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Instructions for Use

Infinity® CentralStation™

with Infinity® Telemetry System™ and with Infinity® M300™

WARNING:

For a full understanding of the performance characteristics of this device, the user should carefully read this manual before use of the device.

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with Infinity® Telemetry System™

and with Infinity® M300™

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Manufactured By:

Draeger Medical Systems, Inc.
3135 Quarry Road
Telford, PA 18969

Infinity CentralStation
with Infinity Telemetry System
and Infinity M300
Instructions for Use
Software VF8

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CE 0123 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).

Distributed By:

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Moislinger Alee 53-55
D-23558 Lübeck
Germany

The Infinity Telemetry 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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Intended Use

The Infinity CentralStation is indicated for use by healthcare professionals for the purposes of centralized monitoring within the hospital or clinical environment of adult, pediatric and neonatal patient monitor data on the Infinity patient monitoring network. The Infinity CentralStation is intended to measure and produce visual and audible alarms for one or more physiological parameters. The Infinity CentralStation with Rest ECG can provide interpretive diagnostic statements and reports for adults and pediatric patients when connected to a monitor with ECG monitoring capability.

Infinity M300 Telemetry System is indicated to be used by healthcare professionals for the purpose of monitoring ECG and pulse oximetry parameters of ambulatory and non-ambulatory adult and pediatric patients in healthcare type facilities. Infinity M300 is intended to operate with the Infinity CentralStation using wireless communication over the Infinity patient monitoring network.

Infinity Telemetry System is indicated for use in an environment where patient care is provided by healthcare professionals (physicians, nurses, technicians) when the professional determines that a device is required to measure and produce visual and audible alarms for adult and pediatric patient populations. Infinity Telemetry System transmits via radiofrequency physiological signals for display and/or measurement at the Infinity CentralStation. The Infinity CentralStation Telemetry System with TruST is intended for 12-Lead ECG monitoring with a reduced set of electrodes. Reconstructed leads are intended for real-time assessment of ST segment changes.

CAUTION! *All Dräger hardware and screen shots shown in this manual are examples only. Actual product or screens may differ slightly.*

NOTE:

- The Infinity CentralStation, Infinity Telemetry receiver, and Infinity M300 central charger are not intended for use in the patient vicinity.
- Federal Law in the U.S. restricts this device to sale by, or on the order of a physician.
- This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
  (1) This device may not cause harmful interference.
  (2) This device must accept any interference received, including interference that may cause undesired operation.
- Note for Industry Canada. Operation is subject to the following two conditions:
  (1) This device may not cause harmful interference.
  (2) This device must accept any interference received, including interference that may cause undesired operation.

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!

- **Do not use software not approved by Dräger on the CPU of the Infinity CentralStation, otherwise the correct functioning of the Infinity Network may be compromised.**
- **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.**
- **Only equipment tested and approved by Dräger may be connected to the Infinity Network, otherwise the correct functioning of the Infinity Network may be compromised.**

Documentation Features

Warnings, Cautions, and Notes

Definitions

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

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.*

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

Applicability

For applicability of discontinued product names, (e.g. Infinity SC 7000, Infinity SC 8000, Infinity SC 9000XL) see the current Infinity Network Software Compatibility Chart, included with this Instructions for Use in product packaging.

Safety Considerations

CAUTION! *Dräger recommends the use of an Uninterruptible Power Manager in conjunction with the Infinity CentralStation at all times. Without an Uniterruptible Power Manager power losses may cause the Infinity CentralStation to reboot and electrical anomalies may cause unwanted operation.*

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 properly trained 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.**
- **Take all precautions against electric shock due to exposed electrical connections, spilled fluids, defibrillation, etc. or injury to patient and damage to equipment may occur.**

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna,
Increase the separation between the equipment and receiver,
Connect the equipment into an outlet on a different circuit from that to which the receiver is connected,
Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Infinity Telemetry Precautions

WARNING!

- Under NO circumstances should the Infinity telemetry transmitter be used without the battery cover securely in place.
- Do not use the Infinity telemetry transmitters near equipment that produces static or gradient magnetic fields.
- Do not use Infinity telemetry transmitters 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 your local Dräger representative for a list of Dräger-approved equipment.

Infinity M300 Precautions

WARNING!

- Do not use the Infinity M300 near equipment that produces static or gradient magnetic fields.
- Do not use Infinity M300 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 your local Dräger representative for a list of Dräger-approved equipment.
- The Infinity M300 is protected against high-frequency interference from electrosurgery units and discharges from defibrillators, as well as against 50- and 60-Hertz power line interference.

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 (18-7).

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 Association for the Advancement of Medical Instrumentation (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.**

NOTE:

- The Infinity M300 device contains a magnet which generates an extremely low static magnetic field of approximately 2 gauss at 12.7 mm (0.5 in.) distance. Please refer to the manufacturer's Instructions for Use of any third party medical devices in the patient vicinity for compatibility.
- The Infinity Telemetry transmitter device contains a magnet which generates an extremely low static magnetic field of approximately 11 gauss at 12.7 mm (0.5 in.) distance. Please refer to the manufacturer's Instructions for Use of any third party medical devices in the patient vicinity for compatibility.

For Patients Without a Pacemaker:

- Disable pacer detection. (See page 5-3.)
- Be aware that transcutaneous electrical nerve stimulation (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 (contact your local Dräger representative), otherwise the correct functioning of the product may be compromised.*

QRS Processing Precautions

WARNING! High amplitude (>0.2mV) P- and T-waves of long duration may register as integral QRS complexes. So 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.

Vital Connection Cable Precautions

CAUTION! *Do not allow fluids to come in contact with the Vital Connection Cable or its transmitter interface. If fluids are accidentally spilled on equipment, remove affected device from service as soon as possible. Contact the Hospital Biomedical Engineering Dept. to ensure that there is no compromise in electrical safety.*

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. Be sure that devices are used and serviced in accordance with Dräger Service Documentation: "Preventative Maintenance Procedure" and "Preventative Maintenance Schedule".

A full technical description of the Infinity Network and Service Documentation: "Preventative Maintenance Procedure" and "Preventative Maintenance Schedule" is available from your local Dräger representative.

An effective maintenance schedule should be established for your monitoring equipment and reusable supplies. This should include inspection as well as general cleaning on a regular basis. The maintenance schedule must comply with the policies of your hospital infection control department or biomedical department. Check with your biomedical maintenance to be sure a preventative maintenance and calibration is complete.

CAUTION! *The hospital using this monitoring equipment must implement a satisfactory inspection and maintenance schedule equal to or more frequent than those in Dräger's "Preventative Maintenance Procedure" and "Preventative Maintenance Schedule" or equipment failure and possible health hazards may occur.*

Site of Operation

The site of operation of all equipment must meet environmental requirements. For details, see Appendix B.

WARNING! Do not operate the Infinity M300 and Infinity Telemetry, its components, or its remote displays in the presence of flammable gases.

The Infinity CentralStation, Telemetry System and Infinity M300 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 M300 and the Infinity Telemetry System have 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 M300 and the Infinity Telemetry System are designed to comply with the EMI/EMC standard, EN60601-1-2. For further details see B-18.

Reducing EMI

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

- Use only Dräger-approved, accessories, otherwise the correct functioning of the device may be compromised. Contact your local Dräger representative for a list of approved 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.
- 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 trained 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	Protected against the effects of immersion
IPX4	Protected against splashing water
IPX1	Protected against dripping water
IPX0	Non-protected against water
	Defibrillator-proof equipment, Type CF
IC: 267I-ABTU4	Canadian certification (The term “IC:” before the radio certification number only signifies that Industry Canada technical specifications were met.)
	Observe WEEE (Waste Electrical and Electronic Equipment) disposal requirements (ii).
	Complies with the European Medical Device Directive 93/42/EEC for medical devices
	Danger: Risk of explosion if used in presence of flammable anesthetics

Tested to comply with FCC standards

USB Connector

1 About the Infinity CentralStation

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General Description/Product Option & Accessory Information

WARNING!

- **Loss of communication between the Infinity CentralStation and the bedside monitor is possible. Dräger recommends using the bedside monitor for primary diagnosis and the Infinity CentralStation for patient viewing.**
- **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.**
- **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.**

MS18500 Infinity CentralStation

MS18500 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 patients on the Infinity Network. The Infinity CentralStation displays waveforms, parameters, and alarm status of Infinity bedside monitors, Infinity M300, Infinity Telemetry, and ventilators (via an etCO2 pod or an MIB interface) for up to 16 patients on a single screen or up to 32 patients using two screens. The standard MS18500 Infinity CentralStation includes the following features:

- Central Processing Unit (CPU)
- Configurable Main Screen display
- Audio alarm annunciation
- 2-hour storage of 4-waveform Full Disclosure
- 2-hour storage of up to 1000 events per patient
- Export of waveforms
- 24-hour graphical and tabular trends
- Accessory Kit
- Instructions for Use (paper and online .PDF in application)
- one or two PC displays, or touch screens
- external speakers,

- mouse and keyboard
- optional remote displays
- 2-channel R50N recorder
- network laser printer
- uninterruptible power management
- Infinity Network components

Options for the MS18500 Infinity CentralStation include:

- Second video
- RAID 1 for storage disk
- CPU mounting Package
- Patient licenses to support 32-patients
- 28-, 48-, or 72-hour Full and Event Disclosure
- Expanded Full Disclosure
- VentCentral™
- Patient Census
- Rest ECG Analysis
- Infinity Telemetry
- Infinity M300
- Telemetry ST Analysis
- Telemetry TruST 12-lead
- Infinity Paging Interface for alarm notification via Infinity Gateway Suite
- Infinity Symphony for web-based review of stored data
- Infinity WebViewer and Infinity Pocket WinView for near real-time review of patient data
- HL7 bi-directional interfacing via Infinity Gateway Suite

MS18501 Infinity M300

MS18501 Infinity M300 is a patient worn transceiver that uses the Infinity CentralStation as the primary patient monitoring display and primary alarm source. The Infinity M300 device includes a color display, local alarm alerts and rechargeable internal battery. Infinity M300 use is restricted to one patient at a time. The standard MS18501 Infinity M300 includes the following features:

- Infinity M300 patient worn device

- Infinity M300 Bedside Charger
- Infinity M300 Central Charger
- Infinity M300 programming kit
- ECG lead sets
- MS18500 Infinity CentralStation

Options for the MS18501 Infinity M300 include:

- MS18500 Infinity CentralStation options as indicated above
- Pulse Oximetry software enabled at Infinity CentralStation
- Pulse Oximetry cables and sensors
- Infinity M300 Replacement battery
- Infinity M300 disposable pouches
- Infinity M300 shower pouches
- Infinity M300 bedside clips

MS11200 Infinity Telemetry

MS11200 Infinity Telemetry is a patient worn transmitter that uses the Infinity CentralStation as the primary patient monitoring display and primary alarm source. Infinity Telemetry device includes LED lights in lightweight, water resistant package and uses disposable 9V batteries. Infinity Telemetry use is restricted to one patient at a time. The standard MS11200 Telemetry includes the following features:

- Infinity Telemetry Receiver CPU
- Infinity Telemetry Receiver Expansion Kits
- Infinity Telemetry UHF or VHF antenna components
- Infinity Telemetry Transmitters
- Infinity Telemetry programming kit
- ECG lead sets
- MS18500 Infinity CentralStation

Options for the MS11200 Infinity Telemetry include:

- MS18500 Infinity CentralStation options as indicated above
- MicrO2+ Pulse Oximeter and connection cable
- VitalConnection cable for Non-invasive Blood pressure
- SpO2 measurements
- Analog ECG cable,

- Pulse Oximetry cables and sensors
- Non-invasive Blood pressure hoses and cuffs
- 9V disposable batteries or disposable lithium ion batteries
- Infinity Telemetry disposable pouches
- Infinity Telemetry/MicrO2+ non-disposable carrying case

Infinity Network

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

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

For detailed information about the configuration, installation and operation of wireless components in the Infinity Network, contact your local Dräger representative.

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, where the Infinity CentralStation is the primary monitor.

Remote patients are patients on the Infinity network that are available to view on the Infinity CentralStation you are currently viewing, yet the Infinity CentralStation is not the primary monitor.

- *Bedside patients* - Remote control is possible only if the Bed Control and the *Bed Silence* features are enabled at the Infinity CentralStation (page 4-3) 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 5-3).

