Tropos 2420
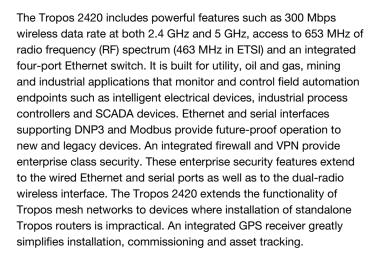
Wireless mesh edge node for DIN-rail mounting

Tropos 2420 wireless mesh edge node are used to build field area networks for automation applications. Incorporating a managed four-port Ethernet switch, voltage monitoring and contact closure monitoring, they enable cost-effective and highly secure IP communications.

The Tropos 2420 includes powerful features such as 300 Mbps wireless data rate at both 2.4 GHz and 5 GHz, access to 653 MHz of radio frequency (RF) spectrum (463 MHz in ETSI) and an integrated four-port Ethernet switch. It is built for utility, oil and gas, mining and industrial applications that monitor and control field automation endpoints such as intelligent electrical devices, industrial process controllers and SCADA devices. Ethernet and serial interfaces supporting DNP3 and Modbus provide future-proof operation to new and legacy devices. An integrated firewall and VPN provide enterprise class security. These enterprise security features extend to the wired Ethernet and serial ports as well as to the dual-radio wireless interface. The Tropos 2420 extends the functionality of Tropos mesh networks to devices where installation of standalone Tropos routers is impractical. An integrated GPS receiver greatly simplifies installation, commissioning and asset tracking.

Wireless
- IEEE 802.11b/g/n radio
  - Modulation: 802.11g/n - OFDM (64-QAM, 16-QAM, QPSK, BPSK); 802.11b - DSSS (DBPSK, DQPSK, CCK)
  - TX Power (dBm EIRP):

Band (MHz)	FCC	ETSI	Brazil	ASEAN
2400-2473	20-36	N/A	N/A	N/A
2400-2483	N/A	5-20	11-26	5-20

assumes use of 7.4 dBi antennas

- 2x2 MIMO-antenna system: 2-TX x 2-RX
- Media access protocol: CSMA/CA with ACK
- RX sensitivity:
  - 99 dBm @ 1 Mbps
  - 95 dBm @ 6 Mbps
  - 80 dBm @ 54 Mbps
- IEEE 802.11 a/n radio
  - Modulation: 802.11a/n - OFDM (64-QAM, 16 -QAM, QPSK, BPSK)
  - Media access protocol: CSMA/CA with ACK
  - TX power (dBm EIRP)

Band (MHz)	FCC	ETSI	Brazil	ASEAN
5150-5250	21-36	N/A	N/A	N/A
5250-5350	15-30	N/A	N/A	N/A
5470-5725	15-30	15-30	N/A	15-30
5725-5850	21-36	21-36	15-30	15-30

assumes use of 8 dBi antennas

- 2x2 MIMO-antenna system: 2-TX x 2-RX
- RX sensitivity:
- 95 dBm @ 6 Mbps
- Support for 802.11n MIMO
- Integrated GPS receiver

Interfaces
- Full 802.11a/b/g/n wireless, 802.11n client
- compatibility
- Serial: RS-232 and RS-485
- Four IEEE 802.3u autosensing 10/100BASE-T
- Ethernet ports
- Protocols: DNP3, Modbus (RTU), Modbus (ASCII), raw serial

- Two DC voltage monitoring ports (0-50 VDC)
- Two dry contact monitoring ports
- IPv4, IPv6-ready
- 802.1q VLAN support (ESSID and IP based tagging)
- Support for static and dynamic addressing for wireless and wired clients
- IP multicast forwarding, IGMPv3; IGMP proxy
- Automatic rate, power and channel control
- IEC 61850 GOOSE messaging
- Reliable broadcast

Quality of service
- 802.11e WMM
- 802.1p/q with 4 queues per VLAN and ESSID
- 802.1p and DSCP

Management
- Local and remote management tools via HTTPS
- Role-based authentication (4 levels)
- Configuration save and restore
- Over the air software updates
- SNMPv3
- Wireless network and client monitoring and statistics
- SuprOS carrier class NMS support

Security
- IPsec VPNs with tunnels to wired client interfaces using AES
- Authentication: WPA, WPA2, 802.11i, RADIUS, 802.1x (includes EAP-TLS, EAP-TTLS, EAP-SIM, PEAP)
- Encryption: open, WEP, TKIP, AES-CCM

- AES encryption of mesh and control traffic
- Technical controls required to achieve NERC CIP v5 compliance
- Multiple BSSIDs & ESSIDs (ESSID suppression)
- Integrated firewall
  - Packet filtering based on TCP/UDP port, protocol, SA, DA
  - Peer-to-peer blocking
  - Client access control lists
- Evil twin detection and reporting
- Denial of service (DoS) attack detection and reporting

Environmental specifications
- Operating temperature range: -40°C to 75°C
- Storage temperature range: -40°C to 85°C
- IP10
- Shock & vibration: MIL-STD-810G; 514.7
- Transportation: ISTA 2A

Power
- 7-32 VDC
- Power consumption: 3 W typical
- Power-on/network status LED

Physical
- Dimensions with connectors (RF connectors screw terminals)
  - Height: 2.48" (63 mm)
  - Width: 4.11" (104.5 mm)
  - Depth: 6.28" (159.5 mm)
  - Weight: 1.44 lb (23 grams)
- DIN clip adds .31" (8mm) of thickness to mounting side
- DIN clip and terminal block plug included with each unit

Wireless approvals
- FCC CFR 47 Part 15
- Industry Canada RSS 247
- EN 300 328
- EN 301 489

Safety approvals
- UL 60950-1
- CSA 22.2 No. 60950-1
- IEC 60950-1
- EN 60950-1

Protection
- Antenna protection: ≤ 0.5µJ for 6kV/3kA @ 8/20
- µs waveform
- Electrical protection:
  - EN 61000-4-4 level 2 electrical fast transient burst immunity
  - EN 61000-4-3 level 2 EMC field immunity
  - EN 61000-4-2 level 2 (contact), level 3 (air) ESD immunity

Warranty
- Five (5) year on parts and labor; return to point of purchase
- Software and hardware maintenance plans available

Hazardous environment certification

Regulatory Domain	Certifications
Class I, Division 2, Groups A, B, C, and D (US, Canada)	UL 61010-1 (Ed.3) UL 60079-0 (Ed.6) UL 60079-15 (Ed.4) CAN/CSA-C22.2 No. 0-10 CAN/CSA-C22.2 No. 61010-1-12 CSA C22.2 No. 213-16 ANSI/ISA-12.12.01-2015 CAN/CSA-C22.2 No. 60079-0:15 CAN/CSA-C22.2 No. 60079-15:16
ATEX Zone 2	EN 60079-0:2012/A11:2013 EN 60079-15:2010

4CAE000415 REV 1006