



2009:  
good industrial  
design

## IP DECT AP300 series

Wireless telephony for IP and SIP based communication platforms

### At a Glance

- Access Points connect directly to IP network
- Crystal clear speech and seamless handover
- Full security and speech encryption
- Scalable up to 750 APs in one network
- Easy to deploy, install and maintain
- Open SIP interface to various PBX platforms
- Can be combined with AP200 APs in existing systems
- Mountable on wall and ceiling

Business Mobility 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 AP300 Access Points connect directly to the IP network and can be used on both NEC platforms as well as on different brand PBX platforms with a SIP interface.

### *IP telephony enhanced with wireless telephony*

IP DECT provides wireless telephony in a single converged network that can be used for both fixed and wireless telephony. The IP DECT infrastructure provides the following features:

- DECT on top of IP and SIP based communication platforms
- Access Points connect directly to the IP network
- Support of 11 simultaneous calls per AP300
- Support of DECT compatible handsets
- Power over Ethernet (IEEE802.3af)
- Optional G.729 compression with add-on board
- Crystal clear speech, roaming and seamless handover
- Secure voice communication through DECT authentication and encryption

Empowered by Innovation

**NEC**

- Support of Short Messaging (LRMS) up to 160 characters
- Scalable solution up to 750 APs in one network and in combination with existing AP200 series APs
- Main and branch office support over LAN/WAN improving the overall business efficiency from single office environments to a campus or even metropolitan area
- 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

### IP DECT architecture

An AP300 based IP DECT configuration can consist of AP300 series Access Points (the system may also include AP200 series APs), IP DECT system software (release 5), DAP manager software, a DMLS open interface for messaging and DECT handsets. The AP300 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 AP300s 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 AP300, 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. 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. AP300 series consists of the following models: AP300 for all IP DECT and SIP DECT applications, AP300E to connect external directional antennas and a special version AP300C for NEC SMB platforms. An external housing comes with the AP300E for outdoor use, as well as to protect the external antenna.

### AP300 features

Features		
<b>Antenna</b>	• Standard: internal omni-directional antenna	• Optional: external antenna (only on AP300E)
<b>Call handling features</b>	• Crystal clear speech	• Central Directory support <sup>1)</sup>
	• 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 <sup>1)</sup>	
<b>Capacity</b>	• Channels: 12 channels providing max. 11 simultaneous calls per AP300 <sup>2)</sup>	
	• Maximum number of DECT Access Points is 750	
	• Maximum number of extensions is 18750 (this number is restricted by the maximum number of extensions supported by the host PBX system)	
<b>Design</b>	• Very compact unit (less than A5 size) with flexible antenna positioning	
<b>Housing</b>	• Indoor use: mounting on wall or under ceiling	• Optional: weather proof outdoor housing
<b>Localization Support</b>	• Supported frequency bands: EMEA, US, Latin America, Thailand <sup>3)</sup>	
	• AP300 is available for EMEA, US and Canada, Latin America, Australia and specific Far East markets	
	• A dedicated AP300 configuration is available for Cruise Line ships that need the frequency band to be switched from EMEA to North American band (based on GPS position)	
<b>Management</b>	• DAP Manager runs on a standard Windows PC, can run in parallel with other applications	
	• DAP Manager is not required for daily use, unless support of wide area roaming or messaging is required.	
<b>Messaging</b>	• Messaging (LRMS) support	• Message broadcast support <sup>1)</sup>
	• Maximum message length support: 160 characters <sup>4)</sup>	• Message waiting indication
<b>Mobility/other</b>	• Supports DECT compatible handsets	• Full non-blind slot radio
	• Roaming and seamless handover	• Location detection <sup>1)</sup>
<b>Multi-site support (Main and branch offices)</b>	• AP300 can be used in main and branch offices	• DAP manager is required for wide area roaming
	• AP300s 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
<b>Network aspects</b>	• Connects directly to Local Area Network Ethernet	• 10/100 Mbits Ethernet interface
	• Multicast	• Support of G.711
	• Support of G.729AB compression (with G7A add-on board)	
<b>Power Supply</b>	• Power over Ethernet (PoE) according to 802.3af	
<b>Security</b>	• Secure DECT authentication on all channels	
<b>Service/maintenance</b>	• Simple plug and play installation	• Software upgrading of handsets via air interface <sup>5)</sup>
	• Software downloading of AP via a central location	• LED status indicator
<b>SIP Protocol Support</b>	• AP300 supports SIP protocol (See also the SIP Protocol Support table)	
	• The AP300 adds DECT mobility to a SIP enabled PBX (See also the paragraph on PBX platform compatibility)	
<b>Signalling</b>	• Synchronization requires 1 channel	
<b>User interface</b>	• 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) Flexible assignment of 2 .. 12 channels via licenses when AP300 connected with iS3000 through iTMP protocol.

