm @ MCS0 20 MHz

18.5±1.5 dBm @ MCS1 20 MHz
 18.5±1.5 dBm @ MCS2 20 MHz
 18±1.5 dBm @ MCS3 20 MHz
 17±1.5 dBm @ MCS4 20 MHz
 16.5±1.5 dBm @ MCS5 20 MHz
 16±1.5 dBm @ MCS6 20 MHz
 15.5±1.5 dBm @ MCS7 20 MHz
 18.5±1.5 dBm @ MCS8 20 MHz
 18.5±1.5 dBm @ MCS9 20 MHz
 18.5±1.5 dBm @ MCS10 20 MHz
 18±1.5 dBm @ MCS11 20 MHz
 17±1.5 dBm @ MCS12 20 MHz
 16.5±1.5 dBm @ MCS13 20 MHz
 15.5±1.5 dBm @ MCS14 20 MHz
 15.5±1.5 dBm @ MCS15 20 MHz
 18.5±1.5 dBm @ MCS0 40 MHz
 18.5±1.5 dBm @ MCS1 40 MHz
 18.5±1.5 dBm @ MCS2 40 MHz
 17.5±1.5 dBm @ MCS3 40 MHz
 17.5±1.5 dBm @ MCS4 40 MHz
 16.5±1.5 dBm @ MCS5 40 MHz
 15.5±1.5 dBm @ MCS6 40 MHz
 15±1.5 dBm @ MCS7 40 MHz
 18±1.5 dBm @ MCS8 40 MHz
 18±1.5 dBm @ MCS9 40 MHz
 17.5±1.5 dBm @ MCS10 40 MHz
 17±1.5 dBm @ MCS11 40 MHz
 17±1.5 dBm @ MCS12 40 MHz
 16.5±1.5 dBm @ MCS13 40 MHz
 15.5±1.5 dBm @ MCS14 40 MHz
 15±1.5 dBm @ MCS15 40 MHz

Transmitter Power for 802.11ac (5 GHz, Dual Chain)

TAP-M310R-NPS-1R and -1P1R models:

22±1.5 dBm @ MCS0 20 MHz
 22±1.5 dBm @ MCS1 20 MHz
 21.5±1.5 dBm @ MCS2 20 MHz
 21.5±1.5 dBm @ MCS3 20 MHz
 20.5±1.5 dBm @ MCS4 20 MHz
 20±1.5 dBm @ MCS5 20 MHz
 19.5±1.5 dBm @ MCS6 20 MHz
 19.5±1.5 dBm @ MCS7 20 MHz
 19±1.5 dBm @ MCS8 20 MHz
 21.5±1.5 dBm @ MCS0 40 MHz
 21.5±1.5 dBm @ MCS1 40 MHz
 21±1.5 dBm @ MCS2 40 MHz
 20.5±1.5 dBm @ MCS3 40 MHz
 20±1.5 dBm @ MCS4 40 MHz
 19.5±1.5 dBm @ MCS5 40 MHz
 19.5±1.5 dBm @ MCS6 40 MHz
 19.5±1.5 dBm @ MCS7 40 MHz
 19±1.5 dBm @ MCS8 40 MHz
 18.5±1.5 dBm @ MCS9 40 MHz
 21±1.5 dBm @ MCS0 80 MHz
 21±1.5 dBm @ MCS1 80 MHz
 21±1.5 dBm @ MCS2 80 MHz
 21±1.5 dBm @ MCS3 80 MHz
 20±1.5 dBm @ MCS4 80 MHz
 20±1.5 dBm @ MCS5 80 MHz
 19±1.5 dBm @ MCS6 80 MHz
 19±1.5 dBm @ MCS7 80 MHz
 18.5±1.5 dBm @ MCS8 80 MHz
 18.5±1.5 dBm @ MCS9 80 MHz

TAP-M310R-1P1R1S and -1P2R1S models:

18±1.5 dBm @ MCS0 20 MHz
 18±1.5 dBm @ MCS1 20 MHz
 18±1.5 dBm @ MCS2 20 MHz
 18±1.5 dBm @ MCS3 20 MHz
 17±1.5 dBm @ MCS4 20 MHz
 17±1.5 dBm @ MCS5 20 MHz
 15.5±1.5 dBm @ MCS6 20 MHz
 15±1.5 dBm @ MCS7 20 MHz
 14.5±1.5 dBm @ MCS8 20 MHz
 18±1.5 dBm @ MCS0 40 MHz

	18±1.5 dBm @ MCS1 40 MHz 18±1.5 dBm @ MCS2 40 MHz 18±1.5 dBm @ MCS3 40 MHz 17±1.5 dBm @ MCS4 40 MHz 17±1.5 dBm @ MCS5 40 MHz 15±1.5 dBm @ MCS6 40 MHz 15.5±1.5 dBm @ MCS7 40 MHz 15±1.5 dBm @ MCS8 40 MHz 14.5±1.5 dBm @ MCS9 40 MHz 18±1.5 dBm @ MCS0 80 MHz 18±1.5 dBm @ MCS1 80 MHz 18±1.5 dBm @ MCS2 80 MHz 18±1.5 dBm @ MCS3 80 MHz 17±1.5 dBm @ MCS4 80 MHz 17±1.5 dBm @ MCS5 80 MHz 15.5±1.5 dBm @ MCS6 80 MHz 15±1.5 dBm @ MCS7 80 MHz 14.5±1.5 dBm @ MCS8 80 MHz 14.5±1.5 dBm @ MCS9 80 MHz
Transmitter Power for 802.11ax (5 GHz, Dual Chain)	TAP-M310R-NPS-1R and -1P1R models: 22±1.5 dBm @ MCS0 20 MHz 22±1.5 dBm @ MCS1 20 MHz 21±1.5 dBm @ MCS2 20 MHz 21±1.5 dBm @ MCS3 20 MHz 19±1.5 dBm @ MCS4 20 MHz 19±1.5 dBm @ MCS5 20 MHz 19±1.5 dBm @ MCS6 20 MHz 19±1.5 dBm @ MCS7 20 MHz 19±1.5 dBm @ MCS8 20 MHz 18.5±1.5 dBm @ MCS9 20 MHz 18±1.5 dBm @ MCS10 20 MHz 17.5±1.5 dBm @ MCS11 20 MHz 21.5±1.5 dBm @ MCS0 40 MHz 21.5±1.5 dBm @ MCS1 40 MHz 21±1.5 dBm @ MCS2 40 MHz 21±1.5 dBm @ MCS3 40 MHz 20±1.5 dBm @ MCS4 40 MHz 20±1.5 dBm @ MCS5 40 MHz 19±1.5 dBm @ MCS6 40 MHz 19±1.5 dBm @ MCS7 40 MHz 19±1.5 dBm @ MCS8 40 MHz 18.5±1.5 dBm @ MCS9 40 MHz 18±1.5 dBm @ MCS10 40 MHz 17.5±1.5 dBm @ MCS11 40 MHz 21±1.5 dBm @ MCS0 80 MHz 21±1.5 dBm @ MCS1 80 MHz 21±1.5 dBm @ MCS2 80 MHz 21±1.5 dBm @ MCS3 80 MHz 20±1.5 dBm @ MCS4 80 MHz 20±1.5 dBm @ MCS5 80 MHz 18.5±1.5 dBm @ MCS6 80 MHz 18.5±1.5 dBm @ MCS7 80 MHz 18.5±1.5 dBm @ MCS8 80 MHz 18±1.5 dBm @ MCS9 80 MHz 18±1.5 dBm @ MCS10 80 MHz 17.5±1.5 dBm @ MCS11 80 MHz TAP-M310R-1P1R1S and -1P2R1S models: 18±1.5 dBm @ MCS0 20 MHz 18±1.5 dBm @ MCS1 20 MHz 18±1.5 dBm @ MCS2 20 MHz 18±1.5 dBm @ MCS3 20 MHz 17±1.5 dBm @ MCS4 20 MHz 17±1.5 dBm @ MCS5 20 MHz 15.5±1.5 dBm @ MCS6 20 MHz 15±1.5 dBm @ MCS7 20 MHz 14.5±1.5 dBm @ MCS8 20 MHz 14±1.5 dBm @ MCS9 20 MHz 13.5±1.5 dBm @ MCS10 20 MHz 13.5±1.5 dBm @ MCS11 20 MHz 18±1.5 dBm @ MCS0 40 MHz 18±1.5 dBm @ MCS1 40 MHz 17.5±1.5 dBm @ MCS2 40 MHz