Although you can view patients outside the Infinity 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.

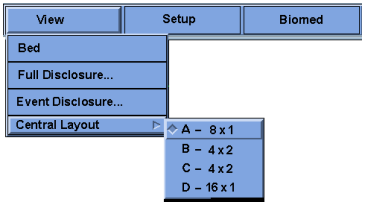
The Infinity CentralStation keyboard has the following *quick-access keys*:

- **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 assigned 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 (1 min)**, which silences alarms at the Infinity CentralStation (1 minute). • **Audio Paused (in bed view)**, 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 CentralStation ***Instructions for Use*** are available via the **Help** 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 M300

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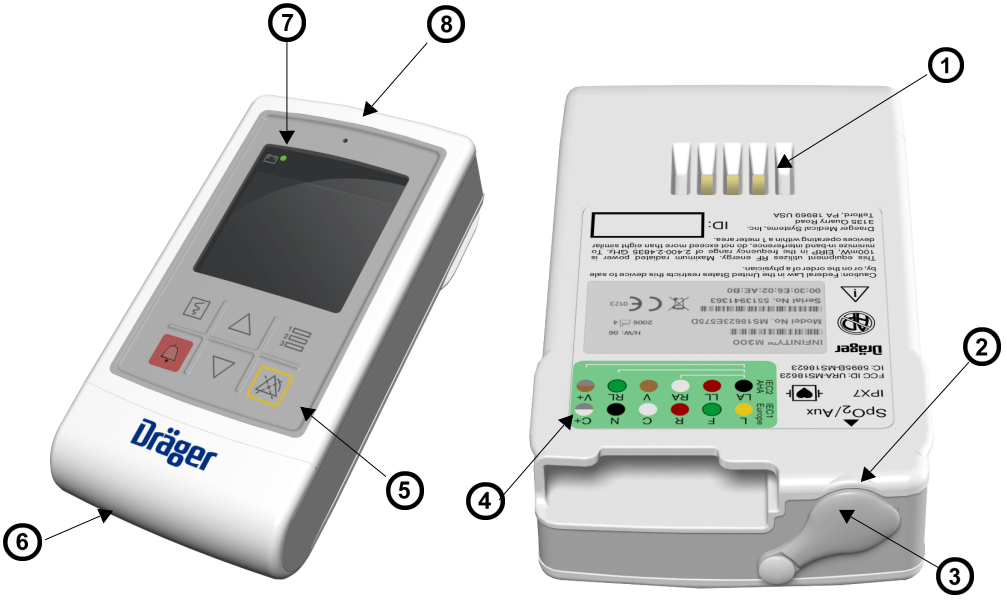
About Infinity® M300™

Infinity M300 is a patient worn device that uses the Infinity CentralStation as the primary patient monitoring display and primary alarm source. Infinity M300 use is restricted to one patient at a time.

NOTE: During installation, the Infinity CentralStation must be configured correctly to work with Infinity M300.

The Infinity M300 screen is the secondary display for:

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



1	Charger interface	**6**	Battery compartment
2	SpO2/Aux port	**7**	Battery Status LED Indicator
3	SpO2/Aux port cap	**8**	Audible alarm speaker **WARNING:** The Infinity M300 speaker is intended for use only in the patient vicinity. It is not intended for primary alarm annunciation. Use the Infinity CentralStation speaker for primary alarm annunciation.
4	Lead wire illustration		
5	Fixed keys		

User Controls

The Infinity M300 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, or • a timed recording is cancelled, or • an event is stored and is recorded at the Infinity CentralStation. NOTE: If controlling from the Infinity M300, Recording duration is fixed at 20 seconds and recording delay is fixed at 10 seconds.
NOTE: For Infinity M300 patients admitted to the Infinity CentralStation, the Infinity M300 **Record** setting (page 18-12) determines if the Infinity M300 **Record** key is enabled and how it can be used.	
	When you press the **STAFF ALERT** key, Infinity M300 sends a STAFF ALERT message to the Infinity CentralStation along with a *Serious* alarm.
NOTE: For Infinity M300 patients admitted to the Infinity CentralStation, the Infinity M300 **Staff Alert** setting (page 18-12) determines if the Infinity M300 **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 M300 monitoring screen, you can scroll through available-waveforms, or • The menu field value changes incrementally,
	When you press the **Views** key, you can: • Page through *Monitoring*, *Electrode Check, Volume (if enabled at the Infinity Central Station*, and *Demographics* screens, • Take Infinity M300 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 Paused** key for **more than 3 seconds**: • A confirmation screen displays, and if you select **Yes**, • Infinity M300 and Infinity CentralStation alarms are temporarily paused. If Alarm Paused is **ON**, pressing the **Alarm Paused** key again turns Alarm Paused **OFF**.
NOTE: For Infinity M300 patients admitted to the Infinity CentralStation, the **Alarm Paused** setting (page 18-12) determines if the Infinity M300 **Alarm Paused** key is enabled and how it can be used.	

Battery Status LED Indicator Description

Behavior	Description
Blinking green (approximately every 5 seconds)	Power ON Infinity M300 is being used away from the charger. Battery OK
Blinking amber (approximately every 5 seconds)	Power ON Infinity M300 is being used away from the charger. Low battery
Solid amber	Charging in progress (while in charger)
Solid green	Charging complete (while in charger)

Audio Alerts

If the Infinity M300 speaker is enabled (page 18-12) alarm alerts will be triggered for the following conditions.

WARNING: The Infinity M300 speaker is intended for use only in the patient vicinity. It is not intended for primary alarm annunciation. Use the Infinity CentralStation speaker for primary alarm annunciation.

Condition	Tone Description
Acknowledgement	2 brief tones
Error	1 tone
Find Device tone	alternating tone
Alarm conditions	ADV, SER, LT tones

Adjusting Alarm Tones

You can select an Infinity M300 alarm tone pattern at the Infinity CentralStation (see page 5-3). For information about setting or changing the volume of the Infinity M300 alarm, see 2-11.

Finding the Infinity M300

Infinity M300 generates a *Find Device* tone (with volume set at 100%) when you request it at the Infinity CentralStation (see page 5-13). The brief tone automatically silences.

Starting up Infinity M300

To turn on the Infinity M300, simultaneously press the up and down arrows. When you turn Infinity M300 on, a startup screen displays the current software version and possible messages. During this operation Infinity M300 also sounds a *verification* tone.

WARNING: If no verification tone sounds, do not use the device and contact the Hospital Biomedical Engineering Dept.

NOTE: The verification tone generated when Infinity M300 is turned on is a confirmation that alarm annunciation is functional.

Discontinue use of Infinity M300 and contact the Hospital Biomedical Engineering Dept. upon receiving any of the following messages:

Startup Message	Condition
High Temperature Reset	Reset due to the internal temperature exceeding the acceptable limit.
Default Patient Settings Restored	User settings have been reset to factory defaults.
Software Reset, see Diagnostic Log	Reset due to a software error.
Patient Data Erased (followed by error code)	Trend data or at least one stored event was erased.
Low Battery Reset	An error was detected with the battery.
Software Watchdog	Reset due to software error.

Infinity M300 Power

Infinity M300 operates using a rechargeable battery. A *Bedside Charger* can be used to power the device and recharge the battery during patient use. The battery runtime is shortened with continuous use of the display and speaker. The device's Battery Status LED Indicator provides indication to the battery status (see page 2-4).

CAUTION!

- *Infinity M300 Shower Pouch must be used when it is worn in the shower so that water does not get in the battery compartment.*
- *When the Infinity M300 internal battery requires replacement, please contact the Hospital Biomedical Engineering Dept.*
- *Battery replacement information is available in service documentation.*

NOTE:

- The Infinity M300 enters a deep-discharge state when it is stored for a long period of time away from either the bedside or the central chargers. To exit the deep-discharge state, place the Infinity M300 in either the Bedside or Central Charger for at least half an hour. This allows the battery to come out of the deep-discharge state.
- Recycle or dispose of batteries in accordance with the directive EC 91/156/EWG or equivalent country-specific regulation.

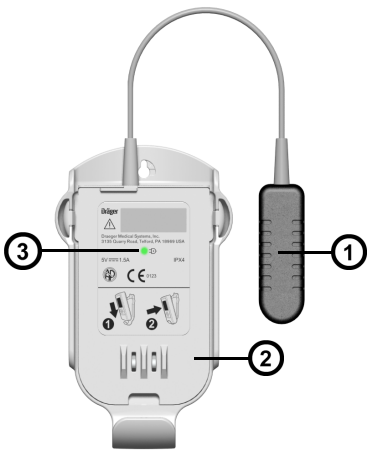
Infinity M300 Bedside Charger

WARNING:

- **For patients in a bed or chair, it is recommended that the Infinity M300 Bedside Charger be clipped to the bed linen and not be placed in a patient's pocket or pouch. Draeger Medical recommends the use of the Infinity M300 Bed Clip.**
- **Place the Infinity M300 device to avoid any possibility of:**
  - **the device falling on or injuring patient.**
  - **any accessory cables accidentally entangled around patient's neck.**

NOTE: When illuminated, the green LED on the Infinity M300 Bedside Charger indicates that the bedside charger is connected to the AC Mains voltage and is capable of charging the Infinity M300.

Infinity M300 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 Battery Status LED Indicator. When the remaining battery level is 10%, the message, *Low Battery*-displays on the Infinity CentralStation and on the Infinity M300 display. When the device is placed on the *Bedside Charger* the status message discontinues. When the device battery level is 5%, an *Advisory* alarm is generated at the

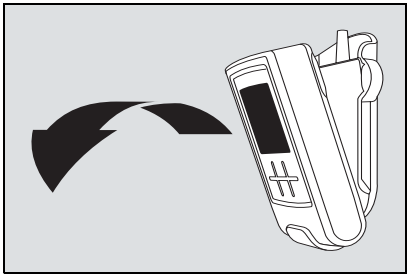


1	Infinity M300 (FRIWO® brand) power supply
2	Infinity M300 Bedside Charger
3	Green LED

Infinity CentralStation and the message, *Recharge Battery* displays on the Infinity CentralStation and on the Infinity M300 display.

When Infinity M300 is removed from the *Bedside Charger*, the green Battery Status LED indicator blinks once every 5 seconds and the battery icon shows available battery power.

Removing Infinity M300 from the *Bedside Charger*



Place your fingers over the top of the Infinity M300 device, between the back of the Infinity M300 and the *Bedside Charger*. Gently pry the top of the Infinity M300 device away from the *Bedside Charger* until the Infinity M300 is loose. Lift the Infinity M300 Device out of the charger.

Placing Infinity M300 into the *Bedside Charger*

WARNING: Remove the Lead Wire Set from Infinity M300 before placing the Infinity M300 into the Central Charger, or possible electrical shock could occur.

Place the bottom of the Infinity M300 device into the *Bedside Charger*. Gently press the top of the Infinity M300 toward the *Bedside Charger* until it snaps into place.

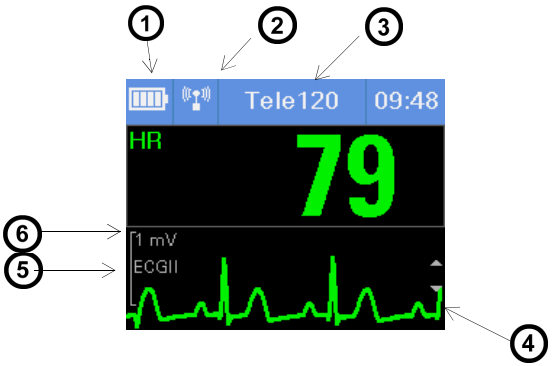
Infinity M300 Central Charger

Infinity M300 devices are stored in the *Central Charger*, which accommodates up to 10 devices. When the Infinity M300 is placed on the *Central Charger*, the battery recharges and 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.

CAUTION: *Do not use the Infinity M300 Central Charger in the patient environment (see IEC 60601-1-1), or fluids may cause damage to the equipment.*

Parameter Displays

Infinity M300 ECG Display

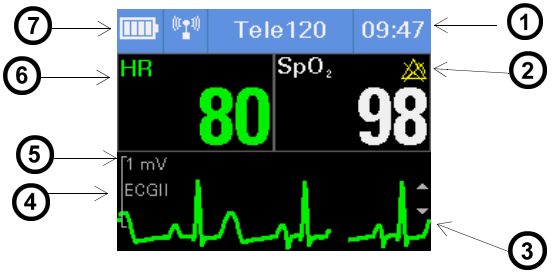


1	The **Battery Charge** icon appears in the Message Area and illustrates how much battery power is available.	**4**	Waveform If pacer detection is enabled, pacer spikes are indicated on the waveform.
2	Wireless signal strength icon appears in the Message Area	**5**	Lead label ECG default is Lead II
3	Bed Label appears in the Message Area	**6**	Scale next to the waveform is configured at the Infinity CentralStation.