3) EMEA DECT frequency band is supported in most Asian markets as well.

4) The maximum number of characters depends on the PBX platform and application used for messaging.

5) See DECT handset datasheets for support of software upgrading through the air.

## Business Mobility IP DECT and SIP DECT technical data

<b>Dimensions</b>	
146x174x43 mm (wxhxd) including antenna part mounted horizontally (in case the antenna part is mounted vertically 146x147x69 mm)	
<b>Weight</b>	
302 gram (AP300E 306 gram)	
<b>Housing</b>	
ABS/polycarbonate	
<b>Protection (classification)</b>	
IP40	
<b>Power Supply</b>	
Power over Ethernet (PoE): 36-57 V over spare wire pairs and phantom feed: IEEE802.3af (Class 0)	
<b>Colour and Finishing</b>	
Housing: white (RAL9010), antenna part light grey (RAL7035)	
<b>Network interface</b>	
Network:	10/100BASE-T IEEE802.3
Connector:	8-pin RJ45
Cable:	Cat. 5 UTP or better
IP version:	4, DHCP, TFTP
QoS:	IEEE802.1Q, 802.1p
DiffServ:	Yes
Audio algorithms:	<ul style="list-style-type: none"> <li>G.711</li> <li>G.729AB (AP300 and AP300E: plus G7A board)</li> </ul>
DTMF generation:	H.245
Multicast:	RFC1112
<b>Air interface</b>	
Audio algorithm:	G.726
Full non-blind slot DECT RF part:	according to EN301406
RF output:	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:	<ul style="list-style-type: none"> <li>EMEA: 1880 – 1900 MHz</li> <li>Thailand: 1900 – 1906 MHz</li> <li>Latin America: 1910 – 1930 MHz</li> <li>North America: 1920 – 1930 MHz</li> <li>10 carrier frequencies (or less, depending on country regulations)</li> </ul>
Typical range:	<ul style="list-style-type: none"> <li>Indoor: 20 – 50 m <sup>6)</sup></li> <li>Outdoor: 300 m <sup>6)</sup></li> </ul>
6) The radio coverage of DECT equipment depends on the environment and presence of obstacles.	

## AP300 package content

<b>AP300 package content</b>	
• AP300 model	• Mounting material

## External antenna

<b>External Directional Antennas</b>	
• AP300E for external, directional antennas	
• Optional: 8 db directional Antenna	

## Outdoor box

<b>Dimensions</b>	
290x240x88 mm (wxhxd)	
<b>Weight</b>	
1,23 kg (inclusive radio & 8dBi antenna and antenna cables)	
<b>Housing</b>	
Material:	ABS
<b>Colour and finishing</b>	
Colour:	grey (RAL 7035)
<b>Installation</b>	
Mounting of outdoor box:	<ul style="list-style-type: none"> <li>Base stations are installed inside as a complete unit</li> <li>Wall mounting material included</li> </ul>
<b>Temperature range</b>	
Operating with outdoor box	<ul style="list-style-type: none"> <li>-15°C to +50°C (class 3.3)</li> <li>No additional heating required</li> <li>UV radiation resistant</li> </ul>
<b>Humidity</b>	
Relative humidity:	5 to 95%
<b>Industrial Use</b>	
Hermetically closed	IP66
<b>Protection</b>	
Outdoor box:	EN 50102:IK10, EN60529: Class IP66, IEC 695-2-1
Industrial use:	IEC 439-4

