



System Overview

The Hugs System is an advanced electronic system for preventing infant abduction. Leading hospitals across North America have selected Hugs for its security, flexibility, and ease of use.

Security

The Hugs Infant Protection System is designed to prevent infants from being removed from a facility without authorization.

Each infant wears a small tag around the ankle that contains a tiny radio transmitter. Once activated, the tag sends a regular message called a Heartbeat™ to indicate that it is functioning properly. These messages are relayed to a control computer, so that tags are supervised at all times.



Each facility has a designated “safe area,” usually the maternity ward. This is where infants are normally located, and they may be moved freely within this area. All exits from the safe area are monitored by Exciters. As soon as a tag comes near an exit, an alarm occurs showing the specific tag and its exact location.

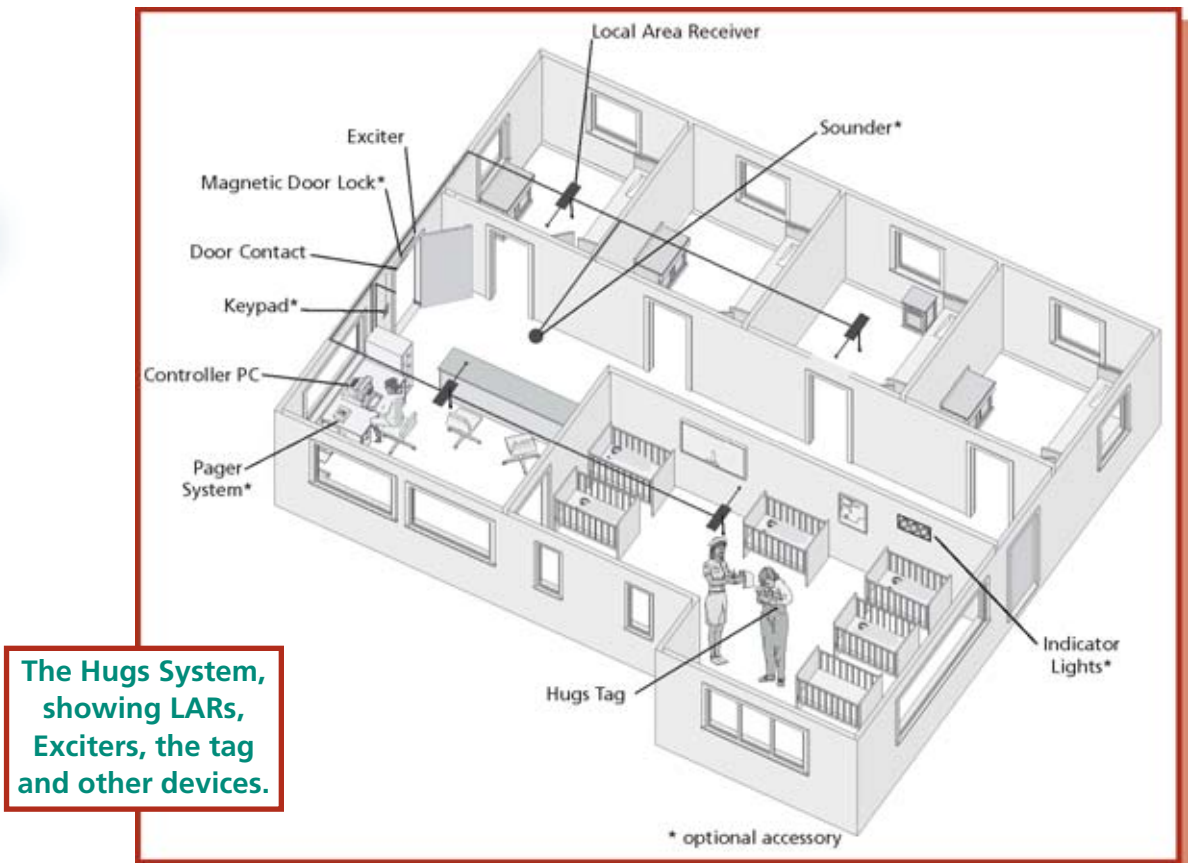
As long as the infant is wearing a Hugs tag, he or she cannot be passed through a monitored exit undetected. And with the special tamper-proof strap, an alarm immediately occurs if anyone attempts to cut off the tag.

Of course, there are times when the infant has to be taken outside the safe area. Here too, a number of safety features are in place. The system has a “sign out” procedure, initiated locally at a keypad or at a dedicated PC, whereby staff can remove specific infants. Sign outs can be strictly controlled through the use of passwords, and an alarm will occur if the infant is not returned within a preset time. The identity of the person authorizing the sign out can be recorded in the database of the PC. Similar precautions also apply to discharging infants.