	17.5±1.5 dBm @ MCS3 40 MHz 16.5±1.5 dBm @ MCS4 40 MHz 16.5±1.5 dBm @ MCS5 40 MHz 16±1.5 dBm @ MCS6 40 MHz 15.5±1.5 dBm @ MCS7 40 MHz 14±1.5 dBm @ MCS8 40 MHz 14±1.5 dBm @ MCS9 40 MHz 13.5±1.5 dBm @ MCS10 40 MHz 13.5±1.5 dBm @ MCS11 40 MHz 18±1.5 dBm @ MCS0 80 MHz 18±1.5 dBm @ MCS1 80 MHz 17.5±1.5 dBm @ MCS2 80 MHz 17.5±1.5 dBm @ MCS3 80 MHz 16.5±1.5 dBm @ MCS4 80 MHz 16.5±1.5 dBm @ MCS5 80 MHz 15.5±1.5 dBm @ MCS6 80 MHz 15.5±1.5 dBm @ MCS7 80 MHz 14.5±1.5 dBm @ MCS8 80 MHz 14±1.5 dBm @ MCS9 80 MHz 13.5±1.5 dBm @ MCS10 80 MHz 13.5±1.5 dBm @ MCS11 80 MHz
Transmitter Power for 802.11b	TAP-M310R-NPS-1R and -1P1R models: 27±1.5 dBm @ 1 Mbps 27±1.5 dBm @ 2 Mbps 27±1.5 dBm @ 5.5 Mbps 27±1.5 dBm @ 11 Mbps TAP-M310R-1P1R1S and -1P2R1S models: 23.5±1.5 dBm @ 1 Mbps 23.5±1.5 dBm @ 2 Mbps 23.5±1.5 dBm @ 5.5 Mbps 23.5±1.5 dBm @ 11 Mbps
Transmitter Power for 802.11g	TAP-M310R-NPS-1R and -1P1R models: 26.5±1.5 dBm @ 6 Mbps 26.5±1.5 dBm @ 9 Mbps 26.5±1.5 dBm @ 12 Mbps 25±1.5 dBm @ 18 Mbps 25±1.5 dBm @ 24 Mbps 25±1.5 dBm @ 36 Mbps 24.5±1.5 dBm @ 48 Mbps 23.5±1.5 dBm @ 54 Mbps TAP-M310R-1P1R1S and -1P2R1S models: 23±1.5 dBm @ 6 Mbps 23±1.5 dBm @ 9 Mbps 23±1.5 dBm @ 12 Mbps 22±1.5 dBm @ 18 Mbps 22±1.5 dBm @ 24 Mbps 22±1.5 dBm @ 36 Mbps 21.5±1.5 dBm @ 48 Mbps 20.5±1.5 dBm @ 54 Mbps
Transmitter Power for 802.11n (2.4 GHz)	TAP-M310R-NPS-1R and -1P1R models: 26.5±1.5 dBm @ MCS0 20 MHz 26.5±1.5 dBm @ MCS1 20 MHz 25±1.5 dBm @ MCS2 20 MHz 25±1.5 dBm @ MCS3 20 MHz 25±1.5 dBm @ MCS4 20 MHz 24.5±1.5 dBm @ MCS5 20 MHz 23.5±1.5 dBm @ MCS6 20 MHz 23±1.5 dBm @ MCS7 20 MHz 25.5±1.5 dBm @ MCS8 20 MHz 25.5±1.5 dBm @ MCS9 20 MHz 24±1.5 dBm @ MCS10 20 MHz 24±1.5 dBm @ MCS11 20 MHz 24±1.5 dBm @ MCS12 20 MHz 24±1.5 dBm @ MCS13 20 MHz 22.5±1.5 dBm @ MCS14 20 MHz 22±1.5 dBm @ MCS15 20 MHz 26±1.5 dBm @ MCS0 40 MHz 26±1.5 dBm @ MCS1 40 MHz

25.5±1.5 dBm @ MCS2 40 MHz
 25±1.5 dBm @ MCS3 40 MHz
 24.5±1.5 dBm @ MCS4 40 MHz
 24±1.5 dBm @ MCS5 40 MHz
 23±1.5 dBm @ MCS6 40 MHz
 22.5±1.5 dBm @ MCS7 40 MHz
 24±1.5 dBm @ MCS8 40 MHz
 24±1.5 dBm @ MCS9 40 MHz
 23.5±1.5 dBm @ MCS10 40 MHz
 23.5±1.5 dBm @ MCS11 40 MHz
 22±1.5 dBm @ MCS12 40 MHz
 22±1.5 dBm @ MCS13 40 MHz
 21.5±1.5 dBm @ MCS14 40 MHz
 21.5±1.5 dBm @ MCS15 40 MHz

TAP-M310R-1P1R1S and -1P2R1S models:

23±1.5 dBm @ MCS0 20 MHz
 23±1.5 dBm @ MCS1 20 MHz
 22±1.5 dBm @ MCS2 20 MHz
 22±1.5 dBm @ MCS3 20 MHz
 21.5±1.5 dBm @ MCS4 20 MHz
 21±1.5 dBm @ MCS5 20 MHz
 20.5±1.5 dBm @ MCS6 20 MHz
 19.5±1.5 dBm @ MCS7 20 MHz
 23±1.5 dBm @ MCS8 20 MHz
 23±1.5 dBm @ MCS9 20 MHz
 21±1.5 dBm @ MCS10 20 MHz
 21±1.5 dBm @ MCS11 20 MHz
 21±1.5 dBm @ MCS12 20 MHz
 21±1.5 dBm @ MCS13 20 MHz
 20±1.5 dBm @ MCS14 20 MHz
 19±1.5 dBm @ MCS15 20 MHz
 22.5±1.5 dBm @ MCS0 40 MHz
 22.5±1.5 dBm @ MCS1 40 MHz
 22.5±1.5 dBm @ MCS2 40 MHz
 21.5±1.5 dBm @ MCS3 40 MHz
 21±1.5 dBm @ MCS4 40 MHz
 20.5±1.5 dBm @ MCS5 40 MHz
 20±1.5 dBm @ MCS6 40 MHz
 19.5±1.5 dBm @ MCS7 40 MHz
 22±1.5 dBm @ MCS8 40 MHz
 22±1.5 dBm @ MCS9 40 MHz
 21±1.5 dBm @ MCS10 40 MHz
 20±1.5 dBm @ MCS11 40 MHz
 19±1.5 dBm @ MCS12 40 MHz
 19±1.5 dBm @ MCS13 40 MHz
 18.5±1.5 dBm @ MCS14 40 MHz
 19±1.5 dBm @ MCS15 40 MHz

Transmitter Power for 802.11ac (2.4 GHz, Dual Chain)

TAP-M310R-NPS-1R and -1P1R models:

26±1.5 dBm @ MCS0 20 MHz
 26±1.5 dBm @ MCS1 20 MHz
 24.5±1.5 dBm @ MCS2 20 MHz
 24.5±1.5 dBm @ MCS3 20 MHz
 24.5±1.5 dBm @ MCS4 20 MHz
 24±1.5 dBm @ MCS5 20 MHz
 23±1.5 dBm @ MCS6 20 MHz
 22.5±1.5 dBm @ MCS7 20 MHz
 22.5±1.5 dBm @ MCS8 20 MHz
 25±1.5 dBm @ MCS0 40 MHz
 25±1.5 dBm @ MCS1 40 MHz
 24±1.5 dBm @ MCS2 40 MHz
 24±1.5 dBm @ MCS3 40 MHz
 22.5±1.5 dBm @ MCS4 40 MHz
 22.5±1.5 dBm @ MCS5 40 MHz
 22.5±1.5 dBm @ MCS6 40 MHz
 22.5±1.5 dBm @ MCS7 40 MHz
 22.5±1.5 dBm @ MCS8 40 MHz
 22±1.5 dBm @ MCS9 40 MHz

TAP-M310R-1P1R1S and -1P2R1S models:

22.5±1.5 dBm @ MCS0 20 MHz
 22.5±1.5 dBm @ MCS1 20 MHz
 22±1.5 dBm @ MCS2 20 MHz

	21.5±1.5 dBm @ MCS3 20 MHz 21.5±1.5 dBm @ MCS4 20 MHz 21±1.5 dBm @ MCS5 20 MHz 20±1.5 dBm @ MCS6 20 MHz 19.5±1.5 dBm @ MCS7 20 MHz 19.5±1.5 dBm @ MCS8 20 MHz 22±1.5 dBm @ MCS0 40 MHz 22±1.5 dBm @ MCS1 40 MHz 22±1.5 dBm @ MCS2 40 MHz 21±1.5 dBm @ MCS3 40 MHz 21±1.5 dBm @ MCS4 40 MHz 20±1.5 dBm @ MCS5 40 MHz 19.5±1.5 dBm @ MCS6 40 MHz 19.5±1.5 dBm @ MCS7 40 MHz 19±1.5 dBm @ MCS8 40 MHz 18.5±1.5 dBm @ MCS9 40 MHz
Transmitter Power for 802.11ax (2.4 GHz, Dual Chain)	TAP-M310R-NPS-1R and -1P1R models: 26.5±1.5 dBm @ MCS0 20 MHz 26.5±1.5 dBm @ MCS1 20 MHz 24.5±1.5 dBm @ MCS2 20 MHz 24.5±1.5 dBm @ MCS3 20 MHz 24±1.5 dBm @ MCS4 20 MHz 24±1.5 dBm @ MCS5 20 MHz 23.5±1.5 dBm @ MCS6 20 MHz 23.5±1.5 dBm @ MCS7 20 MHz 22.5±1.5 dBm @ MCS8 20 MHz 22±1.5 dBm @ MCS9 20 MHz 21.5±1.5 dBm @ MCS10 20 MHz 21.5±1.5 dBm @ MCS11 20 MHz 25±1.5 dBm @ MCS0 40 MHz 25±1.5 dBm @ MCS1 40 MHz 24±1.5 dBm @ MCS2 40 MHz 24±1.5 dBm @ MCS3 40 MHz 24±1.5 dBm @ MCS4 40 MHz 22±1.5 dBm @ MCS5 40 MHz 22±1.5 dBm @ MCS6 40 MHz 22±1.5 dBm @ MCS7 40 MHz 22±1.5 dBm @ MCS8 40 MHz 22±1.5 dBm @ MCS9 40 MHz 21.5±1.5 dBm @ MCS10 40 MHz 21.5±1.5 dBm @ MCS11 40 MHz TAP-M310R-1P1R1S and -1P2R1S models: 22.5±1.5 dBm @ MCS0 20 MHz 22.5±1.5 dBm @ MCS1 20 MHz 21±1.5 dBm @ MCS2 20 MHz 21±1.5 dBm @ MCS3 20 MHz 21±1.5 dBm @ MCS4 20 MHz 20.5±1.5 dBm @ MCS5 20 MHz 20±1.5 dBm @ MCS6 20 MHz 19.5±1.5 dBm @ MCS7 20 MHz 19±1.5 dBm @ MCS8 20 MHz 19±1.5 dBm @ MCS9 20 MHz 18.5±1.5 dBm @ MCS10 20 MHz 18.5±1.5 dBm @ MCS11 20 MHz 22±1.5 dBm @ MCS0 40 MHz 22±1.5 dBm @ MCS1 40 MHz 21±1.5 dBm @ MCS2 40 MHz 21±1.5 dBm @ MCS3 40 MHz 21±1.5 dBm @ MCS4 40 MHz 20.5±1.5 dBm @ MCS5 40 MHz 19.5±1.5 dBm @ MCS6 40 MHz 19.5±1.5 dBm @ MCS7 40 MHz 19±1.5 dBm @ MCS8 40 MHz 18.5±1.5 dBm @ MCS9 40 MHz 18±1.5 dBm @ MCS10 40 MHz 18±1.5 dBm @ MCS11 40 MHz
Receiver Sensitivity for 802.11a	TAP-M310R-NPS-1R and -1P1R models: Typ. -89 @ 6 Mbps Typ. -87 @ 9 Mbps Typ. -86 @ 12 Mbps Typ. -84 @ 18 Mbps

Typ. -81 @ 24 Mbps
Typ. -78 @ 36 Mbps
Typ. -73 @ 48 Mbps
Typ. -72 @ 54 Mbps

TAP-M310R-1P1R1S and -1P2R1S models:

Typ. -86 @ 6 Mbps
Typ. -84 @ 9 Mbps
Typ. -83 @ 12 Mbps
Typ. -80 @ 18 Mbps
Typ. -77 @ 24 Mbps
Typ. -74 @ 36 Mbps
Typ. -70 @ 48 Mbps
Typ. -68 @ 54 Mbps

Receiver Sensitivity for 802.11n (5 GHz)

TAP-M310R-NPS-1R and -1P1R models:

Typ. -89 dBm @ MCS0 20 MHz
Typ. -86 dBm @ MCS1 20 MHz
Typ. -83 dBm @ MCS2 20 MHz
Typ. -80 dBm @ MCS3 20 MHz
Typ. -76 dBm @ MCS4 20 MHz
Typ. -72 dBm @ MCS5 20 MHz
Typ. -70 dBm @ MCS6 20 MHz
Typ. -69 dBm @ MCS7 20 MHz
Typ. -89 dBm @ MCS8 20 MHz
Typ. -86 dBm @ MCS9 20 MHz
Typ. -84 dBm @ MCS10 20 MHz
Typ. -81 dBm @ MCS11 20 MHz
Typ. -78 dBm @ MCS12 20 MHz
Typ. -74 dBm @ MCS13 20 MHz
Typ. -72 dBm @ MCS14 20 MHz
Typ. -70 dBm @ MCS15 20 MHz
Typ. -86 dBm @ MCS0 40 MHz
Typ. -83 dBm @ MCS1 40 MHz
Typ. -80 dBm @ MCS2 40 MHz
Typ. -77 dBm @ MCS3 40 MHz
Typ. -74 dBm @ MCS4 40 MHz
Typ. -69 dBm @ MCS5 40 MHz
Typ. -68 dBm @ MCS6 40 MHz
Typ. -66 dBm @ MCS7 40 MHz
Typ. -87 dBm @ MCS8 40 MHz
Typ. -83 dBm @ MCS9 40 MHz
Typ. -81 dBm @ MCS10 40 MHz
Typ. -78 dBm @ MCS11 40 MHz
Typ. -75 dBm @ MCS12 40 MHz
Typ. -71 dBm @ MCS13 40 MHz
Typ. -70 dBm @ MCS14 40 MHz
Typ. -68 dBm @ MCS15 40 MHz

TAP-M310R-1P1R1S and -1P2R1S models:

Typ. -85 dBm @ MCS0 20 MHz
Typ. -82 dBm @ MCS1 20 MHz
Typ. -80 dBm @ MCS2 20 MHz
Typ. -76 dBm @ MCS3 20 MHz
Typ. -73 dBm @ MCS4 20 MHz
Typ. -68 dBm @ MCS5 20 MHz
Typ. -67 dBm @ MCS6 20 MHz
Typ. -65 dBm @ MCS7 20 MHz
Typ. -86 dBm @ MCS8 20 MHz
Typ. -83 dBm @ MCS9 20 MHz
Typ. -81 dBm @ MCS10 20 MHz
Typ. -78 dBm @ MCS11 20 MHz
Typ. -75 dBm @ MCS12 20 MHz
Typ. -71 dBm @ MCS13 20 MHz
Typ. -69 dBm @ MCS14 20 MHz
Typ. -66 dBm @ MCS15 20 MHz
Typ. -83 dBm @ MCS0 40 MHz
Typ. -79 dBm @ MCS1 40 MHz
Typ. -77 dBm @ MCS2 40 MHz
Typ. -74 dBm @ MCS3 40 MHz
Typ. -70 dBm @ MCS4 40 MHz
Typ. -66 dBm @ MCS5 40 MHz
Typ. -65 dBm @ MCS6 40 MHz
Typ. -63 dBm @ MCS7 40 MHz

	Typ. -84 dBm @ MCS8 40 MHz Typ. -80 dBm @ MCS9 40 MHz Typ. -78 dBm @ MCS10 40 MHz Typ. -74 dBm @ MCS11 40 MHz Typ. -72 dBm @ MCS12 40 MHz Typ. -68 dBm @ MCS13 40 MHz Typ. -67 dBm @ MCS14 40 MHz Typ. -65 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11ac (5 GHz)	TAP-M310R-NPS-1R and -1P1R models: Typ. -89 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz Typ. -83 dBm @ MCS2 20 MHz Typ. -80 dBm @ MCS3 20 MHz Typ. -78 dBm @ MCS4 20 MHz Typ. -73 dBm @ MCS5 20 MHz Typ. -72 dBm @ MCS6 20 MHz Typ. -70 dBm @ MCS7 20 MHz Typ. -66 dBm @ MCS8 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -83 dBm @ MCS1 40 MHz Typ. -81 dBm @ MCS2 40 MHz Typ. -78 dBm @ MCS3 40 MHz Typ. -75 dBm @ MCS4 40 MHz Typ. -71 dBm @ MCS5 40 MHz Typ. -70 dBm @ MCS6 40 MHz Typ. -68 dBm @ MCS7 40 MHz Typ. -64 dBm @ MCS8 40 MHz Typ. -62 dBm @ MCS9 40 MHz Typ. -84 dBm @ MCS0 80 MHz Typ. -81 dBm @ MCS1 80 MHz Typ. -78 dBm @ MCS2 80 MHz Typ. -75 dBm @ MCS3 80 MHz Typ. -72 dBm @ MCS4 80 MHz Typ. -68 dBm @ MCS5 80 MHz Typ. -66 dBm @ MCS6 80 MHz Typ. -64 dBm @ MCS7 80 MHz Typ. -61 dBm @ MCS8 80 MHz Typ. -59 dBm @ MCS9 80 MHz TAP-M310R-1P1R1S and -1P2R1S models: Typ. -86 dBm @ MCS0 20 MHz Typ. -82 dBm @ MCS1 20 MHz Typ. -80 dBm @ MCS2 20 MHz Typ. -77 dBm @ MCS3 20 MHz Typ. -74 dBm @ MCS4 20 MHz Typ. -70 dBm @ MCS5 20 MHz Typ. -68 dBm @ MCS6 20 MHz Typ. -67 dBm @ MCS7 20 MHz Typ. -63 dBm @ MCS8 20 MHz Typ. -83 dBm @ MCS0 40 MHz Typ. -80 dBm @ MCS1 40 MHz Typ. -78 dBm @ MCS2 40 MHz Typ. -74 dBm @ MCS3 40 MHz Typ. -72 dBm @ MCS4 40 MHz Typ. -68 dBm @ MCS5 40 MHz Typ. -66 dBm @ MCS6 40 MHz Typ. -65 dBm @ MCS7 40 MHz Typ. -61 dBm @ MCS8 40 MHz Typ. -59 dBm @ MCS9 40 MHz Typ. -81 dBm @ MCS0 80 MHz Typ. -77 dBm @ MCS1 80 MHz Typ. -75 dBm @ MCS2 80 MHz Typ. -71 dBm @ MCS3 80 MHz Typ. -68 dBm @ MCS4 80 MHz Typ. -65 dBm @ MCS5 80 MHz Typ. -63 dBm @ MCS6 80 MHz Typ. -61 dBm @ MCS7 80 MHz Typ. -57 dBm @ MCS8 80 MHz Typ. -56 dBm @ MCS9 80 MHz
Receiver Sensitivity for 802.11ax (5 GHz)	TAP-M310R-NPS-1R and -1P1R models: Typ. -89 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz

Typ. -84 dBm @ MCS2 20 MHz
 Typ. -81 dBm @ MCS3 20 MHz
 Typ. -78 dBm @ MCS4 20 MHz
 Typ. -73 dBm @ MCS5 20 MHz
 Typ. -72 dBm @ MCS6 20 MHz
 Typ. -70 dBm @ MCS7 20 MHz
 Typ. -66 dBm @ MCS8 20 MHz
 Typ. -65 dBm @ MCS9 20 MHz
 Typ. -61 dBm @ MCS10 20 MHz
 Typ. -59 dBm @ MCS11 20 MHz
 Typ. -87 dBm @ MCS0 40 MHz
 Typ. -84 dBm @ MCS1 40 MHz
 Typ. -82 dBm @ MCS2 40 MHz
 Typ. -78 dBm @ MCS3 40 MHz
 Typ. -75 dBm @ MCS4 40 MHz
 Typ. -71 dBm @ MCS5 40 MHz
 Typ. -70 dBm @ MCS6 40 MHz
 Typ. -68 dBm @ MCS7 40 MHz
 Typ. -65 dBm @ MCS8 40 MHz
 Typ. -63 dBm @ MCS9 40 MHz
 Typ. -59 dBm @ MCS10 40 MHz
 Typ. -57 dBm @ MCS11 40 MHz
 Typ. -84 dBm @ MCS0 80 MHz
 Typ. -81 dBm @ MCS1 80 MHz
 Typ. -78 dBm @ MCS2 80 MHz
 Typ. -76 dBm @ MCS3 80 MHz
 Typ. -72 dBm @ MCS4 80 MHz
 Typ. -68 dBm @ MCS5 80 MHz
 Typ. -67 dBm @ MCS6 80 MHz
 Typ. -65 dBm @ MCS7 80 MHz
 Typ. -61 dBm @ MCS8 80 MHz
 Typ. -59 dBm @ MCS9 80 MHz
 Typ. -55 dBm @ MCS10 80 MHz
 Typ. -53 dBm @ MCS11 80 MHz

TAP-M310R-1P1R1S and -1P2R1S models:

Typ. -87 dBm @ MCS0 20 MHz
 Typ. -83 dBm @ MCS1 20 MHz
 Typ. -81 dBm @ MCS2 20 MHz
 Typ. -78 dBm @ MCS3 20 MHz
 Typ. -75 dBm @ MCS4 20 MHz
 Typ. -71 dBm @ MCS5 20 MHz
 Typ. -69 dBm @ MCS6 20 MHz
 Typ. -67 dBm @ MCS7 20 MHz
 Typ. -64 dBm @ MCS8 20 MHz
 Typ. -62 dBm @ MCS9 20 MHz
 Typ. -58 dBm @ MCS10 20 MHz
 Typ. -56 dBm @ MCS11 20 MHz
 Typ. -84 dBm @ MCS0 40 MHz
 Typ. -81 dBm @ MCS1 40 MHz
 Typ. -79 dBm @ MCS2 40 MHz
 Typ. -76 dBm @ MCS3 40 MHz
 Typ. -72 dBm @ MCS4 40 MHz
 Typ. -63 dBm @ MCS5 40 MHz
 Typ. -67 dBm @ MCS6 40 MHz
 Typ. -65 dBm @ MCS7 40 MHz
 Typ. -62 dBm @ MCS8 40 MHz
 Typ. -60 dBm @ MCS9 40 MHz
 Typ. -56 dBm @ MCS10 40 MHz
 Typ. -54 dBm @ MCS11 40 MHz
 Typ. -81 dBm @ MCS0 80 MHz
 Typ. -78 dBm @ MCS1 80 MHz
 Typ. -75 dBm @ MCS2 80 MHz
 Typ. -72 dBm @ MCS3 80 MHz
 Typ. -69 dBm @ MCS4 80 MHz
 Typ. -65 dBm @ MCS5 80 MHz
 Typ. -64 dBm @ MCS6 80 MHz
 Typ. -62 dBm @ MCS7 80 MHz
 Typ. -58 dBm @ MCS8 80 MHz
 Typ. -56 dBm @ MCS9 80 MHz
 Typ. -52 dBm @ MCS10 80 MHz
 Typ. -50 dBm @ MCS11 80 MHz

