

CASE STUDY

Case: Psychiatric University Clinics, Basel

Solution: IP-DECT



ASCOM IP-DECT – CREATED FOR SECURE COMMUNICATION IN HIGHLY COMPLEX ENVIRONMENTS

“In our cooperation over many years we have always experienced Ascom as very capable of learning, innovative and customer-related. They listen to their customers. Suggestions and findings made in practice are accepted continuously and integrated into new, intelligent and backwards compatible systems, which fulfill all requirements of a hospital with regard to reliability, redundancy, suitability for the task and user friendliness. For us, such a further development was the indispensable ability of the IP-DECT system to deliver coarse and fine localizations simultaneously. Here as well, Ascom has delivered to our full satisfaction.”

**Toni Huwyler, Building and Safety Manager,
PUC Basel**

Psychiatric clinics belong to the most demanding environment in matters of personal protection. This is especially true if the complex sits only 200 meters from the national border, extends over more than 3 hectares and comprises around 30 buildings. Creating an alarm and communication system in such an environment, which completely, autonomously and reliably facilitates alarm transmission with localization of the transmitter, as well as interactive voice and text communication, is really a masterpiece. The Basel Psychiatric University Clinics entrusted the security of their personnel to the Ascom IP-DECT system and at the same time have also acquired an effective means for efficiently designing operating procedures.

The Basel Psychiatric University Clinics (PUC) are part of the public health service of the Canton of Basel and are among the leading institutions of this type in the country. With more than 1000 employees, they offer services in psychiatric treatment, university teaching and research, as well as education and further education (see sidebar, page 5: The Basel Psychiatric University Clinics (PUC) in brief). When these services are provided, the wellbeing of patients, as well as the safety of the personnel have the highest priority. Each year the PUC are confronted with around 25 personal emergency calls in which fast and effective intervention is required. This requires an efficient and reliable alarm and communication system. Until about one year ago, this central task was performed to the full satisfaction of the PUC by an Ascom CTS900 system.

Ascom IP-DECT - All targets met to full customer satisfaction

One gains the best overview of the high efficiency of the Ascom IP-DECT system by reading the specification compiled by the PUC Basel for the procurement of their new alarm and communication system. It could be scarcely more comprehensive. Here the solution is being developed further continuously by Ascom and new functions are being added, such as the new "Location Based Services". Each of the points listed below was fulfilled by the Ascom IP-DECT system based on Ascom Unite to the full satisfaction of the customer.

- Wireless telephony in digital (DECT) technology and quality
- High reliability of all system components
- Complete coverage of the extensive area with around 300 buildings
- High standby and voice autonomy
- Alarm function (transmitter / receiver) with high safety standard
- Automated alarm on snatching, rest and "man down"
- Separation between voice and alarm transmission
- Protocolling of the alarm functions
- Replacement of medical emergency radio
- Reliable localization in buildings and over the entire grounds of the PUC
- Integration of the existing person search system
- Interfaces to technologies for localization displays
- Interfaces to telecommunication systems of other suppliers
- Terminal for different user groups
- High wearing comfort, simple operation
- Easy adaptation of the system configuration
- Largest possible use of the existing CTS infrastructure
- Operation of as many performance features as possible with standby power (alarm and voice transmission mandatory)
- High economy in life cycle costs.

If you do it, then do it right

In the case of the PUC, it was not dissatisfaction with the old system which led to its discontinuation and the search for a new solution. What triggered it was the release of the operating frequencies of this type of system for public use, which led to increasingly stronger overlapping of the CTS frequencies with GSM signals. Safe and reliable alarm transmission in an emergency could thus no longer be guaranteed. If the system had to be replaced, then do it right, said Toni Huwyler, the building and safety manager, and his team.

The target was the integration of the existing analogue wireless telephony, of the personal protection system (Ascom P900), of the personal emergency call system (Ascom T900) as well as of the medical emergency radio (handset) on to one platform. The central specifications which the new system had to fulfill were defined by the PUC team in an ambitious requirement specification comprised of sixteen points. (see sidebar, Ascom IP-DECT - All targets met to full customer satisfaction). "Mission critical" meant in this case that it must be an autonomous, integrated alarm and communication system which was able to offer all functions exhaustively and reliably on the extensive area through a handset with automatic alarm transmission capability even in the case of failure of the public power supply system. Alarm transmission and telephony, as well as fixed and mobile communication should be separate and alarm escalation and interactive messaging should be guaranteed. An indispensable precondition for award of the contract was the requirement that the new system had to reliably facilitate the complete combination of zone and fine localization of persons in distress both in the buildings and in the extensive grounds. The old system had offered this function only via infrared in individual buildings. Because of the special risks that can come from the patients, the requirement for fast escalation of alarms and rapid assistance are of central importance.

