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Convenient Wireless Telephony over IP Solutions

Aastra SIP-DECT®

Aastra connects you with the world

Aastra is a global supplier of telecommunication systems for companies of all sizes and in all business sectors. The basis for our success are innovations, a comprehensive product portfolio and years of experience.

We concentrate on flexible and future-oriented solutions. Open standards enhance compatibility between various elements and functions, thus resulting in comprehensive solutions.

Our aim is to offer solutions that support our customers in their day-to-day communication and enable them to organise their processes more effectively. Very important note: Aastra solutions are synonymous with investment sustainability and adapt to your company's growing daily needs.

With SIP-DECT, Aastra offers companies of all sizes a comprehensive solution for cordless telephony on IP-based networks. DECT is the worldwide leading technology used in building a multi-cellular radio network for voice communication. With SIP-DECT, Aastra has sensibly combined the proven and professional DECT technology with the SIP innovation.

Aastra solutions are outstanding for their adaptability and flexibility.

Reliable availability of SIP DECT

Small companies as well as large companies benefit with SIP-DECT from the well-established DECT technology and the advantages of voice over IP, if they want to use mobile communication in the company. DECT has proven itself as a reliable and secure standard for mobile voice communication for years. In addition to private users, companies use the possibilities of DECT to build their own networks and provide employees on the premises almost limitless reachability. The connection of the radio cells on the IP infrastructure allows the integration of external sites and Home Offices. The standardized, vendor-independent session initiation protocol (SIP) allows existing communication systems to expand to SIP-DECT.

DECT and WLAN in one network

Companies which need Wi-Fi parallel to the mobile voice communications can cover this with SIP-DECT. A special cell has both a DECT and a Wi-Fi transmitter. In boardrooms hot spots can be set for employees and guests with a DECT network in parallel. In addition to a reduction of necessary radio cells for each technology this greatly simplifies the administration of networks.

Uncompromising Mobility on IP-based Networks

The future of telecommunications lies in IP-based telephony. Instead of the existing parallel cabling for telephone and data network, IP telephony enables the user to enjoy the convenience of using the same infrastructure for voice and data. But what does this mean for cordless telephony?

Of course, this comfort must not be forfeited, thanks to DECT technology. To be able to communicate via DECT in an IP infrastructure, DECT base stations must be integrated into the LAN.

Radio networks with wide area coverage can be created through overlapping radio cells by installing several base stations. This way, cordless telephony can be implemented in large company areas with the existing office, administration and storage buildings.

The user not only enjoys the advantages of modern IP telephony, but also the full convenience of cordless telephony. SIP-DECT offers companies of all sizes and their branches availability, security and investment sustainability.

SIP-DECT connects the latest SIP with the tried-and-tested DECT technology. This guarantees great flexibility, as SIP-DECT can be used with Aastra communication systems, third-party systems and systems from SIP providers.

The DECT radio network can cover surfaces ranging from individual areas up to complex industrial plants with several sites within any distance.

Availability

Employees must be reachable at all times, wherever they may be on the company premises. Furthermore, for many employees, being able to move about freely between different departments, buildings or external areas in the company is an important criterion for efficiency.

DECT radio cells can be interconnected to form extensive radio networks enabling employees to be reached anywhere, both inside and outside the company building. The radio cells of each base station forms an interconnected DECT infrastructure with the adjoining radio cells.

A DECT radio network can also cover areas outside buildings. To this end, special **outdoor base stations** for an extended temperature range in weather-proof housing are used. These base stations are ideally suited to the special requirements of the location and radio network, through antennas with various radio characteristics.

The DECT infrastructure enables users to move freely within the radio network and to be always reachable on the same number, with a registered DECT phone. This **roaming** function can also be extended over remote locations **(cluster)**. As an example, an employee from location A visiting location B can also be reached in location B on his personal call number via his DECT phone. He can fully use his stored user data and profiles on this.

Furthermore, during an ongoing call a user can move about freely on the radio network and then routed seamlessly from one radio cell to the other. This **seamless handover** is possible with the **sync over the air technology** developed by Aastra.

In environments with reflecting surfaces, i.e. in high rise stores and machine halls, large metal surfaces may disrupt or even obliterate radio signals. This can lead to bad speech quality.

Move about freely between different buildings without interrupting an ongoing conversation.