Receiver Sensitivity for 802.11b

TAP-M310R-NPS-1R and -1P1R models:

	Typ. -94 dBm @ 1 Mbps Typ. -90 dBm @ 2 Mbps Typ. -88 dBm @ 5.5 Mbps Typ. -85 dBm @ 11 Mbps TAP-M310R-1P1R1S and -1P2R1S models: Typ. -91 dBm @ 1 Mbps Typ. -87 dBm @ 2 Mbps Typ. -85 dBm @ 5.5 Mbps Typ. -83 dBm @ 11 Mbps
Receiver Sensitivity for 802.11g	TAP-M310R-NPS-1R and -1P1R models: Typ. -89 dBm @ 6 Mbps Typ. -87 dBm @ 9 Mbps Typ. -86 dBm @ 12 Mbps Typ. -84 dBm @ 18 Mbps Typ. -81 dBm @ 24 Mbps Typ. -78 dBm @ 36 Mbps Typ. -73 dBm @ 48 Mbps Typ. -72 dBm @ 54 Mbps TAP-M310R-1P1R1S and -1P2R1S models: Typ. -86 dBm @ 6 Mbps Typ. -84 dBm @ 9 Mbps Typ. -83 dBm @ 12 Mbps Typ. -81 dBm @ 18 Mbps Typ. -78 dBm @ 24 Mbps Typ. -74 dBm @ 36 Mbps Typ. -70 dBm @ 48 Mbps Typ. -69 dBm @ 54 Mbps
Receiver Sensitivity for 802.11n (2.4 GHz)	TAP-M310R-NPS-1R and -1P1R models: Typ. -88 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz Typ. -83 dBm @ MCS2 20 MHz Typ. -80 dBm @ MCS3 20 MHz Typ. -77 dBm @ MCS4 20 MHz Typ. -72 dBm @ MCS5 20 MHz Typ. -71 dBm @ MCS6 20 MHz Typ. -69 dBm @ MCS7 20 MHz Typ. -90 dBm @ MCS8 20 MHz Typ. -87 dBm @ MCS9 20 MHz Typ. -85 dBm @ MCS10 20 MHz Typ. -82 dBm @ MCS11 20 MHz Typ. -78 dBm @ MCS12 20 MHz Typ. -74 dBm @ MCS13 20 MHz Typ. -73 dBm @ MCS14 20 MHz Typ. -71 dBm @ MCS15 20 MHz Typ. -86 dBm @ MCS0 40 MHz Typ. -84 dBm @ MCS1 40 MHz Typ. -81 dBm @ MCS2 40 MHz Typ. -78 dBm @ MCS3 40 MHz Typ. -74 dBm @ MCS4 40 MHz Typ. -70 dBm @ MCS5 40 MHz Typ. -68 dBm @ MCS6 40 MHz Typ. -67 dBm @ MCS7 40 MHz Typ. -88 dBm @ MCS8 40 MHz Typ. -85 dBm @ MCS9 40 MHz Typ. -83 dBm @ MCS10 40 MHz Typ. -79 dBm @ MCS11 40 MHz Typ. -76 dBm @ MCS12 40 MHz Typ. -72 dBm @ MCS13 40 MHz Typ. -70 dBm @ MCS14 40 MHz Typ. -68 dBm @ MCS15 40 MHz TAP-M310R-1P1R1S and -1P2R1S models: Typ. -85 dBm @ MCS0 20 MHz Typ. -82 dBm @ MCS1 20 MHz Typ. -80 dBm @ MCS2 20 MHz Typ. -77 dBm @ MCS3 20 MHz Typ. -73 dBm @ MCS4 20 MHz Typ. -69 dBm @ MCS5 20 MHz Typ. -68 dBm @ MCS6 20 MHz Typ. -66 dBm @ MCS7 20 MHz

	Typ. -87 dBm @ MCS8 20 MHz Typ. -84 dBm @ MCS9 20 MHz Typ. -82 dBm @ MCS10 20 MHz Typ. -79 dBm @ MCS11 20 MHz Typ. -75 dBm @ MCS12 20 MHz Typ. -71 dBm @ MCS13 20 MHz Typ. -70 dBm @ MCS14 20 MHz Typ. -68 dBm @ MCS15 20 MHz Typ. -83 dBm @ MCS0 40 MHz Typ. -80 dBm @ MCS1 40 MHz Typ. -78 dBm @ MCS2 40 MHz Typ. -74 dBm @ MCS3 40 MHz Typ. -71 dBm @ MCS4 40 MHz Typ. -67 dBm @ MCS5 40 MHz Typ. -65 dBm @ MCS6 40 MHz Typ. -64 dBm @ MCS7 40 MHz Typ. -85 dBm @ MCS8 40 MHz Typ. -81 dBm @ MCS9 40 MHz Typ. -79 dBm @ MCS10 40 MHz Typ. -75 dBm @ MCS11 40 MHz Typ. -72 dBm @ MCS12 40 MHz Typ. -69 dBm @ MCS13 40 MHz Typ. -67 dBm @ MCS14 40 MHz Typ. -65 dBm @ MCS15 40 MHz
Receiver Sensitivity for 802.11ac (2.4 GHz)	TAP-M310R-NPS-1R and -1P1R models: Typ. -90 dBm @ MCS0 20 MHz Typ. -86 dBm @ MCS1 20 MHz Typ. -84 dBm @ MCS2 20 MHz Typ. -81 dBm @ MCS3 20 MHz Typ. -78 dBm @ MCS4 20 MHz Typ. -74 dBm @ MCS5 20 MHz Typ. -72 dBm @ MCS6 20 MHz Typ. -71 dBm @ MCS7 20 MHz Typ. -67 dBm @ MCS8 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -84 dBm @ MCS1 40 MHz Typ. -82 dBm @ MCS2 40 MHz Typ. -78 dBm @ MCS3 40 MHz Typ. -75 dBm @ MCS4 40 MHz Typ. -71 dBm @ MCS5 40 MHz Typ. -70 dBm @ MCS6 40 MHz Typ. -68 dBm @ MCS7 40 MHz Typ. -65 dBm @ MCS8 40 MHz Typ. -63 dBm @ MCS9 40 MHz TAP-M310R-1P1R1S and -1P2R1S models: Typ. -86 dBm @ MCS0 20 MHz Typ. -83 dBm @ MCS1 20 MHz Typ. -81 dBm @ MCS2 20 MHz Typ. -78 dBm @ MCS3 20 MHz Typ. -75 dBm @ MCS4 20 MHz Typ. -71 dBm @ MCS5 20 MHz Typ. -69 dBm @ MCS6 20 MHz Typ. -67 dBm @ MCS7 20 MHz Typ. -64 dBm @ MCS8 20 MHz Typ. -84 dBm @ MCS0 40 MHz Typ. -81 dBm @ MCS1 40 MHz Typ. -79 dBm @ MCS2 40 MHz Typ. -75 dBm @ MCS3 40 MHz Typ. -72 dBm @ MCS4 40 MHz Typ. -68 dBm @ MCS5 40 MHz Typ. -67 dBm @ MCS6 40 MHz Typ. -65 dBm @ MCS7 40 MHz Typ. -61 dBm @ MCS8 40 MHz Typ. -60 dBm @ MCS9 40 MHz