Waveform Area

The waveform scale at the left of the waveform is configured at the Infinity CentralStation. To scroll through available leads use the Infinity M300 **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)	**5**	Scale next to the waveform is configured at the Infinity CentralStation.
2	When alarms are **OFF** the **Alarms OFF** Icon appears.	**6**	HR Parameter Box on the left and SPO2 parameter box on the right.
3	Waveform	**7**	Battery Charge Icon
4	Lead being displayed		

Other Infinity M300 Displays

Start Up Screen

The **Start Up** screen displays while the Infinity M300 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 M300, use the ADT screen at the Infinity CentralStation.

Once **Start Up** is completed, the **New Patient** screen will display if a previous patient's data are still in the Infinity M300 memory. If you want to admit a new patient, you must select **Yes** to confirm that the former patient data is erased from memory.

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

WARNING: When you admit a patient to the Infinity M300, make sure that the Alarm Limits and Arrhythmia Settings are appropriate for the patient. Upon admit some predefined default settings may not be applied.

NOTE: You may also discharge a patient from Infinity M300 using the ADT screen at the Infinity CentralStation or placing Infinity M300 on the *Central Charger*.

When you discharge a patient:

- Patient data is erased in Infinity M300 memory.
- The patient is discharged from the Infinity CentralStation.

When an Infinity M300 patient is discharged from the Infinity Central Station (see page 9-7), the *Discharge* banner covers the Infinity M300 screen along with the message, *Press*  *to exit*. To exit the Infinity M300 **Discharge** screen press the **Views** key.

Transfer Screen

If you want to transfer patient information from Infinity M300 you must put the Infinity M300 in Standby mode and then initiate the transfer at the destination Infinity CentralStation (page 9-8).

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

Standby Screen

Standby mode must be initiated at the Infinity CentralStation. When a telemetry patient's monitoring is in *Standby* mode, the *Standby* banner displays on the Infinity M300 screen along with the message, *Press*  *to exit*.

When *Standby* mode is selected at the Infinity CentralStation, the Infinity M300:

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

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.**

To return the Infinity M300 to *Monitoring* mode, press the Infinity M300 **Views** key.

Demographics Screen

The Infinity M300 **Demographics** screen shows patient demographic information. All patient demographic information is received from the Infinity CentralStation and may include:

Patient name
Primary ID#
Bed Label
Care Unit
Patient Category

Volume Setup Screen

If the Infinity M300 **Speaker** is enabled at the Infinity CentralStation (see page 18-12) you can access the Infinity M300 **Volume Setup** screen and change the device alarm volume. To access the Infinity M300 **Volume Setup** screen press the **Views** key.

WARNING: The Infinity M300 speaker is intended for use only in the patient vicinity. It is not intended for primary alarm annunciation. Use the Infinity CentralStation speaker for primary alarm annunciation.

To scroll through the available volume settings, press the Infinity M300 **Up Arrow** or **Down Arrow** key. Available selections are: **Off**, **10%**, **20%**, **30%**, **40%**, **50%**, **60%**, **70%**, **80%**, **90%**, and **100%**.

WARNING: Set alarm volume in accordance with ambient sound level in the room so that alarm volume is audible.

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 that electrode 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.

Infinity M300 Monitoring System Alarms

CAUTION: *Upon startup and after a patient discharge, the following Infinity M300 alarms are not active until a numeric value has been received for that parameter:*

ECG Leads Off, ECG Artifact, <ST> Leads Off, Cannot Analyze ST, SpO2 Unplugged, SpO2 Transparent, SpO2 Light Blocked, SpO2 Regulation Error, SpO2 Artifact, SpO2 Weak Signal, SpO2 No Measurement

Alarm Grade Display

Infinity M300 Monitoring System 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 M300 sounds an associated tone.

Alarm Paused

WARNING: No alarms will be announced while Infinity M300 is in *Alarm Paused* mode.

NOTE: The **Alarm Paused** key on the Infinity M300 can only be disabled at the Infinity CentralStation.

To initiate the *Alarm Paused*, press and hold the **Alarm Paused** key for 3 seconds. A confirmation screen displays. If **YES** is selected (if confirmed) an *Alarm Paused* message displays in the Infinity M300 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 13.

Trends

You can review and set up the Trends for an Infinity M300 patient at the Infinity CentralStation (see page 15-2). Although Infinity M300 does not 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, or
- update Infinity M300 software.

Setting up Infinity M300 at the Infinity CentralStation

Infinity M300 Setup Screens

If you want to . . .	Refer to . . .	Location
Assign Infinity M300 IDs and IP Addresses	Biomed **Telemetry Devices** screen	page 18-11
Configure Infinity M300 System Defaults	Biomed **M300 Setup** screen	page 18-11
Configure Infinity M300 monitoring for an individual patient	Bed View Telemetry setup screens	page 8-12
Assign an Infinity M300 to a patient	**Admit** screen	page 9-2
Set system defaults for Infinity CentralStation telemetry patient windows	Telemetry **System Setup** screen	page 5-3
View Infinity M300 status information and configure device keys	**M300 Setup** screen	page 18-11

Infinity M300 Setup

The **M300 Setup** screen is accessible for local Infinity M300 patients and displays information received from the Infinity M300. It provides Infinity M300 status information and permits configuration functions.

Selection	Description	Settings
Telemetry ID	Displays Infinity M300 identification number	
Battery Level Bar Graph	Graphically displays remaining battery time The Infinity M300 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 M300 and can be updated dynamically.	
Alarm Paused[1]	Determines if Infinity M300 *Alarm Pause* key is enabled Alarm Paused time is set in Telemetry System Setup (5-3)	• **On** • **Off**
Record[1]	Generates manual timed recordings	• **Record** • **Off** • **Record/Store** • **Store**
Staff Alert[1]	Determines if Infinity M300 **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 M300 **STAFF ALERT** key.	• **On** • **Off**
Speaker[1]	Determines if the Infinity M300 speaker is enabled **WARNING:** The Infinity M300 speaker is intended for use only in the patient vicinity. It is not intended for primary alarm annunciation. Use the Infinity CentralStation speaker for primary alarm annunciation.	• **On** • **Off**
M300 Volume **WARNING: Set alarm volume in accordance with ambient sound level in the room so that alarm volume is audible.**	Sets Infinity M300 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 (18-12) is **Per Patient**, these selections are ghosted.		

Recordings

Recording Types

You can generate manual timed recordings from the Infinity M300 by pressing the device **Record** key or using the Infinity CentralStation. You can also generate manual or continuous timed recordings for an Infinity M300 patient admitted to the Infinity CentralStation from the Infinity CentralStation (page 14-5).

Monitoring a Patient Using Infinity M300

ECG Monitoring

1. Apply electrodes to patient. (Appendix A).
2. Connect the appropriate EG lead wire set to the Infinity M300.
3. Attach the lead wires to the electrodes.
4. Admit the Infinity M300 connected to the patient to the desired Infinity CentralStation patient window (Chapter 9).
5. Set alarm and arrhythmia limits at the Infinity CentralStation (page 13-10).

SpO2 Monitoring

1. Select an appropriate sensor and place the sensor on the patient.
2. Connect the pulse oximetry cable to the Infinity M300.
3. Turn SpO2 "**ON**" in the Patient View Setup screen (page 11-4)

NOTE: Pulse Oximetry must be enabled via a locked option, please call your local Dräger representative.

4. Select the desired **Averaging Mode**.
5. Set alarm limits at the Infinity CentralStation (page 13-10).

Arrhythmia Monitoring

Infinity M300 devices include basic arrhythmia monitoring. Full Arrhythmia is a locked option (call your local Dräger representative).

Infinity M300 Messages

Message Area

The Infinity M300 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 cyan characters on a background color defined by the alarm grade (page 13-5).
- ***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 7-5 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 or call your local Dräger representative.

Infinity M300 Status Messages

Alarm Message in Message Area	Grade	Description	Action
STAFF ALERT	SER	The Infinity M300 **STAFF ALERT** key was pressed.	Check the patient. This message requires acknowledgement.
Recharge battery	ADV	Infinity M300 battery charge is low.	Recharge battery or contact the Hospital Biomedical Engineering Dept. to replace Infinity M300 battery.
HR Alarms Off	SER	Heart rate alarms are turned Off at the Infinity CentralStation.	Pay close attention to the patient. This message remains until HR alarms are turned back **ON** at the Infinity CentralStation
Alarm Paused: xxx	ADV	**Alarm Paused** key was pressed. The remaining pause time displays with the message.	Condition remains until timer expires or until Alarm Paused key is pressed at the Infinity M300 while Alarm Paused is active.

Offline	SER	The Infinity M300 cannot communicate with the Infinity CentralStation.	Check the patient. Make sure patient is not out of designated coverage area.
Lead X **OFF**	ADV	ECG lead Disconnected as indicated.	Check the patient. Reapply electrodes.
HR Limits **OFF**	N/A	The Infinity M300 will not alarm for HR Limit violations	Informational message only.
HR, ASY, VF **OFF**	N/A	The Infinity M300 will not alarm for HR Limit violations, asystole, or ventricular fibrillation.	Informational message only.

Infinity M300 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	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*

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3 Infinity Telemetry Transmitter

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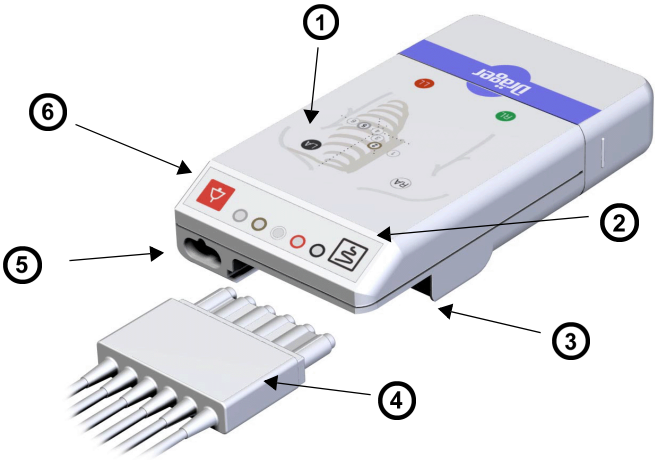
Transmitter Components

Infinity TruST™ Telemetry Transmitter



1	Lead Placement Diagram
2	Recording Button
3	Lead Connector Accommodates 3-, 5-, and 6-Wire Lead Set
4	Lead Block 6-Wire Lead Set is illustrated
5	Programming Port /MicrO2+ Interface/Analog ECG Cable Port/Vital Connection Cable Interface
6	Staff Alert Button

Lead Connector

The Infinity TruST Telemetry transmitter, which has a 6-pin lead connector, can accommodate a 3-, 5-, or 6-wire ECG lead set.

WARNING: Do not use Infinity Monoleads with Infinity Telemetry otherwise the correct functioning of the product may be compromised and misdiagnosis may occur.

Programming Port Connector/Interface

The transmitter has a connector that can be used to:

- Program the transmitter.
- Connect to the ***MicrO2® pulse oximeter*** for monitoring SpO_2 and pulse (page 11-4).

- Connect a ***Telemetry Analog ECG Cable*** to an Infinity bedside monitor (via the MultiMed pod) to display ECG waveform (lead II) and possible pacer spikes.

NOTE: For the best possible ECG signal, you should only use the analog ECG cable with 5- or 6-wire lead sets.

- Connect a ***Vital Connection Cable*** to an Infinity bedside monitor to display NIBP, SPO2 and PLS (page 11-5).

Transmitter Buttons

NOTE: The transmitter buttons are only functional if they have been activated (page 18-13).

- The red *staff alert* button allows the patient to initiate a serious alarm which sounds at the Infinity CentralStation. The message *Staff Alert* is displayed in the patient window. You can silence this alarm at the Infinity CentralStation with the **Audio Pause (1 min)** button.
- The white *recording* button allows you to begin a recording. Press this button less than 3 seconds for a timed recording; press it longer than 3 seconds for a continuous recording.