With the **DECT XQ** (Extended Quality) function developed by Aastra, the user-friendly cordless phone can also be used with good speech quality in these environments. This function can be freely activated for each IP base station whenever necessary and is supported by Aastra mobile phones 600c/d.

Customer calls during the main business hours when many employees in the company are making calls must be made with the best possible speech quality, even at peak periods. The tried-and-tested DECT standard is specially designed for voice transmission. DECT uses a reserved frequency band avoiding disturbances from other radio networks. As the traffic load rises, capacities can be increased with additional base stations, enabling the company to remain independent and flexible.

Security

Security plays a decisive role in every company. On one hand, internal company and personal data must be protected against unauthorised external access. On the other hand, it is also vital to prevent business disruptions and guarantee the safety of employees.

Access Security and Confidentiality

For DECT, voice is encrypted on the air interface. This protects the link between the mobile part and the base station against eavesdropping. Therefore, communications between employees and with customers and business partners remain highly secure and confidential. Company information is only accessible to those for whom it is intended.

All Aastra DECT phones support **DECT encryption**. If a phone from another manufacturer is to be integrated and the phone does not support encryption, this feature can be deactivated for it. This does not affect the encryption of all other devices. This means that DECT phones from other manufacturers can be used on the radio network. However, security against eavesdropping cannot be guaranteed for these phones.

Operational Safety

Operational safety also means that the company's communication is always problem free and is not impeded by technical disruptions. High reliability can be managed through a redundant structure of SIP-DECT control components. This way, customer data and radio links remain available even in case of failure.

With DECT encryption, company information only reaches those for whom it is meant.

Backup SIP Proxy / Registrar and Register Re-direct

For load distribution at Internet Telephony Providers, in addition to the primary SIP Registrar and Proxy(s), SIP-DECT supports up to two additional backup levels. If the SIP transaction to the primary fails, SIP-DECT retries with secondary and tertiary.

Fail over Keep Alive

Using (re)registrations SIP-DECT checks the availability of SIP call servers. If 'Fail over Keep Alive' is enabled SIP-DECT forces re-registrations to automatically find the next available registrar in the list.

Prioritized Registrations

Parallel SIP registrations of many users e.g. during start up can take several minutes. Within this time the users are not reachable for incoming calls. To prioritize the registration of important users the attribute 'VIP' can be set in the user configuration.

Furthermore, extensive security tools can be integrated to avoid serious operation disruptions and disturbances. These tools guarantee that in such cases, the employee in charge is promptly informed and can intervene at the right time. For more information, see the sections "Alarm messages" and "Locating".

Investment Sustainability

If an IP communication solution already exists in the company, it can be extended with a SIP-DECT solution regardless of the manufacturer. Later on, this can at any time be freely developed and adapted to the company's needs.

If the DECT phone requirements increase later, the solution can be adapted to the need at any time.

In the past, it was often difficult to combine technologies from different manufacturers in the VoIP environment through proprietary solutions. Aastra's SIP-DECT solution is based on tried-and-tested technology and open standards. Thanks to the openness of the SIP standard, Aastra's SIP-DECT solution can be used not only on Aastra communication systems but also on third-party systems or Centrex platforms of internet telephony providers. In other words: VoIP solutions, including multi-cellular DECT radio networks, can be installed wherever data lines are available in a company. This is possible also in remote company locations such as branches or factories, interconnected via VPN (Virtual Private Network) for instance.

Thanks to the solution's scalability, networks can be extended further at any time. If in future more employees need to be equipped with DECT phones, if the traffic load increases or more buildings or locations are added, the SIP-DECT solution can be adjusted according to the needs.

Furthermore, a wide range of functions, such as the sending of text messages, alerts, and localisation, can be provided immediately or later. The functions offer more benefits and can help reduce the cost of investing in separate systems per application.

More Applications with SIP-DECT

SIP-DECT offers various new functions which can create added value and partially replace separate systems.

SIP-DECT Enterprise Plus

The bigger the company premises, the more the employees are reliant on a working communication technology, which enables them to be freely and reliably accessible everywhere.

In areas where the extension or traffic load exceeds the capacities of standard SIP-DECT Enterprise SIP-DECT Enterprise Plus can be used to increase the maximum capacity to 2,048 base stations and 4,500 mobile parts on a Linux Server. Larger customised installations are also available upon demand.

