Tropos 5320
Outdoor Mesh Router

TROPOS networks
GREENER, SAFER, SMARTER

FEATURES

Tropos Mesh OS
- Patented 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
- SABRE policy-based routing carries traffic for different applications on different spectrum while supporting dynamic fault tolerance

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 certified

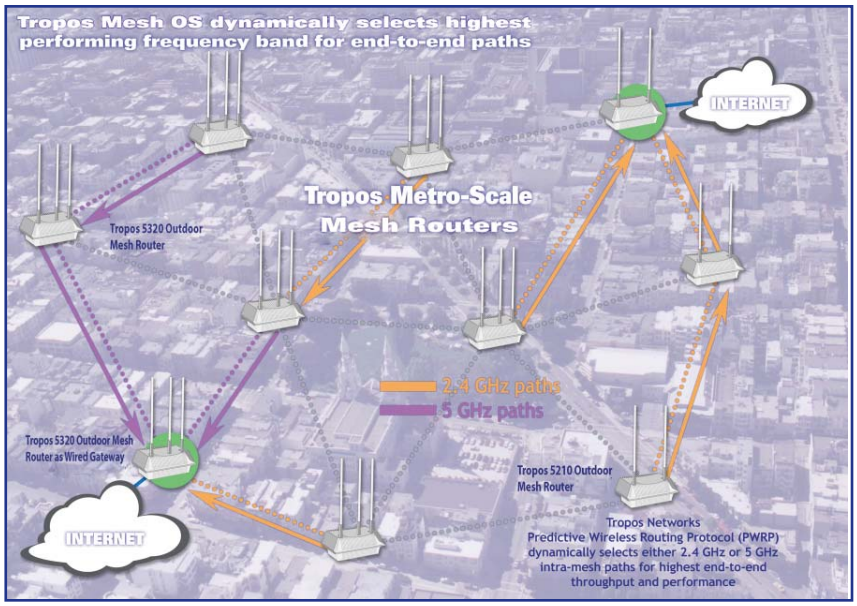
The Tropos® System Architecture delivers the maximum scalability, high capacity, reliability, and security demanded by customers. Tropos Architecture combines the innovative and patented Tropos Mesh OS, the industry's most sophisticated metro-scale mesh routing intelligence, with Tropos operation and optimization tools, which provide centralized visibility, analysis and control, and purpose-built Tropos routers with peerless 802.11 radio performance. Tropos' complete solution enables city-wide fixed and mobile multi-megabit connectivity for IP-based voice, video and data applications.

The Tropos Mesh OS, including the Predictive Wireless Routing Protocol (PWRP®) is the industry's most scalable mesh routing algorithm. The Tropos 5320 outdoor mesh router is a dual-radio 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 Tropos Mesh OS never requires more than 5% of available bandwidth, networks can be scaled to many thousand nodes without client throughput or network capacity degradation. Tropos Mesh 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 Tropos Mesh 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 return on the investment, as the software, management and hardware combine to enable the operation of multiple independent networks on a single metro-scale mesh infrastructure. Individual departments can operate independently on the network, segregating information access applicaations, and access levels.

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

The ruggedized and weatherized Tropos 5320 is NRTL certified for outdoor installation. It can be mounted on external structures such as buildings or lampposts in less than 15 minutes by a trade-level worker with one tool. Outdoor Tropos Mesh 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 certified

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: ≤ 0.5µJ for 6kV/3kA @ 8/20µS 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 router, ETSI/EU TX, two 7.4dBi & one 9.1dBi omni antennas, bracketry

Part Number: 53202631
Tropos 5320 router, ETSI/EU TX, battery backup, two 7.4dBi & one 9.1dBi omni antennas, bracketry

Part Number: 53203030
Tropos 5320 router, FCC/IC TX, two 7.4dBi & one 9.1dBi omni antennas, bracketry

Part Number: 53203130
Tropos 5320 router,FCC/IC TX, battery backup two 7.4dBi & one 9.1dBi omni antennas, bracketry

Part Number: FIPS 1402-5320
Software license, hardware labels for FIPS 140-2

For additional configuration options please contact your Tropos Representative

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DS-122909