If you press both transmitter buttons simultaneously, a 1 mV calibration pulse is superimposed on the patient's Bed View lead display at the Infinity CentralStation.

Transmitter LED Error Patterns (Normal Mode)

Transmitter Self-Test - When you put a battery into a transmitter, it performs a self-test. If the test completes successfully, all of the LEDs flash briefly. If an error is detected, all the LEDs flash initially and then alternate an error-specific pattern.

Transmitter Orientation as you examine LED Patterns

Transmitter shown is Infinity TruST Telemetry transmitter.
Error codes display on four of the LEDs.

From	To	Description	Action
●○○○○ → ○○○○○ *One lighted diode "ripples" across display.*		Battery critically low. Transmitter operating, but not sending data.	Reinsert or replace battery (page 3-5) immediately. If error continues, take transmitter out of service.
●●○○○ ○○○○○ *Two diodes flash.*		Transmitter unable to tune	Reprogram transmitter.
○●●○○ ○○○○○ *Two diodes flash.*		Analog ECG cable connected	

For other possible error messages related to the transmitter that may appear at the Infinity CentralStation see page 3-10.

Transmitter Operating Modes

Normal Mode

During *Normal* mode the transmitter is connected to a patient and collects data which it relays to the Infinity CentralStation.

NOTE: *Staff* mode lasts for 30 seconds, after which the transmitter returns to *Normal* operating mode.

Staff Mode

Staff mode may be used to troubleshoot the transmitter or indicate a lead-off condition.

To activate Staff Mode,

- Press the *Staff Alert Button* for more than 3 seconds.

  The LEDs may identify the following possible conditions:

Condition	LED Reaction
Lead(s)-off	The LED(s) corresponding to the detached lead(s) flash(es).
Reference lead-off (or all other leads-off)	All LEDs flash simultaneously On transmitters using 3-wire mode only 3 LEDs flash when the reference lead is off.
Low battery **and** Lead-off	The LED patterns alternate for each condition.

Transmitter Battery

WARNING! To avoid explosion, do not recharge or disassemble a battery or dispose of it in fire.

CAUTION!

- *Infinity Telemetry Shower Pouch must be used when it is worn in the shower so that water does not get in the battery compartment.*
- *Always remove the battery before storing the transmitter. If the transmitter will not be in use for an extended time, remove the battery.*
- *Always use a new, fully charged battery each time you begin monitoring a patient with the transmitter.*

NOTE: Recycle or dispose of batteries in accordance with the directive EC 91/156/EWG or equivalent country-specific regulation.

Battery Type	Nominal Voltage	Typical Life	Characteristics
Alkaline/manganese oxide (DURACELL PROCELL model PC1604)	9 V	2 days, minimum	General purpose battery Good shelf life
WARNING! Use only the brand ULTRALIFE (model U9VL-FP) lithium battery. Any other lithium battery may present a risk of fire or explosion.			
Lithium/manganese dioxide (ULTRALIFE model U9VL-FP)	9 V	4 days, minimum	High energy density Excellent shelf life

Installing or Replacing the Battery

Each time you begin monitoring a patient with the transmitter you should install a new transmitter battery.

Also, to avoid interruption in patient monitoring, promptly replace the transmitter battery when:

- the Transmitter Low Battery alarm displays at the Infinity CentralStation (page 3-10), or
- the transmitter LED lights flash (page 3-5).

Install the transmitter battery as follows:

1. Remove the transmitter battery cover.

2. Insert a fully charged battery into the transmitter.
   The transmitter performs a self-test.

3. Slide the battery cover back on and snap into place.
   If the battery cover is not closed properly the transmitter will not operate.

Transmitter Setup

The **Transmitter Setup** screen provides transmitter status information and permits configuration and programming functions for *local* telemetry channels.

Accessing the Transmitter Setup Screen

1. Open the patient's Bed View screen.
2. Click on **Setup**.
3. Click on **Telemetry.**
4. Click on **Transmitter Setup**.

Received Transmitter Status Information

Received Transmitter Status section of Transmitter Setup Menu

Information	Description
ID	The transmitter ID cannot be changed; it is configured by the Hospital Biomedical Engineering Dept. during installation.
ECG Lead Wires	3-, 5-, or 6-wire mode cannot be changed by the user; it is configured by the Hospital Biomedical Engineering Dept. during installation.
Battery	A bar graph showing the transmitter battery charge and current voltage. The color of the graph also indicates the status of the remaining battery charge.
ECG Lead Prep	The color of the dot indicates the quality of lead prep. A label may also appear next to the button. green = good yellow = acceptable red = poor *L* = Lead Off *N* = No signal detected from transmitter
Frequency	Cannot be changed by the user; it is configured by the Hospital Biomedical Engineering Dept. during installation.
• ECG Lead Prep **RL** is not displayed as this is a reference lead only. • An Infinity TruST Telemetry transmitter programmed for 6-wire monitoring displays: RA, LA, LL, C, and C+. • An Infinity telemetry transmitter programmed for 5-Wire monitoring displays: RA, LA, LL, and C. If programmed for 3-wire monitoring, it displays: RA and LA.	
Update Status	Allows you to update the screen with the latest status information.

Transmitter Setup Screen Functions

Customizing the Transmitter Buttons

NOTE: You can only activate/deactivate the transmitter buttons for an individual patient if *Per Patient* mode was selected during setup (page 18-15).

1. Open the **Transmitter Setup** screen (page 3-8).
2. Click on the **On/Off** toggle button next to **Transmitter Record:**, and/or
   Click on the **On/Off** toggle button next to **Transmitter Staff Alert:**.
3. Click on **Accept** to save or **Undo** to keep previous settings.

Attaching the Transmitter to the Patient

1. Verify that the transmitter is programmed for the appropriate monitoring mode.
2. Apply electrodes to patient. (Appendix A).
3. Connect the appropriate ECG lead wire set to the transmitter.
4. Attach the lead wires to the electrodes.
5. Admit the patient to the Infinity CentralStation patient window for which the transmitter is selected.

Transmitter Messages

Status Messages

Alarm Message		Grade	Description	Action
Parameter Area	**Status Area**			
HR: <value> *ARR: <value>* *PVC/min: <value>* *SpO_2: <value>* *PLS: <value>* *STx: <value>*	staff alert	SER	The transmitter staff alert button was pressed.	Check the patient. This message requires acknowledgement.
*HR: *N** *ARR: <blank>* *PVC/min: <blank>* *SpO_2: <blank>* *PLS: <blank>* *STx: <blank>*	transmitter no signal	ADV	The receiver cannot detect the transmitter.	Be sure patient is within telemetry antenna range. Check cable connections. Replace transmitter battery.
*HR: *I** *ARR: <blank>* *PVC/min: <blank>* *SpO_2: <blank>* *PLS: <blank>* *STx: <blank>*	transmitter ID incorrect	ADV	The transmitter ID and programmed ID do not match.	Reprogram transmitter with correct ID. Make sure that transmitters do not have duplicate IDs.
HR: <blank> *ARR: <blank>* *PVC/min: <blank>* *SpO_2: <blank>* *PLS: <blank>* *STx: <blank>*	transmitter low battery	ADV	Transmitter's battery charge is low.	Replace transmitter battery immediately. The message remains until battery is replaced.

4 Infinity CentralStation Setup

Accessing the Setup Screens 4-2
Password-Protected Screens 4-2
Setup - Central Screen 4-3
Setup - Recorder Screen 4-5
Setup - Central Layouts Screen 4-6

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 4-3
Recorders...	page 4-5
Central Layouts...	page 4-6
Telemetry	Chapters 5 and 6

Password-Protected Screens

Access to the following setup functions is controlled with assignment of a required password (page 18-3).

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 18-3).

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 4-2.

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 busiest periods of the day.			
Alarm Volume	Determines alarm tone volume	• **10% - 100%**	**50%**
Attention/Error Volume	Determines the attention and error tone volume	• **10% - 100%**	**50%**
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**
Audio Paused 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 **Audio Paused 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 14-12) or Graphical Trend Report (page 14-17). To configure Trend Order Setup for a specific patient, see page 14-24.	• **Enable Auto Scale (**page 14-17**)** 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 4-2.

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 14-4)	• **50, 25, 12.5, 6.25, 1 mm/s**	**50 mm/s**
Manual Recording Duration	Sets time length of a **Manual Recording**	• **5/6, 10, 15, 20 s**	**20 s**
Manual Recording Delay	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.

Setup - Central Layouts Screen

To open the **Setup - Central Layouts** screen, refer to page 4-2.

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 7-10)	• 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.**	
• After all changes are made on the **Central Layouts** setup screen, click on **Accept** to save changes or **Undo** to keep previous settings.			

5 Infinity M300 System Setup

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Available Functions on the Arrhythmia Screen....5-10
Infinity M300 Find Device....5-13

Overview

The Telemetry setup screens allow you to set *system defaults* for Infinity CentralStation telemetry channels (see page 5-7).These defaults are activated at telemetry patient admission.

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**		5-3
Patient View Defaults	**Clinical**		5-4
ST Defaults (Requires option, page 18-6)	**Clinical**		5-7
Recorders	**Clinical**		5-8
Alarm Limits Defaults...	**Clinical**	**Adult**	5-8
		Pediatric	
Arrhythmia Defaults...	**Clinical**	**Adult**	5-10
		Pediatric	
Find Device	**Clinical**		5-13

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 (5-2). The system default patient category setting is **Adult**. If after making changes you want to return all settings to the defaults, see page 18-4.

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 (5-8)

To configure the patient category for an individual Telemetry patient see page 9-3.

Infinity M300 System Setup Screen

To access the Infinity M300 **System Setup** screen, see 5-2.

System Setup Screen Selections

Selection	Description	Settings	Default
Alarm Pause Time	Determines duration of **Alarm PausedTime**	• 1, 2, 3, 4, 5 min	**3 min**
Alarm Tone Pattern	Determines alarm pattern used by the Infinity M300 device only.	• 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**
Remote Audio Pause Enabled	Determines whether or not you can silence alarms for telemetry patients from other monitors in the monitoring unit When **OFF**, the **Audio Paused** 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**
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		
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.			

Infinity M300 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 18-3).

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 - I, II, III
• 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 Lead Wires	Select device lead wire mode	• **3** • **5 (Default)** • **6**
ECG Filter	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** (5-3)	• **ON (Default)** • **OFF** • **FUSION**
WARNING! Special surveillance is necessary for patients with pacemakers who are monitored with Pacemaker Detection set to Fusion mode because more pacer spikes may register as integral QRS complexes.		

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 8-13) Precordial leads are fixed as V2 and V5.	• **ON** • **OFF** (Default)
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 parameter box is blank.		
SpO2 Color	Assign color of SpO2 associated waveforms to telemetry channel for an individual patient.	• **Red** • **White (Default)** • **Yellow** • **Green** • **Light Blue** • **Blue** • **Purple** • **Orange**
Averaging	Determines how the Infinity M300 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. (Less sensitive to artifact, but slower to alarm.) **Fast**: updates the SpO2 value and the derived pulse rate in 12 seconds or less. (Quicker to alarm, but more sensitive to artifact.)	• **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.		
Sensory Type	Determines device sensor type	• **Nellcor** • **Masimo (Default)**
• Click on **Accept** to save changes or **Undo** to keep previous settings.		

Infinity M300 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 (5-8). 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 12-9).

If ST monitoring is enabled, the default **ST Setup** settings are activated whenever a telemetry patient is admitted. 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 Chapter 12.

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
Event Duration	Determines how long an ST event has to remain outside the set ST alarm limit before an alarm sounds	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.			

Infinity M300 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 upon patient admittance or by clicking **Restore System Defaults** on a particular patient's Bed View screen (page 12-9).

The patient category is part of the screen title, and parameter limits are based on that category (5-9).

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 (5-10)
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	25 - 300 beats/min
	Lower Limit	45 beats/min	50 beats/min	20 - 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 - 240 beats/min
	Lower Limit	45 beats/min	50 beats/min	30 - 235 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**	+2 mm +0.20 mV	+2 mm +0.20 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	0.1 to 45 mm 0.01 to 4.5 mV
	Lower Limit	0	0	0.0 to 44.9 mm 0.0 to 4.49 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

Infinity M300 Arrhythmia Defaults Screen

This screen allows you to define system-wide default settings for arrhythmia event categories. These defaults are passed to the Infinity M300 upon patient admission or by clicking **Restore System Defaults** on a particular patient's Bed View screen (page 12-9).

