

# System Overview



## How the Hugs® system works

The Hugs infant protection system is designed to prevent infants from being removed from a medical facility without authorization.

Every infant wears a Hugs tag on the ankle, and every exit point of the obstetrics unit is electronically monitored to detect the tags. This means staff and family can move infants freely within the protected zone, but no one can remove an infant without the system alerting hospital staff.



Simple password procedures allow staff to sign tags out of the system, so babies can be moved from the obstetrics unit for testing or other medical procedures.

The Hugs tag contains a tiny radio transmitter. Once activated, the tag emits a special Heartbeat® signal every 10 seconds. These signals—indicating that the tag is present in the protected zone and is functioning—are picked up by reception devices throughout the monitored area and relayed to the Controller PC via the network.

If a tag in close proximity to an open exit is detected by the door monitors, an alarm occurs. The Controller PC shows the tag ID number and indicates the exact location on a floor plan map of the facility. In addition, with the integrated CCTV option, the Hugs system automatically displays images from the exact CCTV camera when an alarm occurs, so that staff can respond with full knowledge of the situation. The Hugs system can also support magnetic door locks, and can be interfaced with other hospital security systems such as pagers and alarm devices.

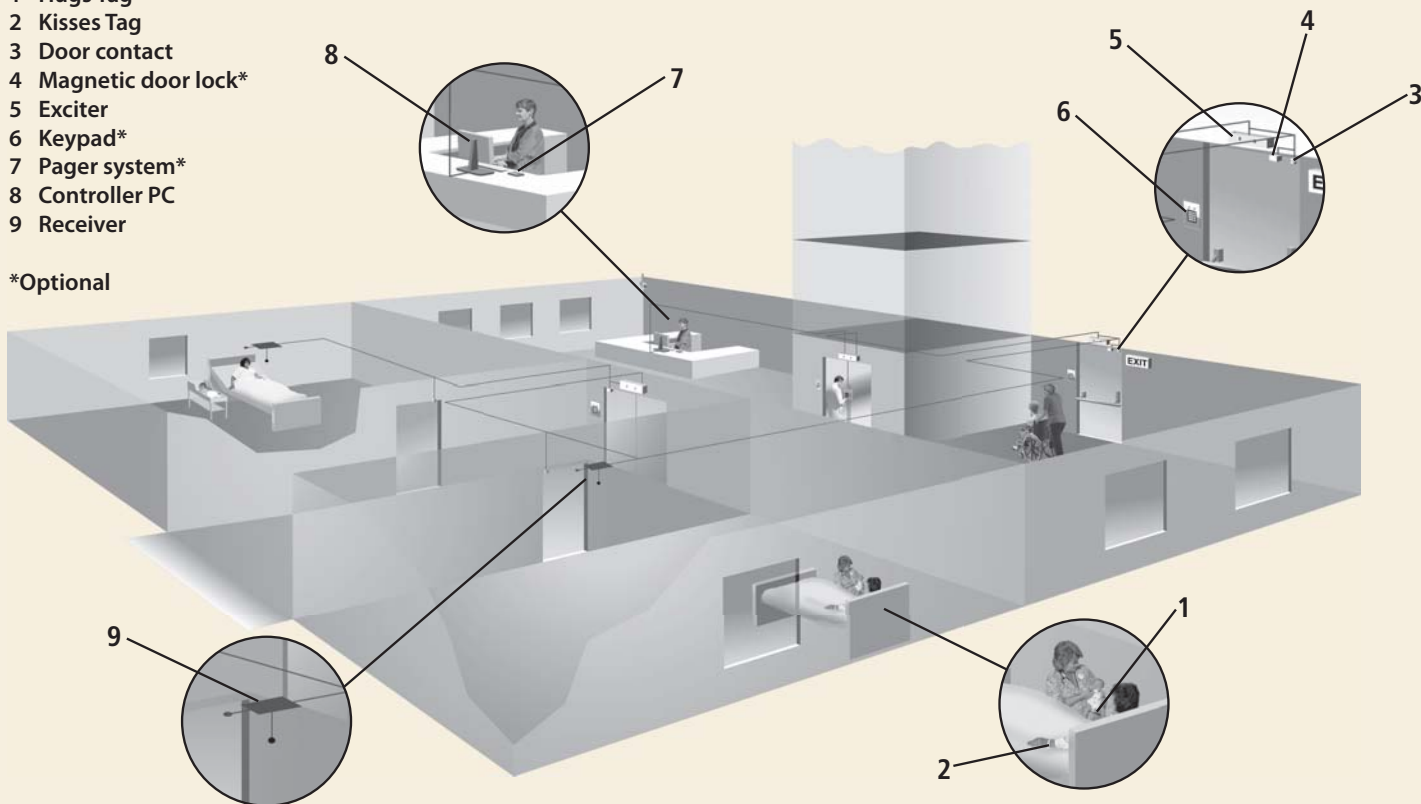
The optional Kisses® mother/infant matching component provides automatic matching of mothers and infants. Each time mother and baby are brought together, an audible signal will alert staff of a mismatch. The only additional equipment required for this application is Kisses tags for mothers.

### The Hugs system will generate an alarm if:

- 1 Someone tries to exit through a protected door or elevator with a monitored infant, without authorization.
- 2 The tag's signal has not been detected by the system for a specified time period.
- 3 The strap has been cut or tampered with.
- 4 The tag's battery power is low.
- 5 An authorized exit has occurred but someone tries to "piggyback" through with another infant.
- 6 An authorized exit has occurred but the infant has not been returned to the safe area in the specified time.

