Infinity CentralStation

with Infinity TeleSmart

Instructions for Use

WARNING! For a full understanding of this product, the user should carefully read this manual before use.

DRAFT

Manufactured By:

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Danvers, MA 01923

Infinity CentralStation
with Infinity TeleSmart
Instructions for Use
Software VF8

Printed in the United States of America.

This software bears the CE label in accordance with the provisions of the Directive 93/42/EEC of 14 June 1993 concerning medical devices (this label is not applicable for US devices).

Authorized EC representative:

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Germany

The Infinity TeleSmart System complies with the Radio Equipment and Telecommunications Terminal Equipment Directive (1999/5/EC).

NOTE: In the United States, Federal Law restricts these devices to sale by, or on order of a physician.

Patient monitoring equipment, however sophisticated, should never be used as a substitute for the human care, attention, and critical judgment that only trained health care professionals can provide.

This device is subject to EU Directive 2002/96/EC (WEEE). It is not registered for use in private households, and may not be disposed of at municipal collection points for waste electrical and electronic equipment. Dräger Medical has authorized a firm to dispose of this device in the proper manner. For more detailed information, please contact your local Dräger Medical organization.

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TOC entries may not be accurate.

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NOTE: A note provides additional information intended to avoid inconvenience during operation.

CAUTION! *A caution statement provides important information about a potentially hazardous situation which, if not avoided may result in minor or moderate injury to the user or patient, or in damage to the equipment or other property.*

WARNING! A warning statement provides important information about a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Applicability

NOTE: Software functionality is identical between the following products:

- Infinity Delta = Infinity SC 7000
- Infinity Delta XL = Infinity SC 9000XL
- Infinity Kappa = Infinity SC 8000
- Infinity Gamma = Infinity SC 6002XL
- Infinity Gamma XL = Infinity SC 6802XL

Introduction

Before using all Dräger devices, read all provided documentation carefully. Patient monitoring equipment, however sophisticated, should never be used as a substitute for the care, attention, and critical judgment that only trained health care professionals can provide.

WARNING!

- **Use of software not approved by Dräger on the CPU of the Infinity CentralStation is strictly forbidden.**
- **Diagnosis based on interpretation of 12-lead monitoring results should only be done by qualified personnel. Prior to final interpretation and diagnosis, qualified physicians should review suggested diagnostic statements and all other available information.**
- **Connection of equipment not approved by Dräger to the Infinity Network is strictly forbidden.**

Intended Use

NOTE: Federal Law in the U.S. restricts this device to sale by, or on the order of a physician.

WARNING! Do not use INFINITY TeleSmart in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide.

The INFINITY TeleSmart Telemetry System is indicated for adult and pediatric patient populations in an environment where patient care is provided by Healthcare Professionals.

The INFINITY TeleSmart is intended to be used by healthcare professionals for the purpose of monitoring ECG and pulse oximetry parameters of ambulatory and non-ambulatory pediatric and adult patients in healthcare type facilities.

The device produces secondary visual and audible alarms if any of the physiological parameters monitored vary beyond preset limits.

The Infinity TeleSmart is intended to operate with the INFINITY Central Station using wireless communication over the Draeger Infinity patient monitoring network.

The most likely locations for patients monitored by this device are step-down units, telemetry departments, general med/surg floors, emergency departments, and in-hospital transport. This device is available for sale only upon the order of a physician or licensed health care provider.

Rest ECG

The Infinity CentralStation uses the University of Glasgow ECG Analysis Program to produce preliminary diagnostic interpretive statements and measurements for Rest ECG. For a more specific description of the University of Glasgow ECG Analysis Program, refer to the Infinity Rest ECG Analysis Manual.

Safety Considerations

Recommendations

Dräger recommends the use of an Uninterruptible Power Manager in conjunction with the Infinity CentralStation at all times.

General Precautions

WARNING! Because of the danger of electric shock, never remove the cover of any device while it is in operation or connected to a power outlet.

The user must check that the equipment functions safely and is in proper working condition before use. In the interest of safety, regular equipment inspection and maintenance is required. Once a year, check all cables, devices, and accessories for damage, ground resistance, chassis and patient leakage currents, and all alarm functions. Also, ensure that all safety labels are legible. Maintain a record of safety inspections. Safety checks, device verification, calibration, and maintenance should be carried out and verified by Dräger-authorized personnel.

WARNING! Operation of this device should be in accordance with part 15.242 sections A, D, E, F, G and H of the FCC rules.

CAUTION! *Conductive parts of electrodes and associated connectors for applied parts, including the neutral electrode, should not contact other conductive parts including earth.*

Infinity TeleSmart Precautions

WARNING!

- **Under NO circumstances should the Infinity TeleSmart be used without the battery cover securely in place.**
- **Do not use the Infinity TeleSmart near equipment that produces static or gradient magnetic fields.**
- **Do not use Infinity TeleSmart in MR (Magnetic Resonance) environments.**
- **Use only Dräger-approved sensors and leads, and apply them per the manufacturer's recommendations. Other sensors and leads may not provide adequate protection against defibrillation nor optimum performance. See Appendix C for a list of Dräger-approved equipment.**

Defibrillator Precautions

WARNING! Use only Dräger-approved sensors. Other sensors may not provide adequate protection against defibrillation.

ECG Report Precautions

WARNING! If you require a diagnostic quality recording you must use a Rest ECG Report (page 16-8).

Pacemaker and TENS Precautions

Certain difficulties are inherent to ECG monitoring and require special attention. Use care to not misinterpret ECG waveforms of patients with pacemakers.

WARNING! Pacemaker Performance

- **In areas of uncertain performance, the monitor has been designed to err in the direction of false positive rather than false negative alarms.**
- **In paced patients, QRS complexes may not be counted that result in false low rate alarms under the following circumstances:**

  Fused beats and asynchronous pacers when coupling intervals are +10 to -90 msec.

  700 mV pacer pulses followed by QRS complexes < 0.5 mV.

  Asynchronous pacer pulses with overshoot.
- **Even though the Infinity CentralStation passed the AAMI pacer pulse rejection test, it cannot anticipate every waveform characteristic. The system may count heart rates inaccurately and misinterpret rate-dependent arrhythmias in some paced patients. Do not rely entirely on the displayed heart rate to assess a paced patient's condition. Always closely observe and carefully monitor these patients' vital signs.**

For Pacemaker Patients:

- Turn *Pacer Detection* on.
- Display the lead with the least interference and the highest R-wave in the patient's waveform channel 1.
- Verify that the HR calculation is accurate in comparison to the ECG waveform.
- Verify that the ♥^{P} symbol is displayed for each paced beat.

For Patients Without a Pacemaker:

- Disable pacer detection.
- Be aware that TENS signals are similar to pacemaker spikes and may be labeled as such.

WARNING! Valid QRS complexes following mislabeled TENS signals could be rejected, resulting in false asystole or low heart rate alarms. Follow the directions for pacemaker patients. If TENS signals continue to be interpreted as pacer spikes, disable pacemaker detection.

Pacer Fusion Mode Precautions

WARNING! Fusion mode pacer detection is not intended for use with large-voltage, unipolar pacemakers. It is intended for use only with biphasic pacemakers. Please observe the following:

- **Before selecting Fusion mode be certain that the patient has a biphasic pacemaker (external or implanted) and that it is accurately programmed as appropriate for that patient.**
- **Do not select Fusion mode if you are not certain what type of pacemaker is in use, or how it is programmed.**
- **Select Pacer Fusion mode only to suppress repeated false asystole and/or false low heart rate alarms.**
- **Selection of Fusion mode may increase the risk of falsely counting pacer spikes as QRS complexes, and may cause cardiac arrest to be undetected. Therefore, special surveillance of any pacemaker patient monitored with this mode is strongly recommended.**

Pulse Oximetry Precautions

WARNING!

- **SpO_2 measurements are particularly sensitive to pulsations in the artery and the arteriole. Therefore, measurements may not be accurate if a patient is experiencing shock, hypothermia, anemia, or has received medications that reduce artery blood flow.**
- **Check the sensor at least every four hours. Move the sensor if there is any sign of skin irritation or impaired circulation.**
- **Bright sunlight can interfere with pulse oximetry measurements, causing erratic or missing values. When the sensor is likely to be exposed to direct sunlight, cover it with an opaque material.**
- **Elevated levels of carboxyhemoglobin or methemoglobin in monitored patients can result in inaccurate pulse oximetry readings.**
- **Infrared remote control devices, such as those used with TVs and VCRs that are aimed directly at the SpO_2 sensor can interfere with accurate pulse oximetry measurements.**
- **Significant levels of indocyanine green, methylene blue, or other intravascular dyes can interfere with accurate pulse oximetry measurements.**

CAUTION! *Use only Dräger-approved power supplies and batteries (refer to the equipment documentation).*

QRS Processing Precautions

WARNING! High amplitude (>0.2mV) P- and T-waves of long duration may register as integral QRS complexes. To ensure that the system accurately detects low heart rate in these cases, select the lead with the highest R-wave (relative to the T- and/or P-wave) for ECG1. If the system continues to misinterpret P- or T-waves, reposition electrodes or use other modalities to monitor the patient.

Maintenance, Modifications, and Repairs

WARNING! Disposable accessories (such as disposable electrodes) are for single-use only. Do not reuse disposable accessories.

Safety requires regular equipment inspection and maintenance. Dräger is liable for the safety, reliability, and performance of its equipment. However, be sure that devices are used in accordance with Dräger operating instructions.

A full technical description of the Infinity Network is available from your local Dräger representative.

Site of Operation

The site of operation of all equipment must meet temperature, humidity, and altitude requirements. For details, see Appendix B.

WARNING! Do not operate the Infinity TeleSmart, its components or its remote displays in the presence of flammable gases.

The Infinity CentralStation and Infinity TeleSmart are not intended for home care use or the following hospital environments:

- Hyperbaric Chambers,
- In the presence of flammable gases (i.e. Anesthetic Agents),
- CT areas,
- Environments containing MRI equipment, or
- While using electrosurgical unit (ESU), Diathermy, or any other device that injects electric current to the surface of the body which could cause interference on the ECG signal.

Electromagnetic Compatibility

The Infinity TeleSmart System has been designed and tested for compliance with current regulatory standards as to its capacity to limit electromagnetic emissions (EMI), and also as to its ability to block the effects of EMI from external sources.

The Infinity TeleSmart System is designed to comply with the EMI/EMC standard, EN60601-1-2. For further details see page B-13.

Reducing EMI

To reduce possible problems caused by electromagnetic interference, Dräger recommends the following:

- Use only Dräger-approved, medical grade accessories.
- Ensure that other products used in areas where patient monitoring and/or life-support is used comply to accepted emissions standards (EN55011).
- Try to maximize distance between electromedical devices; Dräger recommends a minimum safe distance of 20 cm between all electrical devices. High-power devices relating to electrocautery, electrosurgery, and radiation (X-ray), as well as electrical stimulators and evoked potential devices, may produce interference on the Infinity TeleSmart.
- Strictly limit access to portable radio-frequency sources, e.g., cellular phones and radio transmitters. Be aware that portable phones may periodically transmit even when in *standby* mode.
- Maintain good cable management. Try not to route cable over electrical equipment. Do not intertwine cables.
- Be sure all electrical maintenance is performed by qualified personnel.

Device Markings

Markings on various Infinity CentralStation hardware components may include the following:

Consult accompanying documents

Display ON/OFF button

CPU ON/OFF LED

IPX7
(Infinity TeleSmart)
IPX4
(Infinity TeleSmart connection side of Bedside Charger)
IPX0
(Central Charger and back of Bedside Charger)

IC: 267I-ABTU4

Observe WEEE (Waste Electrical and Electronic Equipment) disposal requirements (ii).

Danger: Risk of explosion if used in presence of flammable anesthetics

Tested to comply with FCC standards

Consult accompanying documents

USB Connector

1 About the Infinity CentralStation

General Description

The Infinity CentralStation provides centralized monitoring and critical care management for bedside and telemetry monitored patients. From the Infinity CentralStation, clinicians can gain access to patient information for as many as 1024 patients on the Infinity Network. The Infinity CentralStation displays waveforms, parameters, and alarm status of Infinity bedside monitors, Infinity patient worn devices, and ventilators (via an etCO2 pod or an MIB interface) for up to 16 patients on a single screen. Also, it provides alarm surveillance for up to 32 patients.

System Components

NOTE: Please refer to hardware manufacturer's documentation for detailed information.

Infinity CentralStation components include:

- a Central Processing Unit (CPU) that processes parameter, waveform, and alarm data from bedside monitors, telemetry devices, and other network devices,
- up to two main displays that display monitor data,
- speakers that provide audible alarms,
- a mouse,
- a keyboard,
- an optional touch screen,
- optional remote displays,
- optional recorders and/or laser printers, and
- optional RAID 1 (Redundant Array of Independent Disks) data protection.

Infinity TeleSmart-components include:

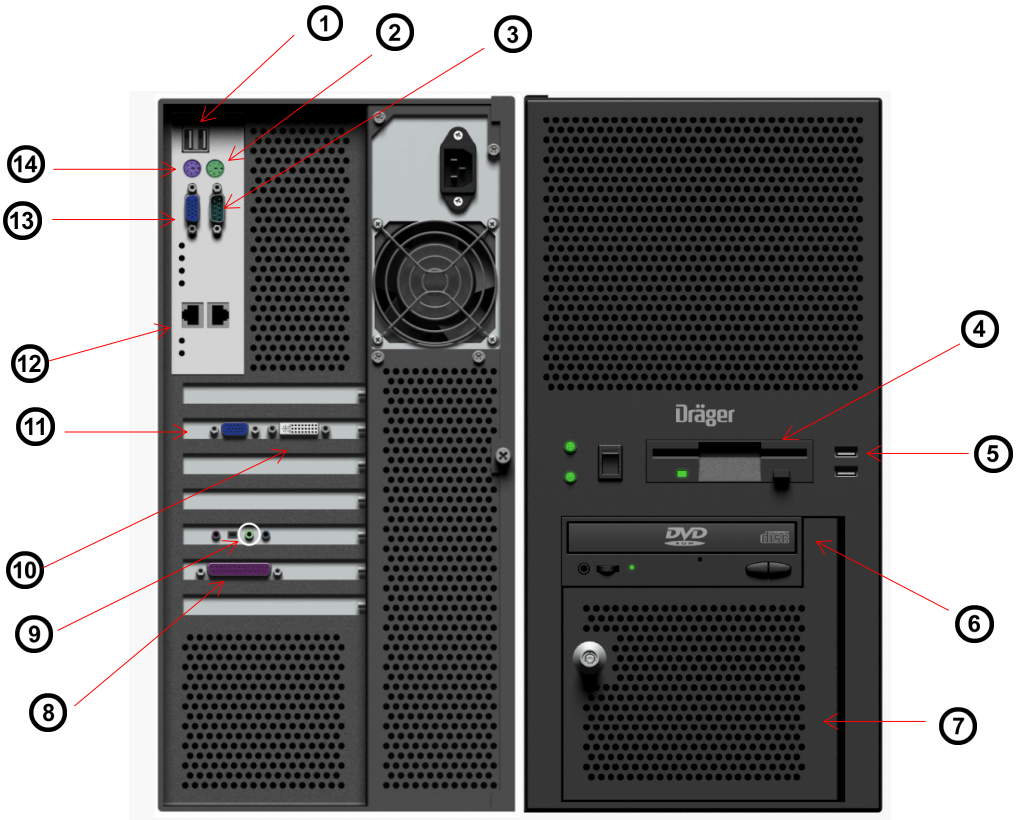
- Infinity TeleSmart patient worn device,
- Infinity TeleSmart Bedside Charger,
- Infinity TeleSmart Central Charger,
- Infinity TeleSmart programming tool/cable, and
- networking components.

Infinity CentralStation

WARNING! The Infinity CentralStation CPU must be placed so that it can be heard easily if the external speakers become non-functional. You must keep the Infinity CentralStation external speakers connected at all times.

CAUTION! *The Infinity CentralStation CPU and its display(s) must always stay on. Never press any of the ON/OFF buttons to turn the CPU or the display(s) off.*

Infinity CentralStation Central Processing Unit (CPU)



1	USB Ports	**8**	Parallel Port
2	Mouse Port	**9**	External Speaker Connector
3	Serial Port	**10**	DVI Connector
4	Floppy Disk Drive	**11**	VGA Connector
5	USB Ports	**12**	LAN Connectors
6	CDRW/DVD Drive	**13**	VGA Connector
7	Locked Drive Bay	**14**	Keyboard Port

Infinity Network

The Infinity® Network is a standards-based network providing connectivity and data access among Infinity devices.

Dräger offers a variety of components and supplies permitting network customizing. Network setup and configuration is a Service function performed during installation. Planning, design, and implementation of the Infinity Network is performed by trained Dräger personnel.

Network Configuration

The Infinity Network can include *wired* and *wireless* components.

For detailed information about the configuration and operation of wireless components in the Infinity Network, refer to the Dräger publications, “Infinity Network Planning, Design, and Installation Handbook” (Third Edition) or “Infinity OneNet Network Planning and Installation Handbook”.

NOTE: Please refer to manufacturer’s documentation for hazards associated with wireless components.

Local and Remote Patient Monitoring

Local patients are patients admitted to the Infinity CentralStation you are currently viewing.

Remote patients are bedside or telemetry patients available to view but who are not admitted to the Main Screen of the Infinity CentralStation you are currently viewing.

- *Bedside patients* - Remote control is possible only if the Bed Control and the *Bed Silence* features are enabled at the Infinity CentralStation (page 3-3) and remote control is activated at the bedside monitor (refer to monitor documentation).
- *Telemetry patients* - Remote control is possible only if the remote functions are enabled at patient’s local Infinity CentralStation (page 4-4).

Although you can view patients outside theInfinity CentralStation monitoring unit, you cannot silence alarms or make any setup changes for those patients.

Interacting with the Infinity CentralStation Keys

To interact with the Infinity CentralStation, you can use a keyboard, a mouse, or a touch screen. When your Infinity CentralStation is configured to use the touch screen display, the keyboard and mouse are still active. This is true even if the touch screen fails.

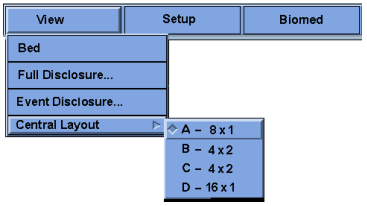
The Infinity CentralStation keyboard uses has the following *quick-access keys*:

- **F1** silences all active alarms at the Infinity CentralStation for 1 minute.
- **F5** displays **Main Screen**.
- **F8** invokes **Help**.
- **F9** generates Shift report for currently active beds.
- **F11** initiates a timed recording for all beds assigned to Main Screen. If the Dual Display option is enabled, recordings are generated for the display in which the mouse pointer is located.
- **Print Screen** prints the contents of a screen on an optional laser printer.

The keyboard also has the following *special keys*:

- **Enter (↵)** moves the cursor to the next input field or selects a highlighted menu item.
- **Delete** erases either the character to the right of the cursor or an entire selected text block.
- **Backspace** erases the character to the left of the cursor.
- **Keyboard arrow keys** are only active in text entry boxes, where they move the cursor in the direction indicated by the arrow.

User Interface

User Interface	Function/Purpose	Remarks/Illustration/Example
BUTTONS		
Action button	Executes a function	Examples of action buttons are: • **Audio Pause**, which silences alarms at the Infinity CentralStation (1 minute). • **Alarm Pause**, which silences the alarms of an individual patient. • **Accept**
Menu button	Activates a menu	
Option button	A small rectangle inside the button implies *fixed* selections.	
Radio button	Available choices are visible. The button next to the current selection appears depressed.	
Increment button	Allows scrolling through predetermined settings	
Page button	Allows scrolling through screen pages	
MENUS		
Cascading menu	Menu items followed by an arrow indicate additional related submenu selections.	
SCROLL BARS		
Horizontal/ vertical scroll bars	Allow navigation through data	To scroll through information, click on the arrows or drag the slide bar.
		

User Interface	Function/Purpose	Remarks/Illustration/Example
PASSWORD POPUPS		
Confirmation popup	Safeguards against accidental execution of a function that may have significant consequences	For example, when you try to change the time, a confirmation popup appears because the change may affect other devices on the network.
Informational popup	Contains information, warnings about operational errors, or necessary steps that must be performed	For example, if you try to transfer data from a bed that is not in '*Standby*' mode, an informational popup with the following message displays: The source bed for the transfer must be in *Standby*. Please put this bed in *Standby*.
Menu-specific popup	Provides function-specific information and may accommodate setting changes	The **Assign Bed** popup in the **Setup Central Layouts** menu allows you to select another bed in the network for display.
Password popup	A Password pop-up restricts access to functions only intended for authorized personnel.	• The *clinical password* safeguards several setup procedures of the Infinity CentralStation. Often these setup procedures are performed by a Nurse Manager or a Unit Director. • The *biomedical password* protects functions only intended for use by Service or Biomedical personnel. These functions include setting up the Infinity CentralStation, accessing the system console, configuring locked options, and accessing Diagnostic and Clinical Events logs.

On line Help

The Infinity Central ***Instructions for Use*** are available on screen. When active, the ***Instructions for Use*** PDF occupies the left side of the screen.

Using On Line Help

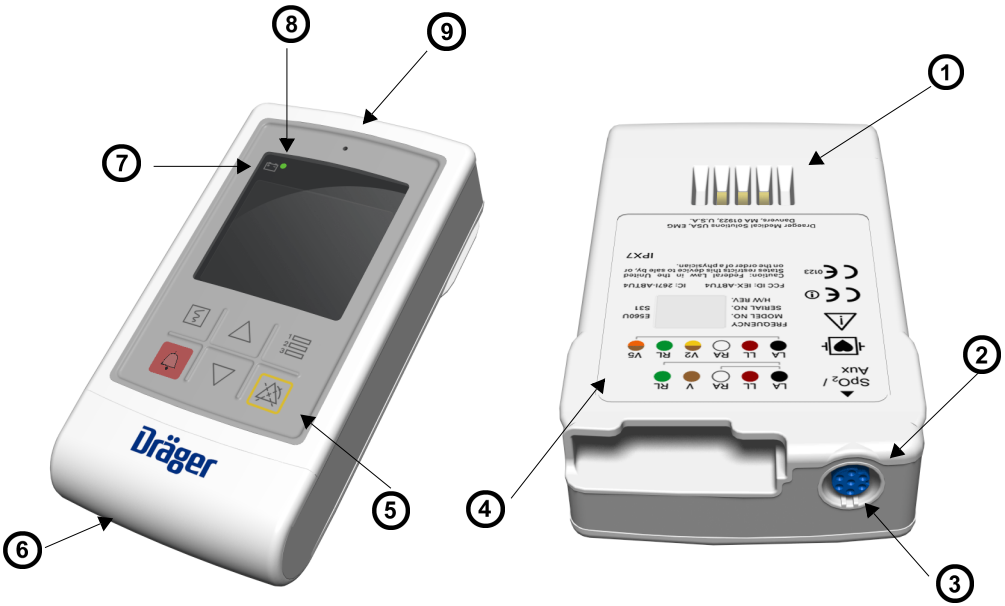
Function	Instruction
Open	• Click on **Help** in the upper right-hand corner of the Infinity Central menu bar to launch the Infinity Central ***Instructions for Use***.
Search	• Use Adobe Reader's *Find* function  , *Bookmarks* tab, and navigation tools to search for the wanted instructions.
Close	• Close the ***Instructions for Use*** by clicking on **File** and **Close** in the PDF window, or on the **X**-button in the window's upper right-hand corner.

2 Infinity TeleSmart

About Infinity TeleSmart

Infinity TeleSmart is patient worn device that uses the Infinity CentralStation as the primary patient monitoring display and primary alarm source. The Infinity TeleSmart screen is the secondary display for:

- ECG waves (heart rate), and
- Pulse Oximetry (SpO2, pleth wavefom, and pulse rate)



1	Charger interface	**6**	Battery compartment
2	SpO2/Aux port	**7**	Battery power indicator
3	SpO2/Aux port cap	**8**	LED indicator
4	Lead wire illustration	**9**	Audible alarm speaker
5	Fixed keys		

User Controls

The Infinity TeleSmart fixed keys give you quick access to a variety of functions.

Fixed Key	Action/Description
	When you press the **Record** key: • a timed recording is generated, • a timed or continuous recording is cancelled, or • an event is stored and is recorded at the Infinity CentralStation.
NOTE: For Infinity TeleSmart patients admitted to the Infinity CentralStation, the **TeleSmart Record** setting (page 16-14) determines if the Infinity TeleSmart **Record** key is enabled and how it can be used.	
	When you press the **STAFF ALERT** key, Infinity TeleSmart sends a STAFF ALERT message to the Infinity CentralStation along with a *Serious* alarm.
NOTE: For Infinity TeleSmart patients admitted to the Infinity CentralStation, the **TeleSmart Staff Alert** setting (page 16-14) determines if the Infinity TeleSmart **Staff Alert** key is enabled and how it can be used.	
 	When you press either the **Up Arrow** or **Down Arrow** key: • From the Infinity TeleSmart ECG screen, you can scroll through available leads, or • The menu field value changes incrementally,
	When you press the **Views** key, you can: • Page through *Monitoring*, *Electrode Check*, *Volume*, and *Demographics* screens, • Take Infinity TeleSmart out of *Standby* mode, or • Accept/confirm user-selected values.
	When you press and hold the **Views** key for ***more than 3 seconds*** the LCD display turns ON or OFF:
	When you press and hold the **Alarm Pause** key for **more than 3 seconds**: • A confirmation screen displays, and if you select **Yes**, • Infinity TeleSmart and Infinity CentralStation alarms are temporarily paused.
NOTE: For Infinity TeleSmart patients admitted to the Infinity CentralStation, the **Alarm Pause** setting (page 16-14) determines if the Infinity TeleSmart **Alarm Pause** key is enabled and how it can be used.	