The illustration on the following page shows the components of the Hugs System and how they work together to secure the safe area.



Certified to the ISO 9001 Quality Standard



The Hugs System, showing LARs, Exciters, the tag and other devices.

Flexibility

All of Hugs' security features have been carefully designed to minimize impact on baby, mother, and staff.

The Hugs tag is lightweight and hypoallergenic, with smooth rounded surfaces that will not irritate the baby's skin. And as long as the baby is within the safe area, he or she can be moved freely.

For staff, using the Hugs System involves learning a few new simple procedures. Attaching the tag quickly becomes second nature, while other procedures, such as moving the infant for tests or other purposes, involve no more than a click or two of the mouse or a phone call to Security. Keypads can also be installed at each exit to allow staff to sign out infants locally.

Most importantly, the system is highly configurable. Control of infant status can be restricted to only certain users at one PC, or it can be open to all authorized staff at several PCs strategically located throughout the facility. The software can be configured to require user response for almost any action, or it can be set to automate several tasks. Each facility has the freedom to tailor the system to meet its individual needs, yet the underlying security features remain in place protecting your infants.

Key Features



Hugs provides the most advanced protection available.

Full Supervision

Hugs continually monitors the activity and status of all active tags. Each tag emits a regular “Heartbeat” message every 10 seconds to indicate that it is OK. If the system does not receive a Heartbeat message within a set time period, then an alarm is generated. This allows a facility to provide one of the highest levels of security possible.

High Degree of Confidence

Hugs was designed to minimize nuisance alarms. Exciters, located at doorways, have an adjustable detection field that defines the “alarm zone” around that doorway. The size of the field can be adjusted to prevent disruption to regular activities while ensuring full coverage. In addition, the system’s design minimizes susceptibility to interference from other electronic and radio frequency equipment. This reduces the likelihood of false alarms caused by third party devices.

Tamper Proof Tag and Strap

Conductive materials embedded in the strap provide tamper detection. If the strap is cut, an alarm occurs and continues even if an attempt is made to re-connect it.

Unique Infant Identification

Each Hugs tag has a unique ID number, and the system can be configured to show the name of each infant or child. For privacy reasons, infants can be collectively labeled as “infant” or “child.” The system offers a large degree of user configurability, allowing organizations to choose whatever is best for them.

Prevents Piggyback Exits

A “piggyback exit” is the attempt to remove two infants from the safe area when only one has been legitimately signed out or discharged. The Hugs System prevents piggyback exits. Each infant wearing a Hugs tag must be signed out or discharged individually in order to leave the safe area without generating an alarm. Any attempt to remove a second infant will immediately cause an alarm to occur. A message will identify the infant who has been improperly removed, along with the time of the event.

Baby Friendly

The Hugs tag is the smallest active reusable tag available, and weighs a mere 1/3 of an ounce. Its rounded edges ensure that it does not pinch or irritate the baby. The strap material contains no latex, is hypoallergenic, and does not stretch. It is easily adjusted to account for normal weight loss. The unique shape of the tag also helps prevent the tag from being kicked off, while still allowing the ankle joint to move freely. The tag has no moving parts that could break, pinch the infant, or make installation of the strap difficult. The tag stands up to soiling, UV light, and cleaning. Both tag and strap are completely waterproof, allowing infants to be bathed.

Expandable

Hugs was designed to allow a hospital to implement the infant protection system it needs today, while having the ability to seamlessly expand in the future as needs grow.



The system can be configured to generate alarms if:

- The tag's signal has not been detected by the system for a set time period.
- Someone tries to exit through a protected doorway with an infant without authorization.
- The strap is cut.
- An authorized exit has occurred but the infant has not returned to the maternity ward in a specified time period (user configurable).
- An authorized exit has occurred and someone tries to "piggyback" through the protected exit with another infant.
- The battery power in the tag has become low.

LAN Compatible

The Hugs System supports up to 12 PCs, connected over a Local Area Network. Nurses, security personnel and administrators can all access the system simultaneously. Different levels of password access ensure security while allowing staff members to perform their jobs efficiently.

Time- and Date-Stamped Record of Activity

The system records and logs all activity data with time and date information. In a properly configured system, the entire history of an abduction attempt is recorded in detail. A report could be generated, for example, showing that an abductor left with baby Smith through the north wing door on August 15 at 5:05 p.m. This data may be invaluable evidence in the event of legal proceedings.

Authorized movements, like the transport of infants to other areas of the hospital, can also be time and date stamped. For example, administrators could determine that baby Jane left the maternity ward on September 10 at 9:00 a.m., under password authorization, and returned at 9:45 a.m. The system can even be configured to record the identity of the staff member who signed out the infant.