- 1 Hugs Tag
- 2 Kisses Tag
- 3 Door contact
- 4 Magnetic door lock\*
- 5 Exciter
- 6 Keypad\*
- 7 Pager system\*
- 8 Controller PC
- 9 Receiver

\*Optional



## The Hugs Tag



At the heart of the Hugs system is the Hugs tag. This small radio transmitter incorporates an anti-tamper mechanism that is enabled as soon as the tag is attached to the infant with the tamper-proof strap: the tag is automatically enrolled into the system software and protected. From this time forward, the tag emits a signal every 10 seconds to indicate it is present and functioning. The BabySense™ feature of the system also notifies you if the Hugs tag is not securely on the infant, either because it was attached too loosely or due to weight loss. You are given timely notice to snug up the tag so that it is securely attached.

The Hugs tags are waterproof, hypoallergenic, reusable and carry a one year warranty.

## Receivers

Receivers (or Local Area Receivers—LARs) are radio frequency reception devices installed at regular intervals throughout the monitored area of the facility. Receivers receive the Hugs tag transmissions, time stamp them, and

relay them to the Controller PC. They are installed in ceilings, usually out of view.

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

## Exciters

Exciters monitor the exits from the safe area (usually the obstetrics unit). 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 Receivers. 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 occurs, an exit alarm message is automatically generated at all system PCs.

Each Exciter also includes two relays, which can be used to control a variety of devices, including magnetic door locks or audio and visual alarm devices. Optional keypads may be connected to the Exciter to enable staff to sign out infants at the exit, in addition to via the Controller PC.

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

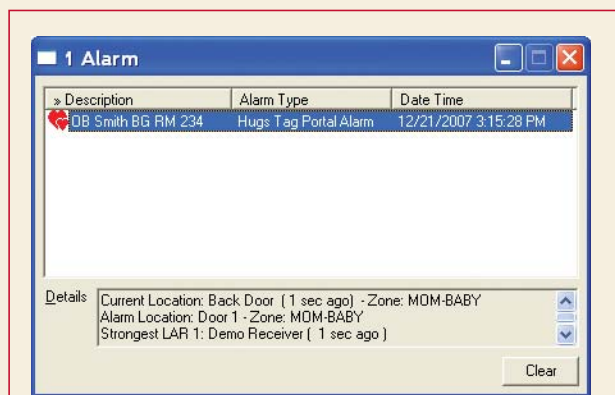
Like all network devices, Exciters are continually monitored by the Controller PC, and a warning message is automatically displayed if there is a problem.

## Controller PC

The Windows®-based Controller PC contains the Hugs 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 nursing station or at a facility's security station, the computer monitors and controls all system operations. The Controller PC is equipped with a watchdog timer card to output an alarm signal and reset the computer in the unlikely event of a problem with the Hugs software or the operating system, providing an extra level of security.

Additional computers can be connected at other locations throughout the facility over a local area network (LAN). Nurses, security personnel and administrators can all access the system simultaneously.

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. Different levels of password access ensure security while allowing staff members to perform their jobs efficiently. User accounts can be created and authority assigned according to each facility's requirements.



*The alarm window provides detailed information about each alarm, including the tag ID number, the time and type of the alarm, and the most recently known location of the infant.*

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.

## The Network

Each Receiver and Exciter is connected to the Controller PC through a hard-wired LonWorks® network, over which all system activity is communicated. This technology offers a high level of message integrity.

Each device on the network is continually monitored by the Controller PC, and a warning message will automatically appear in the software if a problem is detected.

All network devices receive power from a central 12/24 V power supply. The wiring for the network uses 16 AWG twisted-pair cable.

### Add the Kisses component for mother/infant matching

The Kisses component is an optional feature of the Hugs system that ensures that babies are correctly matched with their mothers. Each mother wears a small, comfortable Kisses tag. It is bonded with her infant's Hugs tag at birth and for the duration of their hospital stay. Every time the two are brought together, an audible signal from the infant's tag automatically alerts staff of a mismatch—even if there are other infants in the room.



- Works anywhere in the protected area.
- Patient-friendly mother tag attaches with standard hospital band.
- Use and reuse any Hugs tag with any Kisses tag for simple tag management.
- Supports multiple births.

## Three Simple Procedures

### Admitting an Infant

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Soon after an infant is born, the nursing staff attaches a Hugs tag to the infant's ankle. The tag immediately activates, and is automatically enrolled into the system. A message appears (optional) in the software, and the user 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

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When infants need to be moved for tests or other legitimate purposes, they are "signed out" of the system. Sign-outs can be initiated at one of the system's 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 into the database.

## About Xmark

For over 25 years, Xmark Corporation has provided Radio Frequency Identification (RFID) solutions to locate and protect people and medical equipment in healthcare environments. Its market-leading infant and pediatric protection, wander prevention, staff safety, and asset tracking applications are trusted by over 5,000 healthcare institutions worldwide.

Xmark systems are installed and serviced through an international network of authorized dealers, and backed by the industry's most comprehensive customer support program. All aspects of Xmark's business are certified to the ISO 9001 quality standard.

### Discharging an Infant

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Discharging the infant 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.



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