Parameter/Waveform Color

From the Infinity CentralStation, you can configure each patient waveform and parameter box color (page 6-11). For the default colors of each parameter see page 6-12.

LED Description

Behavior	Description
Blinking green (approximately every 5 seconds)	Power ON Infinity TeleSmart is being used away from the charger.
Blinking amber (approximately every 5 seconds)	Low battery
Solid amber	Charging in progress (while in charger)
Solid green	Charging complete (while in charger)

Audio Alerts

If the Infinity TeleSmart speaker is enabled (page 16-14) Infinity TeleSmart enunciates tones for the following conditions.

Condition	Tone Description
Acknowledgement	2 brief, low frequency tones
Error	1 low frequency tone
Infinity CentralStation requests a *Find Device* tone	alternating tone

Adjusting Alarm Tones

You can select an Infinity TeleSmart alarm tone pattern at the Infinity CentralStation (page 4-3). The **Alarm Tone Pattern** setting is retained through Infinity TeleSmart power cycling, changes to patient type, and patient discharge. For information about setting or changing the volume of the Infinity TeleSmart alarm, see page 2-11.

Finding the Infinity TeleSmart

Infinity TeleSmart generates a *Find Device* tone (with volume set at 100%) when you request it at the Infinity CentralStation (page 4-15). After you locate the Infinity TeleSmart, press any device key to silence the tone. The tone automatically silences if no key is pressed within one minute of the initiation of the finder tone.

Starting up Infinity TeleSmart

When you remove an Infinity TeleSmart from the Central Charger, the display turns on-automatically and the device generates a verification tone. If no verification tone sounds, do not use the device and contact your Biomed.

During a cold start, a startup screen displays the current software version and possible messages. During this operation Infinity TeleSmart also sounds a *verification* tone.

Infinity TeleSmart Power

Infinity TeleSmart is operated with a rechargeable battery. It can also connect to AC power via its *Bedside Charger*. When powered through the *Bedside Charger*, the device's LED is solid amber indicating that the internal battery is recharging. The LED is solid green when Infinity TeleSmart is fully charged. When the Infinity TeleSmart internal battery requires replacement, please see your Biomed. Battery replacement information is available in service documentation.

NOTE: The Infinity TeleSmart enters a deep-discharge state when it is stored for a long period of time away from either the bedside or the central chargers. This prevents the device from turning On accidentally. To exit the deep-discharge state, place the Infinity TeleSmart in either the bedside or central charger for approximately half an hour. This allows the battery to be reconditioned to a normal state.

Infinity TeleSmart Bedside Charger

WARNING: For patients that will not remain sedentary (in a bed/chair), it is recommended that the Infinity TeleSmart Bedside Charger be clipped to the bed linen and not be placed in a patient worn pocket or pouch.

Infinity TeleSmart reports the internal battery charge level continuously by means of a battery symbol (when screen is on). When the screen is off, battery condition is indicated using the LED. When the remaining battery level is 10%, a tone is generated at the Infinity CentralStation and the message, *Battery Charge Low* displays on the ICS and on the Infinity TeleSmart (if TeleSmart screen is on). As soon as you place the device into the *Bedside Charger* the Infinity CentralStation generated tone and status message discontinue. When the device battery level is 5%, an *Advisory* alarm is generated at the Infinity CentralStation and the message, *Recharge Battery* displays on the ICS and on the Infinity TeleSmart (if TeleSmart screen is on).-When you remove Infinity TeleSmart from the *Bedside Charger*, the device's green LED blinks once every 5 seconds and the battery icon shows available battery power.

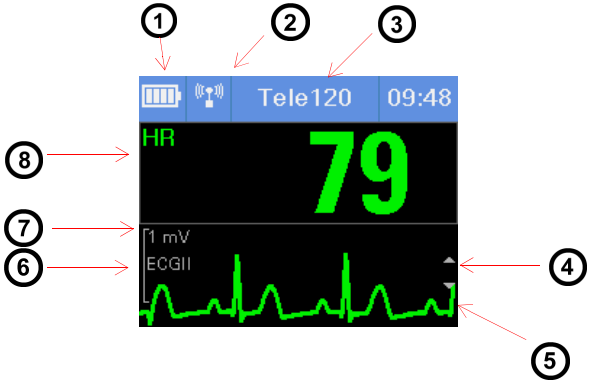
Infinity TeleSmart Central Charger

If you want to charge multiple Infinity TeleSmart devices you can use the *Central Charger*, which accommodates up to 10 devices. When you put an Infinity TeleSmart into the Central Charger, the device goes through a patient discharge cycle, which includes: erasing data in device's memory (i.e. trends, demographics) and discharging that patient from the Infinity CentralStation. After performing this, Infinity TeleSmart automatically shuts down. For more information about the Central Charger, see your service documentation.

WARNING: The Infinity TeleSmart Central Charger is not intended for use in the patient vicinity.

Parameter Displays

Infinity TeleSmart ECG Display

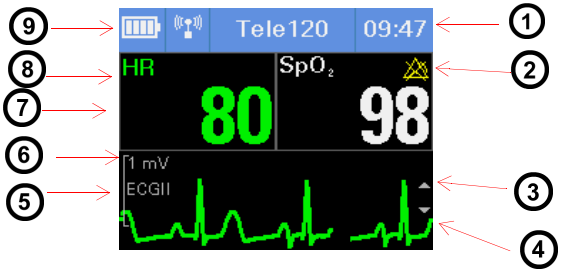


1	The **Battery Charge** icon appears in the Message Area and illustrates how much battery power is available.	**5**	Waveform If pacer detection is enabled, pacer spikes are indicated on the waveform.
2	Wireless signal strength icon appears in the Message Area	**6**	Lead label ECG default is Lead II
3	Bed Label appears in the Message Area	**7**	Scale next to the waveform is configured at the Infinity CentralStation.
4	Arrow icons show that you can use the **UP Arrow** or **Down Arrow** keys to scroll through available waveforms.	**8**	Arrhythmias are shown below the parameter label

ECG Waveform

The ECG waveform scrolls left to right. A scale at the left of the waveform is configured at the Infinity CentralStation. To scroll through available leads use the Infinity TeleSmart **Up Arrow** and **Down Arrow** keys.

ECG/SpO2 Display



NOTE: SpO2 does not display unless the parameter is being monitored

1	Message Area (Bed Label and Time become Message Area)	**6**	Scale next to the waveform is configured at the Infinity CentralStation.
2	When alarms are paused the **Alarms Paused** Icon appears.	**7**	Arrhythmias are shown below the parameter label.
3	Arrow icons show that you can use the **UP Arrow** or **Down Arrow** keys to scroll through available waveforms.	**8**	HR Parameter Box on the left and SPO2 parameter box on the right.
4	Waveform	**9**	Battery Charge Icon
5	Lead being displayed		

SpO2 Parameter Box

The SpO2 parameter box displays % saturation and pulse rate. If ECG is being monitored concurrently, pulse rate does not appear. If SpO2 is the only parameter being monitored, the ECG area of the Infinity TeleSmart screen is blank. Only the SpO2 parameter box displays.

Other Displays

Start Up Screen

The **Start Up** screen displays while the tranceiver is powering up. A progress bar provides a visual display of the *Start up* process.

New Patient Screen

> **NOTE:** To admit a patient to Infinity TeleSmart, use the ADT screen at the Infinity CentralStation.

Once **Start Up** is completed, the **New Patient** screen will display if a previous patient's trends and demographics are still in the Infinity TeleSmart memory. If you want to admit a new patient, you must select **Yes** to confirm that the former patient data is erased from memory.

> **NOTE:** If you do not select **Yes** or **No** and the **Display Time Out** setting time expires, the Infinity TeleSmart will select **Yes** as a default and will start monitoring.

Use the **Up Arrow** or **Down Arrow** keys to toggle between **Yes** and **No** selections.

> **NOTE:** To discharge a patient from Infinity TeleSmart, use the ADT screen at the Infinity CentralStation or place Infinity TeleSmart in the central charger.

When you discharge a patient:

- Patient data is erased in Infinity TeleSmart memory (trends, demographics).
- The patient is discharged from the Infinity CentralStation.

When an Infinity TeleSmart patient is discharged from the Infinity Central Station (page 7-8), the *Discharge* banner covers the Infinity TeleSmart screen along with the message, *Press\hold*  *to exit*. To exit the Infinity TeleSmart **Discharge** screen press the **Views** key.

Transfer Screen

If you want to transfer patient information from Infinity TeleSmart you must put the device in *Standby* mode and then initiate the transfer at the destination Infinity CentralStation (page 7-9).

During the transfer process the message, *Transferring data*, displays on the Infinity TeleSmart screen. When the transfer is complete a **Discharge** screen displays.

Standby Screen

Standby mode must be initiated at the Infinity CentralStation. When a telemetry patient's monitoring is in *Standby* mode (page 6-8), the *Standby* banner displays on the Infinity TeleSmart screen along with the message, *Press\hold*  *to exit*.

When *Standby* mode is selected at the Infinity CentralStation:

- Patient monitoring is suspended,
- The Infinity TeleSmart screen is blank except for a *Standby* banner.
- Network and system status messages circulate in the message area,

To return the Infinity TeleSmart to *Monitoring* mode, press the Infinity TeleSmart **Views** key.

Demographics Screen

The Infinity TeleSmart **Demographics** screen shows patient demographic information. All patient demographic information is received from the Infinity CentralStation and may include:

Patient name (20 characters)
Patient middle name (8 characters)
Patient last name (20 characters)
Primary ID# (20 characters)
Bed Label
Care Unit
Patient Category

Volume Setup Screen

If **TeleSmart Volume** is enabled at the Infinity CentralStation (page 6-22) you can access the Infinity TeleSmart **Volume Setup** screen and change the device alarm volume. To access the Infinity TeleSmart **Volume Setup** screen press the **Views** key.

To scroll through the available volume settings, press the Infinity TeleSmart **Up Arrow** or **Down Arrow** key. Available selections are: **Off**, **10%**, **20%**, **30%**, **40%**, **50%**, **60%**, **70%**, **80%**, **90%**, and **100%**.

CAUTION: *If speaker is disabled, the* ***Volume*** *screen will not be available to the user.*

Electrode Status Screen

An **Electrode Status** screen provides a status of electrode connection. The color of the dot indicates which electrodes are disconnected or connected to the patient. Green represents that electrode is connected; red represents the one that is disconnected.

To access the **Electrode Status** screen press the **Views** key. This screen allows you to quickly check which electrodes are disconnected without disturbing the patient.

Alarms

Alarm Grade Display

Infinity TeleSmart supports three alarm severity grades: life-threatening, serious and advisory. Each grade is accompanied by a different pattern and color-coded display.:

Severity Grade	Color	Audible Tone
Life-threatening	Red	Two Frequencies (alternating high and low)
Serious	Yellow	Single Frequency, high
Advisory	White	Single Frequency, low

When a parameter is alarming, the parameter box flashes the color representing the severity grade and the Infinity TeleSmart sounds an associated tone.

Alarm Pause

WARNING: No alarms will be announced while Infinity TeleSmart is in *Alarm Pause* mode.

NOTE: **Alarm Pause** mode can be disabled at the Infinity CentralStation.

To initiate the *Alarm Pause*, press and hold the **Alarm Pause** key for 3 seconds or longer. A confirmation screen displays. An *Alarms Pause* message displays in the Infinity TeleSmart Message area with a timer, which represents the length of pause time remaining. For a description of alarm behavior at the Infinity CentralStation, see Chapter 11.

Trends

You can set up the Trend function for an Infinity TeleSmart patient at the Infinity CentralStation (page 13-2). Although Infinity TeleSmart does display trend data, it can store up to 72 hours of trend data for each monitored parameter.

All trend data is deleted when you:

- discharge the patient
- change the patient type,
- change units of measure, or
- update Infinity TeleSmart software.

Infinity TeleSmart Modes

Telemetry Mode

When Infinity TeleSmart is being displayed at the Infinity CentralStation and is not in *Standby* mode, it is in *Telemetry* mode. The Infinity CentralStation display is Infinity TeleSmart's primary user interface.

When Infinity TeleSmart is in *Monitoring* or *Telemetry* mode:

- Patient monitoring is enabled,
- The Infinity TeleSmart display contains dynamically updated parameter and waveform areas,
- Alarming is active,
- Infinity TeleSmart volume can be disabled, and
- Network capabilities are active.

Monitoring Mode

NOTE: If communication is interrupted between the network and the Infinity TeleSmart device, monitoring will continue locally. If Alarm volume is set to **OFF**, the Infinity TeleSmart resets itself to full alarm volume and all future alarms will be fully annunciated locally.

Infinity TeleSmart is in *Monitoring* mode when the telemetry patient is not displayed at the Infinity CentralStation or if connection to the Infinity CentralStation is lost for 45 secconds or more.

If there is an active alarm while Infinity TeleSmart is in *Monitoring* mode, the display will not shut off when the Infinity CentralStation **Display Shut Off Timer** setting expires (page 16-15). You can shut off the display manually by pressing and holding the **Views** key, however.

Standby Mode

Infinity TeleSmart can only be put into *Standby* from the Infinity CentralStation (page 6-8). For a description of the Infinity TeleSmart **Standby** screen see page 2-11.

You can set *Standby* time-out selections at the Infinity CentralStation. The selections are: **No time out**, **5 mins.**, **10 mins.**, **20 mins.**, **30 mins.**, **1 hr.**, **2 hr.**, and **3 hr.**

Setting up Infinity TeleSmart at the Infinity CentralStation

Infinity TeleSmart Setup Screens

If you want to . . .	Refer to . . .	Location
Assign Infinity TeleSmart IDs and IP Addresses	Biomed **TeleSmart List** screen	page 16-13
Configure Infinity TeleSmart System Defaults	Biomed **TeleSmart Setup** screen	page 16-14
Configure Infinity TeleSmart monitoring for an individual patient	Bed View Telemetry setup screens	page 6-15
Assign an Infinity TeleSmart to a patient	**Admit** screen	page 7-2
Set system defaults for Infinity CentralStation telemetry patient windows	Telemetry **System Setup** screen	page 4-3
View Infinity TeleSmart status information and configure device keys	**TeleSmart Setup** screen	page 6-22

Recordings

Recording Types

You can generate manual timed recordings from the Infinity TeleSmart by pressing the device **Record** key. You can also generate manual or continuous timed recordings for an Infinity TeleSmart patient admitted to the Infinity CentralStation from the Infinity CentralStation (page 12-6).

Programming Infinity TeleSmart

The Infinity TeleSmart must be programmed by Dräger Medical installation personnel or the Hospital Biomedical Engineering Dept.-Please refer to your service documentation for programming information.

Attaching Infinity TeleSmart to the Patient

ECG Monitoring

1. Apply electrodes to patient. (Appendix A).
2. Connect the appropriate lead wire set (3-, 5-, or 6-wire) to the Infinity TeleSmart.
3. Attach the lead wires to the electrodes.
4. Admit the patient to the Infinity CentralStation channel for which the Infinity TeleSmart is programmed (Chapter 7).
5. Set the upper and lower alarm limits at the Infinity CentralStation (page 11-10).

SpO2 Monitoring

1. Select an appropriate sensor and attach the sensor to the patient.
2. Connect the patient cable to the Infinity TeleSmart.
3. Select the **Averaging Mode**.
4. Admit the patient to the Infinity CentralStation channel for which the Infinity TeleSmart is programmed (Chapter 7).
5. Set the upper and lower alarm limits at the Infinity CentralStation (page 11-10).
6. Turn SpO2 "**ON**" in the Patient View Setup screen (page 9-4)

Infinity TeleSmart Messages

Message Area

The Infinity TeleSmart message area displays alarms, network-generated or locally-generated messages. If more than one message must display, the messages circulate in a round-robin manner, with each message appearing for 1 second. These messages include:

- ***Alarm messages***, which display in black characters on a background color defined by the alarm grade (page 11-5).
- ***Status messages***, which display in black characters on a white background.
- ***System information messages***, which display in white text on a blue background.
- ***Network messages***, which display in yellow text on a blue background.

See page 5-6 for a description of ***Status message*** display at the Infinity CentralStation.

NOTE: If communication with a Infinity CentralStation can not be established when trying to admit a patient, please contact the Hospital Biomedical Engineering Dept.

Infinity TeleSmart Status Messages

Alarm Message in Message Area	Grade	Description	Action
STAFF ALERT	SER	The Infinity TeleSmart **STAFF ALERT** key was pressed.	Check the patient. This message requires acknowledgement.
TeleSmart no signal	ADV	The Infinity CentralStation cannot detect the Infinity TeleSmart.	Check the patient. Contact Biomed.
Telesmart low battery	ADV	Infinity TeleSmart' battery charge is low.	Contact Biomed to recharge or replace Infinity TeleSmart battery. The message remains until the *low battery* condition changes.
HR Alarms Off	SER	Heart rate alarms are turned Off at the Infinity CentralStation.	Check the patient.
Alarms Pause: xxx	ADV	**Alarms Pause** key was pressed. The remaining pause time displays with the message.	Check the patient.
Telesmart Offline	SER	The Infinity CentralStation cannot detect the Infinity TeleSmart.	Check the patient.

Infinity TeleSmart Recording Messages

Condition	Tone	Message
Recording request not accepted because recorder is out of paper	Yes	*Recorder Out of Paper*
Recording request not accepted because recorder door is open	Yes	*Recorder Door Open*
Recording request not accepted because of recorder hardware failure (i.e., excessive artifact)	Yes	*Recorder Failure*
Recording started	Yes	*Recording Started*
Recording stored	Yes	*Recording Stored*
Recording finished	Yes	*Recording Finished*
Recording cancelled	Yes	*Recording Cancelled*
Recorder is disconnected during recording	Yes	*Recorder Offline*

3 Infinity CentralStation Setup

Accessing the Setup Screens

1. Click on **Setup** in the Main Screen menu bar.
2. Click on one of the drop down menu selections.

Selection	Reference
Central...	page 3-3
Recorders...	page 3-5
Central Layouts...	page 3-6
Telemetry	Chapter 4

Password-Protected Screens

Access to the following setup functions is controlled with assignment of a required password (page 16-4).

Screen	Required Password
Setup > Telemetry > System Setup	Clinical
Setup > Telemetry > Patient View Defaults	Clinical
Setup > Telemetry > Alarm Limits Defaults	Clinical
Setup > Telemetry > Arrhythmia Defaults	Clinical
Setup > Telemetry > St Defaults	Clinical
Setup > Central	Clinical/Biomed
Setup > Recorder	Clinical/Biomed
Setup > Central Layout	Clinical Password access to this function can be set during configuration (page 16-4).

If a password is required, a popup window appears when you click on the **Setup** menu item.

1. Type the password in the popup text entry box.

NOTE: You can only enter the password if the mouse pointer is on the text entry box.

2. Click on **Accept**. If the password is incorrect, an error message displays.

Setup - Central Screen

To open the **Setup - Central** screen, refer to page 3-2.

Setup - Central Screen Selections

Selection	Description	Available Settings	Default
Sweep Speed	Determines how fast the erase bar sweeps across the screen to update the waveforms	• 25 mm/s • 50 mm/s	**25 mm/s**
Display Limits	Determines whether or not alarm limits appear in the Infinity CentralStation parameter areas	• ON • OFF	**OFF**
WARNING! Always set the alarm volume so it can be heard during the businest periods of the day.			
Alarm Volume	Determines alarm tone volume	• **10% - 100%**	**70%**
Attention/Error Volume	Determines the attention and error tone volume	• **10% - 100%**	**70%**
Display Timeout	Determines how long the screen will display without user interaction **Display Time out** does not apply to screens displaying context-sensitive **Help**.	• 1 min • 3 min • 5 min • No Timeout	**3 min**
Bed Silence Enable	Determines whether or not you can silence bedside alarms from the Infinity CentralStation Remote silence is only possible at the Infinity CentralStation if also activated at the bedside network device.	• **ON** • **OFF**	**ON**
Bed Control Enable	Determines whether or not you can control certain bedside monitor functions from the Infinity CentralStation Remote control is only possible at the Infinity CentralStation if also activated at the network device. If this function is disabled, the Infinity CentralStation can still silence bedside alarms if **Bed Silence Enable** is ***ON*.**	• **ON** • **OFF-**The alarm and arrhythmia setup entries and **Relearn** buttons are ghosted.	**ON**
WARNING! A confirmation popup warns you that changing the time or date at the Infinity CentralStation also changes the time at all devices connected to the network. Changes cannot be undone once confirmed.			
Hour: Minute	Sets current time	• Hour • Minute	
Day - Month	Sets current date	• Day • **Month**	

Setup - Central Screen Selections

Selection	Description	Available Settings	Default
Year	Sets current year	• 1995 - 2099	
Report Trend Order	Displays System **Trend Order Setup** screen, which allows selection and sorting of parameters for a Shift (page 12-13) or Graphical Trend Report (page 12-18). To configure Trend Order Setup for a specific patient, see page 12-25.	• **Enable Auto Scale (**page 12-18**)** Click selection box to activate. • **Trends Per Page** Click on 1, 2, 3, 4, or 5.	Disabled 3
Batch Shift Report:	Permits assignment of report length for batch shift reports When you press F9 a Shift Report is generated for all currently active beds.	• 2 Hour • 4 Hour • 8 Hour • 12 Hour • 24 Hour	
Accept/Undo	Permits saving current changes	• **Accept** - save changes • **Undo** - keep previous settings	

Setup - Recorder Screen

To open the **Setup - Recorder** screen, refer to page 3-2.

Setup - Recorder Screen Selections

Selection	Description	Available Settings	Default
Primary Recorder	Selects preferred recorder	When you click on **Assign...** in the **Assign Recorder** popup a list of available recorders displays. • Click on the desired recorder. • Click on **Accept** in the popup to choose the selected recorder or on **Cancel**.	
Secondary Recorder	Determines recorder to be used when **Primary Recorder** is unavailable		
Speed	Sets recording speed	• **50, 25, 12.5, 6.25, 1 mm/s**	**25 mm/s**
Alternate Speed	Determines recording speed when R 50 **Alternate Speed** key is pressed (page 12-4)	• **50, 25, 12.5, 6.25, 1 mm/s**	**50 mm/s**
Manual Recording Duration[1]	Sets time length of a **Manual Recording**	• **5/6, 10, 15, 20 s**	**20 s**
Manual Recording Delay[1]	Determines amount of pre-event data included in **Manual Recording**	• **5, 10, 15 s** Available selections depend on your recording speed setting. Inactive settings for a particular recording speed are ghosted.	**10 s**

Manual Recording Duration	Available Delay Setting
5/6 s	• **5 s**
10 s	• **5, 10 s**
15 s **20 s**	• **5, 10, 15 s**

• Click on **Accept** to save or **Undo** to keep previous settings.

[1] Manual settings are available if controlled from the Infinity CentralStation. If controlling from the Infinity TeleSmart , Recording/Delay duration is fixed.

Setup - Central Layouts Screen

To open the **Setup - Central Layouts** screen, refer to page 3-2.

Setup - Central Layouts Screen Selections

Selection	Description	Available Settings	Default
Select Central Layout	Permits configuration and storage of desired layout	**A**, **B**, **C**, **D**	
Central Layout Name	Text box for naming the layout	12 character max.	
Central Layout Mode	Sets the number beds and waveforms per bed that will display	• 2 Beds x 4 waves each • 4 Beds x 2 waves each • 4 beds x 4 waves each • 8 Beds x 2 waves each • 8 Beds x 1 waves each • 16 Beds x 1 waves each	**2 Beds x 4 waves each**
Notes	Permits display of note area (page 5-11)	• OFF • ON	**OFF**
Assign...	Activates the **Assign Bed** screen, which lists all of the beds being advertised in the monitoring unit	• Select a bed from the list. • Click on **Accept.**	

NOTE:

- Patient name and ID # also display (if available).
- *Wireless* monitors have a wireless icon . Wireless monitoring is described in on page 7-5.

• After all changes are made on the **Central Layouts** setup screen, click on **Accept** to save changes or **Undo** to keep previous settings.

4 Telemetry System Setup

Overview

The Telemetry setup screens allow you to set *system defaults* for Infinity CentralStation telemetry channels.These defaults are activated at telemetry patient discharge.

Accessing the Telemetry Setup Screens

- Select **Telemetry** from the **Setup** drop-down menu.