The amount of activity data that is stored is user configurable and largely dependent on the computer's hard drive storage space. Days, weeks, and months of activity can be stored. Data can be backed up to conventional mediums such as tape and disc. Hugs uses an industry standard database with sort and filtering capability. Data can be displayed on-screen and printed.

Does Not Interfere with Other Hospital Equipment

The Hugs tag is FCC/Industry Canada approved and does not interfere with the operation of other hospital or personal medical equipment, nor is it affected by their operation.

Microsoft® Windows® Based

The Hugs System uses the Windows operating system, creating a familiar environment for users. This platform also provides the system with exceptional flexibility, allowing it to be configured according to the specific needs of an organization.

Online Real Time Support

Hugs comes with a system support hardware package based on LapLink®. This application allows Xmark technicians to access a facility's system remotely and see exactly what is happening. Xmark can interact directly with hospital staff, on their uniquely configured system, in real time. Instead of talking staff through a problem, they can actually be shown the solution. Xmark's access to a hospital's system is strictly controlled by the hospital and is possible only with the hospital's authorization. A modem and phone line are required for this application.

Low-Battery Alarm Feature

Hugs monitors the battery level of all active tags. If battery power falls below a certain threshold, the system automatically generates an alarm to indicate that there are approximately three weeks of battery life remaining. A reminder message is also generated when the tag is discharged.

System Components



The Hugs Tag

At the heart of the Hugs System is the Hugs tag. This small radio transmitter combines state of the art microprocessor technology with an unobtrusive ergonomic design. The tag incorporates a tamper mechanism that is enabled as soon as the tag is attached to the infant with the tamper-proof strap. As it is attached, the tag emits a signal and is automatically admitted into the system. From this time forward, the system constantly monitors the tag. The strap can be adjusted to accommodate normal weight loss and is hypoallergenic. Tags are reusable and have a warranted life of one year. They are waterproof, can be cleaned, and allow bathing of the infant.

Local Area Receivers

Local Area Receivers (LARs) are radio frequency reception devices installed at regular intervals throughout the monitored area of the facility. LARs receive the Hugs tag transmissions, time stamp them, and relay them to the Controller PC via a LonWorks® network. LARs are installed in ceilings, usually out of view.

The Controller PC monitors the operation of each LAR to ensure a high level of operational confidence. If the LAR fails to operate for any reason, an alarm occurs.

Exciters

Exciters monitor the exits from the safe area (usually the maternity ward). Installed above or beside the doorway, the Exciter emits a detection field that covers the opening. When a tag enters the field, it immediately transmits a special message to the Controller PC via the LARs. In a typical installation (with door contacts connected to the Exciter), an alarm will only occur if the door is open, as the infant is then at immediate risk of being removed without authorization. Once an alarm does occur, a Portal Alarm message is automatically generated at all PCs.

Each Exciter also includes two relays, which can be used to control a variety of devices including magnetic door locks or high output alarms. Optional keypads may be connected to enable staff to remove infants under local password control.

Exciters may also be placed strategically throughout the hospital to allow the progress of an abduction attempt to be monitored.

Like all devices on the LonWorks network, Exciters are continually monitored by the Controller PC, and a warning message is automatically displayed if there is a problem.





Controller PC Minimum Specifications

- Pentium® III 667 MHz CPU, 256 Mbytes RAM
- 10 gigabyte hard disk drive
- CD-ROM drive
- 4 Mbyte video card
- Sound card
- 56 kbps modem
- Parallel port
- 3 free PCI slots
- Windows 2000 Professional or Server
- LapLink remote modem access software

*Specifications are subject to change.
Please contact Xmark for details.*

Controller PC

The Windows-based Controller PC contains the software that controls the operation of the entire system. The software displays facility floor plans and relevant system data including the status of all Hugs tags. Typically located at a Nurse Station or at a facility's Security Station, the computer monitors and controls all system operation. Additional computers can be connected at other locations throughout the facility.

The software offers advanced control through an intuitive user interface. Designed for ease-of-use, the software presents only task-critical information to the operator. The degree and level of operator access can be regulated through password control. User accounts can be created and authority assigned according to each facility's requirements.

