



## WLAN ACCESS POINTS



Business WLAN .11ac Access Point

### **bintec W2003ac**

- 802.11ac/agbn 2x2 Mimo technology with up to 867 Mbit/s
- Dual concurrent operation at 5GHz and 2,4 GHz
- Enhanced feature set for performance optimizing
- Managed operation or stand-alone operation
- 2 x Gigabit Ethernet with standard PoE (12,4W)
- Certified for operation in medical environments
- Inconspicuous housing design with swichtable LEDs



# bintec W2003ac

## Business WLAN .11ac Access Point

Budget 802.11ac Access Point with full performance support of .11ac devices, interoperable to .11n devices

### Product Description

The bintec W2003ac access point supports the new 802.11ac wireless standard. The dual radios allow for simultaneous operation in both the 2.4 GHz and 5 GHz frequency bands. bintec Client Management ensures that the wireless client is always able to operate at maximum speed. bintec Client Management offers a wide range of features and also ensures that the client is always connected to the access point that can provide the best performance.

MIMO 2x2 technology and the 802.11ac wireless standard allow for PHY data rates of up to 867 Mbps. The MIMO 2x2 technology with two transmission streams offers the considerable advantage of requiring less than 12.4 watts of power, enabling operation on a standard low-cost PoE infrastructure.

In addition, the MIMO 2x2 technology is an ideal match for current smartphones and tablet PCs, which frequently only support 802.11ac with MIMO 1x1. Access points with the expensive MIMO 3x3 or MIMO 4x4 technology are not able to realize their full performance potential with these types of terminal devices, which makes an access point operating on the 802.11 ac standard and MIMO 2x2 the better solution and the better value.

	W2003ac 802.11ac Access Point with Mimo 2x2	.11ac Access Point with Mimo 3x3
Maximum PHY Rate with Smart Phone with supported Mimo 1x1	433 Mbit/s	433 Mbit/s
Maximum PHY Rate with Tablet PC or Notebook with supported Mimo 2x2	867 Mbit/s	867 Mbit/s
Maximum PHY Rate	867 Mbit/s	1,3 Gbit/s

The bintec W2003ac has an unobtrusive housing with internal antennas and LEDs that turn off. The included wall and ceiling mounting bracket makes installation easy.

The access point be managed using the bintec Cloud NetManager or a locally installed bintec WLAN Controller. Using the included free WLAN Controller license, you can operate this model as a master-AP to manage a small wireless LAN with up to six access points. Of course you can also configure the W2003ac to run as a stand-alone AP. It's hard to imagine greater flexibility.

### Variants

**bintec W2003ac** (5510000395)

WLAN Access Point with a dual concurrent radio module acc. 802.11ac/abgn (2.4/5 GHz) Mimo 2x2, 2 Gigabit ETH, PoE, integr. Antennas, incl. Wall/ceiling mounting, incl. WLAN Controller license for Master AP, shipment without 100-240V wall adapter

## Features

### Operation Modes

WLAN operation mode	WLAN = off / WLAN = Access Point (stand-alone/Managed/Master-AP/Cloud Managed)
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### Wireless LAN (Radio 1)