Telemetry Submenu Selections

Submenu Selection	Password Required	Category Selection	Reference
System...	**Clinical**		page 4-3
Patient View Defaults	**Clinical**		page 4-5
ST Defaults (Requires option, page 16-7)	**Clinical**		page 4-8
Recordings	**Clinical**		page 4-10
Alarm Limits Defaults...	**Clinical**	**Adult**	page 4-9
		Pediatric	
Arrhythmia Defaults...	**Clinical**	**Adult**	page 4-12
		Pediatric	
Find TeleSmart	**Biomed**		page 4-15
TeleSmart Setup...	**Biomed**		page 16-14

Changing the System Default Patient Category

You can select a system default patient category that is initially used by all telemetry channels using a **System** screen setting (page 4-4). The system default patient category setting is **Adult**. If after making changes you want to return all settings to the defaults, see page 16-5.

When you select **Alarm Limits Defaults** or **Arrhythmia Defaults**, an additional submenu permits selection of **Adult** or **Pediatric** patient category screens. Each of these screens includes the patient category in the screen name. The **Alarm Limits Defaults** and **Arrhythmia Defaults** screens have a selection that permits you to quickly change to the alternate category screen (page 4-10)

To configure the patient category for an individual Telemetry patient see page 7-4.

Telemetry System Setup Screen

To access the Telemetry **System Setup** screen, see page 4-2.

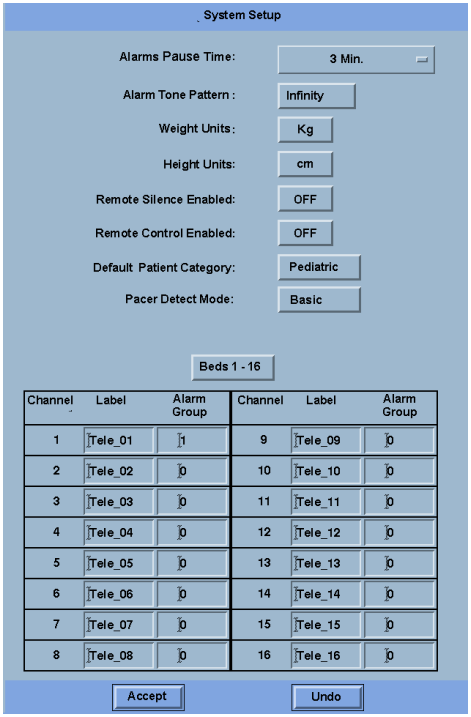


Table part of screen now supports 32 beds; a toggle button permits selection of beds 1-16 or 17-32

System Setup Screen Selections

Selection	Description	Settings	Default
Alarm Pause Time	Determines duration of **Alarm PauseTime** With **Disable**, the button is ghosted in Bed View.	• Disable • 1, 2, 3, 4, 5 min	**3 min**
Alarm Tone Pattern	Determines alarm pattern used. This selection is also sent to Infinity TeleSmart.	• Infinity • High Frequency • Low Frequency	**Infinity**
Weight Units	Sets weight units in **Admit** screen	• kg • lbs	**lbs**
Height Units	Sets height units in **Admit** screen	• cm • in	**in**

System Setup Screen Selections

Selection	Description	Settings	Default
Remote Silence Enabled	Determines whether or not you can silence alarms for telemetry patients from other monitors in the monitoring unit When **OFF**, the **Bed Silence** button in Bed View is ghosted and the corresponding icon will not appear in the Main Screen during an alarm.	• ON • OFF	**ON**
Remote Control Enabled	Determines if you can control telemetry patients' monitoring at other monitors in the monitoring unit	• ON • OFF	**ON**
Default Patient Category	Sets default patient category	• Adult • Pediatric	**Adult**
Pacer Detect Mode	Sets pacer detection mode	• Basic • Advanced	**Basic**
Beds x - x	Toggle button for selecting beds 1 - 16 or beds 17 - 32		
Bed Label	Permits assignment of *Bed Labels* to each Infinity CentralStation **Channel** (or patient window) You can select up to 32 bed labels that will identify Infinity CentralStation Main Screen patient windows.	• 7 character max	
Alarm Group	Assigns an **Alarm Group** to each Infinity CentralStation **Channel** (or patient window)	• 3 character max.	
• Click on **Accept** or on **Undo** to return to previous settings.			

Patient View Defaults Setup Screen

The Main Screen **Default Patient View Setup** screen allows you to define system-wide, default, patient-monitoring settings. It is similar to the Bed View **Patient View Setup**, which allows you to customize a *particular* patient's monitoring (page 6-16).

The **Default Patient View Setup** screen for Telemetry patients provides selections to configure SpO2 and ECG monitoring. When you click on the button labeled **SpO2**, the setup selections for that parameter display. When you click on the button labeled **ECG**, the setup selections for that parameter display.

Patient View Setup Screen Selections

<table>
<tr><th>Selection</th><th>Required Action</th><th>Available Settings</th></tr>
<tr><td colspan="3">Channel Setup</td></tr>
<tr><td>Parameter</td><td>Click in Channel 1 through 6 Parameter column.

For 6-wire monitoring 8 channel rows are available.</td><td>HR, ARR, ST, SpO2, PLS, None</td></tr>
<tr><td>Waveform</td><td>Click in the Channel's 'Waveform column.</td><td>• 3-wire mode - II
• 5-wire mode - I, II, III, aVR, aVL, aVF, V
• 6-wire mode - I, II, III, aVR, aVL, aVF, V, V+</td></tr>
<tr><td>Gain/Scale</td><td>Click in the Channel's 'Gain/Scale' column.
ECG QRS Processing Settings
<table><tr><th>Display Scale mV/cm</th><th>Gain</th></tr><tr><td>8</td><td rowspan="4">QRS ≥ 0.5 mV</td></tr><tr><td>4</td></tr><tr><td>2</td></tr><tr><td>1</td></tr><tr><td>0.5</td><td rowspan="2">QRS ≥ 0.15 mV</td></tr><tr><td>0.25</td></tr></table></td><td>0.25, 0.5, 1, 2, 4, 8 mV.

The Infinity CentralStation uses an AAMI-compliant regular QRS threshold when you select a channel size of 1, 2, 4, or 8 mV/cm. If you select a channel size of 0.25 or 0.5 mV/cm, the Infinity CentralStation lowers the detection threshold, and the AAMI requirement is not met.</td></tr>
</table>

Patient View Setup Screen Selections

Selection	Required Action	Available Settings
	ECG Monitoring Setup	
QRS Processing	Select leads for ECG and ARR monitoring.	• **ECG1 & ECG2** • **ECG1**
WARNING! High amplitude (>0.15mV) P- and T-waves of long duration may register as integral QRS complexes. To ensure that the system accurately detects low heart rate in these cases, select the lead with the highest R-wave (relative to the T- and/or P-wave) for ECG1. If the system continues to misinterpret P- or T-waves, reposition electrodes or use other modalities to monitor the patient.		
ECG 1 **ECG 2**	Top and second lead assigned to ECG 1 and ECG 2 display	
ECG Color	Assign color of ECG associated waveforms to telemetry channel for an individual patient.	• **Red** • **White** • **Yellow** • **Green (Default)** • **Light Blue** • **Blue** • **Purple** • **Orange**
ECG Wire Mode	Select device lead wire mode	• **3** • **5 (Default)** • **6**
ECG Filter Select	Control the channel bandwidth A banner displays in the ECG 1 channel if **ECG Filter** is **OFF**	• **Monitor (Default)** • **OFF**
Pacemaker Detection	Set the pacer detection function. When **On**, pacer spikes display on a patient's waveform whenever a pacemaker pulse is detected. The **Fusion** selection is only available if the **Pacer Detect Mode** is **Advanced** (page 4-4)	• **ON (Default)** • **OFF** • **FUSION**
WARNING! When Pacemaker Detection is set on Fusion mode pacer spikes may register as integral QRS complexes. Special surveillance is necessary for patients with pacemakers who are monitored with this mode enabled.		

Patient View Setup Screen Selections

Selection	Required Action	Available Settings
TruST 12-lead: (Selection only appears when **ECG Wire Mode** setting is **6 wire** and TruST locked option is enabled.)	Activate/deactivate TruST monitoring (page 6-20)	• **ON** • **OFF** (Default)
Set V: **Set V+:**	Set TruST chest lead placement (page 6-21) These selections display when the **TruST 12-lead** setting is **ON** and **ECG Wire Mode** setting is **6 wire**. The settings you choose must reflect the actual lead position on patient's chest. You will not be able to select adjacent leads.	**V1, V2, V3, V4, V5, V6** **(Default: V2 and V5)**
SpO2 Monitoring Setup		
SPO2 Monitoring:	Enable/disable SpO_2 monitoring. Selection appears ghosted if an SpO2 option is not available.	• **ON** • **OFF (Default)**

NOTE:

- You can only activate **SpO2 Monitoring** for local telemetry patients.
- If **SpO2 Monitoring** is **OFF**, the SpO_2 / PLS parameter box is blank.

SpO2 Color	Assign color of SpO2 associated waveforms to telemetry channel for an individual patient.	• **Red** • **White** • **Yellow** • **Green (Default)** • **Light Blue** • **Blue** • **Purple** • **Orange**
SpO2 Averaging	Determines how the Infinity TeleSmart calculates the oxygen saturation of the arterial blood and the derived pulse rate **Normal**: updates the SpO2 value and the derived pulse rate in 30 seconds or less. **Fast**: updates the SpO2 value and the derived pulse rate in 12 seconds or less.	• **Normal (Default)** • **Fast**

NOTE: When monitoring most patients, Dräger recommends using the Normal averaging mode. The Fast mode is designed for neonatal patients where fast reporting of oxygen desaturation is of concern.

Patient View Setup Screen Selections

Selection	Required Action	Available Settings
SpO2 Sensor (grayed out if SpO2 option not available)	Determines device sensor~~electrode~~ type	• **Nellcor (Default)** • **Massimo**
• Click on **Accept** to save changes or **Undo** to keep previous settings.		

ST Defaults Setup

The **Default ST Setup** screen is similar to the **ST Setup** screen in Bed View, which allows you to customize a *particular* patient's ST monitoring. The **Default ST Setup** screen allows you to define system-wide ST monitoring default settings, except ST alarm default settings which must be configured in the **Setup - Alarm Limits** screen (page 4-9). Also, ST monitoring default settings are for 3- or 5-wire monitoring only. All 6-wire monitoring must be configured at the individual patient's Bed View **ST Setup** screen (page 10-11).

The default **ST Setup** settings are activated whenever a telemetry patient is discharged. They can also be activated on a Bed View **ST Setup** screen that is configured for 3-/5-wire monitoring. For more information on ST monitoring see Chapter10.

ST Setup Screen Selections

Selection	Description	Available Settings	Factory Default
ST Lead 1	Sets ECG lead vector for ST Lead 1 parameter box	• I, II, III, aVF, aVL, aVR, V, V+, None	I
ST Lead 2	Sets ECG lead vector for ST Lead 2 parameter box		II
ST Lead 3	Sets ECG lead vector for ST Lead 3 parameter box		III
ST Lead 4	Sets ECG lead vector for ST Lead 4 parameter box		aVR
ST Lead 5	Sets ECG lead vector for ST Lead 5 parameter box		aVL
ST Lead 6	Sets ECG lead vector for ST Lead 6 parameter box		aVF
ST Lead 7	Sets ECG lead vector for ST Lead 7 parameter box		V
ST Units:	Sets units for ST measurements	• mm • mV	mm

ST Setup Screen Selections

Selection	Description	Available Settings	Factory Default
Event Duration	Determines how long an ST event has to remain outside the set ST alarm limit before an alarm sounds	• 15, 30, 45, 60 75, 90, 105, 120 seconds For Infinity Tele-Smart this is a *Read-Only* value set at 60 seconds.	60 sec
ST Measurement Point	Determines whether the ST measuring point is 60 or 80 ms after QRS offset	• 60 ms • 80 ms	80 ms
• Click on **Accept** to save changes or **Undo** to keep previous settings.			

Alarm Limits Defaults Screen

The **Default Settings - Alarm Limits** screen allows you to define system-wide, telemetry alarm default settings. These default settings are activated at telemetry patient discharge or by clicking **Restore System Defaults** on a particular patient's Bed View screen (page 11-10).

The patient category is part of the screen title, and parameter limits are based on that category (page 4-11).

The **Default Settings - Alarm Limits** screen is similar to the **Setup - Alarm Limits** screen in Bed View in which you can customize alarm limits for a *particular* patient.

Available Functions on the Default Settings - Alarm Limits Screen

Button/Function	Description
Arrhythmia	Opens **Default Settings - Arrhythmia** screen (page 4-12)
Parameter alarm limit setup	1.Click on the table row you wish to set up. This activates the configuration mode for that row during which you can set limits within each column.  2.Click on the arrows or toggle button so that the desired setting appears. 3.Click on **OK**. 4.Repeat steps 1 to 3 for each parameter.
→**Pediatric...** →**Adult...**	• Changes the patient category from **Adult** to **Pediatric** or vice versa. • Changes all of the parameters and limits to the defaults in the selected patient category.

Alarm Limits Parameter Settings

Parameter	Heading	Adult Default	Pediatric Default	Setting Range
HR	**Upper Limit**	120 beats/min	150 beats/min	20 - 300 beats/min
	Lower Limit	45 beats/min	50 beats/min	15 - 295 beats/min
	Alarm	On	On	On/Off
	Alarm Archive	Rec/Store	Rec/Store	Rec, Store, Rec/Store, Off
SpO_2	**Upper Limit**	100%	100%	21 - 100%
	Lower Limit	90%	90%	20 - 99%
	Alarm	On	On	On/Off
	Alarm Archive	Off	Off	Rec, Store, Rec/Store, Off
PLS	**Upper Limit**	120 beats/min	150 beats/min	35 - 250 beats/min
	Lower Limit	45 beats/min	50 beats/min	30 - 245 beats/min
	Alarm	Off	Off	On/Off
	Alarm Archive	Off	Off	Rec, Store, Rec/Store, Off
ST (I, II, III, aVF, aVL, aVR, V, V+, V1, V2, V3, V4, V5, V6, dV1, dV2, dV3, dV4, dV5, dV6)	**Upper Limit**	+1 mm +0.10 mV	+1 mm +0.10 mV	-14.9 to +15.0 mm -1.49 to +1.5 mV
	Lower Limit	-1mm -0.10 mV	-1mm -0.10 mV	-15.0 to +14.9 mm -1.5 to +1.49 mV
	Alarm	Off	Off	On/Off
	Alarm Archive	Off	Off	Rec, Store, Rec/Store, Off
STVM STCVM	**Upper Limit**	+2 mm +0.2 mV	+2 mm +0.2 mV	0 to 45 mm 0.00 to 0.20 mV
	Lower Limit	0	0	0.0 to 44.9 mm 0.0 to 2.0 mV
	Alarm Archive	Off	Off	Rec, Store, Rec/Store, Off
PVC/min	**Upper Limit**	10 beats/min	10 beats/min	1 - 60 beats/min
	Alarm	Off	Off	On/Off
	Alarm Archive	Off	Off	Rec, Store, Rec/Store, Off

Arrhythmia Defaults Screen

This screen allows you to define system-wide default settings for arrhythmia event categories. These defaults are activated at telemetry patient discharge or by clicking **Restore System Defaults** on a particular patient's Bed View screen (page 8-4).

The patient category is part of the screen title, and event defaults are based on that category (page 4-13).

The **Default Settings - Arrhythmia** screen is similar to the **Setup - Arrhythmia** screen in Bed View in which you can customize each event category for a *particular* patient (page 8-4).

Available Functions on the Arrhythmia Screen

Button/Function	Description/Selection
Alarm Limits...	Opens **Default Settings - Alarm Limits** screen
Select Arrhythmia event settings	1.Click on the table row of the event you wish to set up. This activates the configuration mode for that row during which you can set limits within each column.  2.Click on the arrows or toggle button so that the desired setting appears. 3.Click on **OK**. 4.Repeat steps 1 to 3 for each parameter. 5.Click on **Accept** to save or **Undo** to cancel changes.
Set arrhythmia 'monitoring mode'	To select the arrhythmia monitoring mode, click on the appropriate radio button. • **Off** • **Basic (Default)** • **Full** In order to set the arrhythmia monitoring mode to **Off**, you must enter the clinical password in the *Password* popup. Full arrhythmia monitoring requires that the locked option is available.
→**Pediatric...** →**Adult...**	• Changes the patient category from **Adult** to **Pediatric** or vice versa. • Changes all of the Arrhythmia settings to the defaults in the selected patient category.

Events available for arrhythmia monitoring are determined by the monitoring mode.

Mode	Available Events
Full (With Infinity TeleSmart, Full Arrhythmia mode requires Option)	ASY, VF, VT, ARTF, RUN, AIVR, CPT, BGM, PAUS, TACH, BRDY, SVT
Basic (Default)	ASY, VF, ARTF, VT
Off	

Arrhythmia Event Settings

Parameter	Heading	Adult Default Setting	Pediatric Default Setting
ASY	**Count**		
	Rate		
	Alarm Grade	LT	
	Alarm/Archive	Rec, Rec/Store	
VF	**Count**		
	Rate		
	Alarm Grade	LT	
	Alarm/Archive	Rec, Rec/Store	
VT	**Count**	5 - 15 Default: ≥ 5	5 - 15 Default: ≥ 10
	Rate	100 - 200 Default: ≥ 120	100 - 200 Default: ≥ 160
	Alarm Grade	LT (default), SER, ADV, OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
ARTF	**Count**		
	Rate		
	Alarm Grade	LT, SER, ADV, OFF (default)	
	Alarm/Archive	OFF	
RUN	**Count**	Not adjustable; upper value is VT count - 1. Default: 3 - 4	
	Rate	Not adjustable; same as VT rate. Default: ≥ 120	Not adjustable; same as VT rate. Default: ≥ 160
	Alarm Grade	LT, SER (default), ADV, OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	

Arrhythmia Event Settings

Parameter	Heading	Adult Default Setting	Pediatric Default Setting
AIVR	**Count**	Not adjustable. Default: ≥ 3	
	Rate	Not adjustable, upper value is VT rate - 1. Default: ≤ 119	Not adjustable, upper value is VT rate - 1. Default: ≤ 159
	Alarm Grade	LT, SER, ADV (default), OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
CPT	**Count**		
	Rate		
	Alarm Grade	LT, SER, ADV (default), OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
BGM	**Count**		
	Rate		
	Alarm Grade	LT, SER, ADV (default), OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
PAUSE	**Count**		
	Rate	1.0,1.5, 2.0, 2.5 (default), 3.0, 3.5	1.0,1.5, 2.0 (default), 2.5, 3.0, 3.5
	Alarm Grade	LT, SER, ADV, OFF (default)	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
TACH	**Count**	5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Default: ≥ 8	
	Rate	100 - 200 Default: ≥ 130	100 - 200 Default: ≥ 180
	Alarm Grade	LT, SER, ADV , OFF (default)	
	Alarm/Archive	Rec, Store, Rec/Store, Off	
BRDY	**Count**		
	Rate	30 - 70 Default: ≤ 50	30 - 105 Default: ≤ 60
	Alarm Grade	LT, SER, ADV , OFF (default)	LT, SER (default), ADV , OFF
	Alarm/Archive	Rec, Store, Rec/Store, Off	
SVT	**Count**	3 , 4, 5, 6, 7, 8, 9, 10 Default: ≥ 3	
	Rate	120, 130, 140, 150, 160, 170, 180, 190, 200 Default: ≥150	120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220 Default: ≥ 220
	Alarm Grade	LT, SER (default), ADV, OFF	
	Alarm/Archive	Rec, Store, Rec/Store, Off	

Finding the Infinity TeleSmart

You can initiate a *Find Device* tone that will help you locate an Infinity TeleSmart if it is lost.

1. Select **Telemetry** from the Main Screen **Setup** drop-down menu.
2. Select **Find Device**.
   A drop-down list of configured TeIeSmart IDs displays.
3. Click on the device you wish to locate.

NOTE: If the Infinity CentralStation cannot communicate with the selected device, a message displays. Contact your Biomed if this message continues.

4. Click on **Locate**.
   The Infinity CentralStation sends a command to the selected Infinity TeleSmart to sound a *Find Device* tone (page 2-5).
5. Press any key on the device and the tone will stop.

5 Main Screen

Overview

The Infinity CentralStation Main Screen displays waveforms, parameters, status messages, banners, and alarm messages for telemetry and bedside patients on the Infinity Network. It can be configured in various layouts (typically 2 to 8 patient windows per display). With the 9-16 Patient option a *single* display can fit up to 16 patients.

With the Dual Display, monitoring information appears on *two* displays and each display can fit up to 8 patients.

Main Screen Layout

The Infinity CentralStation displays monitoring data for patients who are assigned to a window of the current Main Screen. The Main Screen layout can be customized with the **Setup Central Layout** screen (page 3-6). For a description of screen layouts see page 5-3.

Split vs. Full Main Screen

The following table shows how much patient data is visible in the Split and Full Main Screen layouts. If the **NOTES** feature (page 5-11) is enabled (page 3-6), less waveform data displays.

Main Screen Layout	Split Screen	Full Screen	Amount of Waveform Data (approximate)
2 x 4		Yes	8 - 10 seconds
4 x 2		Yes	8 - 10 seconds
8 x 1		Yes	8 - 10 seconds
4 x 4	Yes		4 seconds
8 x 2	Yes		4 seconds
16 x 1	Yes		4 seconds

Selecting a Main Screen Layout

1. Click on **View** in the Main Screen menu bar.
2. Click on the **Central Layout** menu selection. A submenu with available *Main Screen layout* selections appears.
3. Click on the desired layout. A popup window displays.
4. Click on **Yes** in the popup to select the new layout or on **No** to exit the menu and keep the current layout.

Main Screen Setup

Menu Bar

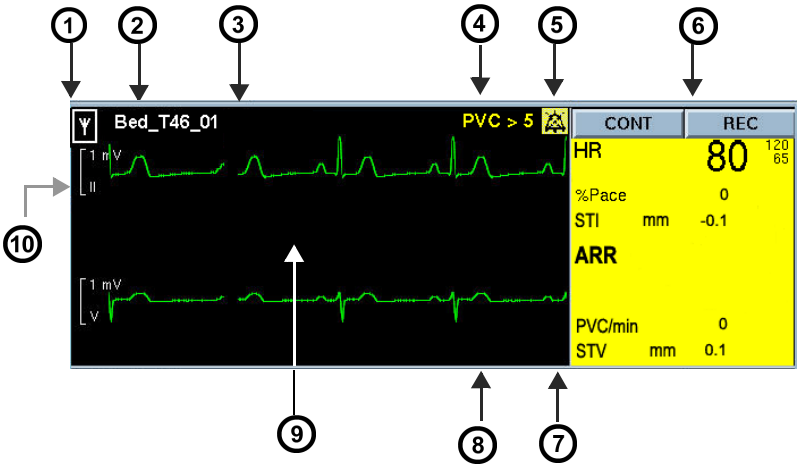
Selection	Allows you to...
VIEW	• access Full/Event Disclosure applications (Chapter 14)
SETUP	• configure Infinity CentralStation monitoring • configure Main Screen layouts (page 3-6) • access Telemetry setup menus (Chapter 4)
BIOMED	• observe the status of all devices on the network • configure the Infinity CentralStation and telemetry receivers • enable options • access the system console
HELP	• open the Infinity CentralStation ***Instructions for Use*** on the screen (Chapter 1)
Alarm Silence	• silence active alarms at the Infinity CentralStation for one minute

Waveform Area

Depending on the selected Main Screen layout, each patient window may have up to four waveforms. All patient waveforms are updated from left to right.

In addition to parameter waveforms, the patient window includes other information.

Infinity CentralStation Patient Window



1	Manual configuration mode, telemetry, or wireless monitor icon (page 5-7)	**6**	Keys that generate manual *Timed* or *Continuous* recordings (page 12-6)
2	Bed Label	**7**	MIB Ventilator Alarm Icon area
3	Patient Name	**8**	Area reserved for ventilator alarm messages
4	Bedside alarm, banner, status, standby, or discharge message area	**9**	Location for the following: • “WAVE PAUSED” message • “STANDBY“ message
5	Icons from bedside monitors	**10**	Lead Label and Scale

Banner and Status Messages

Banner	Telemetry-specific	Monitor-specific	Appearance	Description
Alarm Pause	Yes	Yes	Black text/yellow background	Patient's alarm function is disabled
HR Alarms OFF	Yes	Yes		
HR Limits OFF	Yes	Yes		
HR, ASY, VF OFF	Yes	Yes		
Bed Disconnected	No	Yes	Black text/white background	Bedside monitor disconnected for patient transport
Bedside Offline	Yes	Yes	Yellow text	Network communication i interrupted
CODE [1]	No	Yes	Black text /red background	**Code** fixed key was pressed at bedside monitor
Discharged	Yes	Yes	Black text/white background	Patient discharged or transferred at bedside monitor
Duplicate Address	No	Yes	Yellow text	CPS/IDS detects a duplicate address on network
HR Alarms OFF[2]	Yes	Yes	Black text/yellow background	Patient's HR alarm function deactivated
Offline	No	Yes	Yellow text	Network communication interrupted
Pacer Fusion	Yes	Yes	Black text/white background	Pacemaker Fusion mode activated for local telemetry patient
Pacer Off	Yes	Yes	Black text/white background	Pacemaker detection activated
Pacer On	Yes	Yes	Black text/white background	Pacer detection activated
Pacer On/Fusion	Yes	Yes	Black text/white background	Pacemaker Fusion mode activated for a remote bed that cannot distinguish between On and Fusion modes
STANDBY[3]	Yes	Yes	Black text/white background	Patient monitor in *STANDBY* mode

[1] If a code condition is activated at the bedside during an alarm, the banner, CODE, replaces the alarm message.