Receiver Sensitivity for 802.11ax (2.4 GHz)	TAP-M310R-NPS-1R and -1P1R models: Typ. -89 dBm @ MCS0 20 MHz Typ. -87 dBm @ MCS1 20 MHz Typ. -84 dBm @ MCS2 20 MHz Typ. -81 dBm @ MCS3 20 MHz Typ. -78 dBm @ MCS4 20 MHz Typ. -74 dBm @ MCS5 20 MHz Typ. -73 dBm @ MCS6 20 MHz Typ. -71 dBm @ MCS7 20 MHz Typ. -67 dBm @ MCS8 20 MHz Typ. -65 dBm @ MCS9 20 MHz Typ. -62 dBm @ MCS10 20 MHz Typ. -60 dBm @ MCS11 20 MHz Typ. -87 dBm @ MCS0 40 MHz Typ. -85 dBm @ MCS1 40 MHz Typ. -83 dBm @ MCS2 40 MHz Typ. -80 dBm @ MCS3 40 MHz Typ. -76 dBm @ MCS4 40 MHz Typ. -72 dBm @ MCS5 40 MHz Typ. -71 dBm @ MCS6 40 MHz Typ. -69 dBm @ MCS7 40 MHz Typ. -65 dBm @ MCS8 40 MHz Typ. -63 dBm @ MCS9 40 MHz Typ. -60 dBm @ MCS10 40 MHz Typ. -58 dBm @ MCS11 40 MHz TAP-M310R-1P1R1S and -1P2R1S models: Typ. -87 dBm @ MCS0 20 MHz Typ. -84 dBm @ MCS1 20 MHz Typ. -81 dBm @ MCS2 20 MHz Typ. -78 dBm @ MCS3 20 MHz Typ. -75 dBm @ MCS4 20 MHz Typ. -71 dBm @ MCS5 20 MHz Typ. -70 dBm @ MCS6 20 MHz Typ. -68 dBm @ MCS7 20 MHz Typ. -64 dBm @ MCS8 20 MHz Typ. -62 dBm @ MCS9 20 MHz Typ. -59 dBm @ MCS10 20 MHz Typ. -56 dBm @ MCS11 20 MHz Typ. -85 dBm @ MCS0 40 MHz Typ. -82 dBm @ MCS1 40 MHz Typ. -79 dBm @ MCS2 40 MHz Typ. -76 dBm @ MCS3 40 MHz Typ. -73 dBm @ MCS4 40 MHz Typ. -69 dBm @ MCS5 40 MHz Typ. -68 dBm @ MCS6 40 MHz Typ. -66 dBm @ MCS7 40 MHz Typ. -62 dBm @ MCS8 40 MHz Typ. -60 dBm @ MCS9 40 MHz Typ. -57 dBm @ MCS10 40 MHz Typ. -54 dBm @ MCS11 40 MHz
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Ethernet Interface

Standards	All models: IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3bz for 2.5GBaseT IEEE 802.1Q for VLAN Tagging TAP-M310R-1P1R1S and -1P2R1S models only: IEEE 802.3z for 1000BaseX
10/100/1000/2500BaseT(X) Ports (M12 X-coded 8-pin female connector)	TAP-M310R-NPS-1R, -1P1R models: 1 TAP-M310R-1P1R1S models: 1 TAP-M310R-1P2R1S models: 2
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin female connector)	TAP-M310R-1P1R1S, -1P2R1S models: 2
1000/2500BaseSFP Slots	TAP-M310R-1P1R1S, 1P2R1S models: 2

Ethernet Software Features

Management	DHCP Server DHCP Client DNS HTTP IPv4 LLDP SMTP SNMPv1/v2c/v3 Syslog TCP/IP Telnet UDP VLAN MXconfig
Security	HTTPS/SSL RADIUS SSH Certificate Management
Time Management	SNTP Client
Firewall	
Filter	ICMP MAC address IP protocol Port-based Wi-Fi ACL Client Isolation
Serial Interface	
Console Port	RS-232 (M12 A-coded 5-pin male connector)
LED Interface	
LED Indicators	TAP-M310R-NPS-1R, -1P1R models: PWR, PWR R, PWR L, SYS, 2.4G, 5G, LAN 1 TAP-M310R-1P1R1S, -1P2R1S models: PWR, PWR R, PWR L, SYS, 2.4G, 5G, LAN 1, LAN 2, LAN 3, LAN 4, LAN 5, HEAD, TAIL
Input/Output Interface	
Buttons	Reset button
Physical Characteristics	
Housing	Metal
IP Rating	IP67
Dimensions	TAP-M310R-NPS-1R models: 74.25 x 150 x 130 mm (2.92 x 5.91 x 5.12 in) TAP-M310R-NPS-1P1R models: 136.65 x 150 x 130 mm (5.38 x 5.91 x 5.12 in) TAP-M310R-1P1R1S models: 198.75 x 150 x 130 mm (7.83 x 5.91 x 5.12 in) TAP-M310R-1P2R1S models: 268.15 x 150 x 130 mm (10.56 x 5.91 x 5.12 in)
Weight	TAP-M310R-NPS-1R models: 1,688 g (3.72 lb) TAP-M310R-NPS-1P1R models: 3,263.5 g (7.19 lb) TAP-M310R-1P1R1S models: 4,508.5 g (9.94 lb) TAP-M310R-1P2R1S models: 6,281 g (13.85 lb)
Installation	TAP-M310R-NPS-1R, -1P1R models: Wall mounting, DIN-rail mounting (optional) TAP-M310R-1P1R1S, -1P2R1S models: DIN-rail mounting

Power Parameters

Input Current	TAP-M310R-NPS-1R models: 1.35 A @ 24 VDC TAP-M310R-NPS-1P1R models: 1.35 A @ 24 VDC, 0.3 A @ 110 VDC TAP-M310R-1P1R1S models: 110 to 220 VAC, 50 to 60 Hz, 0.36 to 0.18 A (max.) TAP-M310R-1P2R1S models: 110 to 220 VAC, 50 to 60 Hz, 0.62 to 0.31 A (max.)
Input Voltage	TAP-M310R-NPS-1R models: 24 VDC TAP-M310R-NPS-1P1R models: 24 to 110 VDC TAP-M310R-1P1R1S, -1P2R1S models: 110 to 220 VAC
Power Connector	TAP-M310R-NPS-1R models: M12 A-coded 4-pin male connector TAP-M310R-NPS-1P1R models: M12 K-coded 5-pin male connector TAP-M310R-1P1R1S, -1P2R1S models: M12 K-coded 5-pin male connector
Power Consumption	TAP-M310R-NPS-1R models: 32.4 W (max.) TAP-M310R-NPS-1P1R models: 33W (max.) TAP-M310R-1P1R1S models: 39.6 W (max.) TAP-M310R-1P2R1S models: 68.2 W (max.)