WLAN Standards	802.11b; 802.11g; 802.11n (Mimo 2x2) 2.4 GHz
Receiver Sensitivity @ 2.4 GHz 802.11b/g	1 Mbps -94 dBm; 2 Mbps -94 dBm; 5,5 Mbps -94 dBm; 11 Mbps -94 dBm; 6 Mbps -94 dBm; 9 Mbps -94 dBm; 12 Mbps -94 dBm; 18 Mbps -94 dBm; 24 Mbps -94 dBm; 36 Mbps -86 dBm; 48 Mbps -82 dBm; 54 Mbps -80 dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 20 MHz	MCS0/8 -94 dBm; MCS1/9 -94 dBm; MCS2/10 -92 dBm; MCS3/11 -88 dBm; MCS4/12 -84 dBm; MCS5/13 -81 dBm; MCS6/14 -78 dBm; MCS7/15 -77 dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 40 MHz	MCS0/8 -93 dBm; MCS1/9 -91 dBm; MCS2/10 -90 dBm; MCS3/11 -85 dBm; MCS4/12 -82 dBm; MCS5/13 -78 dBm; MCS6/14 -77 dBm; MCS7/15 -75 dBm
Tx Power @ 2.4 GHz 802.11b/g	1 Mbps 20 dBm; 2 Mbps 20 dBm; 5,5 Mbps 20 dBm; 11 Mbps 20 dBm; 6 Mbps 20 dBm; 9 Mbps 20 dBm; 12 Mbps 20 dBm; 18 Mbps 20 dBm; 24 Mbps 20 dBm; 36 Mbps 20 dBm; 48 Mbps 20 dBm; 54 Mbps 18 dBm
Tx Power @ 2.4 GHz 802.11n 20 MHz (2 chains)	MCS0/8 20 dBm; MCS1/9 20 dBm; MCS2/10 20 dBm; MCS3/11 20 dBm; MCS4/12 20 dBm; MCS5/13 20 dBm; MCS6/14 18 dBm; MCS7/16 15 dBm
Tx Power @ 2.4 GHz 802.11n 40 MHz (2 chains)	MCS0/8 20 dBm; MCS1/9 20 dBm; MCS2/10 20 dBm; MCS3/11 20 dBm; MCS4/12 20 dBm; MCS5/13 20 dBm; MCS6/14 18 dBm; MCS7/15 16 dBm
Frequency bands 2.4 GHz indoor/outdoor (EU)	2.4 GHz Indoor/Outdoor (2412-2484 MHz) max. 100 mW EIRP (for Germany)
Data rates for 802.11b,g (2.4 GHz)	11, 5.5, 2 und 1 Mbps (DSSS modulation); 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Data rates for 802.11n, 20 MHz channel bandwidth	MCS0-15 allow up to 150 Mbps PHY rate at 20 MHz channel bandwidth, 2 streams, Short guard intervall
Data rates for 802.11n, 40 MHz channel bandwidth	MCS0-15 allow up to 300 Mbps PHY rate at 40 MHz channel bandwidth, 2 streams, Short guard intervall
Output power limitation (without antenna gain)	Adjustable in following steps: 5, 8,11,14,16 dBm and maximum. Maximal power varies depending on data rate, frequency band and country setting.
Output power @ 2.4 GHz	Max. 20dBm
Automatic Rate Selection (ARS)	Available
Transmission rate	Automatic

## Wireless LAN (Radio 1)

Number of spatial streams (802.11n)	1 or 2
Bandwidth (802.11n)	20 MHz
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
DTIM Period	Adjustable
Extended Performance Feature	Beamforming, MRC (Maximum Ratio Combining), Block-Acknowledge, STBC (Space Time Block Coding), LDPC (Low Density Parity Check)
Multi SSID	Up to 16 service sets per radio module, with virtual access points and own MAC address per SSID
Broadcast SSID	On/off switchable
RTS/CTS	RTS/CTS threshold adjustable