IP-DECT prevails clearly

It was clear to Toni Huwyler and his team right from the start that a system fulfilling such high demands would not be easy to find. The apparently suitable technologies of different bidders were therefore evaluated. A Voice over WiFi solution did not come into question, among other things because of the expected problems of the required high reliability and coverage as well as the high investment costs. Other solutions, designed to accomplish localization with CFIT and GSM, produced unsatisfactory results. A solution based on GSM did not come into question because PUC wanted to be autonomous with the communication solution on the site and was not willing to be exposed to the risks of a network overload or a collapse of the network. The evaluation produced one clear winner able to safely fulfill all defined requirements at reasonable expense and need for investment: The IP-DECT system from Ascom, tried and tested in the hard everyday routine of countless companies and institutions, which came out as clear winner from the evaluation.



An essential feature here was that the heart of the system, the Ascom Unite professional messaging and alarm suite, can not only be customized to the relevant needs, but also has the ability to integrate a large number of systems of widely differing manufacturers and functions and to take over existing alarm dispositions. A main feature of the Ascom solution is the separation between voice and alarm transmission. Emergency calls and alarm messages are transmitted directly between the Ascom Unite alarm server and the mobile terminals on channels reserved especially for this. The Ascom IP-DECT system is also almost infinitely scalable. It can operate up to 1000 base stations and 10,000 mobile phones. Thus there are scarcely any limits to its expansion. These properties as well as IP networking and the fact that the platform is being continuously extended make the IP-DECT system safe for the future, not only with regard to technology, but also by offering top quality investment protection without comparison on the market.

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Pragmatic procedure on the way to a complete alarm and communication system

Installation of the new system on the three hectare campus of the PUC was intended. The eight branches were not included initially. Should a later connection be planned, then this expansion would not cause any problems at all thanks to IP networking. Also with regard to spatial expansion, the Ascom IP-DECT system proves to be safe for the future thanks to its IP networking. In view of the complexity of the project, the overall project was completed in stages. To assure seamless coverage and reliable localization, extensive measurements were made on the grounds of the clinic. Safe alarm transmission, interactive voice traffic, as well as reliable and accurate localization of endangered persons can be guaranteed even in the most remote corners, basements and in the underground energy supply system by the use of around 150 DECT base stations and 10 gateways distributed in all buildings and on the grounds.

Voice communication was ported onto the new system in a further step. Alarm transmission on the old system continued to run during this time. Since one of the conditions of the PUC was to operate fixed and wireless telephony simultaneously in parallel, a further technical challenge arose. A call should be able to reach the addressee simultaneously both on his fixed phone and on his handset. For reasons of good availability, one did not want an employee to have to change over from his desk phone to his handset when he was out and about. The employees frequently forgot to do this, which led to less availability.

Alarm language, difficult language

Once voice was mastered, then alarm transmission was brought into the new system. The following alarm categories were integrated: Personal alarm, fire alarm, reanimation alarm as well as the clinic alarm, which in each case goes to all phones. The fact that the existing alarm logic could be taken over in the new system made things much easier and saved resources. However, the revision or extension of the alarm disposition performed in some areas at the same time represented a challenge for the team, since such dispositions must be worked out in intensive communication processes with the individual departments before they can be programmed in the Ascom Unite alarm server. Essentially it was a question of making the alarm escalation processes watertight for every single alarm category.

The formulation of the alarm texts was an especially difficult nut to crack. The alarm messages of the individual locators, which are transmitted onto the display of the handset of the employees located in this environment, must be formulated so clearly and distinctly that the addressee always knows immediately and accurately what he has to do. To increase this accuracy, additional locators had to be installed in some cases.

Without communication stress and free of anxiety through the clinical routine

Since the introduction of the Ascom IP-DECT system, the clinical routine of the PUC employees has improved in quality and security by day and night. Whereas previously one had to carry several devices, today interactive voice communication, interactive messaging, alarm transmission customized to the addressee and the location (including alarm) as well as accurate localization are combined in a handy mobile phone. Rescue and assistance are only the push of a button away for the clinic staff. In this case their exact position is visible not only centrally on a PC display, but it also appears on the large display of the handsets of the nearest colleagues who are assigned to provide assistance. The immediately visible acknowledgement of an alarm, as well as the possibility of interactive voice communication and the improved availability of all, lead to a clinical routine with less stress and increases the safety of the employees. Anyone who can imagine the feelings with which an employee moves at night over the extensive campus grounds can also appreciate that it is not only the hard facts, but also the soft factors provided, that speak for the Ascom IP-DECT system.