Environmental Limits

Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 61000-6-2/-6-4 EN 55032/35
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/m IEC 61000-4-8 PFMF: 30 A/m
Safety	IEC 62368-1 UL 62368-1
Railway	EN 50121-4 EN 50155
Railway Fire Protection	EN 45545-2
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, EN 300 440, FCC

MTBF

Time	TAP-M310R-NPS-1R models: 2,531,479 hrs TAP-M310R-NPS-1P1R models: 1,872,508 hrs TAP-M310R-1P1R1S models: 1,414,473 hrs TAP-M310R-1P2R1S models: 922,834 hrs
Standards	Telcordia Standard SR-332

Warranty

Warranty Period	5 years
Details	See www.moxa.com/warranty

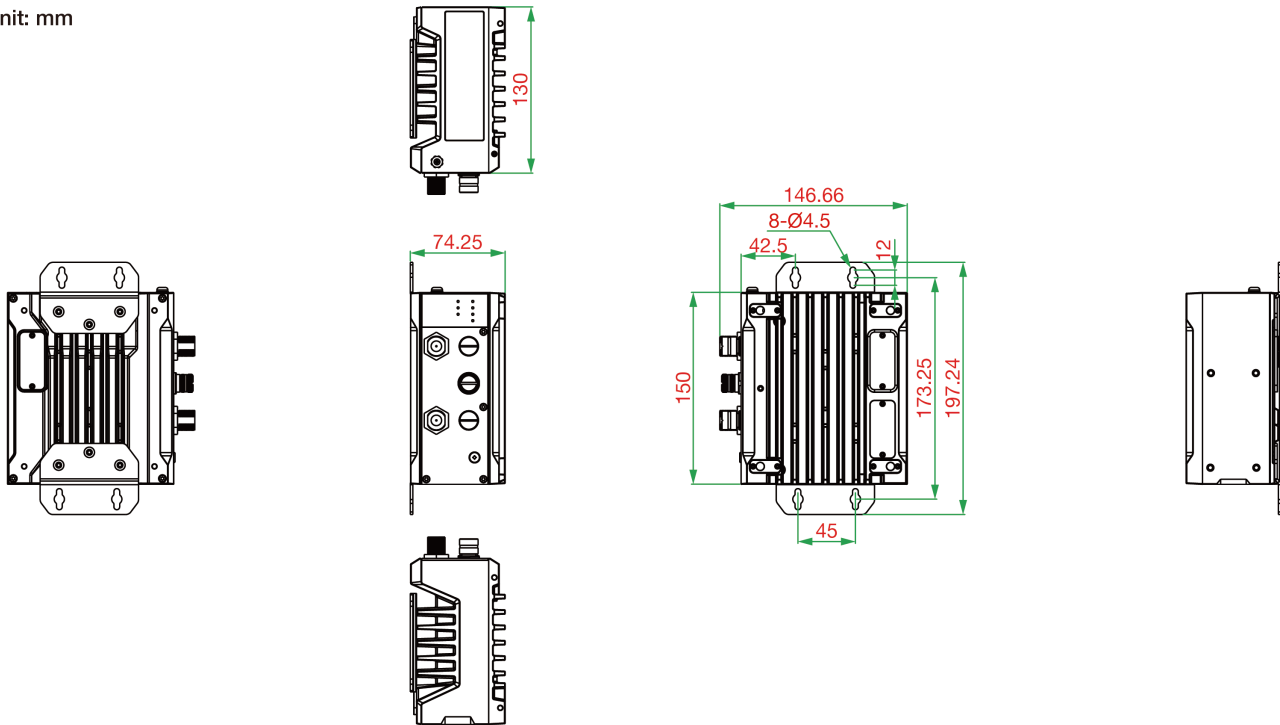
Package Contents

Device	1 x TAP-M310R Series wireless AP/Client
Installation Kit	TAP-M310R-NPS-1R, -1P1R models: 1 x Wall mounting kit
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