## Wireless LAN (Radio 2)

WLAN Standards	802.11ac/an; Mimo 2x2; 20/40/80 MHz; 5 GHz
Receiver Sensitivity @ 5 GHz 802.11a/h	6 Mbps -94 dBm; 9 Mbps -94 dBm; 12 Mbps -94 dBm; 18 Mbps -94 dBm; 24 Mbps -94 dBm; 36 Mbps -86 dBm; 48 Mbps -82 dBm; 54 Mbps -80 dBm
Receiver Sensitivity @ 5 GHz 802.11n 20 MHz	MCS0 -93 dBm; MCS1 -91 dBm; MCS2 -90 dBm; MCS3 -85 dBm; MCS4 -82 dBm; MCS5 -78 dBm; MCS6 -77 dBm; MCS7 -75 dBm; MCS8 -73 dBm; MCS9 -71 dBm
Receiver Sensitivity @ 5 GHz 802.11ac/n 40 MHz	MCS0 -93 dBm; MCS1 -91 dBm; MCS2 -90 dBm; MCS3 -85 dBm; MCS4 -82 dBm; MCS5 -78 dBm; MCS6 -77 dBm; MCS7 -75 dBm; MCS8 -73dBm; MCS9 -71dBm
Receiver Sensitivity @ 5 GHz 802.11ac/n 80 MHz	MCS0 -89 dBm; MCS1 -88 dBm; MCS2 -85 dBm; MCS3 -81 dBm; MCS4 -79 dBm; MCS5 -75 dBm; MCS6 -74 dBm; MCS7 -72 dBm; MCS8 -70 dBm; MCS9 -68 dBm
Tx Power @ 5 GHz 802.11a/h (2 chains)	6 Mbps 21 dBm; 9 Mbps 21 dBm; 12 Mbps 21 dBm; 18 Mbps 21 dBm; 24 Mbps 21 dBm; 36 Mbps 20 dBm; 48 Mbps 19 dBm; 54 Mbps 18 dBm
Tx Power @ 5 GHz 802.11ac/n 20 MHz (2 chains)	MCS0 21 dBm; MCS1 21 dBm; MCS2 21 dBm; MCS3 20 dBm; MCS4 20 dBm; MCS5 17 dBm; MCS6 16 dBm; MCS7 16 dBm; MCS9 15 dBm; MCS9 15 dBm
Tx Power @ 5 GHz 802.11ac/n 40 MHz (2 chains)	MCS0 21 dBm; MCS1 21 dBm; MCS2 21 dBm; MCS3 19 dBm; MCS4 19 dBm; MCS5 16 dBm; MCS6 15 dBm; MCS7 15 dBm; MCS9 15 dBm; MCS9 15 dBm
Tx Power @ 5 GHz 802.11ac/n 80 MHz (2 chains)	MCS0 21 dBm; MCS1 21 dBm; MCS2 21 dBm; MCS3 18 dBm; MCS4 18 dBm; MCS5 15 dBm; MCS6 14 dBm; MCS7 14 dBm; MCS9 13 dBm; MCS9 13 dBm
Frequency bands 5 GHz indoor (EU)	5 GHz indoor (5150-5350 MHz) max. 200 mW EIRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Frequency bands 5 GHz outdoor (EU)	5 GHz outdoor (5470-5725 MHz) max. 1000 mW EIRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Data rates for 802.11a,h (5 GHz)	54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Data rates for 802.11n, 20 MHz channel bandwidth	MCS0-15 allow up to 150 Mbps PHY rate at 20 MHz channel bandwidth, 2 streams, Short guard intervall

## Wireless LAN (Radio 2)

Data rates for 802.11n, 40 MHz channel bandwidth	MCS0-15 allow up to 300 Mbps PHY rate at 40 MHz channel bandwidth, 2 streams, Short guard intervall
Data rates for 802.11ac, 20 MHz channel bandwidth	Allow up to 173 Mbps PHY rate with two streams or up to 87 Mbps PHY with one stream.
Data rates for 802.11ac, 40 MHz channel bandwidth	Allow up to 400 Mbps PHY rate with two streams or up to 200 Mbps PHY with one stream.
Data rates for 802.11ac, 80 MHz channel bandwidth	Allow up to 867 Mbps PHY rate with two streams or up to 433 Mbps PHY with one stream
Output power limitation ( without antenna gain)	Adjustable in following steps: 5, 8,11,14,16 dBm and maximum. Maximal power varies depending on data rate, frequency band and country setting.
Output power @ 5 GHz	Max. 23 dBm (200mW EIRP)
Automatic Rate Selection (ARS)	Available
Transmission rate	Automatic
Number of spatial streams (802.11ac/n)	1 or 2
Bandwidth (802.11n)	20/40 MHz (bundling of two adjoining 20 MHz channels to one 40 MHz channel)
Bandwidth (802.11ac)	20/40/80 MHz (bundling of up to four adjoining 20 MHz channels to one channel)
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
DTIM Period	Adjustable
Extended Performance Feature	Beamforming, MRC (Maximum Ratio Combining), Block-Acknowledge, STBC (Space Time Block Coding), LDPC (Low Density Parity Check)
Multi SSID	Up to 16 service sets per radio module, with virtual access points and own MAC address per SSID.
Broadcast SSID	On/off switchable
RTS/CTS	RTS/CTS threshold adjustable

## Software

Airtime Fairness	Prevent performance limitation by slower or distant clients, which block the network
Client Band Select	Shifting of clients to 5 GHz band
Client Management	Client overload protection (to much clients) and shifting of clients to other APs, if threshold is reached.
Roaming	Seamless roaming with IAPP (Inter Access Point Protocol), support according 802.11f
Buffer pool	For cushioning of peaks
Broadcast SSID	Data prioritization for TOS data, 802.11e/WMM
WMM 802.11e power save	Support of active WLAN clients, which support 802.11e power save.
U-APSD	Unscheduled Automatic Power Save Delivery: this functionality contributes significantly to raise battery life of Voice-over-WLAN end devices
Internet dialup	PPPoE, PPTP (works at stand-alone operation or with WLAN controller, not at Master AP operation)

