Data sheet

\Orchestrating a brighter world

IP DECT AP400 series

On-site wireless telephony on your IP Network designed for CAT-iq

NEC's IP DECT provides on-site wireless telephony in a unique solution that combines the benefits of IP technology with the superior quality and facilities of DECT. The IP DECT AP400 Access Points connect directly to the IP network and can be used both on NEC platforms and on different brand PBX platforms with a SIP interface. AP400 series is also designed to offer the CAT-iq based HD-voice feature.

At a Glance

- Next generation Access Points designed for CAT-iq
- Connect directly to IP network
- Crystal clear speech and seamless handover
- Full security and speech encryption
- Scalable up to 2000 APs in one network
- High availability by redundancy and virtualization options
- Open SIP interface to various PBX platforms
- Compatible with existing AP200 and AP300 Access Points
- Mountable on wall and ceiling

Main Product Features

- Wireless DECT handsets that integrate in any IP telephony network
- Rich PBX-type features on the handset
- Unified Communications features with central directory and presence information
- Powerful messaging, alarming and handset localization, through the open interface DMLS
- Supports 11 simultaneous calls or 5 simultaneous calls in HD-Voice quality (G722)
- High scalability up to 2000 Access Points
- Compatible with existing AP200 and AP300 versions of IP DECT Access Points
- High availability by adding a second DAP controller for redundancy or multiple local
- DAP controllers for local surviveability
- Optional G.729 compression with add-on board
- Secure voice communication through DECT authentication and encryption
- Support of Handset Messaging up to 160 characters
- Main and branch office support over LAN/WAN
- Easy maintenance: downloadable software and web-based tooling
- Increased reachability and productivity of employees
- Easy deployment and installation: plug and play
- Cost savings on infrastructure and cellular use
- All the voice quality, security, availability and feature transparency of DECT

Features

Antenna	Standard: internal omni-directional antenna	Optional: external antenna (only on AP400E)
Call handling features	Crystal clear speech	Central Directory support [1)]
	CLIP and name display	DTMF and call progress tones
	Enquiry	Overlap Sending
	Conferencing	Multiple call Appearance (2nd call)
	Seamless integration with features of PBX platform [1)]	
Capacity	Channels: 12 channels providing max. 11 simultaneous calls per AP400	Max. number of extensions: 10000 (*restricted by max. number extensions supported by host PBX)*
	Maximum number of DECT Access Points is 750	
Design	Very compact unit (<A5) with flexible antenna positioning	
Housing	Indoor use: mounting on wall or under ceiling	
Localization Support	Supported frequency bands: EMEA, US, Latin America, Thailand [2)]	AP400 is available for EMEA, US and Canada, Latin America, Australia and specific Far East markets
	Optional: weatherproof outdoor housing	Dedicated AP400 configuration for Cruise Line ships: frequency band can be switched from EMEA to North American band (GPS-based)
Management	DAP Manager runs on a standard Windows PC, can run in parallel with other applications	DAP Manager is not required for daily use, unless wide area roaming or messaging support is required
Messaging	Messaging (LRMS) support	Message waiting indication
	Maximum message length support: 160 characters [3)]	Priority messaging support: Normal, urgent, emergency
	Message broadcast support [1)]	Set-up of voice call to call back number
Menu	Easy menu programming	
Mobility/other	Supports DECT compatible handsets	Full non-blind slot radio
	Roaming and seamless handover	Location detection [1)]
Multi-site support *(Main and branch offices)*	AP400 can be used in main and branch offices	DAP manager is required for wide area roaming
	AP400s in a DECT location are part of the same multi-cast group in the LAN	Branch and main offices form one combined DECT system
		For use in WAN no multi-cast is required
Network aspects	Connects directly to Local Area Network Ethernet	10/100 Mbits Ethernet interface
	Multicast	Support of G.711 and G.722 for HD voice
	G.729AB compression support (with G7A add-on board)	
Power Supply	Power over Ethernet (PoE) according to 802.3af	
Security	Secure DECT authentication on all channels	
Service/Maintenance	Software upgrading via headset connector (2.5 mm)	Software upgrading of handsets via air interface [4)]
		LED status indicator
SIP Protocol Support	AP400 supports SIP protocol *(See SIP Protocol Support table)*	The AP400 adds DECT mobility to a SIP enabled PBX *(See page 3 paragraph on PBX platform compatibility)*
Signalling	Synchronization requires 1 channel	
User interface	Web access (via DAP Manager)	Directly from DAP Manager application PC

1) Features depend on the capabilities of the PBX and IP DECT system
2) EMEA DECT frequency band is supported in most Asian markets as wel.
3) The maximum number of characters depends on the PBX platform and application used for messaging
4) See DECT handset datasheets for support of software upgrading through the air

Dimensions

Dimensions	146x174x43 mm (wxhxd) including antenna part mounted horizontally (in case the antenna part is mounted vertically 146x147x69 mm)
Weight	302 gram (AP400E 306 gram) ABS/polycarbonate
Protection	IP20
Range	Indoor: 50 m max [5]
	Outdoor: 300 m max [5]
Power Supply	Power over Ethernet (PoE): 36-57 V over spare wire pairs and phantom feed: IEEE802.3af (Class 2)
Colour and Finishing	Housing: white (RAL9010), antenna part light grey (RAL7035)
Network	10/100BASE-T IEEE802.3
Connector	8-pin RJ45
Cable	Cat. 5, Cat.6 and Cat. 7 UTP
IP version	4, DHCP, TFTP
QoS	IEEE802.1Q, 802.1p
DiffServ	Yes
Audio algorithms	G.711
	G.729AB (AP400 and AP400E: plus G7A board)
Full non-blind slot DECT RF part	According to EN301406
RF output [6]	10mW average per channel at antenna connection
Sensitivity	Typical -90 dBm measured at antenna connection at BER=0.001
Antenna	Dual omni-directional internal antennas
Frequency bands	EMEA: 1880 – 1900 MHz
	Thailand: 1900 – 1906 MHz
	Latin America: 1910 – 1930 MHz
	North America: 1920 – 1930 MHz
	10 carrier frequencies (or less, depending on country regulations)

