



HiPath Cordless IP

The SIP-based cordless solution

HiPath Cordless IP upgrades IP communications systems by a campus-wide mobility solution.

Mobility

Providing staff with cordless phones allows for direct, location-independent communication and is ideally suited for instant availability and enabling decisions to be taken quickly. This generates organizational and economic advantages.

The flexibility in the number of stations, station frequency, surface coverage, upgrading and the provision of comfort functions with the most modern handsets characterize the system architecture of HiPath cordless IP.

The digital transmission standard DECT (Digital Enhanced Cordless Telecommunication) is used worldwide and works in a secured frequency range.

The HiPath cordless IP solution also makes the established DECT standard available in Voice over IP infrastructures. SIP (Session Initiation Protocol) is used to connect to the communication systems. This enables DECT cells to optimally complete SIP-enabled Voice over IP systems as the basis for mobile communication solutions.

Multi-cell technology

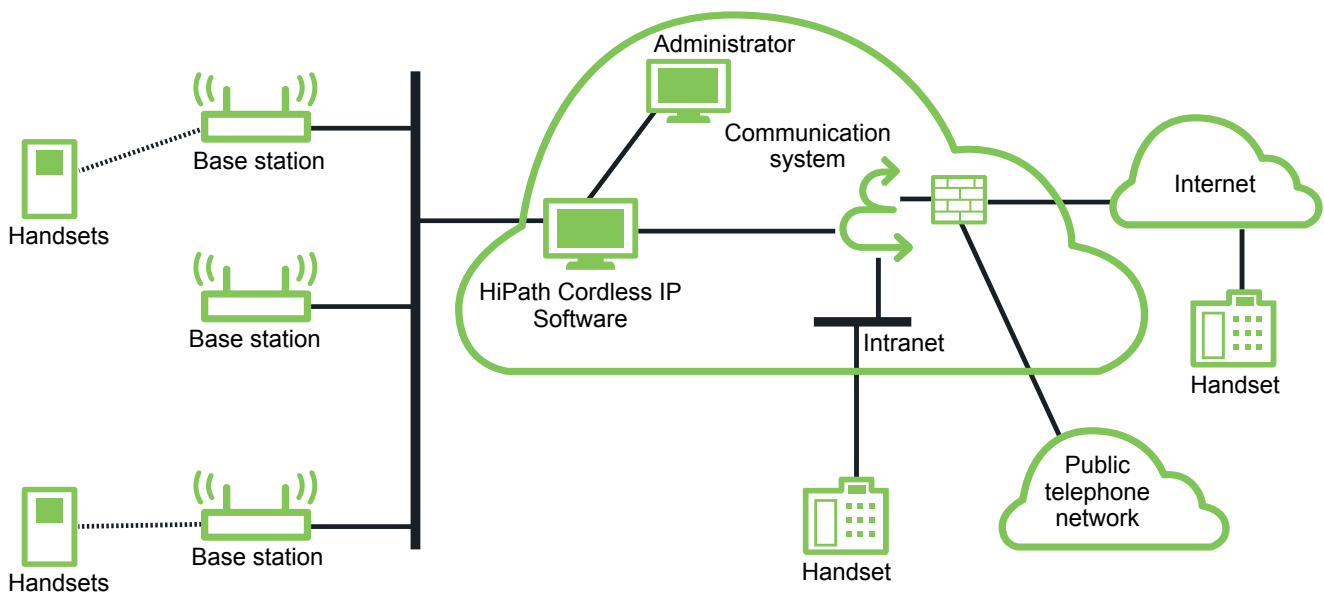
The radio coverage required in the building or on company grounds is achieved by means of multi-cell technology. The synchronized cells of the base stations installed at the company overlap, so that calls in the entire area of the cordless system can be seamlessly set up and made on the move (roaming and handover).

Handsets

A high degree of flexibility and mobility makes the Gigaset S4 professional and OpenStage SL4 professional handsets for office environments, and the OpenStage M3 handsets for industrial environments to favorites among the cordless telephones.

The handsets offer excellent digital speech quality, a high degree of immunity to eavesdropping, and a long range (up to 50 meters indoors and up to 300 meters outdoors).

