

Tropos 5320

Outdoor MetroMesh™ Router

TROPOS
networks



FEATURES

MetroMesh OS

- Layer 3 mesh routing intelligence
- PWRP dynamically employs links across multiple frequency bands for high throughput
- Supports multiple virtual networks on a single wireless infrastructure
- High-speed, session-persistent roaming
- Dynamic channel assignment, automatic power control and data rate selection provide efficient use of RF spectrum
- AMCE compensates for WiFi client variation
- SABRE policy-based routing carries traffic for different applications on different spectrum while supporting dynamic fault tolerance
- MESM exercises control, detects threats and enforces policies at the edge of the mesh network

Secure Management

- User-defined traffic filters
- 802.1x/802.11i
- MAC address access control lists
- AES encryption of mesh data and control traffic

Platform

- High-performance 54 Mbps Wi-Fi
- Best-in-class link budget for superior RF propagation
- Ruggedized and weatherized for extreme outdoor conditions
- FIPS 140-2 certifiable

The patented Tropos® MetroMesh™ architecture delivers the maximum scalability, high capacity at low cost and great user experience demanded by carriers, municipalities and network users. The MetroMesh architecture combines the innovative and patented Tropos MetroMesh OS, the industry's most sophisticated metro-scale mesh routing intelligence, with the Tropos MetroMesh operation and optimization tools, which provide centralized visibility, analysis and control, and purpose-built MetroMesh routers with peerless Wi-Fi radio performance. MetroMesh enables carriers, municipalities and public safety agencies to deliver city-wide fixed and mobile multi-megabit connectivity for IP-based voice, video and data applications.

The MetroMesh OS, including the Predictive Wireless Routing Protocol (PWRP®), the Spectrum and Application Based Routing Engine (SABRE™), the Adaptive Mesh Connectivity Engine (AMCE™) and Mesh Edge Service Management (MESM™), is the industry's most scalable mesh routing algorithm. The Tropos 5320 outdoor MetroMesh router is a dual-radio mesh router that uses 802.11a and 802.11b/g links to form the mesh and uses 802.11b/g to provide client coverage and connectivity. Utilizing the embedded PWRP, the Tropos 5320 creates a self-organizing and self-healing wireless mesh that intelligently selects the optimum end-to-end data path through the mesh. Because the MetroMesh OS never requires more than 5% of available bandwidth, networks can be scaled to many thousand nodes without any client throughput or network capacity degradation. MetroMesh OS dynamically uses 5 GHz links to improve

performance while not unnecessarily increasing the router density or sacrificing reliability. In this way, the Tropos 5320 and MetroMesh OS combine to leverage the benefits of using additional spectrum to increase capacity while eliminating the pitfalls of the 5 GHz, line-of-sight, spectrum.

The Tropos 5320 maximizes the return on the network investment, as the software, management and hardware combine to enable the operation of multiple independent networks on a single metro-scale Wi-Fi mesh infrastructure. Individual user communities can operate independently on the MetroMesh, segregating information access billing, and access levels.

Tropos MetroMesh routers require only power and can be deployed anywhere it is available. Each MetroMesh router provides wireless connectivity to standard 802.11b/g clients and extends the coverage area of the metro-scale Wi-Fi network.

The ruggedized and weatherized Tropos 5320 is NRTL certified for outdoor installation. It can be mounted on external structures such as buildings or lamp posts in less than 15 minutes by a trade-level worker with one tool. Outdoor MetroMesh routers run on a wide range of power options and are available with an optional, factory-installed battery backup system.