5) The radio coverage of DECT equipment depends on the environment and presence of obstacles

6) For specific countries, such as Egypt, the maximum number of channels is 6 channels per base

AP400 package content

AP400 model	Mounting material

External Antenna

External Directional Antennas	AP400E for external, directional antennas

Outdoor box

Dimensions	291x241x88 mm (wxhxd)
Weight	1,23 kg (inclusive radio & 8dBi antenna and antenna cables)
Protection	IP66
Material	Polycarbonate
Colour	Grey (RAL 7035)
Mounting of outdoor box	Base stations are installed inside as complete unit
	Wall mounting material included
Operating with outdoor box	-15° to +45°C (class 3.3 [7])
	No additional heating required
	UV radiation resistant
Relative humidity	5 to 95%
Hermetically closed	IP66
Outdoor box	IEC 62208, UL 508 A, IEC 62262: IK08, NEMA 4.4X: IP66
Industrial use	IEC 439-4

7) With restriction on temperature range

DAP Manager Platform

PC Operating System/ Browser	Windows 2008 SP2, R2
	Windows 7 (Pro, Enterprise, Ultimate)
	Windows 8.1 (Pro, Enterprise, 32/64)
	Windows 10 (excl. Home Edition)
	Windows 2012 server
	Windows 2016 server
	Browser: Internet Explorer 11 or higher
	Microsoft Edge
	Google Chrome R61.0 or higher
	Firefox R56.0 or higher
Required PC Hardware	Processor: Intel i3 or similar or better
	4 Gb RAM
	DVD ROM drive
	10 Gb Hard Disk space available
	Network card, 10/100 Mb/s (auto negotiate)

PBX platform compatibility

Compatible with all NEC communication platforms: iS3000/SIP@Net, UNIVERGE SL-series, SV8100, SV9100, SV8300, SV9300, SV8500, SV9500 and 3C.

SIP compatibility has been tested with various 3rd party PBX systems, such as with Mitel 3300, Cisco CUCM R11.5, Alcatel Lucent Omni PCX Enterprise R9.x and Avaya (IPO 10.0 and SM 7.0/CM7.0)

SIP Protocol Support

SIP RFC Support	RFC2246	RFC3325
	RFC2327	RFC3428
	RFC2822	RFC3515
	RFC2833	RFC3578
	RFC2976	RFC3665
	RFC3261	RFC3711
	RFC3264	RFC3842
	RFC3265	RFC3891
	RFC3311	RFC4568

Directives and regulations

European Union	R&TTE directive 1999/5/EC
	EMC directive 2004/108/EC
	LVD directive 2006/95/EC
	ROHS directive 2011/65/EU
	WEEE directive 2012/19/EU
	ERP directive 2009/125/EC
USA and Canada	FCC part 15C, 15D
	RSS 210, RSS 213 North America
	HAC/VCHAC/VC

Environmental conditions

Operating:	-5°C to +45°C (class 3.1)
Transport:	-40°C to +70°C (class 2.3)
Storage:	-25°C to +60°C (class 1.2)
Relative Humidity	< 90% (non condensing)

Reliability AP400 and AP400E

MTBF	≤ 4900 FIT (Failure In Time)
Technical Lifetime	≥ 7 years

Compliance AP400/AP400E/AP400C

European Conformity	The AP400 carries a CE mark
EMC	EN301 489-1, EN301 489-6, EN61000-3-2/3 (AC supply)
DECT	EN301 406, ETS 300 757 (Service Class 2)
Safety & Health	EN60950-1, EN50385

Maintenance

Maintenance and service	LED status indication
	Web based management tool
	Downloadable DAP software

IP DECT architecture

An AP400 based IP DECT configuration can consist of AP400 series Access Points (the system may also include AP200/300 series APs), IP DECT system software (release 6), DAP manager software, a DMLS open interface for messaging and DECT handsets. The AP400 APs connect to the IP network and form a DECT system that provides peer to peer IP communication between DECT handsets and other VoIP users. The connection between AP400s and the host PBX is using either a dedicated IP protocol or a SIP interface. As such, it truly integrates with the host PBX system. With the SIP support (SIP DECT) of AP400, the IP DECT system can be linked to any certified SIP based host PBX system. The features provided will depend on the level of SIP interworking.

The IP network can be one single converged voice/data network or a dedicated network. An Access Point provides 12 DECT channels and supports up to 11 simultaneous calls or 5 HD-Voice calls. One channel is used for signalling between the Access Points. An IP DECT configuration can also support other applications such as voice mail, web-based telephony, central directory, and messaging. A DAP Manager is required for installation, maintenance, subscription, wide area roaming, and messaging. In most configurations the DAP Manager is not required for operational use.

AP400 series consists of the following models: AP400 for all IP DECT and SIP DECT applications, AP400E to connect external directional antennas and special versions AP400C for NEC SMB platforms and AP400S for systems up to 4 APs. An external housing comes with the AP400E for outdoor use, as well as to protect the external antenna.

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