As well as low investment and operating costs, the phone provides simple user prompting in connection with the mode-dependent menu keys. This enables optimal access to the large range of comfort features.



Configuration/System concept

A further advantage is the access security in the entire HiPath Cordless IP system, where central registration of the handsets in the system restricts access by unauthorized cordless telephones.

The HiPath Cordless IP handsets allow calls to be made in the area covered by the network.

Handsets enable the most important SIP comfort features of the communications systems to be used on the move within the site.

Detailed information on the individual handsets can be found in the data sheet for "Gigaset professional and OpenStage Mobile, Cordless Telephones for HiPath and OpenScape Systems".

DECT IP base stations

The base stations form a network of wireless cells and manage communications with the handsets. The multi-cell technology enables subscribers to move between the wireless cells with their handsets during a call.

The software of the base station contains complete DECT and IP functionality. The software does not need to be configured and administered locally for each base station but instead can be conveniently operated centrally via the HiPath cordless IP software.

The optimal location of the base stations for coverage of a building or of a site is determined by a radio analysis-technical measurement.

Special antennas can be used to increase the range.

The base stations can be encased to protect them from the weather.

HiPath Cordless IP Software

The HiPath cordless IP software provides the interface between base stations on the one hand and the communications systems on the other.

Router and protocol converter

The software offers the router and protocol converter functions by controlling the voice connections between the communications systems and the respective base station. It also converts these into a data format which the base stations can use.

Configuration and administration

The base stations and the HiPath cordless IP software itself are all administered and configured using the web-based management of HiPath cordless IP software.

Synchronization management

In DECT systems with line-switched connection, e.g. HiPath cordless office, the synchronization information is attained from the connection. This is not possible with the HiPath cordless IP system.

Accurate time synchronization is also necessary between the base stations for an interruption-free call transfer.

Synchronization via DECT (synchronization over the air)

A DECT IP base station must be within the overlapping area of the cell which this DECT IP base station forms in order to synchronize with another DECT IP base station via the DECT interface.

Synchronization via LAN

With this type of synchronization, the DECT IP base stations can be synchronized via LAN. This is based on a method similar to IEEE1588.

Technical data

System data

- Radio interface standard: DECT (ETS 300 175), GAP (ETS 300 444)
- Frequency range: 1880 MHz up to 1900 MHz
- Number of carriers: 10 to 12 full duplex channels
- Voice encoding: 32 kbit/s ADPCM
- CE standard (safety)

System configuration

The HiPath Cordless IP software runs on one of the base stations.

- Interruption-free call transfer is possible within up to 10 base stations.
- Up to 10 parallel calls are possible within this group.
- Up to 50 Gigaset professional devices can be operated.

The HiPath Cordless IP software runs on a dedicated server:

- Interruption-free call transfer is possible within up to 60 base stations.
- Up to 50 parallel calls are possible within this group.
- Up to 300 Gigaset professional devices can be operated.

The management of the HiPath Cordless IP system runs on a (virtualizable) server:

- The server manages up to 100 media servers (dedicated server hardware). Up to 120 base stations can be operated on each media server.
- Up to 5 media servers and their base stations can be connected to form a handover domain, i.e. uninterrupted call handover is possible between these base stations.
- Up to 3,000 parallel calls are possible in the overall system..
- Up to 20.000 Gigaset professional devices can be operated.

Features of the SIP interface

In addition to the DECT handsets' features, such as the redial list or integrated phone book, the following features are made available on these handsets by the HiPath Cordless IP solution in connection with the communications systems:

- Outgoing/incoming calls
- Number identification (CLIP)
- Name display (CNIP)
- Hold - incl. music on hold for holding subscribers
- Consult
- Toggle
- Forward when busy
- Forward when no reply or always
- Attended/unattended transfer
- 3-party conference
- Ringer tone mute for incoming calls
- Call reject
- Time and date display on idle screen
- Internal/external call ringer differentiation
- Missed call list on vacant DECT handset incl. MWI signaling
- Received call list
- Voicemail display incl. MWI signaling
- DTMF transmitting
- Integration of DECT handsets in MULAP groups
- Group call is possible between the DECT handset and OpenStage, i.e. both phones ring for incoming calls. When the call is accepted on one of the two phones, the other phone stops ringing.
- Second line incl. call waiting tone
- Call completion for OpenScape Voice
- Signaling on DECT handsets in call pickup groups for OpenScape Voice
- Phone book options:
Enterprise-wide phone books: LDAP access over the DECT handset,
Group-wide phone book: Cordless-internal phone book,
Private phone book: Handset-internal phone book

