

TQ4400e

Enterprise-Class Outdoor Wireless Access Point

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The TQ4400e may operate either in standalone or AP-cluster mode, or be controlled by the UWC controller. It is suitable for a wide range of deployments—from SMBs to large Enterprises.

In large deployments with centralized control and management by UWC WLAN controller, operating costs are kept low by making the network simple to configure, monitor and manage. For smaller deployments, without the UWC controller, APs can function either as standalone APs or as a cluster of APs. When operating as a cluster, APs are grouped to share the configuration and manage the channel automatically, and there is a single point of management for easy control of all APs. This reduces the cost for multiple AP configuration and operation management.

The TQ4400e is equipped with advanced encryption and authentication IEEE 802.11i capabilities. It protects a WLAN by segmenting public and private access with multiple Service Set Identifications (SSIDs) and VLAN Tagging. Rogue AP detection provides the ability to detect unauthorized APs, thus preventing unauthorized entry to the wireless network.

The TQ4400e can be deployed in harsh outdoor environments and is accompanied by a wall/pole mounting kit and four omni-directional antennas. Power is supplied via Power over Ethernet (IEEE 802.11at, PoE Plus).



Key Features

Flexible management

- ▶ The TQ4400e can operate in either standalone or companion mode with a wireless access controller. This flexibility allows selection of the management approach that best fits the network.

For large-scale network deployment, a wireless controller offers a single point of management for operation, administration and maintenance of all your access points.

Clustering offers a single management point, which synchronizes provisioning for a group of access points. It also optimizes wireless coverage, due to dynamic channel selection among group members.

As a standalone access point, the TQ4400e detects adjacent access points and acts promptly to prevent radio interference.

IEEE 802.11ac technology

- ▶ Advanced IEEE 802.11ac technology provides a high-performance wireless link with improved bandwidth, efficiency and robustness, and allows for backward compatibility with older IEEE 802.11a/b/g/n clients. This high level of throughput and range performance supports multimedia applications such as high definition video streaming.

The MIMO system improves reliability and capacity, mitigating the fading effects of a multipath environment.

IEEE 802.11e Wireless Multimedia (WMM)

- ▶ Quality of Service (QoS) on WLAN optimizes resource use and fulfills the requirements of video, voice and data applications. Each of these applications creates different latency, bandwidth and packet error rate needs, and QoS caters to each of these needs using data traffic prioritization.

IEEE 802.11i (security)

- ▶ This feature set facilitates strong encryption, authentication and key management strategies, guaranteeing data and system security. In addition to Counter Mode with Cipher Block Chaining Message Authentication Code Protocol (CCMP), IEEE 802.1X key distribution via RADIUS controls access to the network.

Multiple-SSIDs and SSID-to-VLAN mapping

- ▶ SSID enables wireless connectivity for client devices that are assigned different security policies. Mapping SSIDs to VLANs creates logical

network separation, which differentiates between communication by application, functions or user communities.

Dynamic VLANs

- ▶ Dynamic VLANs allow VLANs to be dynamically assigned on a per-user (wireless client) basis. The Dynamic VLAN feature interacts with an external RADIUS server, so that user information is centralized in RADIUS for ease of management. It is not necessary to configure user information on APs.

The TQ4400e also supports RADIUS server redundancy, via configuration of a secondary RADIUS server.

PoE - IEEE 802.3at conformance

- ▶ TQ4400e conforms to the IEEE 802.3at standard. This enables simplified deployment, lower installation costs and centralized power management capabilities for critical network devices.

Graphical User Interface

- ▶ The Web-based user interface is user-friendly and intuitive, minimizing training needs.

Rugged, weather resistant enclosure for outside plant

- ▶ The TQ4400e is equipped with high power radio transceivers (>20dBm) for best-in-class-performances and lightning arrestors/surge protector as recommended for outdoor installation.

The metallic enclosure and the plastic cover is manufactured to repel ultraviolet (UV) radiation from the sun; these protective measure, the extended operating range (-40°C~65°C) and the vent for internal pressure equalization, make the TQ4400e an ideal solution for any local or venue including ski and beach resorts, sports arenas, college and corporate campuses, indoor industrial environments and businesses located in snowy, rainy and arid climates.