[2] If an alarm occurs while this banner is displayed, the alarm message replaces the banner during the alarm.

[3] When a patient monitor is put into *STANDBY* mode, only the patient name and bed label displays. When a telemetry patient is put in to standby mode the ecg waveform continues to display along with patient name, lead labels and scales. A selectable standby label also displays (page 6-9).

For both bedside and telemetry patients the framed message STANDBY displays prominently over the center of the top waveform area.

Icons

Icon	Location	Description
Bed Silence 	Upper right corner of top waveform channel The icon only appears if the *Bed Silence* function is enabled for bedside patients (page 3-3) or the *Remote Silence* function is enabled for telemetry patients (page 4-4).	Appears when the patient has an active non-silenced alarm or a latching alarm message (a message corresponding to an alarm whose condition is no longer valid but that has not yet been acknowledged). Click on icon to clear a latching alarm message or silence the current alarm for 1 minute (for a telemetry patient the alarm is silenced at the central station; for a bedside patient it is silenced at the bedside monitor **and** at the central station).
Alarm Pause 	Next to parameter value	Appears in place of alarm limits when the parameter's alarms are disabled
Alarm Volume Zero MIB Alarm Tone Off 	Upper right corner of patient's top waveform channel in ***yellow***	Appears if the alarm tone is disabled at the bedside monitor
	Lower right corner of patient's top waveform channel in ***orange***	Appears when you click on the **MIB Alarm Tone** icon
MIB Alarm Tone ON 	Lower right corner of patient's top waveform channel	Appears in a patient's top waveform channel in Main Screen when the MIB alarm tone is enabled
Telemetry 	Left of bed label	Identifies a telemetry patient
Manual Configuration Mode 	Left of bed label	Identifies that the waveform configuration mode is active for the bedside patient
Wireless Bed 	Left of bed label	Identifies a patient being monitored by a wireless monitor
Selected event 	Upper right of Event Disclosure Review Screen	When checked, denotes event for inclusion in Shift Report

Markers

Pacer spikes for all leads are blue (they start at the detection point in the waveform and end at the ECG scale bar height).

Breath detection spikes for impedance respiration display as white lines vertically centered on the waveform at detection point and extend 1 cm.

Stopping Waveforms

You can stop all patient waveforms by clicking anywhere in the waveform area. Stopping a patient's waveforms in Main Screen does not stop them in Bed View.

Stopping waveforms has the following effect:

- The banner WAVE(S) PAUSED displays below the topmost waveform.
- The **CONT** and **REC** buttons appear 'ghosted' in the parameter area and you cannot request a manual recording. You can request a print screen, however.
- Parameter values and banners continue to be updated and the *Bed Silence* icon and alarm message display in case of alarm.

To restart the waveforms, click inside the waveform area again. All previously displayed waveforms erase and are replaced by new waveforms.

Waveform Color

The Infinity CentralStation supports the display of all real time and stored waveforms and parameter values using the bedside currently selected colors or telemetry system default settings. For information about changing waveform color at a bedside monitor, see the monitor's ***Instructions for Use***. For information about changing wavaeform color for a specific telemetry patient, see page 6-18.

Parameter Areas

The parameter areas to the right of each waveform may consist of several parameter fields.

> **NOTE:** Parameters that originate from devices that are not part of the Infinity Network, such as MIB devices, and duplicate parameters originating at compatible bedside monitors are marked with an asterisk in the color set at the bedside monitor. This is also true when parameters are derived from two different sources within the Infinity Network (such as the monitor and a connected pod).

The parameter areas allow you to access each patient's Bed View (Chapter 6).

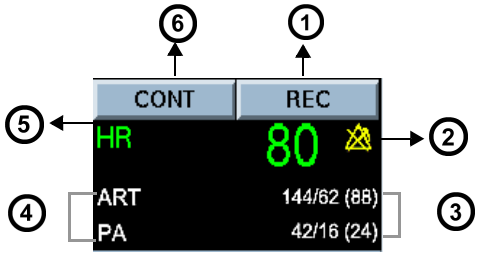
If the patient is in alarm, the background of the respective parameter area on the Infinity CentralStation flashes in the color associated with the highest grade alarm for that bed.

A parameter area appears blank if no parameter data is available for a displayed patient due to one of the following conditions:

- patient monitor is in *Standby* or the patient was discharged,
- monitor was disconnected for patient transport,

- monitor/transmitter stopped communicating with network.

NOTE: The parameter area does not flash or change color during *Offline*, *Bedside Offline*, or *Duplicate Address* conditions.



1	Generates a timed recording	**4**	Secondary parameter labels
2	Displays alarms off icon when alarms are turned off, or alarm limits when alarms are turned on	**5**	Primary parameter label
3	Secondary parameter values	**6**	Generates a continuous recording

NOTE: Parameter units are only displayed if they appear at the bedside monitor. For telemetry patients, units always appear.

Primary Vs. Secondary Parameters

The Infinity CentralStation displays primary and secondary parameters. The primary parameter has an associated waveform displayed in the waveform area, but secondary parameters do not.

The number of a patient's displayed primary and secondary parameters depends on the selected Main Screen layout.

Layout	Primary	Secondary
16 x 1	One	up to two
8 x 1		
8 x 2	Two	up to four
4 x 2		
4 x 4	Four	up to eight
2 x 4		

Each parameter field may contain:

- one single-valued primary parameter and up to two secondary parameters, or
- one multi-valued parameter set (e.g. pressures)

The *Primary Parameter* is distinguished by its size. The *Primary Parameter* value(s) and the label are the color of the associated waveform. If the *Primary Parameter* has no waveform displayed, the values and the label appear white.

Up to two *Secondary Parameters*, not associated with waveforms, can be displayed per *Primary Parameter*. *Secondary Parameters* are white and appear smaller.

Secondary Parameters consisting of triple-valued pressures are displayed in a single row, in the format SYS/DIA (MEAN).

Allocation of Parameters - Bedside Monitors

The bedside monitors determine how parameters are allocated to the parameter areas of the Infinity CentralStation. If more parameter slots are available than parameters to fill them, the fields that are not allocated are blank.

If no parameters are available for a bed assigned to Main Screen because the monitor is in "*Standby*" mode, the patient has been discharged, or the monitor has been removed for transport, the entire waveform and parameter area for that bed appears blank. A message banner in the waveform area explains the reason for the absence of data.

Delta/Delta XL/Kappa/GammaX XL parameters are assigned in descending order. The top waveform/parameter of the bedside monitor becomes the first *Primary Parameter*/waveform at the Infinity CentralStation. Parameters continue to be assigned in consecutive order (*Primary Parameters* first, then *Secondary Parameters*) from the bedside to available parameter fields at the Infinity CentralStation. The Infinity CentralStation supports two icons specific to these monitors.

- The ⚠ symbol in the parameter box alerts users that the O2 lower alarm limit has been set to a value less than 21% at the MultiGas Module.
- Parameters that originate from devices that are not part of the Infinity Network, such as MIB devices, and duplicate parameters originating at the Delta/Delta XL/Kappa/GammaX XL are marked with an asterisk. The same is true when parameters are derived from two different sources within the Infinity Network (such as the monitor and a connected pod).

If the next parameter box at the bedside monitor consists of a "set" of parameter values for ST or the MIB device, only the topmost parameter value will be used as a *Secondary Parameter.*

NOTE: If a single-value *Primary Parameter* has minor parameter(s) associated with it (e.g., SpO_2 has PLS as a minor parameter), the Infinity CentralStation designates these minor parameter(s) as secondary.

Gamma/Gamma XL/Vista monitor parameters are assigned using the top waveform and corresponding parameter as the first *primary waveform*/parameter at the Infinity CentralStation. The second waveform and associated parameter fill the next *Primary/ Secondary* fields. The remaining parameters are assigned top-to-bottom, left-to-right, from the bedside parameter boxes to available parameter fields at the Infinity CentralStation.

Allocation of Parameters - Telemetry Channels

The waveforms selected on the system **Patient View Setup** screen (Chapter 4) determine the display order of parameters and waveforms in Main Screen. Any changes in the waveform and parameter assignments in Bed View are automatically reflected in Main Screen.

Notes Area

If the **NOTES** function is enabled (page 3-6), an area for entering patient notes displays before each patient window.

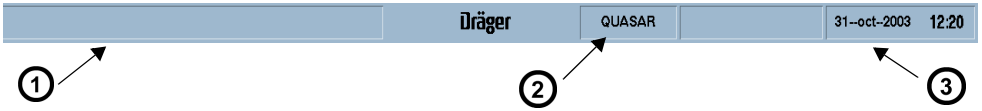
Notes are only stored locally at the Infinity CentralStation, they are not stored at the bedside monitor. Stored notes are deleted when you:

- reconnect any bedside monitor to that network location,
- discharge the patient,
- remove the patient from Main Screen, or
- select a Main Screen layout that does not include the patient.

The size of the notes area is relative to the number of waveforms in a waveform area. Each notes area can accommodate up to 300 text characters and has a scroll bar if necessary.

Status Area

The status area is located along the bottom of the screen.



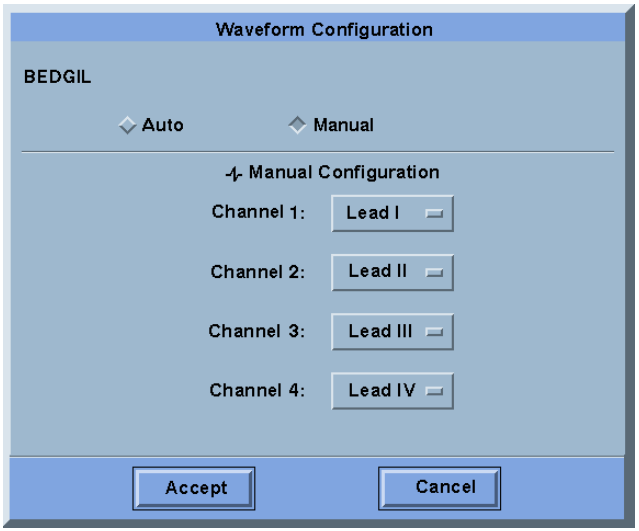
1	**Alarm/Status Messages**	These messages may originate from the Infinity CentralStation, network recorders, CPSs, or Infinity Network. With Dual Display, the status messages appear on both devices. Some status messages appear only briefly and indicate a one-time occurrence. Others appear for as long as the cause for the message exists.
2	**Host Label**	Identifies the Infinity CentralStation
3	**Time and Date**	Surveillance alarm messages (page 11-5) overwrite the date/time field

Manual Waveform Configuration Mode

With *Manual* waveform configuration mode you can choose different waveforms (not parameters) for a bedside patient in Main Screen.

NOTE: Once you configure a bedside patient's waveform setup via the manual configuration mode, the new setup remains intact for that channel even if you discharge the patient and admit a different one to that channel. For a new patient you can manually change waveforms again or switch to 'Automatic' mode.

1. Move the mouse over the patient's waveform channel.
2. Press the *right* mouse button.
   The **Waveform Configuration** popup displays.



3. Click on the **Manual** radio button.
4. Click on the option button next to the desired channel. A list of available waveforms appears.
5. Set the desired waveform.
6. Repeat steps 3 and 4 for additional channels.

NOTE: The waveform scale information displayed underneath the manual waveform popup is not redrawn after the popup is closed. However, this does *not* affect the waveform or patient monitoring. To completely redraw the waveform and associated scale, click the left mouse button twice.

Main Screen Status Area Messages

The following table lists possible status messages that may display in the Main Screen status area (shaded rows pertain to telemetry channels only). For recorder-specific status messages, see Chapter 12.

Device/Network Status Messages		
Status Message	**Tone**	**Description**
Raid hard drive failure	none	The Raid drive failed.
Central Offline	Serious	Infinity CentralStation is not communicating with network due to incorrect configuration information.
Offline	Serious	Telemetry device not communicating with Infinity CentralStation.
Battery Charge Low	none	Infinity TeleSmart battery charge is low.
Alarm Pause <MM:SS>	none	Infinity TeleSmart is in *Alarm Pause* state.
HR Alarm Off	none	HR alarms are inactive.
Reverting to Default Settings for yyy Data	Serious	Error during a setup file read operation
Recorder Setup Data Not Saved *Central Setup Data Not Saved* *Central Configuration Data not Saved* *Locked Options Data Not Saved*	Serious	Error during a setup file write operation. The file will be created at the next restart.
Central Configuration Incomplete	Serious	All labels identifying Infinity CentralStation are not entered.
Standalone	Attention	The patient is not connected to the network.
<xxx> Remote Control Failed	Attention	Remote control action failed for named device.
Notes Access Error	Attention	Notes cannot be accessed.
Central Duplicate Address	Serious	Infinity CentralStation has same address as another network device.
File Access Error	Attention	File cannot be accessed.
Data Export Finished	Attention	The data has arrived at the MegaCare system.
Waveform Export Completed	none	The data was sent to the third party device.
Waveform Export Failed	Attention	The data export to the third party device failed.
Hardware Watchdog Failure	none	Watchdog timer failure during start-up. Call your Biomed.

Device/Network Status Messages		
Status Message	**Tone**	**Description**
<*xxx*> stands for the device/host label; *yyy* stands for the specific setup data file.		

Infinity TeleSmart Status Area Messages

Menu-specific Status Messages			
Status Message	**Tone**	**Description**	**Action**
No Bed Assigned	Attention	No bed has been assigned to the selected parameter area in Main Screen.	Select the correct parameter area or assign a patient to the available slot.
Copy Logs Started	none	The copying of the logs has started.	Wait until procedure is finished.
Copy Logs Formatting Disk	none	The disk is being formatted.	
Copy Logs Failed	Advisory	The logs could not be copied.	Try to copy the logs again (page 16-12).
Patient Not found in HIS/CIS	none	There was no HIS/CIS data available for the patient.	Check if you have selected the right patient.
Too Many Beds in this Monitoring Unit	none	You have tried to add more than 32 beds to this monitoring unit.	You cannot add any new patients to this monitoring unit until you delete some (maximum number is 32 patients).
Param (YYY) not found	none	The selected parameter is not detected.	Make sure the necessary hardware is connected correctly.

6 Patient Setup - Bed View

This chapter describes both general Bed View configuration for *all* Infinity CentralStation bedside monitor and telemetry patients.

General Bed View Setup

In Bed View you can:

- remotely view a patient's monitor,
- remotely view a bedside patient's ventilation data (with VentCentral option),
- print the Bed View screen,and
- print a simultaneous ECG Report (page 12-12).

The Bed View screen constantly updates patient data, immediately reflecting changes in configuration or signal availability from the patient monitor.

You can configure a bedside patient's setup at the Infinity CentralStation and override bedside monitor setup when the bedside monitor is configured appropriately and the Infinity CentralStation **Bed Control Enable** feature is **On** (page 3-3).

NOTE: For bedside monitor configuration instructions, refer to the manufacturer's documentation.

Available Infinity CentralStation functions differ depending on whether a patient is *within* or *outside* the Infinity CentralStation monitoring unit.

Function	WITHIN monitoring unit	OUTSIDE monitoring unit
Relearn ECG	Yes	
Request timed recording	Yes	
Silence alarm	Yes	
Set up alarm limits	Yes	
Set up arrhythmia events	Yes	
Admit patient	Yes	
Edit patient demographic information	Yes	
ST Setup and measuring points	Yes	
VentCentral review (bedside monitor patients)	Yes	Yes
Bed View Print screen request	Yes	Yes
Bed View Print Simultaneous ECG Report request	Yes	Yes
Stop waveforms	Yes	Yes
Review trend graphs and tables	Yes	Yes
Review alarm limits	Yes	Yes
Review arrhythmia event setup	Yes	Yes
Review patient's demographic information	Yes	Yes
Review Full/Event Disclosure Data (with Client option)	Yes	Yes
Request reports	Yes	Yes

Accessing a Patient's Bed View Screen

Viewing a Patient Displayed in Main Screen

- Click on the patient's parameter area in the Main Screen patient window.

When the Bed View screen opens, the last viewed screen mode will display. Bed View mode descriptions and selection instructions are on (page 6-13).

Viewing a Patient Not Displayed in Main Screen

1. Click on **View** on the Main Screen menu bar.
2. Click on the **Bed...** menu selection.
   A screen with two list boxes appears.
3. Click on a care unit in the box labeled, **Select Care Unit**:
   A list of patients in that care unit displays in the box labeled, **Select Bed.**
4. Use the scroll bars to scroll through the available patients, and click on the desired patient.
5. Click on **Continue**.

Bed View Screen Layout

A patient's Bed View screen occupies the left half of the Infinity CentralStation display, leaving patients in the Main Screen still visible. It displays parameters that originate at a bedside monitor or patient worn device.

Waveform Assignment

Bedside Monitor Patients

The Infinity CentralStation Bed View screen can display bedside monitor main screen layouts.

Telemetry Patients

You can assign specific parameters and waveforms to each available Bed View waveform channel. The availability of displayed waveforms depends on the ECG configuration mode (3-, 5-, or 6-wire) of the transmitter assigned to a particular channel.

Bed View Menu Bar

Selection	Allows you to...
Review	• access patient Ventilator Settings Review screen (Chapter 15)
Setup	• access patient arrhythmia setup menu (Chapter 8) • access patient alarm limits setup menu (Chapter 11) • access Telemetry setup menus (page 6-15) with Telemetry option • access VentCentral functions (Chapter 15) with VentCentral option
ADT	• admit /discharge/transfer patient (Chapter 7) • edit patient demographics (Chapter 7)
Main Screen	• access Main Screen (Chapter 5)
Help	• open the Infinity CentralStation ***Instructions for Use*** on screen
Alarm Silence	• silence all active alarms for 1 minute

Bed View Submenu Selections

The Bed View submenu selections are below the main menu bar, and differ for *Telemetry* and *bedside* patients.

NOTE: If any selection appears ghosted, remote control is not possible, or the function is not available for the patient category.

Bedside	Telemetry	Description/Selection
Relearn		• **Relearn ECG** initiates a *Relearn* of the normal ECG waveform template for processing arrhythmias and ST. If arrhythmia monitoring is **Off**, this selection is ghosted and cannot be executed. • **Relearn RESP** initiates a *Relearn* of the breath detection threshold (only available for bedside patients).
Record		Starts a timed recording
Print		• **Bed View** initiates print request of Bed View screen. • **Simultaneous ECG report** Initiates print request of that report (page 12-23). If **Print** button is ghosted, no printer is configured.
Bed Silence		• Silences for 1 minute all active alarms at the monitor and/or Infinity CentralStation For bedside monitor patients **Bed Silence Enable** must be **On** (page 3-3).
View		• **Bed View** (page 6-14) • **All Leads -** displays all available leads from the bedside or telemetry patient (page 6-14) The **All Leads** screen mode supports the hex axial (Cabrera) display format (page 10-6). • **Ventilator** - (with VentCentral option, page 15-5)
	Alarm Pause	• Suppresses any further alarms for a predefined period
	Standby	• Opens pulldown menu of STANDBY text labels (page 6-9) which once selected display in the upper right of the waveform channel • Suspends monitoring • Displays "**STANDBY"** prominently in the center of the top waveform
	Save Events	• Allows manual storage of an 18-second waveform **Save Events** is also available for patients not assigned to Main Screen but located in the same monitoring unit (if the remote control function is enabled).

Information Area

The information area is directly above the top waveform. It is visible in Bed View so alarm and bedside messages can be seen.

NOTE: If the patient category 'Neonate' is selected and displayed at the bedside monitor, the category label 'Neonate' appears in the center of the information area.

Message Type	Display Color	Description
Banners		
[1] CODE (Delta/Delta XL/Kappa)	Black text on red background	The **Code** fixed key was pressed at the bedside monitor.
ALARMS PAUSE (Delta/Delta XL and telemetry)	Black text on yellow background	Alarms are turned off for the selected patient.
[2, 3] HR ALARMS OFF		HR alarms are off.
BED DISCONNECTED	Black text on white background	Bedside monitor is disconnected.
(yyy) Out of Range (LOW)		Appears when a parameter falls below the measuring range
(yyy) Out of Range (HIGH)		Appears when a parameter exceeds the measuring range
STANDBY (secondary)		Patient monitor is in standby mode.
DISCHARGE	White text on black background	The patient was discharged at the bedside monitor.
Monitor Internal Battery Low		The wirless bedside monitor internal battery is low.
Internal Battery Depleted		The wirless bedside monitor internal battery is depleted. The patient's waveform area is blank.
Local Messages		
Alarm Messages	Color corresponding to alarm grade	See Chapters 8, 9, 10, and 15 for messages.
Parameter-specific local messages	Black text on white background	
STAFF ALERT		Infinity TeleSmart STAFF ALERT key was pressed.
TRANSMITTER FAILURE		Technical error
TRANSMITTER NO SIGNAL		No signal from the transmitter
MIB Alarm Messages	Orange	Chapter 15.

Message Type	Display Color	Description
[1] If a code condition is activated at the bedside during an alarm, the banner CODE replaces the alarm message. [2] If an alarm occurs while this banner is displayed, the alarm message replaces the banner for the duration of the alarm. [3] This banner appears if no local bedside messages are displayed.		

Waveform Area

Each waveform in Bed View consists of approximately 4 seconds of data. Waveform colors for both telemetry and bedside patients are described on page 6-15.

NOTE: Waveforms in Bed View are always updated at a 25 mm/s sweep speed, regardless of the selected bedside monitor setting.

The waveform area does not display a waveform when:

- The bedside monitor/transmitter is disconnected.
- The patient has been transferred or discharged.
- The bedside monitor is in *Standby* mode.
- The bedside monitor, bedside CPS/IDS, or Telemetry receiver is offline.
- The wireless bedside monitor battery is depleted.

Telemetry Signal Strength

In a telemetry system there are conditions which signal losses or "dropouts" can occur. When there is a signal loss the Infinity CentralStation displays a blank in the telemetry patient's waveform.

Putting Monitoring Into Standby Mode

WARNING! You *must* take the patient out of Standby to resume monitoring when the patient returns to the care unit.

Standby mode allows you to suspend patient monitoring when necessary. When patient monitoring is in *Standby* mode, you can still view all of the patient's stored data such as trends and configuration settings from any Infinity CentralStation with the client option.

When selected, *Standby* mode will display the message, **Standby** prominently in the center of the waveform.

Bedside Monitor Patients

Bedside patient monitoring must be put in *Standby* at the bedside monitor.

Telemetry Patients

Standby is initiated at the Infinity CentralStation for local telemetry patients or for remote telemetry patients if their Infinity CentralStation server has enabled remote control.

For telemetry patients you can select a secondary standby label that indicates a standby status.

NOTE: Monitoring of a telemetry patient assigned to a different Infinity CentralStation within the same monitoring unit can also be put in *Standby* mode provided the remote control functions are enabled at both devices (page 4-4).

1. Open the telemetry patient's Bed View screen.
2. Click on **Standby** to display a pull-down of the following available standby labels.

Standby	**Shower**
Off Unit	**Procedure**
Cath Lab	**Ultrasound**
X-Ray	**MRI**
Surgery	**CT**

3. Click on the desired label.

NOTE:

- To cancel *Standby* and resume monitoring, click on **Standby** again. All previously detected alarms are treated and reported as new alarms.
- Standby labels can only be customized by your local Dräger service representative.

Effect of Standby Mode at the Central Station

- All alarms become *inactive*.
- Waveforms continue to display, if available.
- Main Screen parameter labels remain visible but values do not display.
- The message STANDBY displays prominently in the patient waveform area. For a telemetry patient, a selected label displays in the upper right of the waveform channel.

For information about Infinity TeleSmart behavior during *Standby* see page 2-11.

- Recordings are canceled and the recording function is disabled.
- **Save Event**, **Bed Silence**, and **Alarm Pause** buttons are ghosted.
- Blank spaces are added to the trends for the duration.

Parameter Areas in Bed View

Each waveform channel in Bed View has an associated parameter area, which displays information. The amount of information may differ slightly between *bedside* and *telemetry* patients.

Information Types	Bedside Patient	Telemetry Patient
Parameter values	HR, ARR, PVC/min, ST, NBP, SPO_2, and PLS	
Alarm limits	Display if available at the bedside monitor	Always display
	Alarm Pause symbol displays when alarms are disabled.	
Blinking green heart symbol For pacemaker patients the letter 'P' also appears next to the green blinking heart symbol	Always displays	Displays for local patients when the function is activated during System setup
+++	The measurement value exceeds the measuring range.	
- - -	The measurement value is below the measuring range.	