The software records all activity, including alarms, in a database. A variety of reports of system activity can be viewed on-screen and printed. Custom reports can be created, and the database can

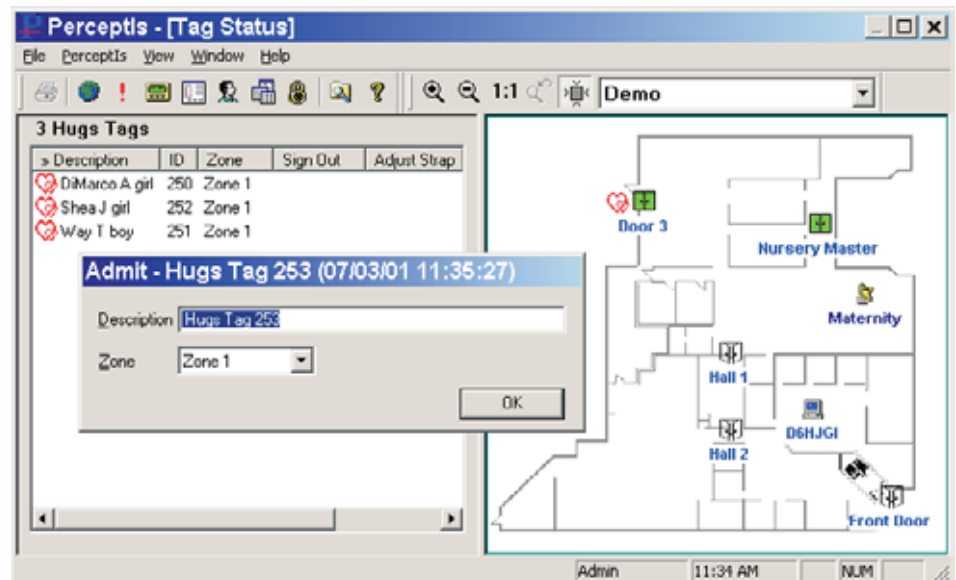
be exported for use with third-party software programs, including Microsoft Access.

The Network

Each Local Area Receiver and Exciter is connected to the Controller PC through a network, over which all system activity is communicated. The network employs the LonWorks protocol, an industry standard from Echelon® and Toshiba®.

LARs, Exciters and I/O Modules (optional LonWorks devices) receive power from a central 12/24 V power supply.

The wiring for the network uses 16 AWG twisted-pair cable.



The Controller PC software features an intuitive graphical interface.

Using the System—Typical Procedures



Admitting an Infant

Soon after an infant is born, the nursing staff attach a Hugs tag to the infant's ankle. The tag immediately activates, and is admitted into the system. A message appears (optional) in the software, and the operator can enter the infant's name or other pertinent information. The infant is continually monitored from the moment the tag is attached.

Signing Out an Infant

When infants need to be moved for tests or other legitimate purposes, they are "signed out" of the system. Sign outs can be initiated either at one of the PCs, or locally using optional keypads. At the computer, the staff member enters his or her password, selects the tag to be

signed out, and enters the duration. At a keypad, he or she punches in a code, and passes through the doorway. In either case, the system knows exactly which infant has been removed, and can be configured to record the staff member performing the sign out. This activity is logged in the database.

Discharging an Infant

Discharging the infant so that he can travel home with his parents is just as simple. The nurse or other staff member selects the tag in the software, and chooses the Discharge command. As usual, this procedure is password controlled. The strap can then be cut and the tag removed without generating an alarm.

The Hugs System—Summary of Benefits

These powerful features have made Hugs the world's fastest selling infant protection system.

- **Fully supervised**—the status of each infant and all components is continually monitored.
- **Tamper-proof tag and strap**—any attempt to cut the tag results in an alarm.
- **Security and flexibility**—freedom on the inside, with a wall of security on the outside.
- **Baby-friendly**—Hugs is the smallest active tag on the market, just a third of an ounce. Its patented shape has smooth surfaces and no sharp protrusions.
- **Customizable**—Hugs can be configured to meet the needs of virtually any facility.
- **Compatible**—all components of the system are FCC and Industry Canada approved, and do not interfere with hospital or personal medical equipment.
- **Familiar**—the intuitive Windows-based software makes learning the system straightforward, ensuring easy implementation.
- **Expandable**—the system is easily expanded to other parts of the facility, or to included personal duress and asset tracking functions.
- **Support**—the system is installed and supported by certified local dealers, and Xmark offers real-time technical support and troubleshooting.

Corporate Profile



About Xmark

Xmark is a leader in tracking and monitoring products for the healthcare and security markets. As the Healthcare Security Division of InstanTel Inc., Xmark has established a worldwide reputation for providing its customers with practical, reliable products based on proven RF technology. Today, the Hugs System is the infant protection system of choice, selected by leading hospitals across North America.

Xmark designs and manufactures all of its products. All aspects of the business are certified to the ISO 9001 international quality standard, from order entry to manufacturing and product shipment. The company's quality system is certified annually by independent auditors.

The Hugs System is installed and serviced through a network of certified independent dealers. For information on the dealer in your area, please contact Xmark.



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