Large areas can also be equipped with DECT technology.

The deployment of DECT phones of a large installation can be made very quickly for users by using external data sources and a user registration on the phone. The user data can come from the internal SIP-DECT data base, or from an external server.

Users can also benefit from the user-friendly DECT mobile parts in a giant installation.

Handset-sharing

DECT phones no longer need to be assigned to only one user, but can be available to a group of users. A self-service phone can be used by a user after being registered. The user registers on the DECT phone with his call number and password. The phone automatically stores his configuration and the user is reachable via his permanently assigned call number.

An example of application could be a production in shift operation in which several employees share one DECT phone. When an employee ends his shift, he "logs off" the DECT phone. This then becomes free for the next user, who only needs to register. The most convenient way to use this function is with Aastra DECT phones.

Central Phone Book

Apart from access to the individual phone books of Aastra DECT phones, it is also possible to access a central phone book. Thanks to an LDAP (Lightweight Directory Access Protocol) connector, users can select up to three call numbers for each name input from the central phone book data and use them to set up a connection.

Three-way Conference

Regardless of the communication system SIP-DECT is used with a mobile phone can establish a three-way Conference. In this case, the base station works as a small conference server that manages the connections.

Typical companies with the maximum capacity of the DECT network may be are:

- Big hotels in with many rooms, floors and event area
- Airports where the security personnel must move about between halls, terminals and gates
- Stores, exhibition halls or amusement parks
- University campuses or big clinics with several building parts and in which employees must be permanently reachable
- Companies with several buildings/branches

More Applications with SIP-DECT

Alarm messages on the DECT phone guarantee speedy intervention in case of emergency, regardless of whether it is about a machine failure, an emergency call by a patient at a hospital, a fire alarm in a hotel or company.

Alarm Messages

Alarm scenarios can be used in various situations, for instance to send information to user groups or teams of employees. Predefined information can be sent at the touch of a button to employees of a large hospital notifying them that additional staff is needed; the message is displayed on their DECT phones. When this message is acknowledged by the person acting on this request, management and colleagues know that someone is on their way to provide the help needed.

Messaging

Information can either be transmitted as voice or text message. A text message can save time in many situations.

With Aastra phones the integrated message server makes it possible to send or receive text messages with Aastra phones. Instead of spending time calling each person, the user can simultaneously send a text message to a group of colleagues. Text messages reach the phone even when call protection is activated.

Alarm Messages

Beyond the sending of text messages, there are some results which must be processed without delay. Speedy intervention is urgently needed in emergency situations in areas where the security of persons or continuous equipment or machine operation must be guaranteed.

This requires that the employee in charge is immediately informed about any event. An alarm can be set off by:

- The DECT mobile phone (automatically through the man-down, escape or no-movement alarm)
- The user (via the emergency call button on the mobile part)
- OpenMobilityManager
- The locating application
- E-Mail, RSS feed (e. g. news ticker)
- Aastra Alarm Server

A (pre-defined) alarm message is sent to the person in charge or to a group of persons. The alarm message is displayed on the Aastra DECT phone screen, also during a conversation.

Depending on the priority level, the alarm message may require an acknowledgement of receipt: The recipient must indicate through an input on the DECT mobile part that he has read the message. Where a person or an entire group fails to acknowledge receipt of an alarm message, this can be escalated, that is be sent to other people. This is to ensure that the alarm message reaches someone who can intervene and take the necessary measures.

User monitoring

In order to assure that handsets which are part of an alarm group can be reached in case of emergency, The following states can be monitored and escalated:

- Status of the handset in the SIP-DECT system (registration, activity, call diversion, silent charging, battery and log in when in handset sharing mode)

If the system detects a state that prevents the successful signaling of an alarm it indicates this at a defined point.

RSS feeds

RSS feeds can be used in a company as a news ticker. Depending on the required information, one or more information sources (URL of websites that offer RSS feeds), the trigger IDs (for internal processing) and update interval are configured. Employees then receive, based on the configuration, information, for example in the logistics company, about the current traffic situation as a ticker report on their DECT phone.

Message and Alarm Extensions

A message to a handset can be combined with one or more additional settings for the handset or call handlings. In oder to make it more important or to trigger follow up activities.