Today a total of 100 Ascom 9d24 Protector handsets are in use as mobile terminals. These handsets, known for their sturdiness, functionality and user friendliness, facilitate not only telephonic two-way communication, but offer interactive messaging with a large display and enable multi-line detailed alarm messages as well as the immediate acknowledgement of an alarm. They have extended personal protection functions. Thus the device offers a large red emergency call button on the top and is equipped with an automatic position alarm (Man down) and movement alarm (No Move). This version also enables the localization of a person in distress.

250 handsets of the Ascom Office M type, which facilitate wireless interactive voice communication and in addition have restricted messaging functions and are also suitable for receiving dedicated alarms, are available for the employees who work mainly in the administration.

The Ascom IP-DECT system installed in the PUC not only reliably assures the alarm transmission and localization of persons in distress, but it also facilitates autonomous two-way communication from every point in the grounds independent of the switchboard. And, in the case of a total failure of the public power supply or of the GSM network, operation is maintained by emergency generating sets.

Increased efficiency too – system replacement is no problem for the personnel

Replacing alarm and communication systems is not easy to accomplish especially in the hospital environment. In view of their high daily stress, the employees have little enthusiasm for getting used to a new system or for enduring time-consuming training courses. Thus achieving acceptance for a new system is always a challenge difficult to master for those responsible. This was not the case at the PUC for a number of reasons. One of these was careful preparation for the change. The other reasons resulted from the special properties of the Ascom IP-DECT system, which make training unnecessary. Among other things, taking over existing and familiar alarm dispositions into the new system, the fact that four old handsets were replaced by one multifunctional handset, as well as security very much increased by the possibility of localization on the entire site, were important contributions to fast acceptance of the new system among nurses, doctors and the administration.

According to Toni Huwyler: "Our people now move with less anxiety on the grounds even at night, because they know that we can determine their position in an emergency situation quickly and exactly and can immediately provide help." And he adds a further, decisive aspect: "The increase in quality compared with the previous analogue system has led to such high acceptance by our staff that the employees nearly always want to carry the handset with them and use it for telephoning all the time. In this way the availability of our staff has risen many times over." This shows at the same time that the new Ascom IP-DECT system also contributes to a considerable increase in efficiency.



The Basel Psychiatric University Clinics (PUC) in brief

The Psychiatric University Clinics (PUC) are part of the public health service on the Canton of Basel City. They are diverse in their range of services and undertake tasks in psychiatric treatment, in university teaching as well as in education and further training – both internally and externally. The clinics with their eight branches spread over the city of Basel employ around 1000 staff, have a capacity of 300 beds and guarantee their patients a modern offer of diagnostics, therapy and care. The PUC are responsible for the in-patient, partial in-patient and out-patient psychiatric care of adults (Psychiatric Clinic, PC), as well as of children and young persons (Children's and Young Persons' Psychiatric Clinic, CYPC) in Northwestern Switzerland. The PUC are also a competence center in forensic psychiatry (out-patient) for Switzerland and partially for Europe. The work of the employees is based on a holistic view of man and his psychic disorders and follows recognized ethical principles. Further information under www.upkbs.ch

View into the future

The Ascom IP-DECT system is designed so that it leaves all options open for the future. Toni Huwyler sees it this way: "We're not taken in by technological hype. We make our plans solidly and pragmatically. In every project where there is a possibility of integration, we examine the possibilities very carefully and are very pleased that we can fall back on open structures. The system provides us an opening into the future." Currently the PUC are examining the introduction of so-called "Location Based Services", which would make it possible to inform, control and act location-related. Thus one could let an addressee receive information selected and related accurately to his location. This is also an option which the IP-DECT system has learnt to master and can offer. One could also say, with Ascom IP-DECT back to the future.

Ascom Wireless Solutions (www.ascom.com/ws) is a leading provider of on-site wireless communications for key segments such as hospitals, manufacturing industries, retail and hotels. More than 75,000 systems are installed at major companies all over the world. The company offers a broad range of voice and professional messaging solutions, creating value for customers by supporting and optimizing their Mission-Critical processes. The solutions are based on VoWiFi, IP-DECT, nurse call and paging technologies, smartly integrated into existing enterprise systems. The company has subsidiaries in 10 countries and 1,200 employees worldwide. Founded in the 1950s and based in Göteborg, Sweden, Ascom Wireless Solutions is part of the Ascom Group, listed on the Swiss Stock Exchange.