<b>Software</b>	
NTP	NTP client, NTP server, manually (works at stand-alone operation or with WLAN controller, not at Master AP operation)
DNS	DNS client, DNS server, DNS relay (works at stand-alone operation or with WLAN controller, not at Master AP operation)
DHCP	DHCP client, DHCP server, DHCP relay (DHCP Server and DHCP Relay works at stand-alone operation or together with WLAN controller, not at Master AP operation)
HotSpot	Requires a license. Works in WLC mode or in stand-alone operation, but not in Master-AP operation.

<b>Security</b>	
Encryption WPA/WEP	WPA personal, WPA enterprise, WPA2 personal, WPA2 enterprise, WEP64 (40 Bit key), WEP128 (104 Bit key)
IEEE802.11i Authentisierung und Verschlüsselung	802.1x/EAP-MD5, 802.1x/EAP-TLS, 802.1x/EAP-TTLS, 802.1x/EAP-PEAP, key management, PSK/TKIP encryption, AES encryption, 802.1x/EAP
Access control list (ACL)	MAC address filter for WLAN clients (white list) and dynamic and static blacklist.
WIDS (Wireless Intrusion Detection System)	Rogue AP detection: detect foreign Aps, which try to spy out data via SSIDs by permanent background scanning. This functionality requires WLAN Controller or the Cloud NetManager
WIPS (Wireless Intrusion Protection System)	Rogue Client Detection: detection and protection: detect conspicuous clients, which try to intrude or interfere the wireless network. In threat case blocking by dynamic black list. Requires the WLAN Controller or the Cloud NetManager
WIDS (Wireless Intrusion Detection System)	Neighbor AP Detection: detection of neighbor Aps with possible influence on performance of own network. By detected intrusion: SNMP trap or email alert. This functionality requires the WLAN Controller or the Cloud NetManager.
VLAN	Network segments on layer2 possible. Per SSID one VLAN ID available. Static VLAN configuration according IEEE 802.1q; up to 32 VLANs supported.
Inter cell repeating	Inter traffic blocking for public HotSpot applications for preventing of communication radio client to radio client in a single radio cell.
Performance Monitoring	Tracks performance values for the Access Point, the SSID and for the dedicated, connected WLAN clients. This feature helps to analyze performance or to figure out bottlenecks. This feature requires a WLAN Controller or the Cloud NetManager.

<b>Maintenance</b>	
Configuration a. maintenance:	
Configuration a. maintenance: Device configuration via	Telnet, SSH, HTTP, HTTPS, SNMP
Configuration a. maintenance: SNMP	SNMP (v1, v2, v3), USM model, VACM views, SNMP traps (v1, v2, v3) configurable, SNMP IP access list configurable
Configuration a. maintenance: SNMP configuration	Complete management with MIB-II, MIB 802.11, enterprise MIB
Configuration a. maintenance: SSH Login	Supports SSH V1.5 and SSH V2.0, for secure connections of terminal applications

<b>Maintenance</b>	
Configuration a. maintenance: HTTP/HTTPS	Web-based configuration (FCI). The user interface is identical with almost all bintec elmeg products.
Configuration a. maintenance: Configuration export and import	Load and save of configurations; save configuration optionally encrypted; optional, automatic controlled via scheduler
Configuration a. maintenance: On the fly configuration	No restart is required after the configuration has been changed.
Configuration a. maintenance: Software update	Software updates free of charge; loadable via file, HTTP or via direct access to the bintec elmeg upload server; optional, automatic controlled via scheduler
<b>External Reporting:</b>	
External reporting: Syslog	Syslog client, with different levels of messaging
External reporting: eMail alert	Automatic eMail alert by definable events (predefined events: new neighbor AP found, new rogue AP found, new slave AP found, managed AP failed)
External reporting: SNMP traps	Supported
<b>Monitoring:</b>	
Monitoring: Internal Log	Output via web-based configuration interface (http/https); filter: subsystem, level, message
Monitoring: Interfaces	Statistic information of all physical and logical interfaces
Monitoring: WLAN	Detailed displays for radio, VSS. Displayed are per link: MAC address, IP address, TX packets, RX packets, signal strength for every receiving aerial, signal-to-noise ratio, data rate
Monitoring: Configurable scheduler (standalone AP)	In the operation mode "standalone AP" the following events can be scheduled: Reboot device, activate/deactivate interface, activate/deactivate WLAN SSID, initiate 5 GHz band scan, trigger SW update, trigger configuration backup
Monitoring: Configurable scheduler (WLAN Controller)	In the operation mode "WLAN Controller" the following events can be scheduled: Activate/deactivate WLAN SSID, initiate Neighbor band scan
Management: Supported management systems	Cloud NetManager, Virtual Cloud NetManager, WLAN Controller, DIME Manager, XAdmin
Management: Discovery Protocol	CAPWAP DHCP option according RFC1517
Management: WLAN Controller functionality	Can act as stand-alone AP without WLAN controller; can act for small installation with up to 6 AP as WTP-AC (Master AP); can act as WTP (Managed by a WLAN Controller)
Documentation	German and English documentation on CD and in the Internet for download
Guarantee	2-year manufacturer's guarantee, online RMA handling