The patient category is part of the screen title, and event defaults are based on that category (page 5-11).

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 10-4).

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 enabled.
→**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 Full arrhythmia monitoring requires that the locked option is available.	ASY, VF, VT, ARTF, RUN, AIVR, CPT, BGM, PAUS, TACH, BRDY, SVT
Basic (Default)	ASY, VF, VT, ARTF
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: ≥ 10	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**	≥8bpm	
	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	

Infinity M300 Find Device

You can initiate a *Find Device* tone that will help you locate an Infinity M300 in the event it is misplaced.

1. Select **Telemetry** from the Main Screen **Setup** drop-down menu.
2. Select **Find Device**.
   Enter the Infinity M300 ID you are trying to find.

NOTE: Devices admitted to the Infinity CentralStation will not appear in the list as selections.

3. Click on the device you wish to locate.
4. Click on **Locate**.
   The Infinity CentralStation sends a command to the selected Infinity M300 to sound a *Find Device* tone (2-4).

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6 Infinity Telemetry System Setup

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Overview

Set *system defaults* for Infinity CentralStation telemetry channels using the Telemetry setup screens. 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**		6-3
Patient View Defaults	**Clinical**		6-4
ST Defaults (Requires option, 18-6)	**Clinical**		6-7
Recordings	**Clinical**		6-8
Alarm Limits Defaults...	**Clinical**	**Adult**	6-9
		Pediatric	
Arrhythmia Defaults...	**Clinical**	**Adult**	6-11
		Pediatric	

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 (6-3). The system default patient category setting is **Adult**. If after making changes you want to return all settings to the defaults, see 18-4.

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 (6-9)

To configure the patient category for an individual Telemetry patient see 9-3.

Infinity Telemetry System Setup Screen

To access the Telemetry **System Setup** screen, see 6-2.

System Setup Screen Selections

Selection	Description	Settings	Default
Alarm Paused Time	Determines duration of **Alarm PausedTime**	• 1, 2, 3, 4, 5 min • Disable • No Time Out	**3 min**
Weight Units	Sets weight units in **Admit** screen	• kg • lbs	**lbs**
Height Units	Sets height units in **Admit** screen	• cm • in	**in**
Remote Audio Paused Enabled	Determines whether or not you can silence alarms for telemetry patients from other monitors in the monitoring unit When **OFF**, the **Audio Paused** 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**
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.			

Infinity Telemetry Patient View Defaults Setup Screen

If a password is required to access this screen, see 4-2.

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

See page 8-3 for a detailed description of the Bed View **Patient View Setup** screen.

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 the Channel's Parameter column.</td><td>Depends on monitoring selections</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</td></tr>
<tr><td colspan="3">Monitoring Setup</td></tr>
<tr><td>QRS Processing</td><td>Select leads for ECG and ARR monitoring.</td><td>• ECG1 & ECG2
• ECG1</td></tr>
<tr><td colspan="3">WARNING! High amplitude (>0.15mV) P- and T-waves of long duration may register as integral QRS complexes. So 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>
<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
Parameter Color	Assign system-wide color of SPO2, NIBP, and ECG associated waveforms to telemetry channels.	• **Red** • **White** • **Yellow** • **Green (Default)** • **Light Blue** • **Blue** • **Purple** • **Orange**
Pacemaker Detection	Set the pacer detection function. When **ON**, pacer spikes display on a patient's waveform whenever a pacemaker pulse is detected.	• **ON** • **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.**
- **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.**

Patient View Setup Screen Selections

Selection	Required Action	Available Settings
NOTE: ● 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.		
SPO_2 Monitoring	Enable/disable SpO_2 monitoring.	• **ON** • **OFF**
NOTE: ● This selection is only available for local telemetry patients. ● If **SpO_2 Monitoring** is **OFF,** SpO_2 and PLS parameter boxes are blank.		
• Click on **Accept** to save changes or **Undo** to keep previous information.		

Infinity Telemetry 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 (6-9). 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 (12-9).

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 Chapter12.

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
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	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.			

Infinity Telemetry Recordings Setup Screen

If a password is required to access this screen, see 4-2.

Recordings Setup Screen Functions

Use the **Recordings Setup** screen to set various telemetry-specific recording properties, independent of the basic Infinity CentralStation recorder settings.

Recordings Setup Screen Selections

Selection	Description	Available Settings	Default
Waveform Selection:	Determines whether waveforms to be printed are selected automatically or manually	• **Auto -** Automatically selects topmost displayed waveform for printing • **Manual** - Prints selected Waveform 1 and 2	**Auto**
Waveform 1:	Selects top waveform for R 50 recording	• **I, II, III, aVF, aVL, aVR, V**	**II**
Waveform 2:	Selects second waveform for R 50 recording		**V**
Alarm Condition Waveform:	Determines if pre-event data is included in an alarm recording If you choose **OFF**, the recording consists of real-time data only.	• **ON** • **OFF**	**ON**
• Click on **Accept** to save or **Undo** to return to the previous settings.			

Infinity Telemetry Alarm Limits Defaults Screen

Use the **Default Settings - Alarm Limits** screen 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 (13-10).

The patient category is part of the screen title, and parameter limits are based on that category (6-10).

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 (6-11)
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	25 - 300 beats/min
	Lower Limit	45 beats/min	50 beats/min	20 - 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 - 240 beats/min
	Lower Limit	45 beats/min	50 beats/min	30 - 235 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**	+2 mm +0.20 mV	+2 mm +0.20 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	0.1 to 45 mm 0.01 to 4.5 mV
	Lower Limit	0	0	0.0 to 44.9 mm 0.0 to 4.49 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

NOTE: NBP alarm limits must be set up at the bedside monitor. For details see the bedside monitor *Instructions for Use*.

Infinity Telemetry 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 (10-4).

The patient category is part of the screen title, and event defaults are based on that category (6-12).

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 (10-4).

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.
→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	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: ≥ 10	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	

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7 Main Screen

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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 central layouts.

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 4-6). For a description of screen layouts see page 7-3.

Split vs. Full Main Screen

The following table shows how much patient data can be visible in the Split and Full Main Screen layouts. If the **NOTES** feature (page 7-10) is enabled (page 4-6), 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

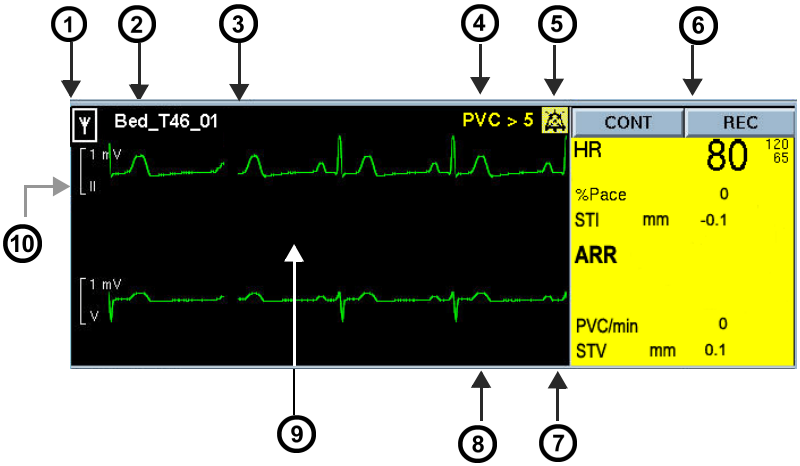
Selection	Allows you to...
VIEW	• access Full/Event Disclosure applications (Chapter 16)
SETUP	• configure Infinity CentralStation monitoring • configure Main Screen layouts (page 4-6) • access Telemetry setup menus (Chapter 5)
BIOMED	• observe the status of all devices on the network • configure the 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 7-6)	**6**	Keys that generate manual *Timed* or *Continuous* recordings (page 14-5)
2	Bed Label (for Infinity M300 or Infinity Telemetry **Bed Label** is followed by device ID)	**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 Paused	Yes	Yes	Black text/yellow background	Patient's alarm function is disabled
All Alarms OFF	Yes	Yes		
HR Alarms OFF[1]	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 interrupted
CODE [2]	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
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 an alarm occurs while this banner is displayed, the alarm message replaces the banner during the alarm.

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

[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 8-8).

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

Icons

Icon	Location	Description
Audio Paused 	Upper right corner of top waveform channel The icon only appears if the *Audio Paused* function is enabled for bedside patients (page 4-3) or the *Remote Silence* function is enabled for telemetry patients (page 5-3).	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).
All Alarms OFF 	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 waveform color for a specific telemetry patient, see page 8-9.

Telemetry Waveform Dropout Display (Infinity Telemetry only)

You can choose to display a dropout on a telemetry waveform in a clearly identifiable negative *Square-wave* configuration to indicate a non-physiological event should RFdropouts occur when using Infinity Telemetry. Square-wave display must be configured via a system Biomed setting during installation.

Parameter Areas

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

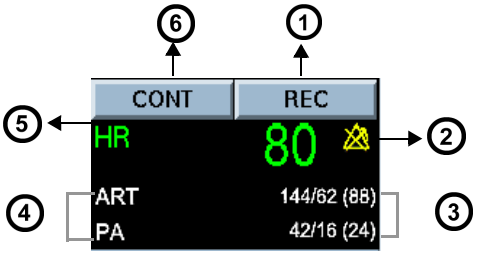
The parameter areas allow you to access each patient's Bed View (Chapter 8).

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 5) 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 4-6), 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:

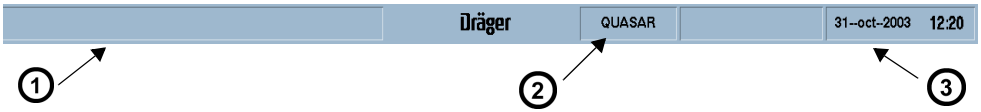
- reconnect any bedside monitor to that network location,
- discharge the patient,
- remove the patient from Main Screen, or

- 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.



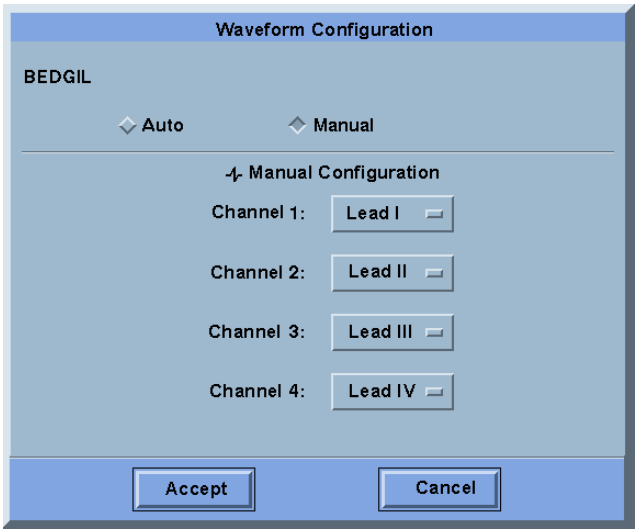
1	**Alarm/Status Messages**	These messages may originate from the Infinity CentralStation, network recorders, or bedside monitors. With Dual Display, the status messages appear on both displays. Some status messages appear only briefly and indicate a one-time occurrence. Others appear for as long as the cause for the message exists.
2	**Host Label**	Identifies the Infinity CentralStation
3	**Time and Date**	Surveillance alarm messages (page 13-5) 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.

7. When you are finished, click on **Accept** to keep the changes or **Cancel** to return to previous settings.

Main Screen Status Area Messages

The following table lists possible status messages that may display in the Main Screen status area. For recorder-specific status messages, see Chapter 14.

Device/Network Status Messages			
Status Message	**Tone**	**Description**	
Central Offline	Serious	Infinity CentralStation is not communicating with network due to incorrect configuration information.	
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 the Hospital Biomedical Engineering Dept.	
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.
<*xxx*> stands for the device/host label; *yyy* stands for the specific setup data file.			

Device/Network Status Messages			
Status Message	**Tone**	**Description**	
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 18-10).
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.
<*xxx*> stands for the device/host label; *yyy* stands for the specific setup data file.			

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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 (14-11).

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** (4-3).

> **NOTE:** For bedside monitor configuration instructions, refer to the monitor *Instructions for Use*.

Available Infinity CentralStation functions differ depending on whether a patient is *local* or *remote to* 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 (8-10).