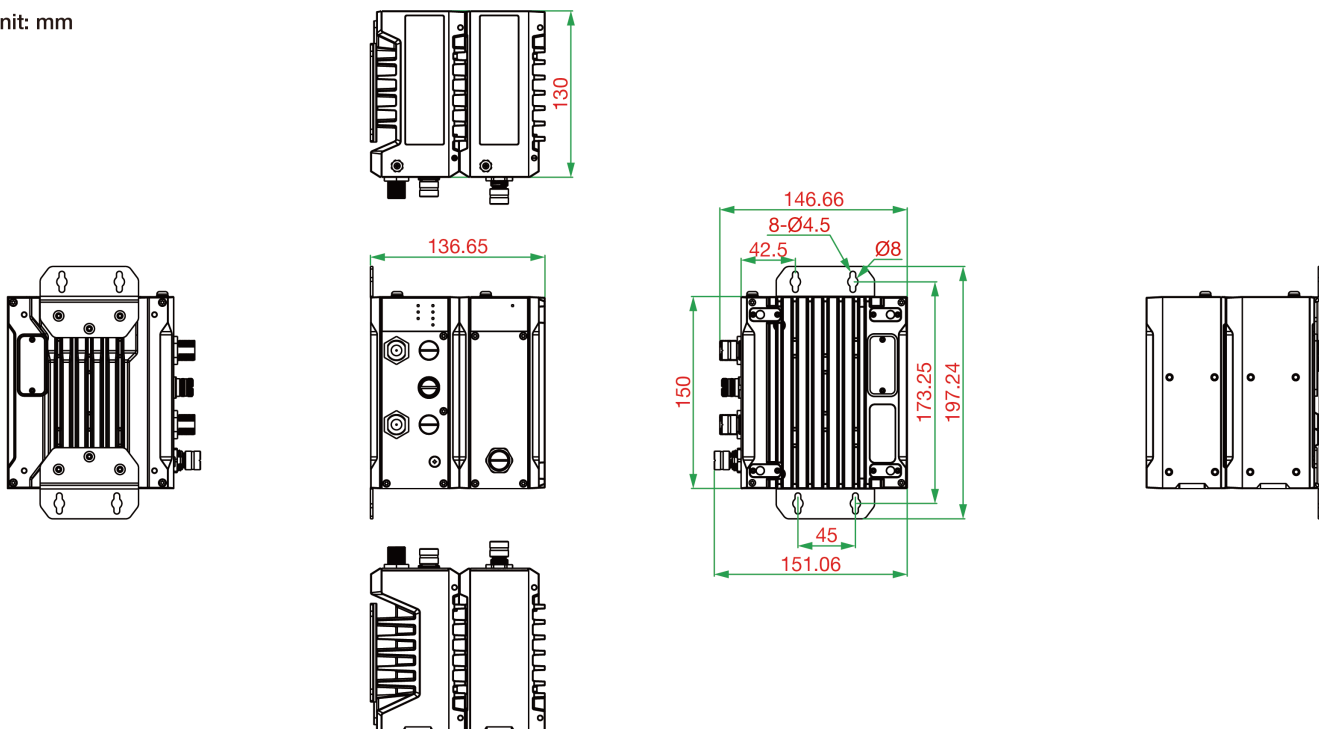
TAP-M310R-NPS-1R Models

Unit: mm



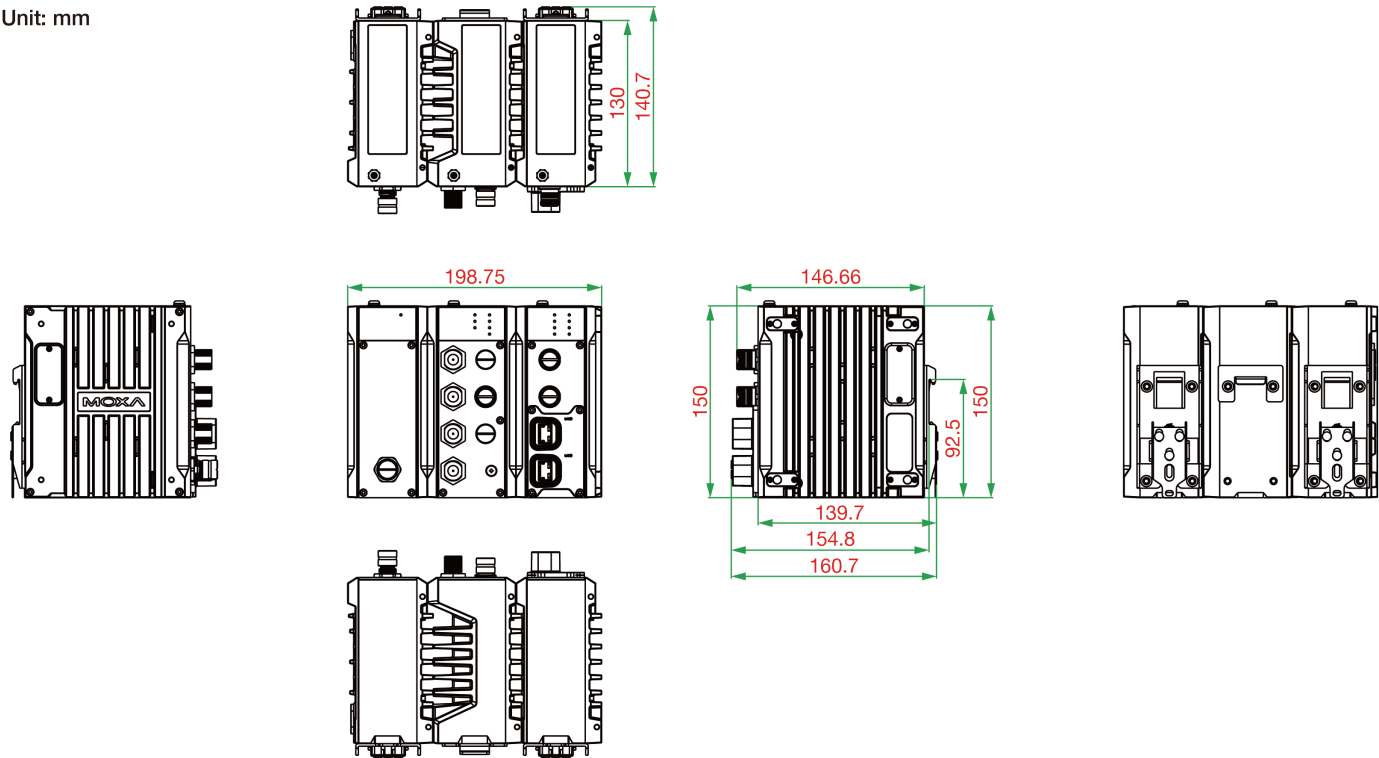
TAP-M310R-NPS-1P1R Models

Unit: mm



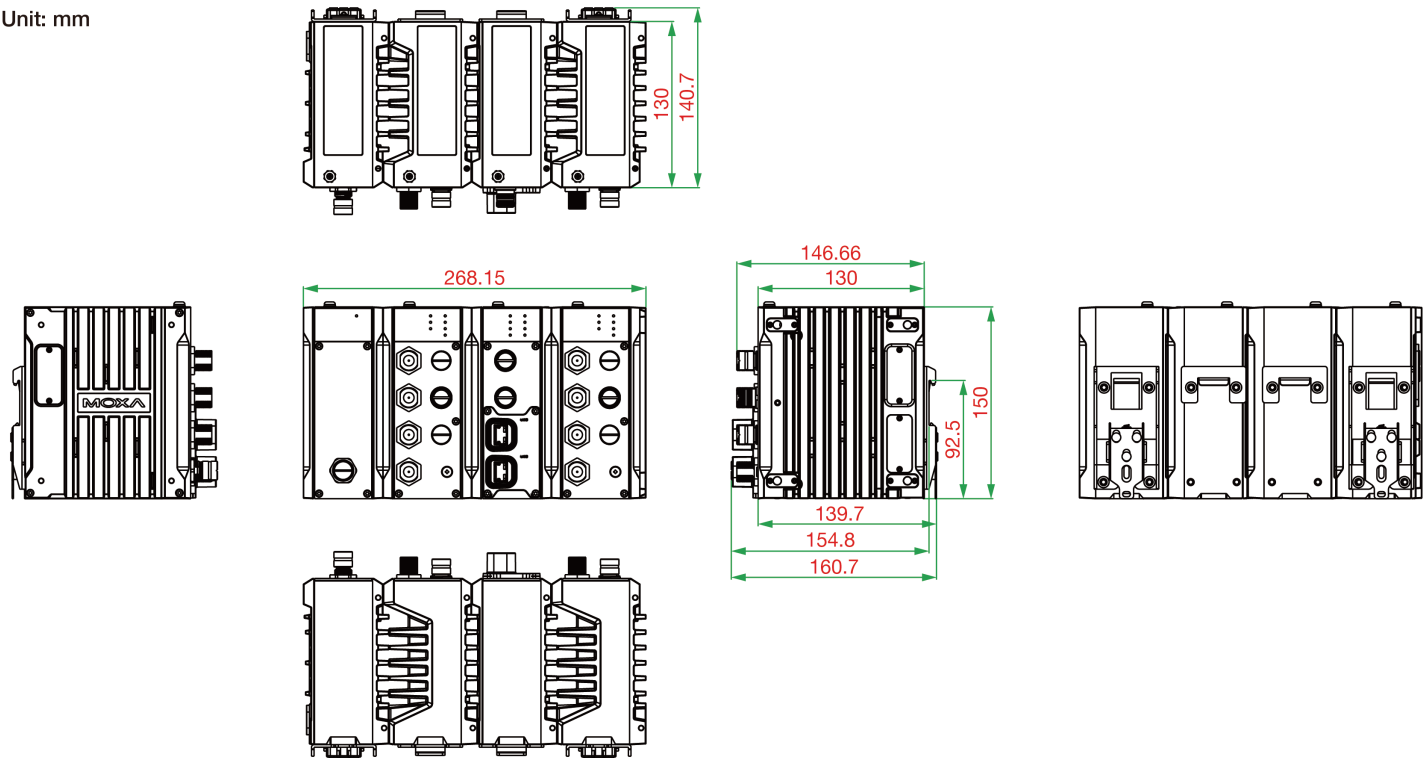
TAP-M310R-1P1R1S Models

Unit: mm



TAP-M310R-1P2R1S Models

Unit: mm



Ordering Information

Model Name	Application	Band	Operating Temp.
TAP-M310R-NPS-1R-EU-CT-T	Onboard	EU	-40 to 75°C
TAP-M310R-NPS-1R-US-CT-T	Onboard	US	-40 to 75°C
TAP-M310R-NPS-1P1R-EU-CT-T	Onboard	EU	-40 to 75°C
TAP-M310R-NPS-1P1R-US-CT-T	Onboard	US	-40 to 75°C

Model Name	Application	Band	Operating Temp.
TAP-M310R-1P1R1S-EU-CT-T	Wayside	EU	-40 to 75°C
TAP-M310R-1P1R1S-US-CT-T	Wayside	US	-40 to 75°C
TAP-M310R-1P2R1S-EU-CT-T	Wayside	EU	-40 to 75°C
TAP-M310R-1P2R1S-US-CT-T	Wayside	US	-40 to 75°C

Accessories (sold separately)

Cables

CBL-M12KFF5POPEN-O-150-IP67	K-coded female M12-to-5-pin open wire power cable, orange, IP67-rated, 1.5 m
CBL-M12FF5PF9-BK-150-IP67	A-coded female M12-to-5-pin DB9 console cable, black, IP67-rated, 1.5 m
CBL-M12(FF4P)/Open-BK-100-IP68	A-coded female M12-to-4-pin open cable, black, IP68-rated, 1 m
CBL-M12XMM8PRJ45-Y-200-IP67	X-coded male M12-to-RJ45 Ethernet cable, yellow, IP67-rated, 2 m

Connectors

M12K-5PFF-IP65-PxC	Crimp type M12 connector, female 5-pin, K-coded, IP65-rated
A-PLG-WPSFP-IP67	SFP cable gland for TAP-M310R Series, IP67-rated

SFP Modules

SFP-2.5GMLC-T	SFP module with 1 2.5GBaseFX port with LC connector, multi-mode, for 170, 200, 550, 600 m transmission, -40 to 85 °C operating temperature
SFP-2.5GSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 5 km transmission, -40 to 85 °C operating temperature
SFP-2.5GLSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 20 km transmission, -40 to 85 °C operating temperature
SFP-2.5GSLHLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 45 km transmission, -40 to 85 °C operating temperature
SFP-1GLXLC-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXLC-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature

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