- Ringer tone on / off and special melody (10 different) and volume level)
- Vibra call (Vibrator on)
- Disconnect call
- Auto callback (initiate call to number)
- In band signalling of tone
- Text and Background color
- Trigger alarm conference

Locating

SIP-DECT offers the ideal solution to companies which need to meet additional safety requirements for employees and users. Thanks to the location function, people can be found inside a building or premises.

If a person needs to be found, this can be carried out via the DECT phone the person has with him. If a person moves with his DECT phone on the radio network, it switches unnoticed from one base station to the other. The position of the phone can be detected via the IP base station and displayed on plans which, for instance, represent rooms, floors, buildings or entire premises.

In addition, to detect the position in a more reliable manner, the route taken

by the person before the alarm was set off can be displayed. This function must be activated separately and is used to show on the plan the path of the radio cells "taken / visited". This way, the location of a DECT mobile part can be approximately determined.

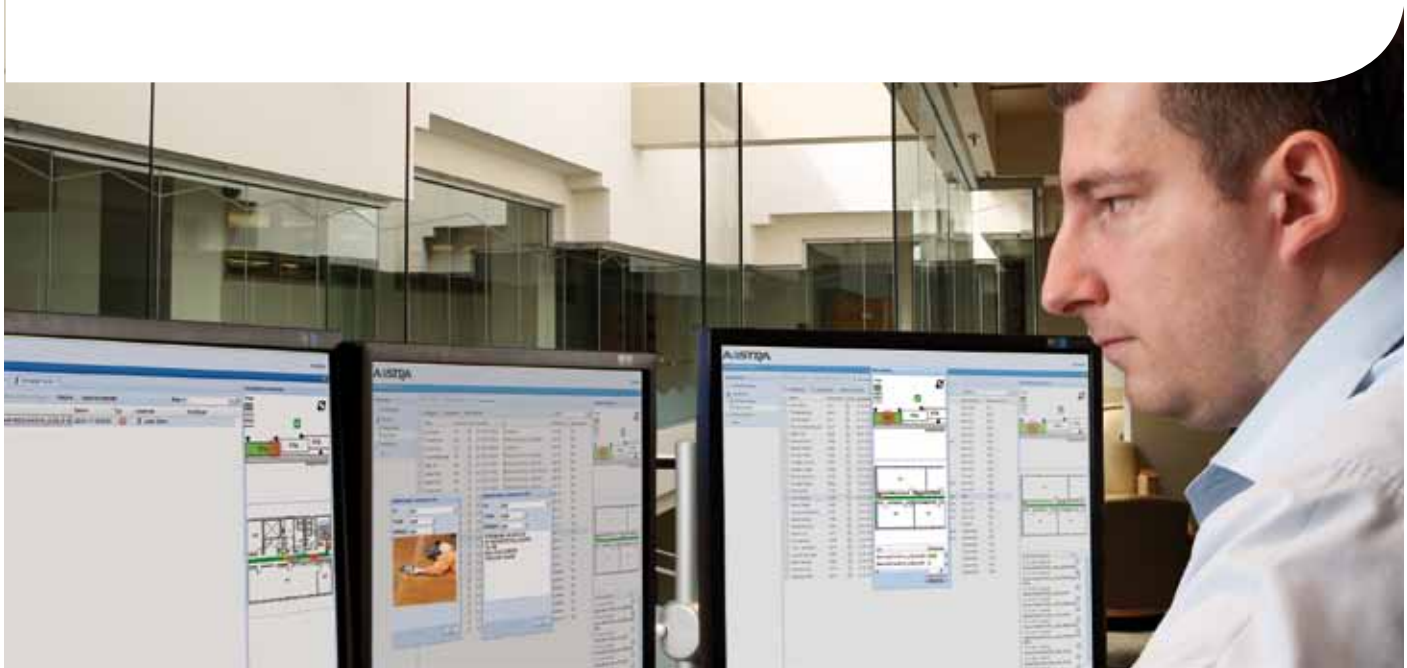
To optimize the locating, it is possible to use the USB interface of the DECT base station. Surveillance cameras and Bluetooth radio bases can be connected. The cameras provide a picture from the area, from where the alert comes. The Bluetooth radio bases with a lower range than the DECT basestation provide in conjunction with Bluetooth enabled mobile phones a more accurate localization.