Parameter Allocation

For telemetry and bedside patients, each parameter area may contain one of the following:

- One single-valued parameter such as HR,
- Up to two single-valued parameters such as temperature,
- one dual-valued parameter such as SpO_2 and PLS, and
- One triple-valued parameter such as pulsatile pressure.

Parameter Area Display Colors and Contents

For *bedside* patients, the colors of parameters at the Infinity CentralStation match those at the bedside monitor.

For *telemetry* patients, a default setting for waveform color can be set during system setup (page 6-18), or you can select waveform color for an individual patient (page 6-18).

Parameter Label and Unit Defaults

Bedside		**Telemetry**		
Parameter Labels/Units	**Color**	**Parameter Labels/Units**	**Parameter Color**	**Waveform Color**
HR	Matching the color of the associated waveform at the bedside monitor	HR	Green	
ARR, PVC/min		ARR, PVC/min	Green	
STx		STx	Green	
SpO_2 and PLS		SpO_2 + PLS	White	Blue
NPB		NPB		
Ventilator	Blue			
Alarm Limits	**Color**	**Alarm Limits**	**Color**	
HR	Gray (provided the limits are displayed at the bed)	HR	Gray	
ARR, PVC/min		ARR, PVC/min		
STx		STx		
SpO_2 and PLS		SpO_2 + PLS		
Symbols	**Color**	**Symbols**	**Color**	
no symbols are displayed		Blinking heart	green	

Bed View Screen Modes

The Bed View screen has three different modes:

- *Bed View* (page 6-14) is a remote view of a bedside patient's monitor. It is also the monitor screen for a telemetry patient.
- *All Leads* (page 6-14) displays all available leads of an individual patient (telemetry or bedside).
- *Ventilator* (page 15-6) displays the ventilation status of an individual bedside patient.

Selecting the Bed View Mode

1. Click on the patient's parameter box in the Main Screen to activate the Bed View mode that was last active.
2. Click on **View**.
3. Click on **Bed View**, **All Leads,** or **Ventilator.**

Bed View Review Screens

If applicable options are enabled, the Bed View **Review** screens allow the following:

If you want to...	*From the patient's Bed View screen . . .*
Access Trends	**1.** Click on **Review** in the Bed View menu bar. **2.** Click on **Trend Graphs...** or **Trend Table...** (Chapter 13).
Review Full/Event Disclosure Data	**1.** Click on **Review** in the Bed View menu bar. **2.** Click on **Full Disclosure...** or **Event Disclosure...** (Chapter 14)
Review Ventilator Settings	**1.** Click on **Review** in the Bed View menu bar. **2.** Click on **Ventilator Settings Review...** (Chapter 15)

Alarm Limits and Arrhythmia Setup

The Bed View application provides Alarm Limits and Arrhythmia setup tables for customizing a patient's monitoring attributes.

Bedside Patients

For bedside patients, the Alarm Limits and Arrhythmia setup tables reflect those at the corresponding bedside monitor. When a bedside monitor acknowledges that it is being remotely controlled, a message is displayed in the local message area at the bedside monitor. Once the bed has successfully processed the change, the setup tables at the bedside monitor *and* at the Infinity CentralStation reflect the change. If the bedside monitor is unable to receive or process a change in setup, the following happens:

- The table entry returns to the previously saved value.
- A corresponding status message is displayed in the status area of the Infinity CentralStation (page 5-14).
- An attention tone sounds.

Telemetry Patients

Configuration of a telemetry patient's alarm setup is similar to that of a bedside patient except for the addition of SpO_2, PLS, and ST parameters for the telemetry patient.

For Telemetry patients you can select **Alarm Limits** and **Arrhythmia** setup screens according to patient category (page 4-2).

Configuring Alarm Limits

For information regarding Alarm Setup, see Chapter 11.

Configuring Arrhythmia Setup

Refer to Chapter 8 for setup information.

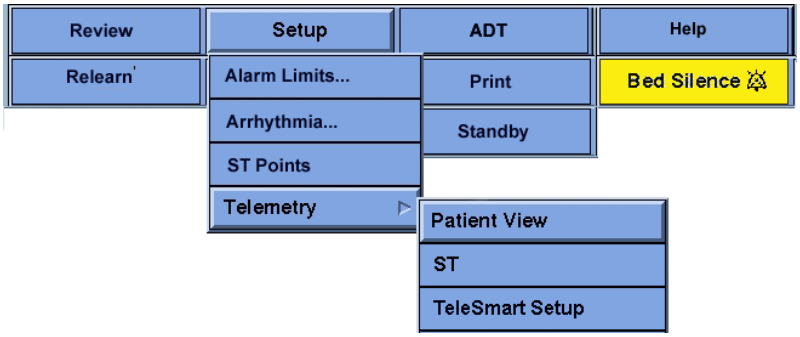
ST Points Setup

This selection becomes available with the ST option. For telemetry patients refer to **ST Points Setup Screen**, page 10-6, for detailed information on configuring the ST measuring points. For bedside patients refer to specific monitor documentation.

Telemetry Setup Screens

When the Telemetry option is enabled, the Bed View **Setup** pull-down menu includes a **Telemetry** menu item which has several submenu selections. Settings made in these submenu screens for individual patients temporarily supersede the system defaults (Chapter 4) until you discharge the patient or restore system defaults.

You can only perform these setup functions for telemetry patients who are local (page 1-5) or admitted to another Infinity CentralStation within the same monitoring unit.



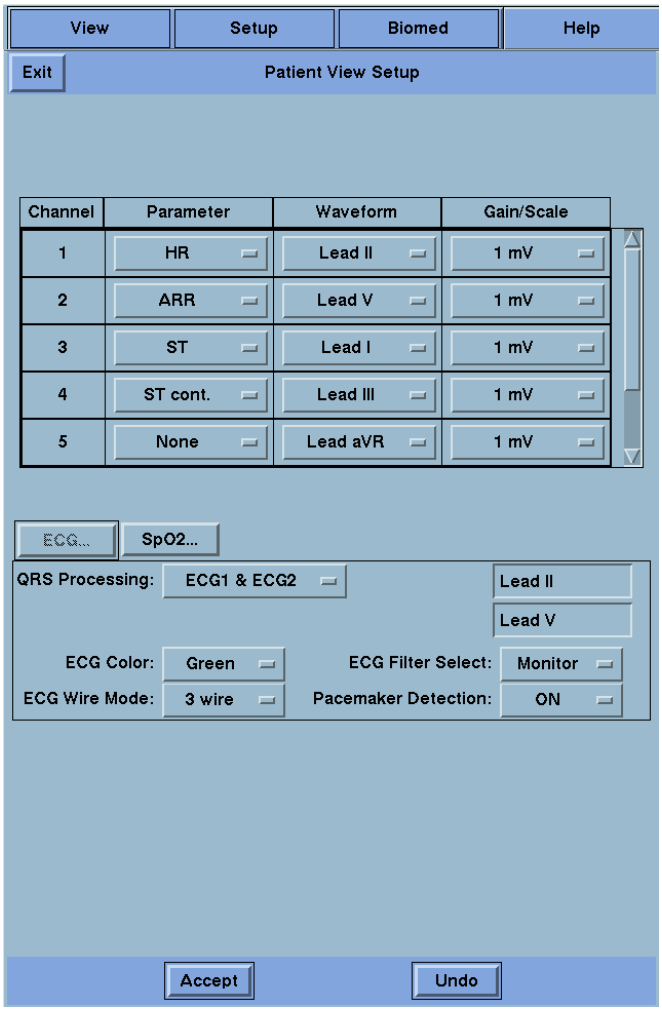
Accessing the Telemetry Setup Screens

1. Select **Telemetry** from the Bed View **Setup** menu.
2. Select **Patient View**, **ST**, or **TeleSmart Setup** from the submenu.

Patient View Setup Screen

The Bed View **Patient View Setup** screen for Infinity TeleSmart patients provides selections to configure SpO2 and ECG monitoring settings for an individual patient. When you click on the button labeled **SpO2**, the setup selections for that parameter display. When you click on the button labeled **ECG**, the setup selections for that parameter display.

The Bed View **Patient View Setup** screen resembles the Main Screen **Default Patient View Setup** screen (page 4-5) except that it it has a **Restore System Defaults** button that permits automatic assignment of default settings.



Patient View Setup Screen Selections

<table>
<tr><th>Function/ Selection</th><th>Required Action/Information</th><th>Available Settings</th></tr>
<tr><td colspan="3">Channel Setup</td></tr>
<tr><td>Channel</td><td>Use the vertical scroll bar to view the desired channel.</td><td>For devices programmed for 6-wire monitoring an eighth channel is available.</td></tr>
<tr><td>Parameter</td><td>Click in the Channel's Parameter column.</td><td>HR, ARR, ST, ST cont., SpO2 + PLS (when SpO2 Monitoring is ON), NPB, None</td></tr>
<tr><td colspan="3">NOTE: If ST and/or SpO2 selections are deactivated after having been activated and their parameters are assigned for display, the allotted space will be blank until these selections are re-activated.</td></tr>
<tr><td>Waveform</td><td>Click in the Channel's Waveform column.</td><td>• 3-wire (II)
• 5-wire (I, II, III, aVR, aVL, aVF, V)
• 6-wire (I, II, III, aVR, aVL, aVF, V, V+)</td></tr>
<tr><td>Gain/Scale</td><td>Click in the Channel's Gain/Scale column.
ECG QRS Processing Settings<table><tr><th>Display Scale mV/cm</th><th>Gain</th></tr><tr><td>8</td><td rowspan="4">QRS ≥ 0.5 mV</td></tr><tr><td>4</td></tr><tr><td>2</td></tr><tr><td>1</td></tr><tr><td>0.5</td><td rowspan="2">QRS ≥ 0.15 mV</td></tr><tr><td>0.25</td></tr></table></td><td>0.25, 0.5, 1, 2, 4, 8 mV.

The Infinity CentralStation uses an AAMI-compliant regular QRS threshold when you select a channel size of 1, 2, 4, or 8 mV/cm. If you select a channel size of 0.25 or 0.5 mV/cm, the Infinity CentralStation lowers the detection threshold, and the AAMI requirement is not met.</td></tr>
<tr><td colspan="3">ECG Monitoring</td></tr>
<tr><td>QRS Processing</td><td>Select leads for ECG and ARR monitoring.

For 3-wire monitoring, setting should be ECG1.</td><td>• ECG/ECG1 & 2
• ECG1</td></tr>
<tr><td colspan="3">WARNING! High amplitude (>0.2mV) P- and T-waves of long duration may register as integral QRS complexes. To ensure that the system accurately detects low heart rate in these cases, select the lead with the highest R-wave (relative to the T- and/or P-wave) for ECG1. If the system continues to misinterpret P- or T-waves, reposition electrodes or use other modalities to monitor the patient.</td></tr>
</table>

Function/ Selection	Required Action/Information	Available Settings
ECG Color	Assign color of ECG associated waveforms to telemetry channel for an individual patient.	• **Red** • **White** • **Yellow** • **Green** • **Light Blue** • **Blue** • **Purple** • **Orange**
ECG Wire Mode	Select Infinity TeleSmart lead wire mode When you confirm a change to the Infinity TeleSmart wire mode the new information is transmitted to the device. An information popup reports if the change is successful or not.	• **3-wire** • **5 -wire** • **6-wire**
ECG Filter Select	Control the channel bandwidth A banner displays in the ECG 1 channel if **ECG Filter** is **OFF**	• **Monitor** • **OFF**
Pacemaker Detection	Set the pacer detection function. When On, pacer spikes are displayed on the patient's waveform whenever a pacemaker pulse is detected. The **Fusion** selection is only available if the **Pacer Detect Mode** is **Advanced** (page 4-4)	• **ON** • **OFF** • **Fusion**
WARNING! Please read the safety considerations entitled, "Pacemaker and TENS Precautions" and "Pacer Fusion Mode Precautions".		
Restore System Defaults (Selection appears when **ECG Wire Mode** setting is **3 wire** and **5 wire**.)	Return patient settings to the previously-defined system defaults (Chapter 4).	
TruST 12-lead: (Selection only appears when **ECG Wire Mode** setting is **6 wire** and TruST locked option is enabled.)	Activate/deactivate TruST monitoring (page 6-20)	• **ON (Default)** • **OFF**

Function/ Selection	Required Action/Information	Available Settings
Label V: **Label V+**	Select lead label These selections display when the **TruST 12-lead** setting is **OFF**. **Label V** displays when **ECG Wire Mode** setting is **5 wire**; **Label V+** is also available when **ECG Wire Mode** setting is **6 wire**.	**Lead V1, Lead V2, Lead V3, Lead V4, Lead V5, Lead V6, Lead V** (for 5-wire monitoring), **Lead V+** (for 6-wire monitoring)
Set V: **Set V+:**	Set TruST chest lead placement (page 6-21) These selections display when the **TruST 12-lead** setting is **ON** and **ECG Wire Mode** setting is **6 wire**. The settings you choose must reflect the actual lead position on patient's chest. You will not be able to select adjacent leads.	**V1, V2, V3, V4, V5, V6** (Default: V2 and V5)
	SpO2 Monitoring	
SpO2 Color	Assign color of SpO2 associated waveforms to telemetry channel for an individual patient.	• **Red** • **White** • **Yellow** • **Green** • **Light Blue** • **Blue** • **Purple** • **Orange**
SPO2 Monitoring:	Enable/Disable SpO_2 Monitoring	• **ON** • **OFF**
NOTE: • You can only activate **SpO2 Monitoring** for local telemetry patients. • If **SpO2 Monitoring** is **OFF**, the SpO_2 / PLS parameter box is blank.		
SpO2 Averaging	Determines how the Infinity TeleSmart calculates the oxygen saturation of the arterial blood and the derived pulse rate **Normal**: updates the SpO2 value and the derived pulse rate in 30 seconds or less. **Fast**: updates the SpO2 value and the derived pulse rate in 12 seconds or less.	• **Normal** • **Fast**
NOTE: When monitoring most patients, Dräger recommends using the Normal averaging mode. The Fast mode is designed for neonatal patients where fast reporting of oxygen desaturation is of concern.		
SpO2 Sensor	Determines Infinity TeleSmart electrode type	• **Nellcor** • **Massimo**
• Click on **Accept** to save changes or **Undo** to keep previous settings.		

Infinity TruST 12-Lead Monitoring Option

NOTE: Infinity TruST is intended for 12-lead ECG monitoring with a reduced electrode set. Reconstructed leads are intended for real-time assessment of ST segment changes.

Infinity TruST is a 12-lead ECG obtained with only six conventionally placed electrodes. Its function is based on the knowledge that, in general, the signal from a measured lead provides information common to other leads. When this information is appropriately combined, the signal of leads not otherwise configured can be interpolated. This type of lead derivation has a high correlation with measured leads.

TRUST electrodes are placed in accordance with current clinical practice. Like a conventional 6-lead ECG system, waveforms from eight leads (typically, Leads I, II, III, aVR, aVL, aVF, V2, and V5) can be viewed on the Infinity CentralStation. These leads are processed and displayed in the same manner as a conventional system. However, unlike a conventional system, TRUST processes and displays four additional lead waveforms. These derived leads are viewable in the same fashion as the conventional leads, but are designated as dV1, dV3, dV4, and dV6.

Electrode configuration includes limb leads and the selection of any two precordial leads. Leads V2 and V5 are typically used as these often provide the highest correlation for the remaining precordial leads. Alternate lead configurations can be selected based on signal amplitudes and clinical requirements. See Appendix A for details regarding proper electrode placement.

WARNING!

- **There may be instances where the QRS morphology in one of the four derived leads differs from that of an equivalent conventional lead. In these instances, always refer to the conventional lead.**
- **Do not select derived leads for ECG processing.**

Use of TruST Reference ECG

When **TruST 12 Lead** is activated, the Infinity CentralStation uses generic coefficients that are based on a general population. Performance in this mode meets the established correlation to conventional leads.

The following table shows the correlation between TruST *generic* derived leads and conventionally measured leads for various lead configurations (a value of 1.0 being a perfect match).

Recommended Lead Configurations and Respective Correlation

Correlation	Precordial Lead Placement
0.956	V2, V5
0.953	V2, V6
0.953	V1, V5
0.952	V3, V5
0.950	V1, V6

The performance above is based on a minimum 0.3 mV amplitude and QRS duration < 180 milli-seconds on patients with a body surface area (BSA) of 1.5 – 2.5 m^2. Performance on patients outside these ranges may be less.

Processing Rest ECG Data

When a 12-lead Rest ECG for a TruST monitored patient is successfully acquired and uploaded, the Infinity CentralStation generates a printed report at the configured printer in a selected format or quantity (page 16-9).

Patient View Setup Chest Lead Selection

When the Infinity TruST 12-Lead Monitoring option is enabled (page 16-7) and the **TruST 12-Lead:** setting is **On**, recommended lead placements for **Set V** and **Set V+** are V2 and V5. Available selections are V1 through V6 and the lead selections must match the actual electrode placement on the patient's body.

With the two actual selected chest leads, the Infinity CentralStation calculates and reconstructs the four remaining chest lead measurements designated as dV1 through dV6. Chest lead selection on the **Patient View Setup Screen** will affect the patient's related screen displays (e.g. **ST Setup**, **ST Points**, **Trend Graphs**, **Trend Table**, **All Leads**).

Infinity TeleSmart Setup

The **TeleSmart Setup** screen is accessible for local Infinity TeleSmart patients and displays information received from the Infinity TeleSmart. It provides Infinity TeleSmart status information and permits configuration functions.

Selection	Description	Settings
TeleSmart ID	Displays Infinity TeleSmart identification number	
Battery Level Bar Graph	Graphically displays remaining battery time The Infinity TeleSmart current battery voltage appears next to the Bar Graph.	
ECG Lead Prep	Shows the quality of the ECG Lead Prep. The displayed information is received from Infinity TeleSmart and can be updated dynamically.	
Alarm Pause	Determines if Infinity TeleSmart *Alarm Pause* key is enabled Alarm Pause time is set or disabled in Telemetry System Setup (page 4-3)	• **On** • **Off**
TeleSmart Record[1]	Generates manual timed recordings	• **Record** • **Off** • **Record/Store** • **Store**
TeleSmart Staff Alert[1]	Determines if Infinity TeleSmart **STAFF ALERT** key is enabled or disabled. When you select **On**, you can generate a STAFF ALERT alarm at the Infinity Central Station when you press the Infinity TeleSmart **STAFF ALERT** key.	• **On** • **Off**
Speaker[1]	Determines if the Infinity TeleSmart speaker is enabled	• **On** • **Off**
TeleSmart Volume	Sets Infinity TeleSmart audible alarm If the **Speaker**setting is **OFF**, this setting is not available.	• **OFF** • **10 - 100 %**
• Click on **Accept** or on **Undo** to return to previous settings.		
[1]Unless the system default setting (page 16-14) is **Per Patient**, these selections are ghosted.		

ST

NOTE: The **ST** menu selection is *not* available for telemetry patients outside the monitoring unit.

Refer to Chapter 10 for information on customizing a patient's ST analysis settings.

Special Conditions

Condition	Infinity CentralStation Behavior
Infinity TeleSmart goes offline.	The telemetry patient channel for that device is blank. *Offline* message displays in the Information Area (page 6-7).
Signal loss (dropouts) from Infinity TeleSmart	Dropouts may display as gaps, depending on Infinity TeleSmart configuration.
Infinity CentralStation stops diplaying the telemetry patient channel.	Waveform and parameter areas for the telemetry patient channel are blank. *Offline* message displays in the Information Area (page 6-7).
Telemetry patient channel is put into *Standby* mode.	Parameter area is blank and the banner, *Standby*, displays.
Patient is discharged.	
Wireless monitor battery is depleted.	The waveform area for the patient is blank. The message, "Internal battery depleted", displays in the Information Area (page 6-7).

7 Admit/Discharge/Transfer

This chapter describes the Infinity CentralStation Admit function. It also includes instructions to discharge patients from the Infinity CentralStation and transfer patient data from one location to another.

Overview

On the Infinity CentralStation you can view, enter, and edit demographic information for any patient that is advertised on the Infinity Network and located within the Infinity CentralStation monitoring unit. Although entering demographics is not essential for monitoring, this data provides helpful information for easy patient identification.

For telemetry patients all demographic data is stored at their *local* Infinity CentralStation and is transmitted to the Infinity TeleSmart. For non-telemetry patients the same information is stored at the bedside monitor.

Admitting a Patient

NOTE: Be sure to enter a patient's demographic information accurately.

You can always edit and view demographics of patients at the Infinity CentralStation where they were originally admitted. If remote control is enabled at the bedside monitor or at the Infinity TeleSmart, you can view and change demographics for patients within the same monitoring unit even though they are not currently displayed in a Main Screen patient window.

You can view, but *cannot* make changes to, demographics for patients outside the monitoring unit. In this case the **Admit** screen appears ghosted.

NOTE:

- If the patient was removed for patient transport or the Infinity TeleSmart/ monitor is not communicating with the network, you cannot view, enter, or edit demographic data. The **Admit** screen for the viewed patient appears blank.
- The **Admit** screen is ghosted for patients outside the monitoring unit.

From Main Screen

1. Click on the Bed Label/Patient Name in the patient's waveform area.
2. Click on **Admit**.

From Bed View

1. Click on **ADT** in the Bed View menu bar.
2. Click on **Admit**.

Upon successful admission of a telemetry patient to the Infinity CentralStation, the configuration data is transmitted to the Infinity TeleSmart.

Entering Patient Demographics

To open the **Admit** screen see page 7-2.

Demographic Data Selections of the Admit Screen

Selection	Possible Settings	Special Consideration
Name	1 to 25 characters	
ID#	1 to 12 characters	
Birth Date	Day-Month-Year selection fields	Click on the up/down arrow buttons to scroll to the appropriate settings for each category.
Physician	1 to 12 characters	
Admit Date	Day-Month-Year selection fields	Click on the up/down arrow buttons to scroll to the appropriate settings for each category.
Height	• 20 to 240 cm *or* • 8 to 100 inches	Click on the up/down arrow buttons to scroll to the appropriate settings.
Weight	• 0.0 to 350.0 kg • 0 to 772 lb	The unit of measure is determined by the bedside monitor or, in case of telemetry patients, by the setting selected under System setup (page 4-8). Click on the up/down arrow buttons to scroll to the appropriate settings.
Category	*Bedside monitor:* Adult, Pediatric, Neonate	Obtained from bedside monitor Cannot be modified
	Telemetry patient: Adult, Pediatric	Select patient category from dropdown list.
Gender	**Male, Female,** or **Unknown**	
Pacer/ICD/PCD:	• PACER • ICD • PCD • EXT • NONE (default)	20-character max limit The Pacer/ICD/PCD identifier displays on all patient reports. If a bedside does not support this function the Pacer/ICD/PCD label displays on the report with a place to write the patient's pacer information.
TeleSmart ID:	Lists available devices from a configuration file populated during TeleSmart Setup page 16-14	Click on a device in the list. After you select a device, it is removed from the list.
Room/Bed Label	Permits assignment of bed label	character max limit
Get HIS/CIS Demographics	Allows you to retrieve a patient's demographics from the hospital's data base.	You must have the correct patient ID.
• Click on **Accept** to save changes or **Undo** to keep original settings.		

Changing Patient Category

When you change **Category** in the **ADMIT** screen, a popup displays with the message:

CAUTION: Alarm settings, arrhythmia settings, and QRS processing will be changed to the defaults for this category <selected category>.

You must press **Confirm** in the popup to accept the change.

Whenever you successfully change a patient category, the following occur.

- Label and QRS-sensitivity settings are changed.
- All Alarm Limit and Arrhythmia settings are changed.
- If arrhythmia is enabled, a RELEARN is initiated.

Admitting Wireless Monitor Patients

The Infinity CentralStation treats *wired* and *wireless* bedside monitors similarly. A wireless monitor is a bedside monitor that does not require a docking station to communicate with the Infinity Network.

A wireless LAN PC card on the monitor acts as an antenna that on a wireless monitor and communicates via an Access Point (AP) on the Infinity Network. The Infinity CentralStation provides a list of available bedside labels to wireless bedside monitors entering the care unit.

NOTE:

- For detailed information about the configuration and operation of wireless components in the Infinity Network, refer to the Dräger publication, “Infinity OneNet Network Planning and Installation Handbook” or “Infinity Network Planning, Design, and Installation Handbook, *Third Edition*”.
- See specific monitor documentation for information about using the monitor with the Infinity CentralStation in a wireless network configuration.

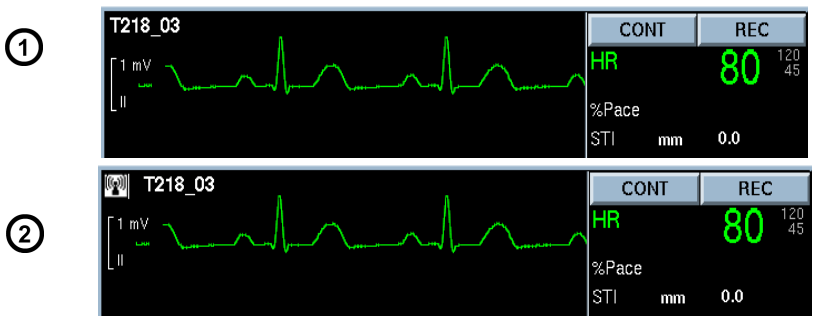
Moving Between Wired and Wireless Communication

When a wireless monitor is docked at a Docking Station, the monitor automatically accepts the Docking Station’s Care Unit and Bed Label assignments and communicates with the Infinity Network via the Docking Station. When the monitor is removed from the Docking Station, the wireless LAN PC card and APs handle communication between the monitor and the network.