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 17)
Setup	• access patient arrhythmia setup menu (Chapter 10) • access patient alarm limits setup menu (Chapter 13) • access Telemetry setup menus (8-12) with Telemetry option • access VentCentral functions (Chapter 17) with VentCentral option
ADT	• admit /discharge/transfer patient (Chapter 9) • edit patient demographics (Chapter 9)
Main Screen	• access Main Screen (Chapter 7)
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 (14-22). If **Print** button is ghosted, no printer is configured.
Audio Paused		• Silences for 1 minute all active alarms at the monitor and/or Infinity CentralStation For bedside monitor patients **Bed Silence Enable** must be **On** (4-3).
View		• **Bed View** (8-10) • **All Leads -** displays all available leads from the bedside or telemetry patient (8-10) The **All Leads** screen mode supports the hex axial (Cabrera) display format (12-5). • **Ventilator** - (with VentCentral option, 17-5)
	Alarm Paused	• Suppresses any further alarms for a predefined period
	Standby	• Opens pulldown menu of STANDBY text labels (8-8) 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.
ALARM PAUSED (Delta/Delta XL and telemetry)	Black text on yellow background	Alarms are turned off for the selected patient for a selected period of time. (Countdown timer displays)
All Alarms OFF		Alarms are turned off indefinitely. (No countdown timer displayed)
[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 wireless bedside monitor internal battery is low.
Internal Battery Depleted		The wireless bedside monitor internal battery is depleted. The patient's waveform area is blank.
Local Messages		
Alarm Messages	Color corresponding to alarm grade	See Chapters 10, 11, 12, and 17 for messages.
Parameter-specific local messages	Black text on white background	
STAFF ALERT		Infinity Telemetry or Infinity M300 STAFF ALERT key was pressed.
TRANSMITTER FAILURE		Technical error
TRANSMITTER NO SIGNAL		No signal from the transmitter
MIB Alarm Messages	Orange	Chapter 17.

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 8-12.

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 or Infinity Telemetry receiver is offline, or
- the wireless bedside monitor battery is depleted.

Telemetry Signal Strength

In a telemetry system there are conditions during 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. However, during installation, you can configure the Infinity CentralStation to display a "dropout" as a negative square-wave (see page 7-7). To change how the Infinity CentralStation displays dropouts, contact Dräger Service.

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.

Infinity M300 and Infinity 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 (5-3).

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, or click the **VIEWS** button on the Infinity M300.
- Standby labels can be customized by your local Dräger service representative.

Effect of Standby Mode at the CentralStation

- 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.

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	Varies according to parameters monitored at bedside	HR, ARR, PVC/min, ST, NIBP, SPO_2, and PLS
Alarm limits	Display if available at the bedside monitor	Always display
	All Alarms OFF 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 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 Display

The Bed View screen has three different displays:

- *Bed View* is a view of a or remote patient.
- *All Leads* displays all available leads of an individual patient (telemetry or bedside).
- *Ventilator* (17-6) displays the ventilation status of an individual bedside patient.

Selecting the Bed View

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 15).
Review Full/Event Disclosure Data	**1.** Click on **Review** in the Bed View menu bar. **2.** Click on **Full Disclosure...** or **Event Disclosure...** (Chapter 16)
Review Ventilator Settings	**1.** Click on **Review** in the Bed View menu bar. **2.** Click on **Ventilator Settings Review...** (Chapter 17)

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 (7-13).
- 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 (5-2).

Configuring Alarm Limits

For information regarding Alarm Setup, see Chapter 13.

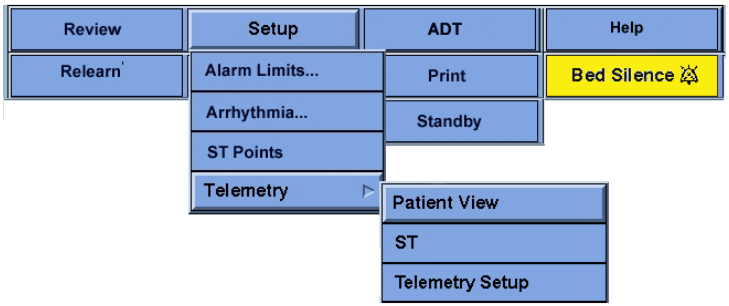
Configuring Arrhythmia Setup

Refer to Chapter 10 for setup information.

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 5) until you discharge the patient or restore system defaults.

You can only perform these setup functions for telemetry patients who are local (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 **M300 Setup/Transmitter Setup** from the submenu.

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: and Chapter 3 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.

Patient View Setup Chest Lead Selection

When the Infinity TruST 12-Lead Monitoring option is enabled (18-11) 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**).

NOTE: When using Infinity M300, the precordial leads are always V2, V5. They cannot be changed.

9 Admit/Discharge/Transfer

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Overview

On the Infinity CentralStation you can view, enter, and edit demographic information for any patient 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.

Admitting a Patient

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

You can edit and view demographics of patients at the Infinity CentralStation where they were originally admitted. If remote control is enabled 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 M300 monitor is not communicating with the Infinity 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**.

Entering Patient Demographics

To open the **Admit** screen see page 9-2.

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 5-7). 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.
Telemetry ID:	Lists available devices from a configuration file populated during Infinity M300 Setup page 18-12	Click on a device in the list.
Get HIS/CIS Demographics	Allows you to retrieve a patient's demographics from the hospital's admission system.	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* monitors similarly.

The Infinity CentralStation provides a list of available wireless monitors in 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.

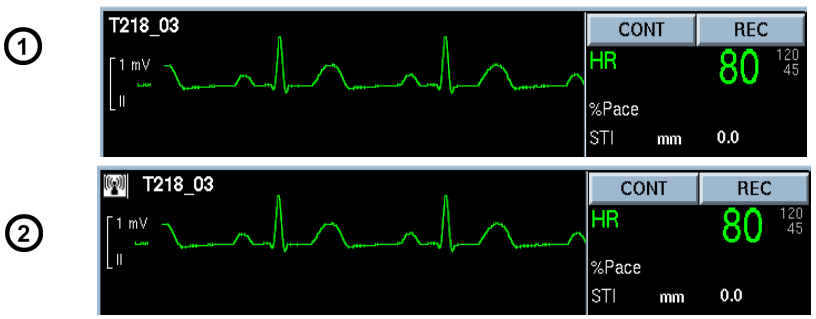
Moving Between Wired and Wireless Communication

When a wireless bedside monitor is docked at an Infinity Docking Station, the monitor automatically accepts the Infinity Docking Station's Care Unit and Bed Label assignments and communicates with the Infinity Network. When the bedside monitor is removed from the Infinity Docking Station, the wireless network maintains communication.

Assigning a Wireless Monitor to a Patient Window

If a wireless bedside monitor is removed from the Infinity Docking Station (IDS) and it is configured to keep the 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 IDS, the wireless icon disappears from the patient window bed label.

If you dock another bedside monitor on the 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 4-5).



1	Waveform of patient on monitor communicating to the network via IDS
2	After monitor is removed from 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 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 M300/CPU/receiver is offline.	
Bedside monitor, bedside monitor IDS, or Infinity M300 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.
- Trends are deleted.
- All pending and active recordings are cancelled.
- The Pacer Identifier label reverts to *None*.
- A *Bed Disconnected* banner displays in Main Screen.
- (Infinity M300 only) 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 M300, see page 2-9.

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 a patient 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.

Transferring Data to the Infinity CentralStation

1. Put the *source* device (bedside monitor or Infinity CentralStation Telemetry patient window or Infinity M300) 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 9-8.

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.

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10 Arrhythmia

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Overview

With the Infinity CentralStation, Infinity Telemetry, Infinity M300 system, arrhythmia monitoring is available for adult and pediatric patients. The mode you select (Full, Basic, or OFF) determines the events processed. Arrhythmia monitoring is not available for neonates.

The system matches incoming beats against beats previously recorded and stored in a reference template. Through this process, the system can verify an arrhythmia event's occurrence, classify it, and draw clinically useful conclusions based on the frequency and morphology of the signal. The system considers all beats questionable if a baseline shift exceeds specified limits.

WARNING: Electrical artifacts of non-cardiac origin, such as seizure, may prevent detection of certain arrhythmias. Do not rely solely on ECG with seizure-prone patients.

NOTE: Arrhythmia detection may not work properly in all patients. The monitor classifies only QRS complexes ≥ 0.25mV, for widths ≥ 70ms. An artifact condition (**ARTF**) may occur when the ECG signal does not meet these minimums. While continuing to monitor HR, you can turn off ARR Monitoring for patients whose QRS complexes do not meet these minimums.

The system uses the results of QRS processing for arrhythmia analysis. During multiple-lead arrhythmia processing, each lead's QRS complexes are measured and compared against its learned dominant normal beat. The system classifies beats based on information acquired from all available leads.

About the Arrhythmia Template

The system creates a reference template based on its identification of the patient's dominant QRS pattern. It then classifies individual beats by comparing them with the learned reference template. In the third and final phase of arrhythmia processing, the monitor compares sequences of valid beats with the template.

In most situations, the learning phase takes about 30 to 40 seconds. If the system detects more than 100 QRS complexes and less than 16 matching beats, it displays the message, *<Unable to learn>*. While the system is in the learning phase, all arrhythmia alarms and trend collection are suspended; LRN appears in the parameter box; and the message, *Relearning*, displays in the local message area.

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

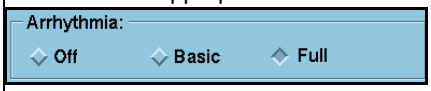
Accessing the Arrhythmia Setup Table

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

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 13-11)
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 10-6. 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	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**.

Heading/Function	Description	Available Settings
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.**
Arrhythmia	Determines which arrhythmia events are monitored • Click on the appropriate radio button.  **NOTE:** To select OFF for telemetry patients, a password is required.	• **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.)

WARNING! 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 strongly recommended that HR alarms are always ON.

Available Bedside Event Settings

For available event settings for Telemetry patients see page 5-11.

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

For available monitor bedside settings, see the appropriate monitor Instructions for Use.

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 13-12.	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.

Arrhythmia Beat and Rhythm Classification

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.

Beat classification refers to the analysis of *individual* beats. If the new beat's features do not match those of the reference template, the new beat is classified as abnormal, paced, or questionable. The monitor uses all detected beats to calculate the heart rate, eliminating questionable beats from arrhythmia classifications.

The following table describes available beat classifications:

Label	Event and Beat Classification
ASY	*Asystole:* 4 seconds pass without the detection of a valid QRS complex
VF	*Ventricular Fibrillation:* The monitor identifies a sinusoidal waveform with fibrillation characteristics[1]
VT	*Ventricular Tachycardia:* N or more PVC's are detected in a time interval T = (60 * (N - 1)) / R, where N is defined as the VT count and R is defined as the VT rate
RUN	*Ventricular Run:* Series of 3 to N-1 consecutive PVCs with a beat-to-beat rate ≥ the VT rate[1]
AIVR	*Accelerated Idioventricular Rhythm:* Series of 3 or more PVCs with a rate less than the VT rate
SVT	*Supraventricular Tachycardia:* N or more consecutive normal beats, with a beat-to-beat rate greater than or equal to the SVT setting
CPT	*Ventricular Couplet:* Sequence of beats with the pattern: normal, PVC, PVC, normal
BGM	*Ventricular bigeminy*: Sequence of beats with the pattern: normal, PVC, normal, PVC, normal
TACH	*Sinus Tachycardia:* N or more consecutive normal beats, with a beat-to-beat rate ≥ TACH rate setting[2,3]
BRDY	*Sinus bradycardia:* 8 or more consecutive normal beats, with an average rate ≤ sinus bradycardia rate setting[2] **Notes:** • When in neonatal mode, bradycardia is a low heart rate alarm. • Brady Alarm (neonate only), which is a life threatening alarm, can be configured independently of the low HR alarm, which is a serious alarm.
PAUS	*Pause:* Sequence of two beats classified as normal or PVC, with interval ≥ pause rate value in seconds (±100ms)
ARTF	*Artifact:* More than 50% of beats in the last minute classified as questionable

[1] Certain ventricular tachycardias have sinusoidal waveforms closely resembling those of ventricular fibrillation. Because of the similarity of these waveforms, the monitor may classify such types of ventricular tachycardia as ventricular fibrillation, the more serious of the two conditions.

