ABB

# TropOS 1420
# Outdoor mesh edge node for field automation applications



TropOS 1420 wireless mesh edge nodes enable cost-effective, secure IP communications for utility, mining, oil and gas, and industrial applications that monitor and control field automation endpoints such as intelligent electrical devices, industrial process controllers and SCADA devices.

The TropOS 1420 provides superior reliability by accessing 653 MHz of RF spectrum (463 MHz in ETSI) using automatic interference avoidance capabilities of TropOS Mesh OS. It uses the 802.11a/b/g/n wireless standards to deliver 600 Mbps total wireless data rate, 300 Mbps at 2.4 GHz and another 300 Mbps at 5 GHz.

### Wireless
- IEEE 802.11b/g/n radio
  - Modulation: 802.11g/n - OFDM (64-QAM, 16-QAM, QPSK, BPSK); 802.11b - DSSS (DBPSK, DQPSK, CCK)
  - Media access protocol: CSMA/CA with ACK
  - TX power (dBm EIRP)

| Band (MHz) | FCC | ETSI | Brazil |
|---|---|---|---|
| 2400-2473 | 21-36 | N/A | N/A |
| 2400-2483 | N/A | 5-20 | 11-26 |

assumes use of 7.4 dBi antennas

  - 2x2 MIMO-antenna system: 2-TX x 2-RX
  - 7 dBi integrated omnidirectional antennas
  - RX Sensitivity:
    -98 dBm @ 1 Mbps
    -96 dBm @ 6 Mbps

- IEEE 802.11a/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 |
|---|---|---|---|
| 5150-5250 | 21-36 | N/A | N/A |
| 5250-5350 | 15-30 | N/A | N/A |
| 5470-5725 | 15-30 | 15-30 | N/A |
| 5725-5850 | 21-36 | 21-36 | 15-30 |

assumes use of 8 dBi antennas

  - 2x2 MIMO-antenna system: 2-TX x 2-RX
  - 8 dBi integrated omnidirectional antennas
  - RX sensitivity:
    -95 dBm @ 6 Mbps
- Integrated GPS

### Interfaces
- 802.11a/b/g/n wireless, 802.11a, 802.11n client compatibility
- One 10/100/1000 BASE-T Ethernet port
- Serial: RS-232 or RS-485
- Protocols: DNP3, Modbus (RTU), Modbus (ASCII), raw (serial pass-through) and IEC 61850 support
- IPv4, IPv6-ready
- BGP
- 802.1q VLAN support (ESSID and IP based tagging)
- Support for static and dynamic addressing for wireless and wired clients
- Session-persistent mobility across subnets
- IP multicast forwarding, IGMPv3; IGMP Proxy
- Automatic rate, power, channel and band control
- IEC 61850 GOOSE messaging
- Reliable broadcast
- ABB System 800xA RNRP
- Network Address Translation (NAT) support for wired clients

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

## Management

- Local and remote management tools via HTTPS
- Identity-based authentication (4 levels)
- Configuration save and restore
- Over the air software upgrades
- SNMP (standard MIBs)
- Wireless, network and client monitoring and statistics
- Infrared (IR) port
- Wireless rescue

## 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 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
- Jamming attack detection and reporting

## Environmental specifications

- Operating temperature range: -40°C to 75°C
- Storage temperature range: -40°C to 85°C
- Weather rating: IP67 UL579/IEC 60529 IP67
- Wind survivability: >165 mph
- Wind loading (165 mph): <210 Newtons
- ASTM B117 salt fog rust resistance compliant
- Shock & vibration: ETSI 300-19-2-4 spec T4.1E class 4M3
- Transportation: ISTA 2A

## Power

- 802.3at on the 10/100/1000BASE-T port
- 12-48 VDC on Serial port
- 120/240 VAC with optional, external accessory (optional external battery backup available)
- Power consumption: 4 W typical
- Power-on and network status LEDs

## Physical

- Dimensions (w/o mounting brackets): 8.75" (22.2 cm) x 7.25" (18.4 cm) x 14" (35.6 cm) high with antennas
- Weight: 5 lbs (2.3 kg) max., without mounting brackets

## Wireless approvals

- FCC CFR 47 Part 15
- Industry Canada RSS 210
- EN 301 489-17
- EN 300 328
- EN 301 893
- EN 302 502
- Radio Equipment Directive (RED) compliant

## Safety approvals

- EN 60950
- IEC 950
- UL 60950-1
- CSA 22.2 No. 60950-1
- UL 579/IEC 60529 IP67 rated for outdoor use
- UL 1449/IEC 60664-1
- CE
- IEEE 1613

## Protection

- Antenna protection integrated
- Electrical protection:
  - 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

## Hazardous environment certification

- Class I Division 2; Groups A, B, C, D T4A

## Warranty

- Five (5) year hardware warranty
- Software and hardware maintenance plans available

Click the link to find out more information about our wireless mesh routers.