Assigning a Wireless Monitor to a Patient Window

If a previously docked bedside monitor is removed from the docking station to begin wireless communication and is configured to keep the CPS/IDS bed label, the Infinity CentralStation patient window remains assigned to the wireless monitor and displays a *wireless icon* before the bed label. When the wireless monitor returns to the CPS/IDS, the icon disappears from the patient window bed label.

If you dock another bedside monitor on the CPS/IDS associated with the wireless monitor, the new monitor can select the same bed label and becomes available for assignment on the Assign Bed screen in the Main Screen (page 3-5).



1	Waveform of patient on monitor communicating to the network via CPS/IDS
2	After monitor is removed from CPS/IDS and begins wireless communication, the waveform is preceded by icon.

You must re-assign an Infinity CentralStation patient window in the following situations:

- If a wireless monitor bed label is changed to one that is not currently assigned to a Infinity CentralStation patient window, or
- If you dock another bedside monitor on a CPS/IDS whose bed label is currently associated with a wireless monitor.

Collecting Full/Event Disclosure Data

If a patient is currently admitted to Full/Event disclosure and is using a wireless monitor, all data collection will continue regardless of bed label change.

NOTE: There will be short breaks in Full/Event Disclosure data while the network resumes communication with the patient monitor.

Wireless Transmission Interruption

If a wireless monitor loses contact with all APs and wireless transmission is interrupted, the Infinity CentralStation generates an *Offline* alert.

Admitting Under Special Conditions

Circumstance	Effect on Admit Function
Bedside monitor is powering up.	Patient admission is not possible.
Infinity TeleSmart is offline.	
Bedside monitor, bedside monitor CPS/IDS, or Infinity TeleSmart cannot communicate with the network.	The Infinity CentralStation exits the **Admit** screen without accepting any changes, displays a blank Bed View screen, and generates a serious alarm. Patient admission is not possible.
The patient monitor is either put into or taken out of *Standby* mode.	No effect; the demographic information can be viewed and edited.
The bedside monitor is removed for transport (Pick and Go).	The Infinity CentralStation exits the Admit screen without accepting changes and displays a blank Bed View screen. The banner BED DISCONNECTED appears in Bed View and in Main Screen. Patient admission is not possible.
The bedside monitor returns from transport.	You can view, enter, and/or edit the patient's demographic information immediately.

Discharging a Patient

- ***Bedside patients*** must be discharged at the bedside monitor.
- ***Telemetry patients*** must be discharged at the Infinity CentralStation where they were originally admitted. Remote discharges are not possible.

When you discharge a telemetry patient:

- Demographics are deleted.
- All patient setup data such as alarm limits, arrhythmia setup, etc. are replaced by system defaults.
- A patient window with **Pacer Detection** set to **Fusion** mode reverts to system default settings.
- Trends are deleted.
- All pending and active recordings are cancelled.
- The Pacer Identifier label reverts to *None*.
- A *Disconnected* banner displays in Main Screen.
- The message *Discharged* displays in remote views.
- The Infinity CentralStation sends a discharge request to the Infinity TeleSmart.
- If the patient's **SpO2 Monitoring** setting was **ON**, an SpO2 license becomes available.

Discharging a Telemetry Patient

1. Open the patient's Bed View screen.
2. Click on **ADT** in the Bed View menu bar.
3. Click on **Discharge**. This activates the **Admit** screen with the discharge confirmation popup.
4. Click on **Yes** inside the popup to discharge the patient or on **No** to cancel the discharge.

For information about how a patient discharge affects the Infinity TeleSmart, see page 2-10.

The Patient Transfer Function

NOTE:

- After a successful transfer, the source monitor automatically discharges the patient.
- If an error occurs during the transfer, the data remains unchanged at the original location.

You can transfer a patient's Trend and demographic data from one location to another. For example, you can transfer data from a telemetry patient at the Infinity CentralStation to any bedside monitor on the Infinity network or vice versa, or you can transfer telemetry patients' data from one Infinity CentralStation to another. All transfers must be initiated from the destination device (the monitor/Infinity CentralStation you wish to transfer the data to).

Special Data Transfer Conditions

During an ST data transfer from a telemetry patient to a Gamma/Gamma XL/Vista monitor, only the data from ST leads I and II is sent to the monitor. ST values may be offset by up to 3 minutes due to different trend update intervals between devices.

The IBP data transferred from a Telemetry channel to an Gamma/Gamma XL/Vista monitor is labeled GP1 and GP2.

Transferring Data to the Infinity CentralStation

1. Put the *source* device (bedside monitor or Infinity CentralStation Telemetry patient window or Infinity TeleSmart) in *Standby* mode. Only beds that are in *Standby* mode are candidates for transfer.
2. Open the patient's Bed View screen at the *destination* Infinity CentralStation.
3. Click on **ADT** in the Bed View menu bar.
4. Click on **Transfer**.
   The **Transfer Data From** screen displays.
5. Click on the desired care unit in the **Select Care Unit:** section of the screen..
   A list of care unit beds displays in the **Select Bed:** window.
6. Click on the desired bed from the selection list.
   If the selected bed's monitor is not in *Standby* mode an information popup displays the message:

The source bed for the transfer must be in Standby.
Please put this bed in Standby.

7. You must click on **Continue** to close the popup.
   A ***Confirmation*** popup displays a message similar to the following example:

   Before proceeding with Transfer ...
   You have requested to transfer data from Bed_xx to Tel_xx.
   This action will replace any stored data at Tel_xx with data from Bed_xx.
   Data stored at Bed_xx will also be deleted once the transfer is complete.
   Do you wish to begin the transfer?

8. Click on **Yes** to transfer or **No** to cancel.

Transferring Data From the Infinity CentralStation

For Bedside Patients:

1. At the Infinity CentralStation Select the patient whose data you wish to transfer and open the patient's Bed View screen.
2. Click on **Standby** in the Bed View menu bar.
3. Go to the *destination* monitor and start the transfer (refer to the monitor documentation).

For Telemetry Patients:

Go to the *destination* Infinity CentralStation to start the transfer. See page 7-9.

Transfer Messages

Transfer Message	Description
Transfer not allowed	A transfer of neonatal patient data was attempted.
Patient Data Transfer Failed	The data transfer was unsuccessful. Partial data received by the destination device is discarded. The source monitor remains in *Standby* ready for a restart of the transfer.
Transfer in Progress	The data is being transferred. You cannot make any changes to the source/destination device during that time.
Transfer Completed	The data transfer was successful. All data is permanently deleted from the source monitor, which remains in *Standby* mode.

8 Arrhythmia

This chapter describes how to customize a patient's arrhythmia setup. These settings supersede bedside monitor defaults and Infinity CentralStation system defaults (Chapter 4).

Overview

For telemetry patients the Infinity CentralStation is the monitor performing arrhythmia analysis parallel to QRS processing. After each QRS complex a heart rate is computed from the last eight R-R intervals minus the two longest and shortest intervals.

A learning period begins when arrhythmia monitoring is first initiated to create a beat classification template. After the learning period is complete, an algorithm determines whether a QRS complex is a paced, normal, or ventricular beat.

The system maintains one dominant normal template per monitored lead against which it compares and classifies each detected beat. Because beat classification is difficult in the presence of excessive baseline wander, the system examines the baseline continuously and considers a beat questionable if it exceeds a certain limit. Arrhythmia monitoring resumes within 35 seconds after the last baseline shift.

WARNING! Do not rely entirely on the displayed heart rate to assess a patient's condition. The system may count heart rates inaccurately and misinterpret rate-dependent arrhythmias.

Relearning the Template

During the *Relearn* process a beat classification template is created against which each detected beat is compared and classified.

An automatic *Relearn* is initiated in the following conditions:

- Arrhythmia monitoring is enabled for the first time.
- A patient's monitor (or Infinity CentralStation) comes out of *Standby* mode.
- The processing mode (ECG1 or ECG 1&2) changes.
- Lead assignment changes.
- TRUST monitoring is enabled.
- The Telemetry **Patient Category** changes.

During the *learning* process no arrhythmia events are reported, and the parameter area displays the message *LRN*.

NOTE: If you assign more than one lead and if only one of those leads is available, the algorithm will *learn* from that lead only.

Dräger recommends that you initiate a manual *Relearn* of the patient's normal template in the following instances:

- Eight hours after the last *Relearn* occurred,
- After the patient's electrodes are repositioned, replaced, or disturbed, or
- If the message CANNOT LEARN <lead> or CANNOT LEARN is displayed.

Initiating a Relearn

1. Open the patient's Bed View screen.
2. Click on **Relearn** in the Bed View menu bar.
3. Click on **Relearn ECG**.

Once the *Relearn* successfully completes, the assigned leads do not require relearning, even if they fall off and are reconnected.

If the message *CANNOT LEARN* is displayed in the patient's waveform area, try to *Relearn* once more and confirm the quality of the signal. If the message persists, reposition or properly replace the electrodes, then try again.

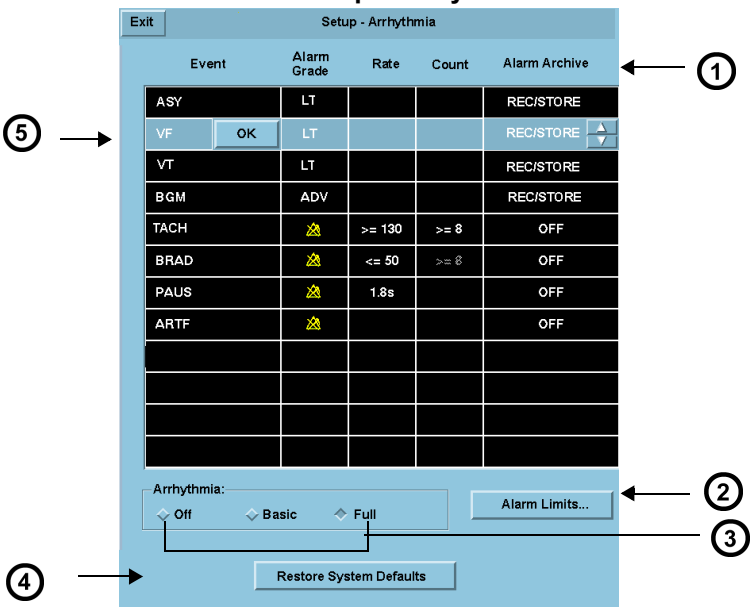
NOTE: If the ST option is enabled, the ST algorithm also performs a *Relearn* of the ST template whenever a *Relearn* of the arrhythmia template is initiated.

Customizing a Patient's Arrhythmia Setup

Accessing the Arrhythmia Setup Table

1. Open the patient's Bed View screen and click on **Setup** in the Bed View menu bar.
2. Click on **Arrhythmia...**.

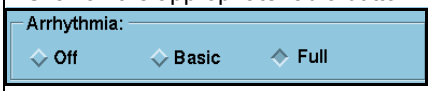
Illustration of **Setup - Arrhythmia Screen**



1	Column heading is 'Alarm Archive' for telemetry patients admitted to Event Disclosure and 'Record' for telemetry patients not admitted to Event Disclosure..
2	Opens Alarm Limits Setup Table (page 11-11)
3	Selects Arrhythmia monitoring mode
4	Restores values to system settings
5	Row in 'configuration mode'

Available Functions on the Arrhythmia Setup Table

Heading/Function	Description	Available Settings
Alarm Grade	1. Click on the '**Alarm Grade**' column of the event you wish to configure and scroll to the desired setting. 2. Click on **OK**.	• **L-T** • **SER** • **ADV** • **OFF**
Rate **Count**	Determines when an event call is triggered 1. Click on '**Rate**' or '**Count**' column of the event you wish to configure and scroll to the desired setting. 2. Click on **OK**.	See page 8-7. For arrhythmia settings based on the **Rate** and **Count** settings of other calls, there may be no scrolling arrows (e.g.**RUN** is dependent on **VT** settings).
Record (Telemetry patients *NOT* admitted to Event Disclosure)	Automatically generates a timed recording for each validated alarm condition. 1. Click on the "Record' column of the event you wish to configure and scroll to the desired setting. 2. Click on **OK**.	• **ON** • **OFF** This function cannot be **OFF** for **ASY** and **VF**.
Alarm/Archive	Depending on the setting, can automatically store waveform and generate a timed recording for each validated alarm condition. Each stored event is 18 seconds long, and includes 9 seconds of data collected before and after the event. (Alarms do *not* have to be turned on for events to be stored.) 1. Click on the '**Alarm Archive**' column of the event you wish to configure and scroll to the desired setting. 2. Click on **OK**.	• **REC** • **REC/STORE** • **STORE** • **OFF** This function cannot be *OFF* for **ASY** and **VF.**

Heading/Function	Description	Available Settings
Arrhythmia	Determines which arrhythmia events are monitored • Click on the appropriate radio button. 	• **Basic** - ASY, VF, VT, ART • **Full** - ASY, TACH, BRDY, PAUS, VT, RUN, AIVR, CPT, BGM, ARTF, SVT (*'Full'* arrhythmia capability at the Infinity CentralStation for bedside patients is only active if the bedside monitor has that capability.) • **OFF** (If you select *'OFF'*, arrhythmia setup table and arrhythmia field in patient's parameter area are blank.)
CAUTION! *If arrhythmia monitoring is Off, event alarms are automatically turned off. The exceptions are ASY and VF events, which always generate an alarm since they are part of ECG monitoring. However, these events will not cause an alarm if the HR alarm function is also OFF. Therefore, it is suggested that HR alarms are always ON.*		
Restore System Defaults (local telemetry patient screens only)	Changes all settings to the system default settings • Click on **Restore System Defaults**.	For restoring telemetry patients' default settings see Chapter 4. For restoring bedside patients' default settings, see manufacturer's documentation.

Available Bedside Event Settings

For available event settings for Telemetry patients see page 4-13.

NOTE: Some arrhythmia settings are based on the Rate and Count settings for other calls (e.g. RUN is dependent on the VT settings).

Settings for Delta/Delta XL/Kappa Monitors

Event	Count (bpm)	Rate (bpm)	Alarm Setting	Record Setting	Store Setting
ASY			not adjustable Default: **LT**	On, Off Default: On	On, Off Default: On
VF					
VT	5 - 15 Default: ≥**10**	100 - 200 Default: ≥**120**	**LT, Off, ADV, SER**	On, Off Default Off	On, Off Default: Off
ARTF					
RUN	Not adjustable; upper value is VT count -1. Default: **3 - 9**	Not adjustable; same as VT rate. Default: ≥**120**	**LT, Off, ADV, SER**	On, Off Default: On	On, Off Default: On
AIVR	Not adjustable Default: ≥**3**	Not adjustable, upper value is VT rate -1 bpm Default: ≥**119**	**LT, Off, ADV, SER**	On, Off Default: Off	On, Off Default: Off
CPT			**LT, Off, ADV, SER**	On, Off Default: On	On, Off Default: On
BGM					
SVT	3 - 10 Default: ≥ **3**	120 - 200 Default: ≥**150**	**LT, Off, ADV, SER**	On, Off Default: On	On, Off Default: Off
TACH	5 - 15 Default: ≥ **8**	100 - 200 Default ≥**130**	**LT, Off, ADV, SER**	On, Off Default: Off	On, Off Default: Off
BRDY	Not adjustable Default: ≥ **8**	30 - 105 Default: ≥ **50**			
PAUS		1.0 - 3.5 Default: **2.5**			
PVC/min To set alarm limit see page 11-11.	0 - 50 Default: ≥ **12**		Not adjustable Default: **SER**	On, Off Default: On	On, Off Default: On

NOTE: HR, ASY, and BRDY alarms may be active simultaneously. The HR alarm function provides adjustable alarm limits for heart rates less than 30 beats/min.

Settings for Gamma/Gamma XL/Vista Monitors

Event	Count (bpm)	Rate (bpm)	Alarm Setting	Store/Record Setting
ASY[1]			Not adjustable Default: **LT**	On, Off Default: On
VF			Not adjustable Default: **LT**	On, Off Default: On
VT	3 - 15 Default: ≥ **3**	100 - 200 Default: ≥ **100**	not adjustable Default: **LT**	On, Off Default: Off
BRDY[1]	not adjustable Default: ≥ **8**	30 - 70 Default: ≥ **50**	Default: On	On, Off Default: On
PVC/min	1 - 60 Default: **10**		Default: Off	Rec, Store, Rec/ Store, Off Default: Off
RUN	3 - 9 Default: ≥ **8**	not adjustable Default: **120**	Default: On	On, Off Default: On
AIVR	not adjustable Default: ≥ **3**	not adjustable Default: ≤ **119**	Default: On	On, Off Default: On
CPT			Default: On	On, Off Default: On
BGM			Default: On	On, Off Default: On
SVT	3 - 10 Default: ≥ **8**	120 - 200 Default: ≤ **140**	Default: On	On, Off Default: On
TACH	5 - 15 Default: ≥ **8**	100 - 200 Default: ≤ **140**	Default: On	On, Off Default: On
PAUS	1 - 3.5 Default: **2.5**		Default: On	On, Off Default: On
ARTF			Default: On	On, Off Default: On

[1] HR, ASY, and BRDY alarms may be active simultaneously. The HR alarm function provides adjustable alarm limits for heart rates less than 30 beats/min.

Arrhythmia Beat Classification

The following available beat classifications appear in priority order. Abbreviations display in the parameter area and identify events. If two or more different events occur simultaneously, the Infinity CentralStation reports the highest priority event.

Category	Definition
ASY	**Asystole**: indicated if 4 seconds pass without the detection of a valid QRS complex
VF	**Ventricular Fibrillation:** indicated if the source device identifies a sinusoidal waveform with fibrillation characteristics
VT [1]	**Ventricular Tachycardia:** "N" or more consecutive PVCs have been detected with a beat-to-beat rate ≥ the VT rate.
RUN [1]	**Ventricular run:** a series of 3 to "N – 1" consecutive PVCs with a beat-to-beat rate ≥ the VT rate
AIVR	**Accelerated idioventricular rhythm:** a series of 3 or more PVCs with a rate less than the VT rate
CPT	**Ventricular Couplet:** a sequence of beats with the pattern: normal, PVC, PVC, normal
BGM	**Ventricular Bigeminy:** a sequence of beats with the pattern: normal, PVC, normal, PVC, normal
TACH [1,2]	**Sinus Tachycardia:** "N" or more consecutive normal beats with a beat-to-beat rate ≥ to the set TACH rate
BRDY [2]	**Sinus bradycardia:** 8 or more consecutive normal beats are detected with an average rate ≤ to the set sinus bradycardia rate.
PAUS	**Pause**: a sequence of 2 normal or PVC beats with an interval ≥ to pause rate value in seconds (± 100ms)
SVT	**Supra ventricular Tachycardia**: "N" or more consecutive normal beats with a beat-to-beat rate ≥ the SVT rate
ARTF	**Artifact:** indicated if more than 50% of the beats in the last minute are questionable

[1] "N" represents the value in the Arrhythmia setup table **'Count'** column.
[2] Arrival of a VPB or other abnormal beat breaks the analysis sequence and analysis restarts.

Arrhythmia Messages

Status Messages

Message		Description	Action
Parameter Value	**Status Area**		
ARR:<blank>		Regular or Paced rhythm is detected. Arrhythmia monitoring is **OFF**.	
ARR:LRN	ECG RELEARN	Arrhythmia system is *'learning'* the patient's QRS morphology to build a reference template.	Wait until the learning period ends.
ARR:<blank>	CANNOT LEARN <lead label>	Unable to relearn on indicated lead.	Initiate a *Relearn* (page 8-3). If it fails again, reposition or replace electrodes.
ARR:<blank>	CANNOT LEARN	Unable to learn on any lead. **Note**: Attention tone sounds.	

Arrhythmia Alarm Messages

For details about setting alarm limits see page 11-10.

Alarm Message		Alarm Grade	Description	Action
Parameter Area	**Status/Information Area**			
ARR:ARTF	ARR: Baseline Artifact	User sets	Baseline artifact detected.	Check for proper ECG preparation.
ARR:ASY	asystole	L-T	ASY detected.	Check patient and administer appropriate treatment.
ARR:VF	ventricular fibrillation		VF detected.	
ARR:VT	ARR: ventricular tachycardia		VT detected.	
ARR:RUN	ARR:RUN		RUN detected.	
ARR:AIVR	ARR: Accelerated idioventricular		AIVR detected.	
ARR:CPT	ARR: Couplet		CPT detected.	
ARR:BGM	ARR: Bigeminy	User sets	BGM detected.	
ARR:TACH	ARR: Sinus Tachycardia		TACH detected.	
ARR:BRDY	ARR: Sinus Bradycardia		BRDY detected.	
ARR:PAUS	ARR: Pause		PAUS detected.	
ARR:SVT	ARR: Supra ventricular Tachycardia		SVT detected.	

ECG Alarm Messages

Alarm Message		Default Alarm Grade	Description	Action
Parameter Area	**Status/Information Area**			
HR: ASY	ASYSTOLE	L-T	Asystole	Check the patient and administer appropriate treatment.
HR: VF	VENTRICULAR FIBRILLATION	L-T	Ventricular fibrillation	
HR <value>	HR > UL	SER	HR value exceeds upper alarm limit.	Check the patient. Change the limits.
HR <value>	HR < LL	SER	HR value is below the lower alarm limit.	Check the patient. Change the limits.
HR +++	HR OUT OF RANGE (HIGH)	SER	Parameter value is outside the device's measuring range.	Hardware condition Call your Biomed or contact Dräger service.
HR:*** ARR:<blank> PVC/min: <blank>	ECG LEADS INVALID	ADV	QRS processing leads are invalid for 10 seconds or more or the ECG signal is not available.	Make note of other messages to determine why the ECG signal is absent.
HR:*A* ARR: <blank> PVC/min: <blank> STx: <blank>	ECG ARTIFACT	ADV	Persistent artifact	Reapply electrodes using proper prep techniques.
HR:*L* ARR:*L* PVC/min:*L* STx:*L*	LA LEAD OFF[1] RA LEAD OFF[1] LL LEAD OFF[1] RL LEAD OFF[1] CHEST LEAD OFF[1]	ADV	Indicated electrode is disconnected.	Check the respective electrode connection.

[1] Alarm condition may persist even though the alarm is acknowledged.

9 Telemetry Pulse Oximetry Monitoring

This chapter describes Telemetry patient SpO_2 monitoring at the Infinity CentralStation.

Overview

You can use a Pulse Oximeter with the Infinity Telemetry transmitter to transmit SPO2 and PLS values to the Infinity CentralStation.

While you are measuring SPO2 and PLS, the Infinity CentralStation screen icons, alarm messages, and acoustic alarms alert you to limit violations, low battery conditions, and sensor malfunctions.

Pulse Oximetry

A pulse oximeter determines the percentage of functional hemoglobin saturated with oxygen (% SpO_2) in the patient's arterial blood. A light sensor on the patient's finger measures the absorption levels of red and infrared light.

Since oxyhemoglobin and deoxyhemoglobin absorb different amounts of red light, but nearly the same amount of infrared light, the monitor uses the difference between the two measurements to calculate the percentage of saturated hemoglobin. Because light absorption varies with blood volume and blood volume varies with the pulse rate, a pulse rate (**PLS**) can also be derived.

WARNING! Before you start your monitoring session, please refer to precautions on page xxi, in these Instructions for Use.

NOTE: Use only the SpO_2 extension cable whose connector is equipped with a blue locking mechanism.

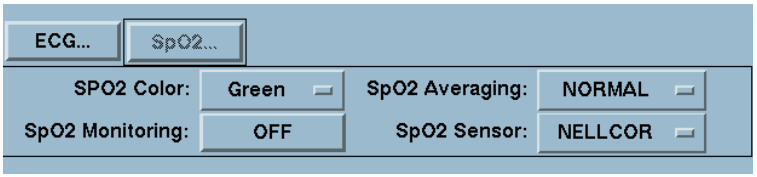
For telemetry patients, detected SPO2 and PLS values from the pulse oximeter are sent directly to the transmitter, which forwards them to the Infinity CentralStation.

Bedside patients' signals are received from the MultiMed pod connected to the bedside monitor.

Turning Pulse Oximetry Monitoring On/Off

If pulse oximetry monitoring is enabled as a system default (page 4-7), set it for a telemetry patient as follows:

1. Open the patient's Bed View screen.
2. Click on **Setup** in the Bed View menu bar.
3. Click on **Telemetry** (If selection does not appear, the Telemetry option is not enabled).
4. Click on **Patient View**.
   The Patient View Setup screen displays.
5. Click on the **SpO2** button.



6. Click on the **ON/OFF** toggle button next to **SpO2 Monitoring**.
7. If you choose to monitor SpO2, select settings for **SpO2 Color**, **SpO2 Averaging**, and **SpO2 Sensor**.
8. Click on **Accept** to change or **Undo** to keep previous settings.