## DAP Manager platform

<b>PC Operating System/browser</b>	
<ul style="list-style-type: none"> <li>Windows 2000 Server or Professional SP4 or higher</li> <li>Windows 2003 Server SP2 or higher</li> <li>Windows XP Professional SP2 or higher</li> <li>Browser: Internet Explorer 6.0, 7.0 or 8.0</li> </ul>	
<b>Required PC Hardware</b>	
<ul style="list-style-type: none"> <li>CPU: Minimum 2.4 GHz</li> <li>RAM: Minimum 256 Mb</li> </ul>	

## PBX platform compatibility

All NEC and Philips PBX platforms (iS3000, 2000 IPS, XN120, IPC 100, Aspire, IPC500, SV8100, SV8300, NEAX 2400 IPX, SV7000, SV8500)

SIP compatibility has been tested with various 3rd party PBX systems, such as with Mitel 3300, Cisco CUCM R6.1/R7.x) and Alcatel Lucent Omni PCX Enterprise R9.x (Ask your local representative for detailed information).

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

Directives and regulations Europe
R&TTE directive 1999/5/EC
EMC directive 2004/108/EC
LVD directive 2006/95/EC
ROHS directive 2002/95/EC and WEEE directive 2002/96/EC
Directives and regulations North America
FCC part 15C, 15D
RSS 210, RSS213



Environmental conditions

Temperature Range (ETS 300 019-1-3)	
<b>Operating:</b>	0°C to +40°C (class 3.1)
<b>Transport:</b>	-40°C to +70°C (class 2.3)
<b>Storage:</b>	-25°C to +60°C (class 1.2)
Relative Humidity	
< 90% (non condensing)	

Reliability

Reliability AP300 and AP300E	
<b>MTBF</b>	≤ 4900 FIT (Failure In Time)
<b>Technical Lifetime</b>	≥ 7 years

Compliance

Compliance AP300/AP300E/AP300C	
The G955 handset carries a CE mark	
<b>EMC:</b>	EN301 489-1, EN301 489-6, EN61000-3-2/3 (AC supply)
<b>DECT:</b>	EN301 406, 300 757 (Service Class 2)
<b>Safety:</b>	EN60950-1, EN50385

Maintenance

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

**About NEC Corporation:** NEC Corporation (NASDAQ: NIPNY) is one of the world's leading providers of Internet, broadband network and enterprise business solutions dedicated to meeting the specialized needs of its diverse and global base of customers. NEC delivers tailored solutions in the key fields of computer, networking and electron devices, by integrating its technical strengths in IT and Networks, and by providing advanced semiconductor solutions through NEC Electronics Corporation. The NEC Group employs more than 150,000 people worldwide. For additional information, please visit the NEC home page at: <http://www.nec.com>

For further information please contact your local NEC representative or:

**Corporate Headquarters (Japan)**  
 NEC Corporation  
[www.nec.com](http://www.nec.com)

**North America (USA)**  
 NEC Unified Solutions, Inc  
[www.necunifiedsolutions.com](http://www.necunifiedsolutions.com)

**EMEA (Europe, Middle East, Africa)**  
 NEC Philips Unified Solutions  
[www.nec-philips.com](http://www.nec-philips.com)

**Oceania (Australia)**  
 NEC Australia Pte Ltd  
[www.nec.com.au](http://www.nec.com.au)

**South Asia (Singapore)**  
 NEC Solutions Asia Pacific  
[www.nec.com.sg/ap](http://www.nec.com.sg/ap)

UNIVERGE360 is NEC's approach to unifying business communications. It places people at the center of communications and delivers on an organization's needs by uniting infrastructure, communications and business.