Mounting options

The TQ4400e is delivered with wall/pole mounting and antenna kits.

The external antenna kit consists of two (2) detachable antennas for the 2.4 GHz radio and two (2) detachable antennas for the 5 GHz radio.

The N-type female connectors allow replacement of the supplied omni-directional antennas with the most appropriate for the use case.

Specifications

Operational Mode

Centrally controlled and managed by Allied Telesis Unified Wireless Controller
 AP Cluster (up to 16 members)
 Standalone

Management

Graphical User Interface (HTTP, HTTPS)
 Simple Network Management Protocol (SNMPv1, v2c)
 Extended MIB set

Networking

VLAN tagging (up to 4094 VLANs)

Security

Authentication, authorization and accounting:

- ▶ 128-bit hardware-accelerated AES encryption/decryption
- ▶ WPA/TKIP, WPA2/CCMP
- ▶ Extensible Authentication Protocol (EAP)
- ▶ Protected Extensible Authentication Protocol (PEAP)
- ▶ MAC address filtering
- ▶ IEEE 802.1X RADIUS support
- ▶ IEEE 802.1X authentication
- ▶ IEEE 802.1X dynamic VLAN assignment
- ▶ Rogue AP detection

Utilities

DHCP client
 DNS client
 NTP client
 File transfer
 Logging
 Statistic information gathering

Wireless

IEEE 802.11a/b/g/n/ac 2x2:2ss MIMO
 IEEE 802.11d
 IEEE 802.11e (WMM)
 IEEE 802.11h
 IEEE 802.11i (enhanced security)

- ▶ WPA/WPA2-Personal
 - ▶ WPA/WPA2-Enterprise
- Extensible Authentication Protocol (EAP):
- ▶ 3rd Generation Authentication and Key Agreement (EAP-AKA)
 - ▶ Flexible Authentication via Secure Tunneling (EAP-FAST)
 - ▶ GSM Subscriber Identity (EAP-SIM)
 - ▶ Transport Layer Security (EAP-TLS)
 - ▶ Tunneled Transport Layer Security (EAP-TTLS/MSCHAPv2)
 - ▶ Protected Extensible Authentication Protocol (PEAP)
 - ▶ Generic Token Card (PEAPv0/EAP-MSCHAPv2)
 - ▶ Microsoft CHAP v2 (PEAPv1/EAP-GTC)

Regulatory domain compliance

Operating mode:

- ▶ Access point (up to 200 clients)
- ▶ Wireless Distribution System

Enhanced auto channel selection, with periodical refresh

SSID hiding/ignoring

Multiple SSID (up to 16 per port)

VLAN to SSID mapping

Extended Service Set (ESS)

Radio/VAP scheduler*

User scan list

Advanced wireless interface tuning:

- ▶ Beacon period
- ▶ Client isolation
- ▶ Client max association
- ▶ IEEE 802.11b fall-back control
- ▶ IEEE 802.11n guard Interval
- ▶ Short radio preamble
- ▶ Short slot time

Advanced wireless service via UWC:

- ▶ Captive portal
 - ▶ Dynamic channel planning
 - ▶ Dynamic RF coverage optimization
 - ▶ Plug and Play support (authentication and configuration)
 - ▶ Standalone fallback
 - ▶ Wireless IDS
- Media access protocol
- ▶ CSMA/CA with ACK architecture 32-bit MAC

Compliance Certificates

CE
 EAC
 FCC
 IC
 KC
 RCM
 TUV-T
 Wi-Fi Certified (ID: WFA61275)

ElectroMagnetic Compatibility

EN 301 489-1
 EN 301 489-17
 EN 50385
 EN 55022, Class B
 EN 55024
 EN 61000-3-2, Class A
 EN 61000-3-3
 EN 61000-4-2
 EN 61000-4-3
 EN 61000-4-4
 EN 61000-4-5
 EN 61000-4-6
 EN 61000-4-11
 FCC 47 CFR Part 15, Subpart B, Class B
 ICES-003, Issue 5, Class B
 ANSI C63.4