When SpO_2 monitoring is set as a system default, but turned off for an individual patient, the parameter box SpO_2 and PLS fields are blank.

For bedside patients, refer to the applicable manufacturer's documentation for detailed information about SPO2 monitoring.

Display of Pulse Oximeter Information

When pulse oximetry monitoring is **ON**, the Infinity CentralStation Bed View also displays:

- SpO_2 value and alarm limits (or Alarm Pause icon if alarms are off)
- **PLS** and alarm limits

Alarm Functions

For specific Infinity CentralStation **SpO_2** and **PLS** alarm setup instructions, see Chapter 11.

Alarm Messages

SpO2 Alarm Messages via MicrO2 and Infinity TeleSmart

Alarm Message		Alarm Grade	Description	Action
Parameter Area	**Status/ Information Area**			
PLS: <value>	**PLS > UL**	SER	Parameter value exceeds the upper alarm limit.	• Check the patient. • Reset the alarm limits.
PLS: <value>	**PLS < LL**	SER	Parameter value is below the lower alarm limit.	
PLS: +++	**Pulse rate out of range**	SER	The pulse rate is outside the measuring range.	
SpO_2: <value>	**SpO_2> UL**	SER	Parameter value exceeds the upper alarm limit.	
SpO_2: <value>	**SpO_2< LL**	SER	Parameter value is below the lower alarm limit.	
Messages unique to MicrO2				
SpO_2: *U* PLS: *U* P	**MicrO2 sensor unplugged**	ADV	Sensor is disconnected from the oximeter.	• Check all cable connections. • Replace sensor if necessary.

Alarm Message		Alarm Grade	Description	Action
Parameter Area	**Status/ Information Area**			
SpO_2: *A* PLS: *A* P2		ADV	Sensor cannot detect any signals.	• Check the patient. • Check sensor and reapply or replace it if necessary.
SpO_2: *A* PLS: *A* P3		ADV	Sensor does not detect any light.	• Make sure the LED on the oximeter is not blocked.
SpO_2: *A* PLS: *A* P4		ADV	Motion artifact	• Make sure the patient remains as still as possible. • Check sensor; reapply or replace it if necessary.
SpO_2: *A* PLS: *A* P5		ADV	Too much ambient light	• Cover the sensor with an opaque material.
SpO_2: *A* PLS: *A* P6		ADV/ SER [1]	Pulse is weak or non-existent.	• Check the patient. • Check sensor/ oximeter and reapply or replace it if necessary.
SpO_2: *N* PLS: *N*	**Micro2 no signal**	ADV	Oximeter signal is not available.	• Check connections and MicrO_2 battery.

[1] After the 30-second advisory alarm, this alarm is upgraded to **SER**.

10 Telemetry ST Analysis Option

This chapter describes the Infinity CentralStation ST Analysis option and available setup functions (for telemetry patients). For information on these setup functions for bedside patients, refer to the specific monitor documentation.

Overview

ST deviation measurements are performed on averaged ECG segments. An averaged ECG segment is 900 ms long and is calculated from a minimum of 4 normal QRS complexes having occurred in the previous 15 seconds. To eliminate the effects of artifact, only normal beats are included in the average (if no normal beats are available, no complex or corresponding parameter box values display).

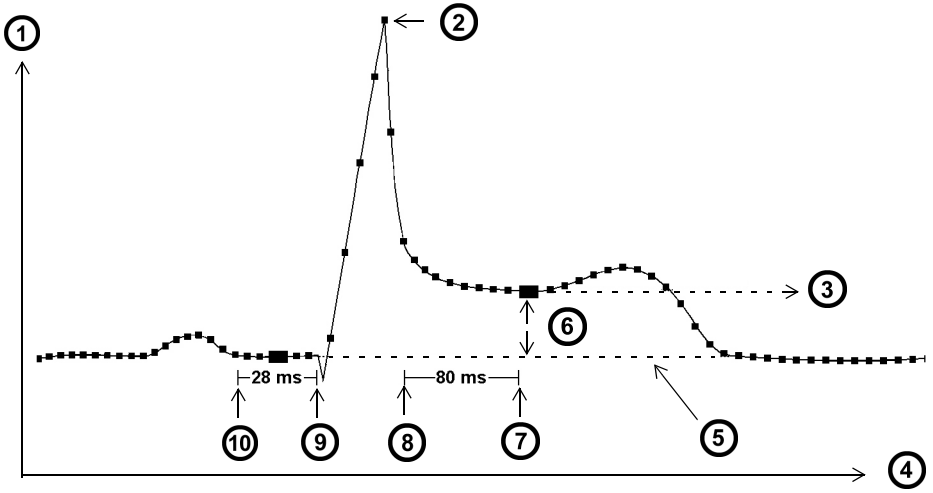
ST parameters are included in the trend function, and you can configure the ST alarm functions as for any other parameter (Chapter 11).

ST Segment Morphology

ST segment deviations are defined in terms of displacement above or below the isoelectric level. The measurement compares the *isoelectric point* to the ST deviation measurement point**.**

The isoelectric point defines the point of zero voltage (no electrical activity, 0 mm) with a default position of 28 ms before the onset of the QRS complex on the horizontal (time) axis. The ST deviation point occurs in the ST segment between the QRS offset (J point) and the T-wave, at a default position of 80 milliseconds after the QRS offset.

The value of the ST measurement point is compared to the isoelectric point value, and the difference between the two measurements is the ST deviation. The onset and offset points for the QRS complex are determined by the QRS detection algorithm.



1	mV	**6**	ST Deviation
2	Fiducial Point	**7**	ST Measurement Point Default ST Measurement Point = 80 ms after QRS Offset
3	ST Level	**8**	QRS Offset
4	Time	**9**	QRS Onset
5	Isoelectric Level	**10**	Isoelectric Point Default ST Measurement Point = 28 ms before QRS Onset

Parameter Display

With the ST option the Infinity CentralStation parameter area lists the ECG leads selected by the user as data sources for ST analysis. These data can fill one or two double parameter boxes.

The ST values displayed depend on the transmitter lead configuration mode.

Relearning ST

The Infinity CentralStation initiates a *Relearn* automatically under the following circumstances:

- Whenever you enable ST for the first time
- After you change leads
- When the monitor, Infinity TeleSmart, or Infinity CentralStation comes out of *Standby* mode
- After a device restart

Initiating a relearn manually

1. Open the patient's Bed View screen.
2. Click on **Relearn** in the Bed View menu bar.
3. Click on **Relearn ECG**.

During the *Relearn*, the ST fields within the parameter area do not display any parameter values, and the message ECG RELEARNING appears in the information area of the Bed View screen. A vertical dotted line on the ST trend graphs marks the time of a *Relearn*, and the label LRN appears to the right of the trend window when you move the trend cursor on the dotted line. Also, for each *Relearn* an entry is made in the clinical events log.

ST Points Setup Screen

The **ST Points Setup** screen displays the current averaged complex for each lead with associated deviation measurement values and times.

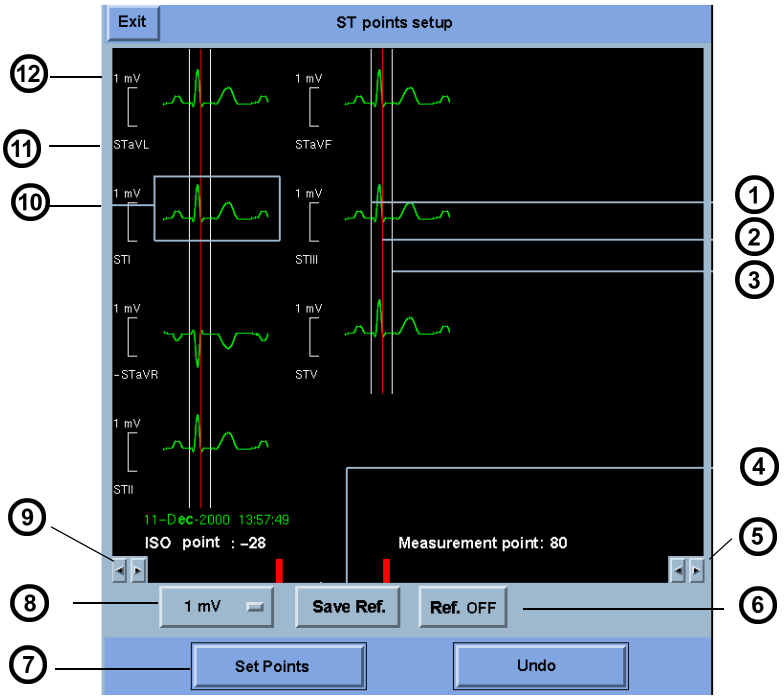
NOTE: Infinity TeleSmart does not support Hexaxial (Cabrera) display.

Hexaxial (Cabrera) Lead Support

In Cabrera display mode (page 16-4), the aVR lead is presented in inverted polarity as -aVR. The order of the lead presentation in Cabrera is: aVL, I -aVR, II aVF, III V1-V6.

Accessing the ST Points Setup Screen

1. Open patient's Bed View screen.
2. Click on **Setup** in the Bed View menu bar.
3. Click on **ST Points**.



1	ISO point	**7**	Accepts ST setup changes
2	J-Point	**8**	Changes the display size (amplitude)
3	ST point	**9**	Moves the ISO point back and forth
4	Stores new reference complex	**10**	Averaged complex
5	Moves the reference point back and forth	**11**	Lead label
6	Displays/removes latest reference complex	**12**	Amplitude

Display Order of ST Complexes

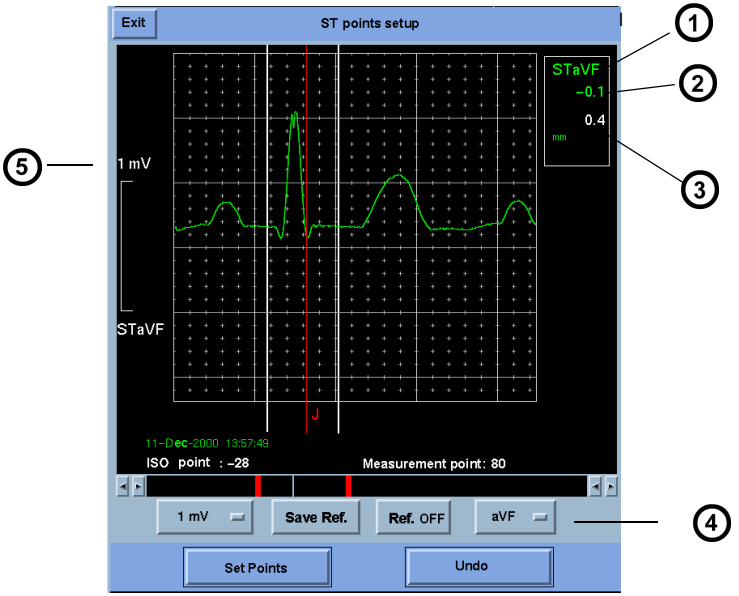
3-/5-wire 1-/7-lead		6-wire 12-lead		
I	aVF	I	aVF	V3, dV3
II	aVL	II	aVL	V4, dV4
III	V	III	V, V1, dV1	V5, dV5
aVR		aVR	V+, V2, dV2	V6, dV6

The averaged complexes and corresponding ST deviation measurements and times are updated as each new complex is computed. If an averaged complex is not available, the reserved display area appears blank. You can change the gain of the complexes and adjust the measurement points.

The current ST measurement point, the QRS offset (J-point), and isoelectric point are labeled and identified by vertical lines. If you make any adjustments to the measurement point, the ST deviation is recomputed and displayed below the current value.

Zoom Mode

- To examine an individual ST complex in greater detail and view the current ST measurement point selections, click on the desired complex in the **ST Points Setup** screen.



1	Lead label
2	Reference deviation
3	Current deviation value
4	Lead selection
5	Amplitude

NOTE: A portion of the complex may be clipped if you do not select an appropriate gain.

Available Functions on ST Points Setup Screen

Function	Description	Available Settings
Adjust Display Size	• Click on the option button and select from available settings.	**0.25**, **0.5**, **1**, **2**, **4**, and **8 mV/cm**
Save Ref.	Permits comparison of reference ST complex with another, more recent complex • Click on **Save Ref.**	
Ref. ON/OFF	Allows visual comparison of a stored reference QRS complex to current complex • Click on **Ref. On/Off** toggle button. (Current complex is green and the reference complex is purple.)	
Change ISO point	• Click on the arrow buttons in the lower left of the screen and scroll to the desired setting. The number next to ***ISO point*** is the time before QRS onset. A green vertical line marks the point at which the ISO point intersects the ECG waveform. A marker is put into the ST trend graphs and an entry is stored in the clinical events log. If you move the trend cursor over the marker, the label *HG* appears.	The setting changes in 4 ms increments each time you click on the arrows. Default: **-28 ms**.
Change ST Deviation Measurement Point	• Click on the arrow buttons in the lower right of the screen and scroll to the desired setting. The ST deviation point is set from the QRS offset to the end of the displayed ECG complex (including the T-wave). When you change the **Measurement Point**, the ST deviation is recomputed and the current value is displayed. A marker is put into the ST trend graphs and an entry is stored in the clinical events log. If you move the trend cursor over the marker, the label *CHG* appears.	The setting changes in 4 ms increments each time you click on the arrows. Default: **60/80 ms**.
• Click on **Set Points** to change settings or **Undo** to keep previous selections.		

NOTE: You can change ST settings for telemetry patients at the Infinity CentralStation, but changes for bedside patients must be done at the bedside monitor.

When you change a telemetry patient's *ST Deviation Measuring Point* and/or *ISO Point* the changes are dynamically transmitted to the Infinity TeleSmart as soon as you click on **Set Points**. When you make measurement point changes, ST deviation is recomputed by Infinity TeleSmart and displayed at the Infinity CentralStation.

Telemetry ST Setup Screen

The telemetry ST Setup screen allows you to customize a telemetry patient's ST setup. For bedside patients, please refer to the specific monitor documentation.

Accessing the Telemetry ST Setup Screen

A patient's ST Setup Screen differs according to transmitter monitoring mode.

1. Open the patient's Bed View screen.
2. Click on **Setup** in the Bed View menu bar.
3. Click on **Telemetry**.
4. Click on **ST**.

Transceiver Bed View ST Setup Selections

Selection	3-/5-wire Monitoring	6-wire Monitoring	TRUST 12-Lead Monitoring	Description
ST Lead 1 - 7 **Note:** In 3-wire monitoring mode, **ST Lead 1** is set to **Lead II** and **ST Leads 2 - 7** are set to **NONE**.	**None**, **I**, **II**, **III**, **aVR**, **aVL**, **aVF**, **V**	**None**, **I**, **II**, **III**, **aVR**, **aVL**, **aVF**, **V, V+**	**None**, **I**, **II**, **III**, **aVR**, **aVL**, **aVF**, **2 chest leads (V1 - V6),** 4 reconstructed leads **(dV1 - dV6), STVM, STCVM**	Sets displayed lead order in the Bed View parameter boxes • Click on the desired **ST Lead x** option button and scroll to a lead setting.
ST Lead 9 - 14		Settings are ghosted and set to **None**		
Event Duration	**15**, **30**, **45**, **60**, **75**, **90**, **105**, and **120** seconds For Infinity TeleSmart this is a *read-only* value set at 60 seconds.			Specifies the time that an ST alarm condition must persist before it is classified as a valid alarm
Restore System Defaults	See Chapter 4 for details on ST default settings.			• Click on **Restore System Defaults**.
• Click on **Accept** to change settings or **Undo** to keep previous selections.				

Special Conditions

The following table lists some of the most common non-alarm conditions that may occur during ST segment analysis.

Message in information area	Parameter area	Description	Action
<x> cannot learn	STx: blank	Due to artifact or abnormal beats, the algorithm cannot determine the ST value for lead <x>.	• Initiate a relearning (see page 10-5). • Reprep the ECG electrodes.
ecg signal saturated		The ECG signal is saturated.	Reprep the ECG electrodes.
ecg relearning		The reference complex is being established.	Wait until the relearning is completed.

ST Alarms

An ST alarm occurs when the ST deviation measurement for any lead violates the set alarm limits for the user-selected duration (page 10-11). An ST alarm is cleared if the majority of intervals following the alarm are within the specified limits. ST alarms are subject to the same alarm guidelines as any other parameter. Refer to Chapter 11 for information on setting up the various alarm functions.

ST Alarm Messages

The following alarm messages pertain specifically to ST parameters, and are displayed in the status area in Main Screen and in the top waveform channel in Bed View. In addition, the parameter areas display an abbreviated message in the appropriate parameter field. Please note that the 'x' next to the ST label (e.g. in the message *STx:****) is a place holder for the actual ST lead.

Message		Alarm Grade	Description	Action
Parameter Area	**Status/ Information Area**			
STx: <value>	STx > UL	SER	Value exceeds upper alarm limit.	• Check the patient. • Reset alarm limits.
STx: <value>	STx < LL	SER	Value is below lower alarm limit.	• Check the patient. • Reset alarm limits.
STx: +++	STx OUT OF RANGE (HIGH)	SER	Value exceeds upper measuring range.	• Check the patient. • Reset alarm limits.
STx - - -	STx OUT OF RANGE (LOW)	SER	Value is below measuring range.	• Check the patient. • Reset alarm limits.
STx: <blank>	ST x CANNOT LEARN		Algorithm cannot determine ST values.	• Check the electrodes Relearn
	ECG RELEARNING		ARR/ST morphologies are being relearned.	• Wait until the relearning process is finished.

11 Alarms

Overview

The Infinity CentralStation is the primary alarm annunciator for telemetry patients; for bedside patients the bedside monitor is the primary alarm annunciator.

For ***Telemetry patients***, the Infinity CentralStation issues visual and audible alarm signals for the following:

- HR, SpO_2, PLS, ST, and arrhythmia event parameters and associated technical conditions,
- Physiological conditions that are detected by the algorithms,
- Technical network events, and
- Infinity CentralStation or telemetry system error conditions.

For patients connected to ***Bedside Monitors*** and ***MIB-connected devices***, all alarm signals are sent to the Infinity CentralStation for display and broadcast.

WARNING! For primary monitoring and diagnosis of bedside patients, use the bedside monitor. Use the Infinity CentralStation only for remote assessment of a patient's status.

The Infinity CentralStation will report surveillance alarm messages for life-threatening and active serious alarms of any bedside monitor within the monitoring unit even though it is not assigned to its current Main Screen.

Alarm Validation

The Infinity CentralStation generates an alarm when a parameter remains outside alarm limits longer than an assigned delay time. If the limit violation ceases within the delay time, no alarm occurs.

Parameter	Upper Limit Alarm Delay	Lower Limit Alarm Delay
HR	2 seconds	no delay
SpO_2/SpO_2*	4 seconds	4 seconds
ΔSpO_2	no delay	N/A
PLS/PLS*	4 seconds	no delay
ST (telemetry patients)	user-defined (page 10-11)	user-defined (page 10-11)

Alarm Grades

All alarms are classified according to three alarm grades:

- Life-threatening
- Serious
- Advisory

Each alarm grade has its own unique tone and color scheme (page 11-5). Depending on the seriousness of the alarm condition, alarms are either *Latching* or *Non-latching*.

NOTE: If several alarms are simultaneously active for a single patient, the Infinity CentralStation reports the highest grade *active* alarm (alarm that has not been silenced and whose condition remains valid).

Latching alarms

Latching alarms indicate either life-threatening or serious conditions such as an asystole or a ventricular fibrillation. Life-threatening alarm audible *and* visual indicators continue (even if the alarm condition is no longer valid) until the alarm is manually acknowledged.

Serious alarms behave similarly, except that only the visual alarm indicators continue until you acknowledge the alarm.

NOTE: A latching alarm is cleared if another life-threatening or serious alarm occurs for the same parameter.

Non-latching Alarms

Non-latching Alarms indicate advisory conditions and continue for as long as the event exists. The visual and audible alarm signals stop automatically when the alarm condition ends. You can also silence *non-latching* alarms manually (page 11-8).

Visual and audible Alarm Signals

Alarm Grade and Priority	Life-threatening (e.g. asystole, ventricular fibrillation) first or highest priority	Serious (limit violation) second priority	Advisory (e.g. network events, bedside events such as lead-off) third or lowest priority
Alarm Indication in Main Screen	Entire parameter area flashes red.	Entire parameter area flashes yellow.	Entire parameter area flashes white.
Alarm Indication in Bed View	Parameter area of respective parameter flashes red.	Parameter area of respective parameter flashes yellow.	Parameter area of respective parameter flashes white.
Alarm Tone	Two-tone, high pitched, rapid tone	Two, medium-pitch, short tones followed by a pause	Short, single, low-pitch tone every 10 seconds
Message Location in Main Screen	Message displays in red in top waveform channel.	Message displays in yellow in top waveform channel.	Message displays in white in top waveform channel.
Message Location in Bed View	Message displays in red in information area.	Message displays in yellow in information area.	Message displays in white in information area.
Latching behavior	Message displays in parameter area and tone continues until alarm is acknowledged.	Message stays in waveform area until alarm is acknowledged.	

The Surveillance Feature

This feature provides alarm messages for life-threatening and serious alarms to bedside monitors that are not currently assigned to the Infinity CentralStation Main Screen but are located within the same monitoring unit. This function cannot be turned on or off.

Display of Surveillance Alarm Messages

All surveillance alarm messages overwrite the date/time field of the Main Screen status area. A surveillance alarm message includes the bed label and alarm grade.

If the surveillance alarm is for a wireless bedside monitor an icon precedes the alarm message.

Message background colors vary with alarm grade and status.

Alarm Grade	Status	Background Color
Life-threatening	Alarm condition is valid and the alarm has not been silenced at the bed.	Flashing red
	Alarm condition is no longer valid but the alarm has not been silenced at the bed.	
	Alarm condition is valid and the alarm has been silenced at the bed.	Solid red
Serious	Alarm condition is valid and the alarm has no been silenced at the bed.	Flashing yellow
	Alarm condition is valid and the alarm has been silenced at the bed.	Solid yellow

Multiple Alarm Situations/Priorities

If several beds issue surveillance alarms the alarm messages display alternately for three seconds at the Infinity CentralStation.

Audible Alarm Signals

The Infinity CentralStation sounds the latest alarm condition with the highest priority. Audible alarm signals accompanying surveillance alarms act the same as other alarms (page 11-4).

Silencing Surveillance Alarms

A surveillance alarm continues until it is either acknowledged or the alarm condition ceases.You can silence the audible alarm signal of a surveillance alarm locally by clicking on **Alarm Silence** in the Main Screen menu bar or by pressing **F1**.

Special Surveillance Alarm Conditions

Condition	Effect on surveillance alarm
Bedside CPS/IDS goes offline or fails while a surveillance alarm for that bed is reported at the Infinity CentralStation.	Surveillance alarm is canceled at the bedside.
A bedside monitor goes offline or fails while a surveillance alarm for that bed is reported at the Infinity CentralStation.	
The bedside CPS/IDS or monitor changes to stand-alone mode.	
The bedside CPS/IDS or monitor detects that it has the same IP address as another device on the network.	
Monitor is removed from the network.	Surveillance alarm is canceled.

MIB Ventilator Alarms

For MIB-connected ventilator events, the Infinity CentralStation provides alarm messages which are accompanied by a serious alarm tone. However, not all ventilator messages are reported at the Infinity CentralStation. MIB ventilator alarms are described in detail in Chapter 15.

The most recent MIB ventilator alarm message appears in the patient's top waveform channel in orange on the Main Screen.

In Bed View the MIB ventilator alarm message appears in the information area in orange.

MIB ventilator alarm messages are *non-latching*. If a patient experiences multiple alarm conditions simultaneously, the messages rotate. Unlike other Bed View parameters, the parameter boxes of MIB ventilator parameters do not blink while in alarm.

Alarm Groups

An alarm group allows you to configure several monitors/telemetry channels to display their highest grade active alarm at each device in the alarm group. If multiple beds in the alarm group detect an alarm, each corresponding alarm message briefly rotates along the bottom of the screen on each device. To assign a telemetry channel to an alarm group, see page 4-4. For bedside patients, you must set the alarm group at the bedside monitor. (Refer to the monitor documentation.)

Silencing Alarms

The Alarm Pause function clears all audible and visual alarm indicators for life-threatening and serious *latched* alarms (page 11-3). This function also suspends audible signals for life-threatening and serious alarms associated with conditions that are still valid for one minute. There are two ways to silence alarms.

Local Alarm Pause	• Silences active alarms for all local patients at the Infinity CentralStation or 1-minute.
Bed Alarm Pause	• Silences active alarms for an *individual* bedside patient at the Infinity CentralStation **and** at the bedside monitor for 1-minute, when the Bed Silence function is enabled at the Infinity CentralStation (page 3-3). • Silences alarms for an *individual* local telemetry patient.

NOTE:

- The *Alarm Pause* function also deactivates one-time alarms. The **Alarm Pause** button does not remain selected if it has deactivated a one-time alarm. Also, you cannot deactivate the *Alarm Pause* state by clicking on the **Alarm Pause** button again.
- If a new alarm occurs while an alarm is silenced, the Infinity CentralStation announces the new alarm. Silencing the new alarm resets the timer for all previously silenced alarms for another minute.