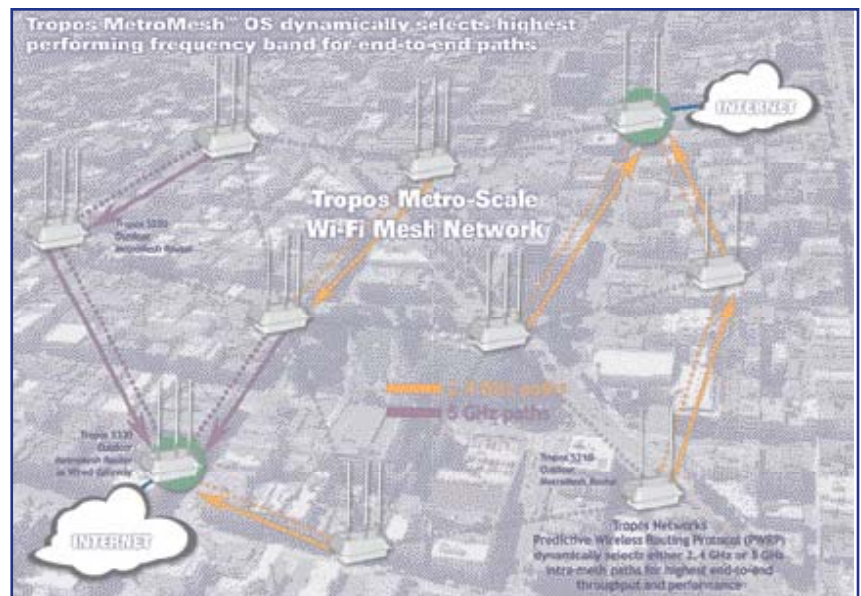


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TECHNICAL SPECIFICATIONS

Wireless

- IEEE 802.11b/g
- Frequency band: 2.4-2.483 GHz
- Modulation: 802.11g - OFDM (64-QAM, 16-QAM, QPSK, BPSK)
802.11b - DSSS (DBPSK, DQPSK, CCK)
- TX Power: ETSI/EU 20dBm (EIRP)
FCC/IC 36dBm (EIRP)
- 7.4dBi Omnidirectional antennas
- Optional 6.0dBi omni-directional or 12dBi sector antenna(s)
- Media Access Protocol: CSMA/CA with ACK
- RX Sensitivity: -100dBm @ 1 Mbps -89dBm @ 18 Mbps
-95dBm @ 5.5 Mbps -86dBm @ 24 Mbps
-91dBm @ 11 Mbps -83dBm @ 36 Mbps
-94dBm @ 6 Mbps -78dBm @ 48 Mbps
-92dBm @ 12 Mbps -76dBm @ 54 Mbps
- Transmit and Receive diversity

- IEEE 802.11a
- Frequency band: 5.725 - 5.850 GHz (FCC/IC)
5.470 - 5.725 GHz (ETSI/EU)
- Modulation: 802.11a - OFDM (64-QAM, 16-QAM)
- TX Power: ETSI/EU 29dBm (EIRP)
FCC/IC 43dBm (EIRP) point-to-point
36dBm (EIRP) point-to-multipoint, sector
33dBm (EIRP) point-to-multipoint, omni
- 9.1dBi Omnidirectional antenna
- Optional 12.0dBi sector (or) 19dBi patch antenna
- Media Access Protocol: CSMA/CA with ACK
- RX Sensitivity: -94dBm @ 6 Mbps -86dBm @ 24 Mbps
-93dBm @ 9 Mbps -83dBm @ 36 Mbps
-92dBm @ 12 Mbps -78dBm @ 48 Mbps
-89dBm @ 18 Mbps -76dBm @ 54 Mbps

Networking

- TCP and VPN session persistent roaming
- Full 802.11b/g client compatibility
- NAT support
- Layer 2 and Layer 3 support
- DHCP Server and Relay
- Sub-interface support
- Ethernet port

Management

- HTTPS to on-board configuration management tools
- Secure local and remote configuration via HTTPS
- SNMP V2c
- Tropos MIB
- Browser-based management tool
- Simple configuration save and restore
- Network & client monitoring and statistical capture features

Security

- Authentication: 802.11i, 802.1x (including EAP-TLS/TTLS/SIM/PEAP)
- Encryption: Open, WEP, TKIP, AES
- AES encryption of mesh and control traffic
- Multiple BSSIDs & ESSIDs (ESSID suppression)
- Full VPN compatibility (VPN filtering—rejects non-VPN traffic)
- MAC address access control lists
- HTTPS only to on-board management tools
- Packet filtering
- FIPS 140-2 certifiable