Radio Equipment

EN 300 328
 EN 301 893
 FCC 47 CFR Part 15, Subpart C
 FCC 47 CFR Part 15, Subpart E
 FCC part 2
 RSS-Gen, Issue No.4
 RSS-102, Issue 5
 RSS 247, Issue No.1
 ANSI C63.10
 IEEE C95.1

Safety

EN 60950-1, IEC 60950-1
 EN 60950-22

Technical Specifications

MTBF

286,269 hours
 Telcordia SR 332 Issue 2

Power Characteristics

PoE

- ▶ Input voltage: IEEE 802.3at
- ▶ Max. consumption: 19.4W
- ▶ Avg. consumption: 16.5W

Environmental Specifications

Operating temperature: -40° to 65°C (-40° to 149°F)
 Operating humidity: ≤95% relative (non-condensing)
 Storage temperature: -40° to 70°C (-40° to 158°F)
 Storage humidity: ≤95% relative (non-condensing)
 Operating altitude: ≤2,000m (9,843ft)

Physical Specifications

Dimensions (W x D x H): 218 mm x 55.5 mm x 250 mm (8.6 in x 2.2 in x 9.9 in)
 Weight: 2.0 Kg (4.4 lb)
 Enclosure: Metallic enclosure with plastic cover and protective vent.
 Protection rating: IP67

Interfaces

Wired

Ethernet

Standard: IEEE 802.3 (10T)
 IEEE 802.3u (100TX)
 IEEE 802.3ab (1000T)
 Ports: 1
 Connector: internal RJ-45 female, with waterproof cable gland

Wireless

WLAN radio 0

Standard: IEEE 802.11b/g/n
 Ports: 1
 Connector: 2x N-type, female, metallic

WLAN radio 1

Standard: IEEE802.11ac
 Ports: 1
 Connector: 2x N-type, female, metallic

Supplied External Antennas

Omni-directional

Frequency band: 2.4 GHz
 Max. peak gain: 5 dBi

Omni-directional

Frequency band: 5 GHz
 Max. peak gain: 7 dBi

Radio Characteristics

Standard

- ▶ IEEE 802.11 a/b/g/n/ac

Supported frequencies (country-specific restrictions apply)

- ▶ 2.400 ~ 2.4835 GHz (ISM)
- ▶ 5.150 ~ 5.250 GHz (U-NII-1)
- ▶ 5.250 ~ 5.350 GHz (U-NII-2A)
- ▶ 5.470 ~ 5.725 GHz (U-NII-2C)
- ▶ 5.725 ~ 5.850 GHz (U-NII-3)

Modulation technique

- ▶ 802.11a/g/n/ac: OFDM
- ▶ 802.11b: DSSS, CCK, DQPSK, DBPSK
- ▶ 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
- ▶ 802.11a/g/n: BPSK, QPSK, 16QAM, 64QAM

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Media access

- ▶ CSMA/CA + Ack with RTS/CTS

Diversity

- ▶ Spatial diversity

Data rate

- ▶ 802.11a/g: 54/48/36/24/18/12/9/6Mbps
- ▶ 802.11b: 11/5.5/2/1Mbps
- ▶ 802.11n: 6.5 – 300Mbps (MCS 0 - 15)
- ▶ 802.11ac: 6.5 – 867Mbps (MCS 0 - 9, NSS 1 - 2)

Output Tx power

- ▶ over 20 dBm

Output power is the maximum signal level delivered by the radio. The signal level is automatically limited in accordance to the selected regulatory domain and installed antenna.

Ordering Information

AT-TQ4400e-xx

Enterprise-Class Outdoor Wireless Access Point with IEEE 802.11ac dual-band radio

Where xx =

- [none] Regulatory Domain: Worldwide (except United States and Canada)
- 01 Regulatory Domain: United States and Canada Reserved

Related Products

AT-UWC-60-APL

Wireless LAN controller for enterprises (hardware appliance)

AT-UWC-BaseST

Wireless LAN controller for enterprises (software appliance installer, including licenses to manage 10 access points)

AT-TQ4600

Enterprise-class Wireless Access Point with IEEE 802.11ac dual-band radios and embedded antenna