This can drastically reduce the time spent searching for people, especially on large premises or many floors. The person being searched for can also be located in complex rooms, or halls by setting off a rising signal tone on their DECT phone. This can save human lives in emergency situations.

Support of the Aastra Alarm Server

The Aastra Alarm Server ensures the safe and effective dissemination of information. It monitors connected sensors, converts incoming signals, edited, logged this and forwards appropriate the set requirements specifically. The desired usage and the boundary conditions determine which reactions gives a signal.

Find people quickly in case of emergency – each minute may be crucial.



Practical Applications with SIP-DECT

DECT as a Guidance System

In a logistics centre, lorry drivers are given a DECT phone at the gate; this phone has functions which traditional phones do not have. When the driver reports at the check in desk, his DECT phone is enrolled with the system.

Once the ramp is free, where the driver is to unload his lorry, an alert is received on his DECT phone with this information. This may be an audible signal, a silent alert (buzz) or a keyword-type text message which is available in different languages.

The dispatchers reach the drivers via the DECT phones throughout their stay at the logistics centre and can direct them as they want, i.e. to pick up delivery notes.

While leaving the premises the driver "logs" off from the system and returns his DECT phone at the gate.

Another feature is Broadcasting. The dispatchers receive regular traffic reports on their phones from which they can determine which drivers are stuck in traffic. They can make reserved ramps available accordingly to other drivers.

Logistics centre employees are also equipped with cordless phones. Furthermore, the DECT system is connected to the central building control system. In case of malfunction on the premises (e.g., if the rolling door of the cold store remains open), the employee in charge receives this information in form of a short text and voice message on his DECT phone so he can react quickly.

DECT as a Hotel Communication System

In a modern hotel complex, not only hotel guests have access to modern DECT technology; hotel employees can also use the powerful network. All employees, from the chambermaid to the hotel manager, can be reached everywhere in the building: in passages, rooms, underground car park or external areas.

The central building control system can also be integrated, in addition to the communication system. Technical employees then instantly receive an alert on their Aastra DECT phone if, for example, a fault occurs in the building on the hot air supply system. An alarm system can also be integrated. For instance, an ultra modern fire protection solution can ensure that hotel employees receive, in addition to the prescribed alarm messages, a message with the precise location on their Aastra DECT phones, in case of fire in the building areas.

Staff members are reachable everywhere – in the building and on the premises.

The Ideal Complement for each SIP-DECT Solution: Aastra DECT Phones

Aastra 622d in original size

(1) depending on system
(2) similar in Aastra 632d and 650c
(3) does not support DECT XQ and alarm functions

Aastra 142d[3]	Aastra 612d	Aastra 622d	Aastra 632d	Aastra 650c
Illuminated display and keypad	Up to 200 contacts in the local phone book with 8 inputs each[1]	Vibration alarm	Dust and water protection (IP65) for use everywhere - outdoors or in production	Vibration alarm
Headset socket	Redial list for quick access to the last 20[1] numbers dialled	Many freely programmable keys for easy navigation	Easy to clean and compliant with high hygiene requirements	Many freely programmable keys for easy navigation
Vibration alarm	TFT colour display	Bluetooth interface for wireless headset	Offers all the comfort of Aastra 622d	Bluetooth interface for wireless headset
Speed dial via digit keys	44 polyphonic ring tones	USB interface	man-down, escape and no-movement alarm	CAT-iq 1.0 certified for excellent audio quality
Information and call list key	Ambient noise filter for loud environments	Up to 200 hours operating time in standby mode[1]	Emergency button	Up to 200 hours operating time in standby mode[1]

About Aastra

Aastra Technologies Limited, (TSX: "AAH") is a leading corporate communication systems company. Aastra is headquartered in Concord, Ontario, Canada. Aastra develops and markets innovative communication solutions which address the needs of companies, small and large. Aastra has representatives across the globe, with over 50 million installed connections and direct as well as indirect presence in more than 100 countries. The broad portfolio offers multi-function call managers for small and medium-sized companies as well as highly scalable call managers for large companies. The portfolio also includes integrated mobility solutions, call-centre solutions and a wide range of terminals. With strong focus on open standards and customer-specific solutions, Aastra enables companies to communicate and work together more effectively.

Please visit Aastra's website for further information: www.aastra.com

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