Environmental Specifications

- Operating temperature range: -40°C to 55°C
- Storage temperature range: -40°C to 85°C
- Weather rating: IP67 weathertight
- Wind survivability: >165 mph
- Wind loading (165 mph): <300 Newtons
- ASTM B117 Salt Fog rust resistance compliant
- Shock & vibration: ETSI 300-19-2-4 spec T41.E class 4M3
- Transportation: ISTA 2A

Optional Battery Back-Up

- Factory Installed Li-Ion battery
- Back-up power 2 - 6 hours typical

Package Contents

- Tropos 5320
- 7.4dBi omni-directional antennas (2), 802.11b/g
- 9.1dBi omni-directional antenna (1), 802.11a
- Mounting bracket and accessories
- Hardware Installation and Quick Start Guides

Warranty

- One (1) year on parts and labor; return to point of purchase
- *Optional* standard and premium support packages available

Optional Accessories

- Power Cables
 - Street light NEMA photo-electric control power tap 100-480 VAC, 2 wire 4 ft. power cable
 - Street light NEMA photo-electric control power tap 100-480 VAC, 2 wire 20 ft. power cable
 - Electrical power cord, US/Canada 120 VAC, 15 A, 3 prong 6 ft. or 30 ft.
- CAT5 building entrance data protection; network protection unit
- 19dBi patch antenna, 802.11a

Approvals

- FCC CFR 47 Part 15, Class B
- Industry Canada RSS 210
- EN 301 489-17
- EN 300 328
- EN 301 893
- EN 60 950
- IEC 950
- UL 60950-1
- CSA 22.2 No. 60950-1
- UL 579/IEC 60529 IP67 rated for outdoor use
- UL 1449/IEC 60 664-1
- CE!

Hardware Specifications

- Autosensing 10/100BaseT Ethernet
- Power input: 100-480VAC 50/60Hz single and split-phase ANSI/IEEE C62.41 category C3 integrated branch circuit protection
- AC power consumption: 18 W typical
- Power over Ethernet power sourcing capability: 12Vdc, 24Vdc, 48Vdc @ 30W output
- Power-on and network status lamp: Green/Red
- Dimensions (w/o mounting brackets or antennas): 13.00 in (33.02 cm) wide x 8.00 in (20.32 cm) deep x 5.3 in (13.50 cm) high
- Weight: 16 lbs (7.20 kg) max., with mounting brackets

Protection Circuits

- Antenna Protection: $\leq 0.5\mu\text{J}$ for 6kV/3kA @ 8/20 μs Waveform
- Electrical Protection:
 - ANSI/IEEE C62.41, UL 1449-2nd ed., 10kA @ 8/20 μs Wave form, 36kA per phase, L-L, L-N, L-PE
 - EN61000-4-5 Level 1 & 2 AC Surge Immunity
 - EN61000-4-4 Level 2 Electrical Fast Transient Burst Immunity
 - EN61000-4-3 Level 2 EMC Field Immunity
 - EN61000-4-2 Level 2 (contact), Level 3 (air) ESD immunity

Ordering Information:

- Part Number: 53202531
Tropos 5320 MetroMesh router, ETSI/EU TX, two 7.4dBi & one 9.1dBi omni antennas, bracketry
- Part Number: 53202631
Tropos 5320 MetroMesh router, ETSI/EU TX, battery backup, two 7.4dBi & one 9.1dBi omni antennas, bracketry
- Part Number: 53203030
Tropos 5320 MetroMesh router, FCC/IC TX, two 7.4dBi & one 9.1dBi omni antennas, bracketry
- Part Number: 53203130
Tropos 5320 MetroMesh router, FCC/IC TX, battery backup two 7.4dBi & one 9.1dBi omni antennas, bracketry

For additional configuration options please contact your Tropos Representative

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