[2] "N" is the event count set in the Arrhythmia setup table's count column.

[3] A PVC or other abnormal beat breaks the analysis sequence and restarts analysis.

11 Telemetry Pulse Oximetry and NIBP Monitoring

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Overview

Infinity Telemetry and Infinity M300 offer pulse oximetry monitoring.

The Infinity M300 contains an internal pulse oximeter. To enable pulse oximetry monitoring through Infinity M300, a license option must be enabled.

Infinity Telemetry connects to the MicrO2+ Pulse Oximeter to provide pulse oximetry monitoring. Infinity Telemetry also connects to Infinity monitors using the Vital Connection cable for both pulse oximetry and NIBP monitoring (See page 11-5).

SPO2 and PLS measurements and their associated trend values are labeled identically regardless of the source (Infinity monitor/Vital Connection Cable, MicrO2/MicrO2+, or bedside monitor).

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 xviii, in these Instructions for Use.**
- **Check the sensor at least every four hours. Move the sensor if there is any sign of skin irritation or impaired circulation.**
- **Bright light can interfere with pulse oximetry measurements, causing erratic or missing values. When the sensor is likely to become exposed to direct bright light, it should be covered with an opaque material.**
- **Carboxyhemoglobin may erroneously increase readings. The level of increase is approximately equal to the amount of carboxyhemoglobin present.**
- **Dyes, nail polishes and other substances, may absorb an abnormal amount of red light, which can effect the accuracy of the measurement. Be sure to apply the sensor to a site free of any artificial pigments.**

NOTE:

- A functional tester cannot be used to assess the accuracy of a pulse Oximeter probe or a pulse Oximeter monitor. Because pulse oximeter equipment measurements are statistically distributed, only about two-thirds of pulse oximeter equipment measurements can be expected to fall within ± Arms of the value measured by a CO-oximeter.
- If there is independent demonstration that a particular calibration curve is accurate for the combination of a pulse oximeter monitor and a pulse oximeter probe, then a functional tester can measure the contribution of a monitor to the total error of a monitor/probe system. The functional tester can then measure how accurately a particular pulse oximeter monitor is reproducing that calibration curve.

Turning Pulse Oximetry Monitoring On/Off

If pulse oximetry monitoring is enabled for telemetry patients, set it 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 **SpO2** monitoring to enable.
6. (Infinity M300 only) Click on the **ON/OFF** toggle button next to **SpO2 Monitoring**.
7. (Infinity M300 only) If you choose to monitor SpO2, select settings for **SpO2 Color**, **SpO2 Averaging**, and **SpO2 Sensor**.
8. (Infinity M300 only) 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.

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 All Alarms OFF icon if alarms are off)
- **PLS** and alarm limits

Vital Connection Cable

NOTE: Use of the Vital Connection cable requires software version VF5 or higher in the Infinity CentralStation and Infinity Kappa, Delta, Delta XL, Gamma X XL, and Vista XL patient monitors.

The Vital Connection Cable links the Infinity Telemetry Transmitter with a compatible Infinity bedside patient monitor so that a telemetry patient's SPO2 and NIBP measurements can be transmitted to the Infinity CentralStation.

Getting an NIBP or SPO2 measurement

1. Turn on Pulse Oximetry monitoring (11-4).
2. Set up the **Patient View** screen *Channels* (6-4) so that **NIBP** and **SPO2 + PLS** parameters display in the patient window.
3. Plug the appropriate end of the Vital Connection Cable into the local telemetry patient's transmitter programming port.
4. Attach the other end of the Vital Connection Cable into the X-8 port of a compatible bedside monitor on the Infinity network.
   Be sure that the Vital Connection LED is lit. This determines an active connection.
5. For details about obtaining SpO2 and NIBP measurements, refer to the appropriate Infinity patient monitor *Instructions for Use*.

NOTE: If you use the Vital Connection Cable to spot-check SPO2, you must disable the SPO2 alarm to avoid a reoccurring Advisory alarm caused by disconnecting the Vital Connection cable. If the SPO2 alarm is not disabled, an Advisory alarm will continue every minute.

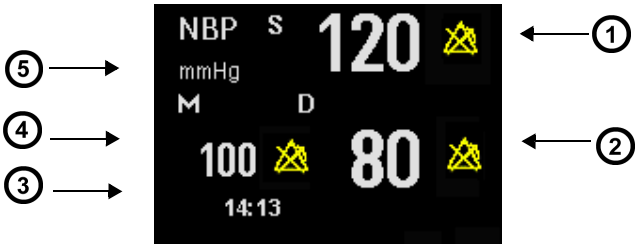
The Vital Connection LED indicates connection status to both associated devices (bedside or transmitter) as follows:

LED Appearance	Status
Not lit	There is no physical connection to or communication with either bedside or transmitter.
Continuous light	The Vital Connection cable is physically connected and communication is established with both bedside and transmitter.

A Vital Connection interface failure or disconnection will send the following message to the Infinity CentralStation.

EXT. DEVICE NO SIGNAL

As soon as the patient's NIBP measurement is available the Infinity CentralStation displays the data in a parameter box as illustrated. The measured value updates whenever you take a new measurement. The latest measurement displays until you discharge the patient or the measurement is older than 24 hours.



1	Systolic measurement [1]
2	Diastolic measurement [1]
3	Time of last measurement
4	Mean measurement[1]
5	Units of measurement
[1]When alarms are OFF the *Alarm Off* icon displays	

Vital Connection Cable measurements display on the Infinity CentralStation Bed View and Main Screens, and are stored in Tabular and Graphic Trends.

Alarm Functions

For specific Infinity CentralStation **SpO_2** and **PLS** alarm setup instructions, see Chapter 13.

Alarm Messages

SpO2 Alarm Messages via Infinity Telemetry and Infinity M300

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* P1	**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 (at oximeter)	**Micro2 transparent**	ADV	Sensor cannot detect any signals.	• Check the patient. • Check sensor and reapply or replace it if necessary.
SpO_2: *A* PLS: *A* P3 (at oximeter)	**Micro2 opaque**	ADV	Sensor does not detect any light.	• Make sure the LED on the oximeter is not blocked.
SpO_2: *A* PLS: *A* P4 (at oximeter)	**Micro2 artifact**	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 (at oximeter)	**Micro2 regulation error**	ADV	Too much ambient light	• Cover the sensor with an opaque material.
SpO_2: *A* PLS: *A* P6 (at oximeter)	**Micro2 weak signal ***	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**.

SpO2 Alarm Messages via Vital Connection Cable

Alarm Message		Alarm Grade	Description	Action
Parameter Area	**Status/ Information Area**			
SpO_2: <value>	**SpO_2> UL**	SER	Parameter value exceeds the upper alarm limit.	• Check the patient. • Reset the alarm limits.
SpO_2: <value>	**SpO_2< LL**	SER	Parameter value is below the lower alarm limit.	
SpO_2: +++ **SpO_2: - - -**	**out of range**	SER	Parameter rate is outside the measuring range.	
PLS: <value>	**PLS > UL**	SER	Parameter value exceeds the upper alarm limit.	
PLS: <value>	**PLS < LL**	SER	Parameter value is below the lower alarm limit.	
PLS: +++ **PLS: - - -**	**Pulse rate out of range**	SER	The pulse rate is outside the measuring range. **PLS: +++** will also display at the Infinity CentralStation if the measured PLS at the bedside exceeds 255. The actual PLS value displays at the bedside monitor, however.	
SpO_2: * * * **PLS: * * ***	**SpO2 Technical Alarm**	ADV	SpO2 technical Alarm	• See bedside monitor Instructions for Use

NIBP Alarm Messages via Vital Connection Cable

Alarm Message		Alarm Grade	Description	Action
Parameter Area	**Status/ Information Area**			
S <value> **S + + +** **S - - -**	**SYS Alarm**	SER	NIBP alarm at bedside monitor	• Check the patient and treat if necessary. • Reset the alarm limits.
D <value> **D + + +** **D - - -**	**DIA Alarm**			
M <value> **M + + +** **M - - -**	**MEAN Alarm**			
S * * * **D * * *** **M * * ***	**NIBP Technical Alarm**	ADV	Technical NIBP alarm at bedside monitor	• This message displays for any bedside-generated NIBP Advisory alarm. For details, see bedside monitor Instructions for Use.

12 Telemetry ST Analysis Option

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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 reduce 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).

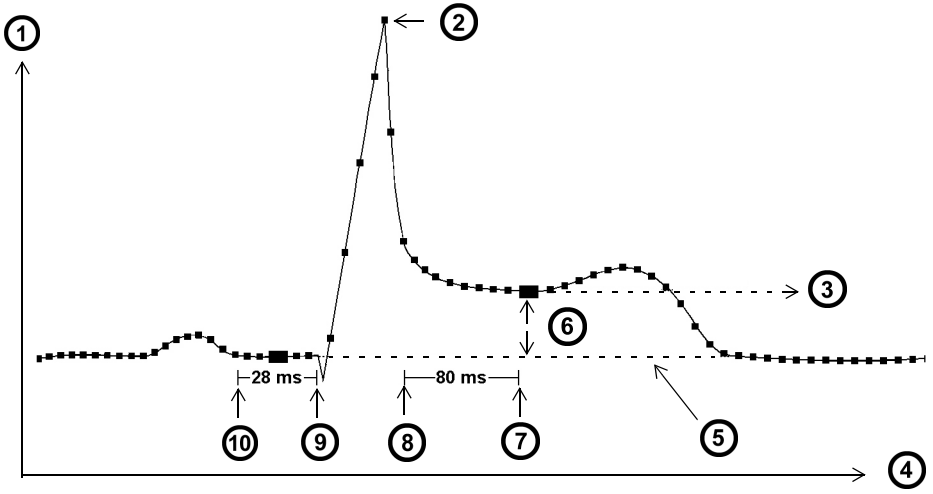
ST parameters are included in the trend function, and you can configure the ST alarm functions as for any other parameter (see Chapter 13).

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

When ST monitoring is enabled the Infinity CentralStation parameter area lists the ECG leads selected by the user as data sources for ST analysis.The ST values displayed depend on the transmitter lead configuration mode.

Sensor Application

The quality of SpO_2 measurements depends largely on the strength and quality of the signal received by the sensor.

Infinity M300 and Infinity Telemetry support Dräger, Nellcor and Masimo SpO_2 sensors. The Patient View shows which sensor type is currently selected. If you connect a sensor different from the type shown in the Patient View screen, the Infinity CentralStation displays an error message.

STEPS: Applying the Sensor

1. Select a sensor that is best suited for your patient.

NOTE: For a complete list of accessories available with this product, contact your Draeger Medical Systems, Inc. local representative to obtain a catalogue.

2. Clean reusable sensors before and after each use.
3. Position the sensor correctly and attach it to your patient (see sensor manufacturer's recommendations).
4. Connect the sensor to the intermediate cable.
5. Inspect the sensor application site frequently. If the sensor is too tight, it may damage the tissue and impede blood flow. If the sensor is damaged, do not use it.

CAUTION: *Read the instructions provided with the sensor to select the best application technique and to review all safety related information.*

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 M300, 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.

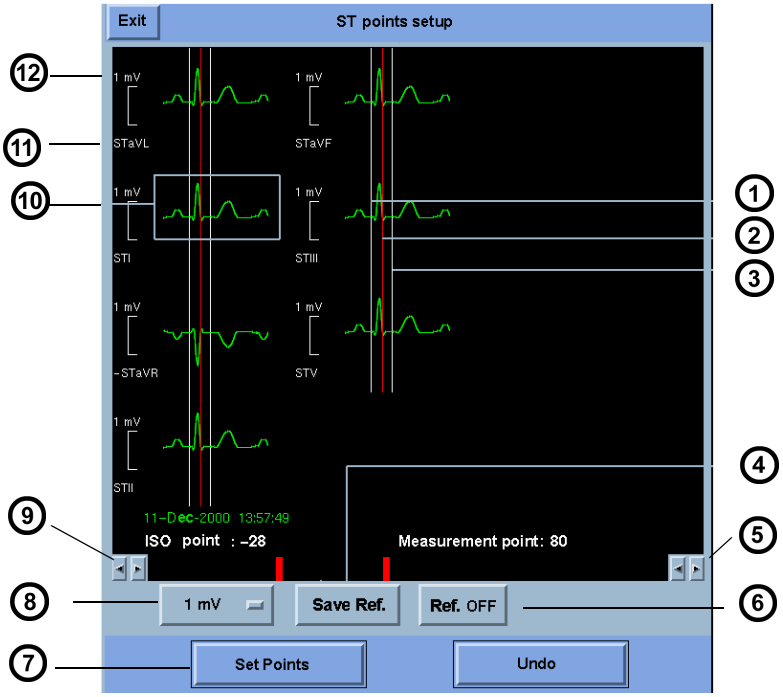
Hexaxial (Cabrera) Lead Support

NOTE: Infinity M300 does not support Hexaxial (Cabrera) display.