After the *Alarm Pause* period expires, the alarm tone resumes if the alarm condition still exists. Visual alarm indicators are also reactivated.

Silencing Local Alarms

To silence *all* active local alarms (telemetry, bedside, and MIB alarms) at the Infinity CentralStation for one minute:

- Click on **Alarm Pause** in the Main Screen menu bar, ***or***
- Press the **F1** fixed key.

A local Alarm Silence has the following consequences:

- The alarm tone stops for all active alarms at the Infinity CentralStation for one minute.
- The affected parameter area continues to flash in the color of the highest grade alarm.
- For latched alarms all audible and visual signals are removed.
- Alarm messages and the **Bed Silence** icon remain displayed.

- The orange ventilator MIB Alarm Tone icon remains displayed (for an MIB alarm).
- The **Alarm Pause** button remains selected.

After the Alarm Silence period expires, the alarm tone resumes if the alarm condition is still valid.

In contrast to a local Alarm Silence, which silences **all** active alarms at the Infinity CentralStation only, a Bed Silence silences all alarms for an individual patient at the Infinity CentralStation and for bedside patients at the bedside monitor.

From Main Screen

- Click on the yellow **Bed Silence** icon which appears during an alarm in the patient's waveform channel. If the icon appears ghosted for a bedside patient, the required Bed Silence function has not yet been enabled at the Infinity CentralStation (page 3-3) or the patient is outside the monitoring unit in which case you cannot silence the alarm.
- Click on the orange alarm tone icon located in the lower right hand corner of the waveform channel to silence ventilator and MIB alarm tones.

From Bed View

- Click on **Bed Silence** button in the Bed View menu bar.

NOTE: You cannot silence MIB ventilator alarms in Bed View. The **Bed Silence** button appears ghosted.

Silencing a bedside alarm has the following consequences:

- silences all active alarms for an *individual* bedside patient at the bedside monitor **and** at the Infinity CentralStation. This function is only available for bedside patients within the monitoring unit of the Infinity CentralStation server whose Bed Silence function is enabled (page 3-3).
- silences all active alarms for an individual local telemetry patient at the Infinity CentralStation.
- freezes the visual alarm indicators in the color of the highest grade active alarm.

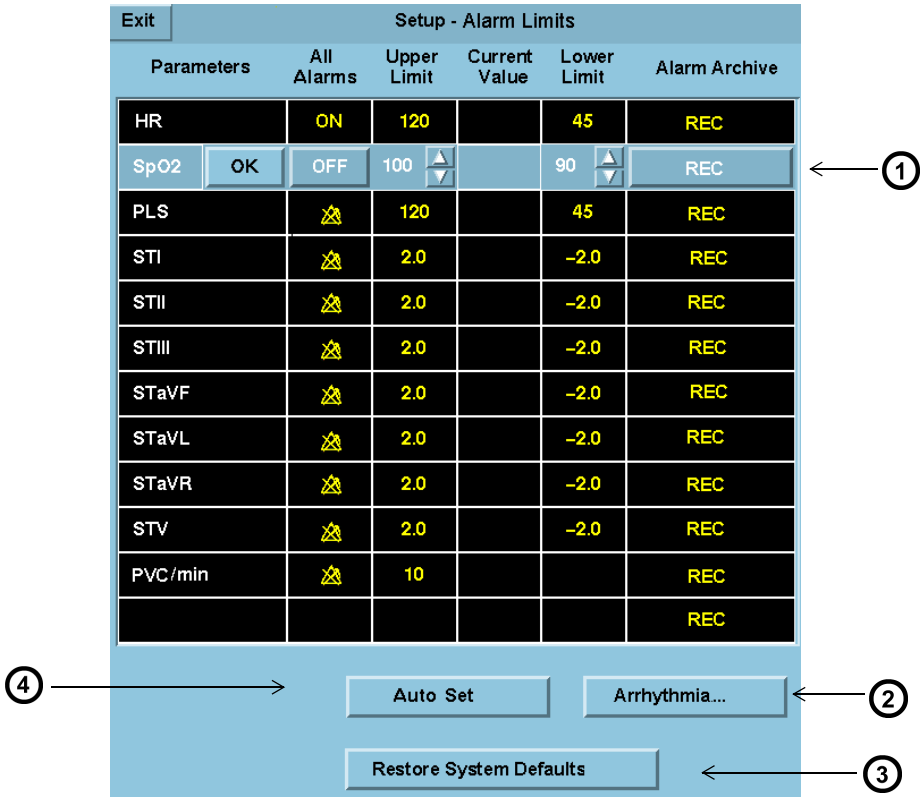
After the *Alarm Pause* period expires, the alarm tone resumes if the alarm condition is still valid. Also, the visual alarm indication is reactivated.

NOTE: Bed Silence does not affect the *Alarm Pause* state of other patients or any other local alarms that may be present at the Infinity CentralStation. It only silences the alarms of the selected patient.

Configuring a Patient's Alarm Setup

The **Setup - Alarm Limits** screen appearance varies for telemetry patient screens depending on whether the patient is admitted to Event Disclosure. To adjust alarm tone see page 3-3.

Setup - Alarm Limits Screen Illustration



1	Parameter row in *Configuration* mode
2	Opens Arrhythmia Setup screen
3	Restores system default settings (only available on telemetry patient screen)
4	Resets alarm limits to automatically calculated values (page 11-12)

Opening the Alarm Limits Setup Screen

1. Open the patient's Bed View screen.
2. Click on **Setup** in the Bed View menu bar.
3. Click on **Alarm Limits...**

Pausing Alarms

Telemetry Patient

1. Open the patient's Bed View screen.
2. Click on **Alarm Pause** in the Bed View menu bar.

NOTE: If the **Alarm Pause** button is ghosted, remote control is not enabled for the remote patient.

After you click on **Alarm Pause**, all current *Active* alarms clear and additional alarm events are suppressed for a predefined time (page 4-3). During the *Alarm Pause* time period, the banner ALARM PAUSE and time remaining for the pause displays.

Bedside Patient

1. Open patient's **Alarm Limits Setup** screen (page 11-11).
2. Click on the parameter whose alarm you wish to turn on/off. The parameter row changes to *Configuration Mode.*
3. Set the **On/Off** toggle button in the **All Alarms** column.
4. Click on **OK**.
5. Repeat steps 2 through 4 for additional parameter alarms.

NOTE: When a parameter alarm is *OFF*, all parameter settings in the table row display in yellow and a crossed bell icon appears in the *All Alarms* column.

Changing a Parameter's Alarm Limits

1. Open patient's **Alarm Limits Setup** screen (page 11-11).
2. Click on the parameter whose alarm limits you wish to change. The parameter row changes to *Configuration Mode.*

3. Click on the up/down arrows in the **Upper Limit** and **Lower Limit** columns to set limits.
4. Click on **OK**.
5. Repeat steps 2 through 4 for each parameter.

Alarm Limit Ranges for Telemetry Patients

Parameter	Patient Category	Upper Limit Range	Default	Lower limit range	Default
HR	Adult	20 – 300 bpm	120 bpm	15 – 295 bpm	45 bpm
	Pediatric	50 – 150 bpm	150 bpm	50 – 150 bpm	50 bpm
SpO_2	Adult	21 – 100%	100%	20 – 99%	90%
	Pediatric				
PLS	Adult	35 – 250 bpm	120 bpm	30 – 245 bpm	45 bpm
	Pediatric	50 – 150 bpm	150 bpm	50 – 150 bpm	50 bpm
ST	Adult	-1.49 – +1.5 mV	+2.0 mV	-1.5 – +1.49 mV	-2.0 mV
	Pediatric	-14.9 – +15.0 mm	20.0 mm	-15 – +14.9 mm	-20.0 mm
PVC/min	Adult	1 – 60	10		
	Pediatric				

Alarm Limit Ranges for Bedside Patients

Refer to the bedside monitor ***Instructions for Use***.

Automatic Alarm Limits Selection (Auto Set)

Parameter	Upper Limit	Lower Limit
SpO_2	105% of current value	95% of current value
PVC/min	N/A	N/A
HR, PLS	125% of current value	80% of current value
ST	Current value *plus* absolute value of upper alarm limit default setting	Current value *minus* absolute value of lower alarm limit default setting

NOTE: If there is no current value for the parameter, the alarm limits do not change.

Initiating an AutoSet

As soon as you click on **Auto Set**, the alarm limits for all monitored parameters are replaced. There is no confirmation process.

1. Open patient's **Alarm Limits Setup** screen (page 11-11).
2. Click on **Auto Set**.

NOTE: If a parameter value is outside the limit range during the **Auto Set**, alarm limits are not changed for that parameter.

The automatically calculated alarm limits can be manually replaced at any time (page 11-11*)*.

Turning Alarm Recordings ON/OFF

To configure timed recordings, see page 3-5.

1. Open patient's **Alarm Limits Setup** screen (page 11-11).
2. Click on the table row of the parameter whose alarm recording function you wish to change. The parameter row changes to *Configuration Mode.*
3. If the last column heading is '**Record**', select **ON** or **OFF** by clicking on the toggle button If the last column heading is '**Alarm Archive**, click on the desired selection.
4. Click on **OK**.
5. Repeat steps 2 through 4 for each parameter.

Special Conditions

What happens if...	Effect on alarm recording function
an alarm is re-activated (e.g., an alarm condition is valid beyond the *Alarm Silence* state)	A new alarm recording is *not* generated.
an alarm is silenced during an alarm recording or pending recording	All alarm -progress and pending recordings are printed completely.
a parameter's alarm function is turned off	Alarm recording is still generated *provided* the alarm recording function is turned on.
an *alarm waveform* is activated in the Telemetry Recording Setup screen (page 4-10) [1]	The waveform associated with the alarm parameter is printed in the bottom channel of the strip recording (instead of the waveform assigned to that channel).

[1] This function only pertains to telemetry patients.

Turning Event Storage On/Off

When a parameter's storage and alarm functions are turned on, waveforms are stored automatically at the bedside for each validated alarm condition.

1. Open patient's **Alarm Limits Setup** screen (page 11-11).
2. Click on the table row of the parameter whose alarm recording function you wish to set up. The parameter row changes to *Configuration* mode.
3. Click on the arrow buttons in the **Alarm Archive** column and scroll to **STORE**.
4. Click on the **OK** button.
5. Repeat steps 2 through 4 for each parameter.

Special Conditions

What happens if...	Effect on alarm storage function
an alarm is reactivated (e.g., when alarm condition is valid beyond the Alarm Silence state)	A new alarm waveform is **not** stored.
the *alarm waveform* is activated in the Telemetry Recording Setup menu[1]	The waveform associated with the alarm parameter is stored in the bottom channel (instead of the waveform assigned to that channel).
[1] This function only pertains to telemetry patients.	

Alarm Messages

The Infinity CentralStation displays device- or parameter-specific alarm messages. For description of these messages see the following references.

Parameter/Device	Reference
Infinity TeleSmart	Chapter 2
Arrhythmia	Chapter 8
ECG	
MicrO_2	Chapter 9
ST	Chapter 10
Ventilator/MIB devices	Chapter 15

12 Recordings / Reports

This chapter describes the various types of recordings and reports that can be generated at the Infinity CentralStation.

Overview

WARNING: If you require a diagnostic quality recording you must use a Rest ECG Report (page 16-8).

From the Infinity CentralStation you can request several types of recordings/reports on the following recorders and printers:

- R 50/R 50-N recorders on the network
- An optional *local* laser printer connected to the Infinity CentralStation
- A *network* laser printer

NOTE:

- All Telemetry ECG recordings and reports are filtered at a bandwidth of 0.5 - 40 Hz. For the filtering bandwidth of a bedside patient's ECG recording/report, see the bedside monitor Instructions for Use.
- A Print Screen or report request is executed on a local or network laser printer, depending on the selected printer on the Infinity CentralStation **Configure Central** screen (page 16-7).

When you request a recording for a *bedside patient* at the Infinity CentralStation, the request is sent back to the bedside monitor for printing on a recorder assigned at that monitor. For telemetry patients, recordings are printed at the recorder assigned to the local Infinity CentralStation (page 3-5).

If an assigned recorder is unavailable at the time of a recording request, the request (or recorded data) is stored and executed as soon as the recorder becomes available.

If the Full/Event Disclosure and/or VentCentral options are enabled, you can also print a variety of reports on a laser printer.

Status messages in the Main Screen status area indicate when a request is accepted, canceled, or rejected. See page 5-14 for a list of Status messages.

Processing of Strip Recordings

A recording request can generate an *active* or *pending recording*.

Active Recordings

If a recorder is available and no pending recordings of higher priority exist, the recording begins printing immediately.

If a recording is interrupted and another recorder is available, the complete recording is rerouted and printed at the available recorder. If no recorder is available, the recording or request becomes a *pending recording* and is added to the top of the *pending recording* list.

Pending Recordings

If no recorder is available to process a print request, the data or recording request is stored until it can be printed.

> **NOTE:** The actual data of a *timed* recording is stored, then printed. For a *continuous* recording only the request is stored; the data is that which is current at the actual print time.

Pending recordings are stored on a first-in, first-out basis. As soon as the buffer is full, the oldest request is deleted. The buffer can store the following number of recordings for each patient:

- two manually requested *timed* recordings
- one *continuous* recording
- one automatic recording (alarm or event recording)

Requesting a Remote Recording

Other central stations or bedside monitors within the same monitoring unit can request recordings of local patients. These requests use the recording attributes of the remote device.

Recorder Setup

The R 50 and R 50-N recorders have two buttons:

- The **mm/s** button on the recorder's front panel (**Alternate Speed** on older recorders)
  The **Alternate Speed** button allows you to change the recording speed while a recording is in progress. The recorder stops briefly and then restarts automatically at the new recording speed.
- The **Stop** button stops a recording in progress.

Replacing the Recorder Paper

1. Open the paper door and remove the empty paper roll and any paper remaining in the printing mechanism.
2. Place a new paper roll with printed side facing up into the spool holder. Unroll a few inches of paper from the bottom.
3. Align the paper roll with the paper guides, and close the door. (If not aligned properly, the paper may jam.)
4. Generate a *timed* recording to verify that the recorder is connected properly, and the paper is loaded correctly.

Setting up a Recording

For general recording setup attributes, see page 3-5. For telemetry-specific recording setup information see page 4-10.

Laser Printers

A laser printer can print Infinity CentralStation screens and reports. Refer to the manufacturer's operating instructions for specific information regarding the use of your particular type of laser printer.

Recording Types

Recording Type	Priority	Description	Alarm recording override
Continuous recording	1	A strip recording that runs until interrupted manually (generated from Infinity TeleSmart, or Infinity CentralStation).	A continuous recording request will cancel any alarm recording in progress.
Alarm recording	2	A timed recording generated automatically in response to a limit violation for a parameter whose recording function is enabled.	• If a second alarm recording is requested within 5 seconds of the first, the second request is ignored if the alarm grade is an equal or a lower alarm grade (e.g. if the first is a life-threatening and the second is a serious alarm). • If the second alarm recording is a higher alarm grade, the first recording is canceled and the second is printed. • If the second request occurs 5 seconds after the first, both recordings are either printed or are stored and printed later.
Timed recording (Manual)	3	A strip recording that consists of delay and real-time data and runs for a specified time (generated from Infinity TeleSmart or Infinity CentralStation).	
Event recording	4	A timed recording that is generated automatically in response to an occurrence of an arrhythmia event whose recording function is enabled.	

Timed Recordings

Timed recordings are strip recordings of a specified duration. They contain *delay* data originating *before* the recording is initiated and *real-time* data acquired *after* the recording started.

> **NOTE:** If the patient was monitored for less time than the specified *delay*, the amount of delay data is adjusted accordingly. If no delay data is available at the recording request time, that part of the printed waveform is blank.

Timed recordings consist of up to two waveforms. For a waveform to be printed, it must first be displayed. Pressure waveforms are recorded in either *Standard* or *Pressure Overlap* mode, depending on their configuration at the bedside monitor (see Instructions for Use for specific bedside monitor). The size of the printed waveforms is identical to the screen display.

Manual vs. Automatic Recordings

Timed recordings are either requested manually or generated automatically when a parameter or arrhythmia event occurs whose recording function is enabled. For detailed information on how to enable/disable an event's/parameter's automatic recording function, see page 8-5 and page 11-13.

An alarm strip recording is the same as one manually requested except that it has a different *recording type* in the header.

Telemetry Recordings

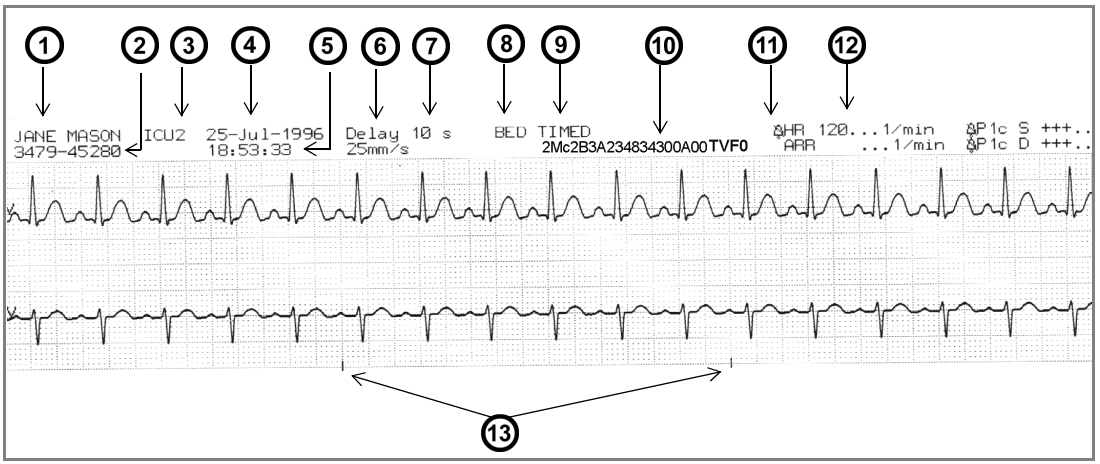
All alarm-generated telemetry strip recordings ignore *Manual* timed settings and use the following fixed settings.

- Duration: 20 seconds
- Delay: 10 seconds
- Speed: 25 mm/sec

Header Information

The header along the top of the recording contains a diagnostic code, information about the patient, the recorder settings, the monitor, and the monitored parameters. It also shows the values and *Alarm Silence* indicators that are valid at the time of the recording request.

Timed recording with header



1	Patient Name	**8**	Recorder label
2	Patient ID	**9**	Recording type: CENTRAL TIMED, CENTRAL CONT., alarm string for alarm recording, arrhythmia label for event recording
3	Bed Label	**10**	Diagnostic Code (page 12-9)
4	Date of recording request	**11**	Alarm Silence indicator
5	Time the recording was printed	**12**	Parameter value at the time of the request
6	Selected delay	**13**	3-Second interval markers
7	Selected recording speed		

Diagnostic Code

Digit	Description	Possible Values	Definition
1	Lead processed for VF and pacer pulse rejection	X 1 2 3 S T U V + a b c d e f A B C D E F	None I II III aVR aVL aVF V V+ V1 V2 V3 V4 V5 V6 dV1 dV2 dV3 dV4 dV5 dV6
2	ECG filter	M D E	Monitor Off ESU
3	Pacemaker detection	C c	On - Artifact Rejection <Medium> Off - Artifact Rejection <Medium>
4	QRS/ARR processing	2 1	ECG1 & ECG2 ECG1
5	Patient category/QRS classification	<Space> 1 2 B n	Adult, neither lead completed learning Adult, ECG1 lead completed learning Adult, ECG2 lead completed learning Adult, ECG1&2 lead completed learning Neonate
6	Leads available for processing	0 1 2 3	No valid lead to process ECG1 is valid to process ECG2 is valid to process ECG1 & ECG2 are valid to process
7	VT count	5-F	Value = VT count (where A-F corresponds to 10-15)
8	VT rate	0-A	Value = (VT rate - 100)/10 (where A corresponds to 10)
9	SVT count	3-A	value = SVT count (where A corresponds to 10)
10	SVT rate	0-A	value = (SVT rate - 100)/10 (where A corresponds to 10)

Digit	Description	Possible Values	Definition
11	TACH count	5-F	value = TACH count (where A-F corresponds to 10-15)
12	TACH rate	0-A	value = (TACH rate - 100)/10 (where A corresponds to 10)
13	BRDY rate	0-F	value = (BRDY rate - 30)/5 (where A-F corresponds to 10-15)
14	PAUS rate	0-5	value = (PAUS rate - 1.0)/0.5 (where A-F corresponds to 10-15)
15	HR source	E P S	ECG is HR source IBP (AP) is HR source SPO2 is HR source
16	RESP mode	O M A	RESP monitoring off Manual Automatic
17	RESP size	1-K	value = (RESP size)/5 (where A-K corresponds to 10-20)
18	Minutes since breath detector initialization	00-99	Number of minutes that have elapsed since the breath detector was initialized. (where 99 corresponds to ≥ 99 minutes)
20	Not used	<Space>	
21	Monitor model	A B I J K T	SC 9000 Delta/Delta XL/Kappa/GammaX XL SC 6000 Gamma/Gamma XL/Vista Alpha Infinity Telemetry
22 - 26	Software version	xxxxx (ASCII)	First five characters of base software (for example, VA1-1)

Continuous Recordings

Continuous recordings run until stopped manually and can only be generated for an individual patient. They consist of up to two waveforms which are printed the same size as those displayed.

Pressure waveforms are recorded in either *Standard* or *Overlapped* mode, depending on selected bedside monitor setting.

Header Information

Continuous recordings contain a header, which is identical to that of timed recordings, except that the recording type data is different and there is no data for DELAY TIME.

Reports

Depending on the activated options and configuration of your Infinity CentralStation, the following reports can be generated.

- Simultaneous ECG Report
- Full Disclosure (Strip, Hour, 24-Hour, Shift, Selected Strip, Graphical Trend, Patient Status, and Caliper Reports)
- Event Disclosure (Strip, Graphical Trend, Shift, and Selected Events Reports)
- VentCentral Reports

Reports are processed and printed even if you leave the respective application. Pacer marks, Pacemaker identifiers, and time change indicators are printed where applicable.

All printed reports include the following:

Header	Footer
Report Title	COMMENTS area for handwritten comments
Patient Name	Page Number and Total Number of Pages (e.g. Page 1 of 3)
Patient ID	Date area (for dating signature)
Date of Birth	Signature area
Care Unit Label	
Bed Label	
Admit Date	
Pacer/ICD/PCD Identifier	
Report Start Time	
Report Stop Time	
Duration	

Simultaneous ECG Report

A simultaneous ECG Report for any patient monitored by the Infinity CentralStation can be printed from the patient's Bed View. The report includes three 4 x 2.5 second 25mm per second ECG waveforms for each lead (up to 12), one 10 second ECG waveform for lead II, and ST values for each lead. This is a Non-Diagnostic report and includes that caption on the printed report. To request a Simultaneous ECG Report see page 12-23.

Full Disclosure Strip Report

The Full Disclosure strip report prints the screen-displayed waveforms. A report page may contain a 2-channel strip, each twenty seconds long with data centered around the cursor time.

To request a Full Disclosure strip report, see page 12-23.

Full Disclosure Hour Report

The Hour Report consists of up to three user-selectable waveforms in a compressed format of one minute per row. There are 60 minutes of data per page. Each data channel produces one report page. Data is captured 30 minutes before cursor time.

To request this report, see page 12-23.

Full Disclosure 24 Hour Report

The 24 Hour Report is similar to the Hour Report except that it prints 24 hours of data (24 pages). The end time is the cursor time and data is collected 24 hours before that time. The report supports one waveform selection from one of three channels (Channel 1 is the default).

To request this report, see page 12-23.

Event Disclosure Strip Reports

An Event Disclosure strip report contains 20 seconds of data centered around the time of the event. It also includes event class label, time, date, and the ECG lead on which an event is detected (if applicable).

To request this report, see page 12-23.

Shift Report

You can request a 2, 4, 8, 12, or 24 hour shift report from Full or Event Disclosure. From either application the cursor time represents the report 'stop time'. The report 'start time' equals 'stop time' minus the selected report length.

The shift report has four sections:

Shift Report Section	Description / Contents	Maximum pages
Shift Report Cover	• Header • Three waveform channels (10 seconds each) • Comments/signature/date field • Footer	One
Patient Status	• Header • Hr (calculated from trend data) • Bradycardia • Pacemaker • Ventricular and Supraventricular Ectopics • S-T Deviation • Caliper Results • Latest Alarm Event (within alarm categories) • Footer	One
Graphical Trends	• Header • Trend graphs • Footer	Two (6 trends/page)
Selected Events	• Header • Event strips (10 seconds each) with annotations • Footer	Three (4 events/page)

NOTE:

- You must select each event on the report. Click on the icon so that a check mark displays on the icon (page 14-10).
- You can select up to 12 events that occurred before the request time.
- The parameter values at the time of the event appear at the top of each strip.
- Event selections are saved through program resets and power losses.