SIP Survivability features for OpenScape Voice

- Outbound proxy support
- DNS administration
- DNS SRV support
- Penalty box functionality
- SIP notify messages

Network requirements

In addition, the following specifications between the base stations and the HiPath Cordless IP software in the IP network must be adhered to:

- Both of them must be part of the same Ethernet segment. Layer 3 routing over an IP router and Network Address Translation (NAT) are not supported.
- At least 2 priority classes in accordance with IEEE 802.1 p/q in the IP network.
- Use of 100 Mbit/s full duplex for all switched LAN ports.

Otherwise, this will result in delays in the IP network and cause synchronization and voice quality problems in the DECT handsets.

Released systems and handsets

If the HiPath Cordless IP software runs on a base station, the following communication systems can be used:

- OpenScape Office MX/LX, as of V3
- OpenScape Business, from V1
- OpenScape Voice, from V8
- OpenScape 4000, as of V7

If the HiPath Cordless IP software runs on a dedicated server, the following communication systems can be used:

- OpenScape Office MX/LX, as of V3
- OpenScape Business, from V1
- OpenScape Office, as of V8
- OpenScape 4000, as of V7

A Fujitsu Primergy RX100 S8 is currently being used as a dedicated server.

If the management runs on a virtual server, the following communication systems can be used:

- OpenScape Voice, from V8

The following handsets are supported by HiPath cordless IP:

- Gigaset S4 professional
- OpenStage SL4 professional
- OpenStage M3 family

DECT IP base stations

- Maximum number of DECT channels: 120
- DECT signaling in accordance with GAP/PN-CAP
- IP interface - Ethernet network connection: 10/100 Base T
- PoE class 2 in accordance with IEE802.3af
- Power consumption: < 6.5 W; PoE class 2
- Integrated Internet/Intranet server to access web-based management
- Antenna diversity support
- Software download/update centrally via the HiPath cordless IP software

For the communications system, the HiPath Cordless IP software also provides:

- Virtual Local Network (VLAN) support
- Quality of Services in the network: Layer 2 prioritization (802.1p/q), Layer 3 prioritization (ToS, DiffServ)
- DHCP options - DHCP active or local entry of IP addresses

Base station indoor:

- Housing dimensions (Length x width x depth in mm): 202 x 256 x 90
- Weight: approx. 0.5 kg
- Climate in accordance with the IEC721-3-3 class 3K3 standard
- Temperature range: 0 °C to +40 °C
- Storage temperature range: -5 °C to +45 °C (23 °F to 113 °F)

External casing for base station:

- Housing dimensions (Length x width x depth in mm): 296 x 256 x 90
- Weight: approx. 1.0 kg
- Climate in accordance with the IEC721-3-3 class 4K2 standard
- Temperature range: -25 °C to +40 °C
- Relative humidity when operated with outer housing: up to 95%

Order items

Order item	Order number
HiPath Cordless IP V1 - base station (BSIP1)	L30280-F600-A183
One-port Power over Ethernet injector	L30280-F600-A184
Mains cable EU 2.5 m	L30251-U600-A389
Mains cable UK 2.5 m	L30251-U600-A235
Mains cable SWZ 2.5 m	L30280-Z600-F103
DECT identifier - ARI (Access Rights Identifier)	L30251-U600-A395
External casing for base station	L30280-B600-B212
Pole mount for external casing	L30251-U600-A910

Additional positions are required if the HiPath Cordless IP software runs on a dedicated server:

Order item	Order number
HiPath Cordless IP V1: License per base station BSIP1	L30280-F600-A185
HiPath Cordless IP V1: License per HiPath Cordless IP server	L30280-F600-A186
HiPath Cordless IP V1: CD with software	L30280-F600-A187
HiPath Cordless IP V1: Server Fujitsu Primergy RX100 S8	L30280-F600-A197

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