<b>Energy Saving Functions</b>	
Mimo 1x1 shift down	The radio modules switching automatic to Mimo 1x1 operation, when no client is connected
802.3az support	The ethernet interfaces reduce the power consumption automatically, in case that no device is connected. In the case of the usage of a short ethernet cable, the circuit reduce the transmit power.
LED Mode	The LEDs has three operation mode: Status, Flashing, Off

<b>Hardware</b>	
Standards and certifications	R&TTE Directive 1999/5/EG; EN 60950-1 (IEC60950); EN 300 328; EN 301 489-17; EN 301 489-1; EN 301 893; EN 60601-1-2 (medical electrical devices - Part 1-2)
LAN / WAN	2 x 10/100/1000 Mbps Ethernet twisted pair, autosensing, auto MDI/MDI-X
WLAN	One radio module IEEE 802.11bgn Mimo 2x2 and a second radio module IEEE 802.11ac/an Mimo 2x2 with 200 mW transmission power allow simultaneous operation at 2.4 and 5 GHz.
Antenna	Integrated single band Mimo antenna array with two antenna elements for each radio; 5 dBm gain @ 2,4 GHz; 6 dBm gain @ 5 GHz
Realtime clock	System time persists even at power failure for some hours.
Power supply	External wall power supply 230V / 9V DC, 1,3A, with high efficient switching power supply (The wall adapter is a accessory and not include the shipment).
PoE	Power-over-Ethernet according IEEE 802.3af, compatible with 802.3at PoE injectors
Status LEDs	Status, Activity for WLAN1, WLAN2 and Ethernet, LEDs defeatable
Wall and ceiling mounting	Include the package
Desktop operation	Possible, rubber pad included the package
Theft protection	Theft protection integrated, Kensington ® compatibel
Dimensions	Approx. 15.9 cm x 14.5 cm x 4.3 cm (width x depth x hight)
Power consumption	< 12,4 Watt
Environment	Temperature operating: 0°C to 40°C; storage: -10°C to 70°C; rel. humidity 10 to 95% (non condensing)

## Accessoires

### Pick-up Service / Warranty Extension

<b>Service Package 'small'</b> (5500000810)	Warranty extension of 3 years to a total of 5 years, including advanced replacement for bintec elmeg products of the category 'small'. Please find a detailed description as well as an overview of the categories on <a href="http://www.bintec-elmeg.com/servicepackages">www.bintec-elmeg.com/servicepackages</a> .
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### Add-ons

<b>PS-US-Wx003n/Wx004n</b> (5500001726)	Wall power supply with US-plug for W1001n, W1003n, W2003n, W2003n-ext, W2003ac, W2003ac-ext, W2004n, W11003n
<b>PS-EURO-Wx003n/Wx004n</b> (5500001254)	Wall power supply with EU-plug for W1001n, W1003n, W2003n, W2003n-ext, W2003ac, W2003ac-ext, W2004n, W11003n
<b>Wall mounting Wx003n/4n/4Ge-LE</b> (5500001278)	Wall and ceiling mounting (spare part) for W1001n, W1003n, W2003n, W2003n-ext, W2003ac, W2003ac-ext, W2004n, 4Ge-LE
<b>Gigabit PoE Injector</b> (5530000082)	PoE Injector for LAN 10/100/1000 Mbps, 100-240V, EU plug, output 48V/0.35A; suitable for Access Points, IP phones, etc.