In Cabrera display mode (page 18-4), 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

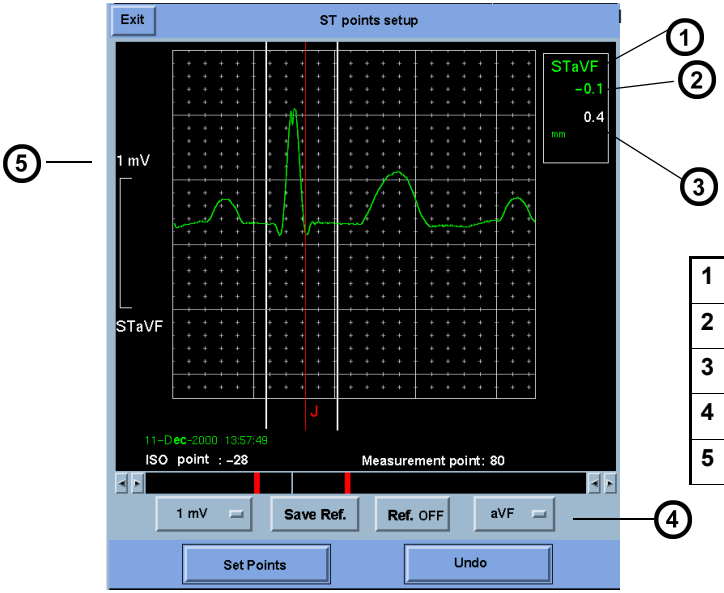
3-/5-wire 1-/7-lead		6-wire 12-lead		
I	aVF	I	aVF	V3, dV3
II	aVL	II	aVL	V4, dV4
III	V	III	V, V1, dV1	V5, dV5
aVR		aVR	V+, V2, dV2	V6, dV6

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.

Telemetry ST Setup Screen

Use the telemetry ST Setup screen 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 M300 this is fixed 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 5 for details on ST default settings.			• Click on **Restore System Defaults**.
• Click on **Accept** to change settings or **Undo** to keep previous selections.				

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 12-9). 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 13 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.

13 Alarms

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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, NIBP (Infinity Telemetry only) 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 can 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. (see 13-5)

Alarm Validation

Infinity Telemetry:

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 (12-9)	user-defined (12-9)

Infinity M300

NOTE: The Alarm delay time from an Infinity M300 device to the Infinity CentralStation is < 4 seconds.

Parameter	Upper Limit Alarm Delay	Lower Limit Alarm Delay
HR	6 seconds	6 seconds
SpO_2	6 seconds	10 seconds
PLS	6 seconds	10 seconds
ST	60 seconds	60 seconds

NOTE:

- If communication is interrupted between the network and the Infinity M300 device, monitoring will continue locally-and the Infinity M300 automatically sets its volume to 100%. Any alarms that are active at the time the Infinity M300 lost connection and all future alarms will be annunciated locally.
- If there is an active alarm while Infinity M300 has lost connection with the Infinity CentralStation, the display will not shut off despite the Infinity CentralStation Display Shut Off Timer setting (page 16-15). You can not shut off the display manually unless the alarm is paused.

For bedside monitor alarm delays, see the applicable monitor *Instructions for Use*.

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 (13-5). 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 (13-7).

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.

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 (13-4).

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 17.

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

Use an alarm group to configure monitors and telemetry patients 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 5-3. For bedside patients, you must set the alarm group at the bedside monitor. (Refer to the monitor *Instructions for Use*.)

Silencing Alarms

The Audio Pause (1 min) function clears all audible and visual alarm indicators for life-threatening and serious *latched* alarms (13-4). 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 Audio Pause (1 min)	• Silences active alarms for all local patients at the Infinity CentralStation for 1-minute.
Bed Audio Pause	• Silences active alarms for an *individual* bedside patient at the Infinity CentralStation **and** at the bedside monitor for 1-minute, when the Bed Audio Paused function is enabled at the Infinity CentralStation (4-3). • Silences alarms for an *individual* local telemetry patient.

NOTE:

- The *Audio Pause (1 min)* function also deactivates one-time alarms. The **Audio Pause (1 min)** button does not remain selected if it has deactivated a one-time alarm. Also, you cannot deactivate the *Audio Pause (1 min)* state by clicking on the **Audio Pause (1 min)** 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.
- The Audio Paused timer for Infinity M300 is 2 minutes.
- When the Infinity M300 is already in the Audio Pause state, if you press the Audio Pause button again at the Infinity CentralStation, the Audio Pause state will be cancelled.

After the *Audio Pause (1 min)* 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 **Audio Pause (1 min)** in the Main Screen menu bar, ***or***
- Press the **F1** fixed key.

A local Audio Pause (1 min) 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 **Audio Pause (1 min)** icon remain displayed.
- The orange ventilator MIB Alarm Tone icon remains displayed (for an MIB alarm).
- The **Audio Pause (1 min)** button remains selected.

After the Audio Pause (1 min) period expires, the alarm tone resumes if the alarm condition is still valid.

In contrast to a local Audio Pause (1 min), which silences **all** active alarms at the Infinity CentralStation only, a Bed Audio Pause silences all alarms for an individual patient at the Infinity CentralStation and at the bedside.

From Main Screen

- Click on the yellow **Audio Pause (1 min)** icon which appears during an alarm in the patient's waveform channel. If the icon appears ghosted for a bedside patient, the required Audio Pause (1 min) function has not yet been enabled at the Infinity CentralStation (4-3) 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 **Audio Paused** button in the Bed View menu bar.

NOTE: You cannot silence MIB ventilator alarms in Bed View. The 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 (4-3).
- 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.

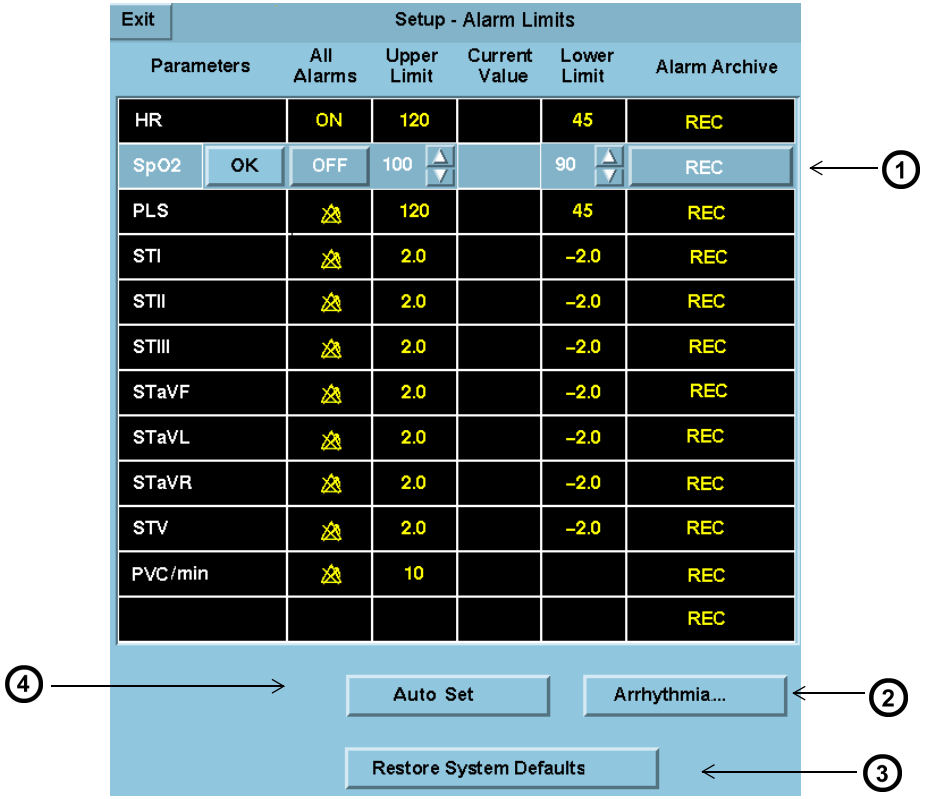
After the *Audio Paused* period expires, the alarm tone resumes if the alarm condition is still valid. Also, the visual alarm indication is reactivated.

NOTE: Bed Audio Paused does not affect the *Audio Paused* 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 depending on the parameters monitored. To adjust alarm tone see 4-3.

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 (13-13)

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 Paused** in the Bed View menu bar.

After you click on **Alarm Paused**, all current *Active* alarms clear and additional alarm events are suppressed for a predefined time (pages 5-3 and 6-3). During the *Alarm Paused* time period, the banner ALARM PAUSED and time remaining for the pause displays. For Infinity Telemetry only, the user can set the Alarm Pause function to "No Time Out". In this case the banner will say ALL ALARMS OFF instead.

Bedside Patient

1. Open patient's **Alarm Limits Setup** screen (13-11).
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 (13-11).
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 (13-11).
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 (13-12).

Turning Alarm Recordings ON/OFF

To configure timed recordings, see 4-5.

1. Open patient's **Alarm Limits Setup** screen (13-11).
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 (5-8) [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 (13-11).
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.	

14 Recordings / Reports

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Overview

WARNING: If you require a diagnostic quality recording you must use a Rest ECG Report (page 18-7). Using any recording other than Rest ECG Report may lead to misdiagnosis.

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

NOTE: The R50 recorder should always be installed and configured as part of the Infinity M300 system.

- An optional *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.

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 4-5).

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 7-13 for a list of Status messages.

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.

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 Infinity Central Stations 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 4-5. For telemetry-specific recording setup information see page 5-8.

Recording Types

Recording Type	Priority	Description	Alarm recording override
Continuous recording	1	A strip recording that runs until interrupted manually (generated from 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 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 10-5 and page 13-13.

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

Telemetry Recordings

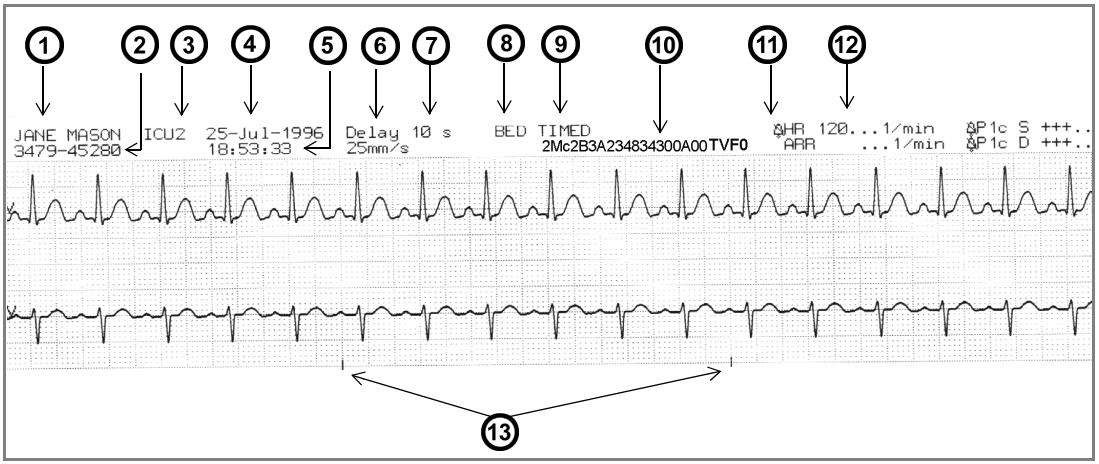
All alarm-generated telemetry strip recordings ignore *Manual* timed settings and use the following fixed settings.

- 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 14-8)
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 V	SC 9000 Delta/Delta XL/Kappa/GammaX XL SC 6000 Gamma/Gamma XL/Vista Infinity ACS Infinity Telemetry Infinity M300
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 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. To request a Simultaneous ECG Report see page 14-22.

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 14-22.

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 14-22.

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 14-22.

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 14-22.

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.

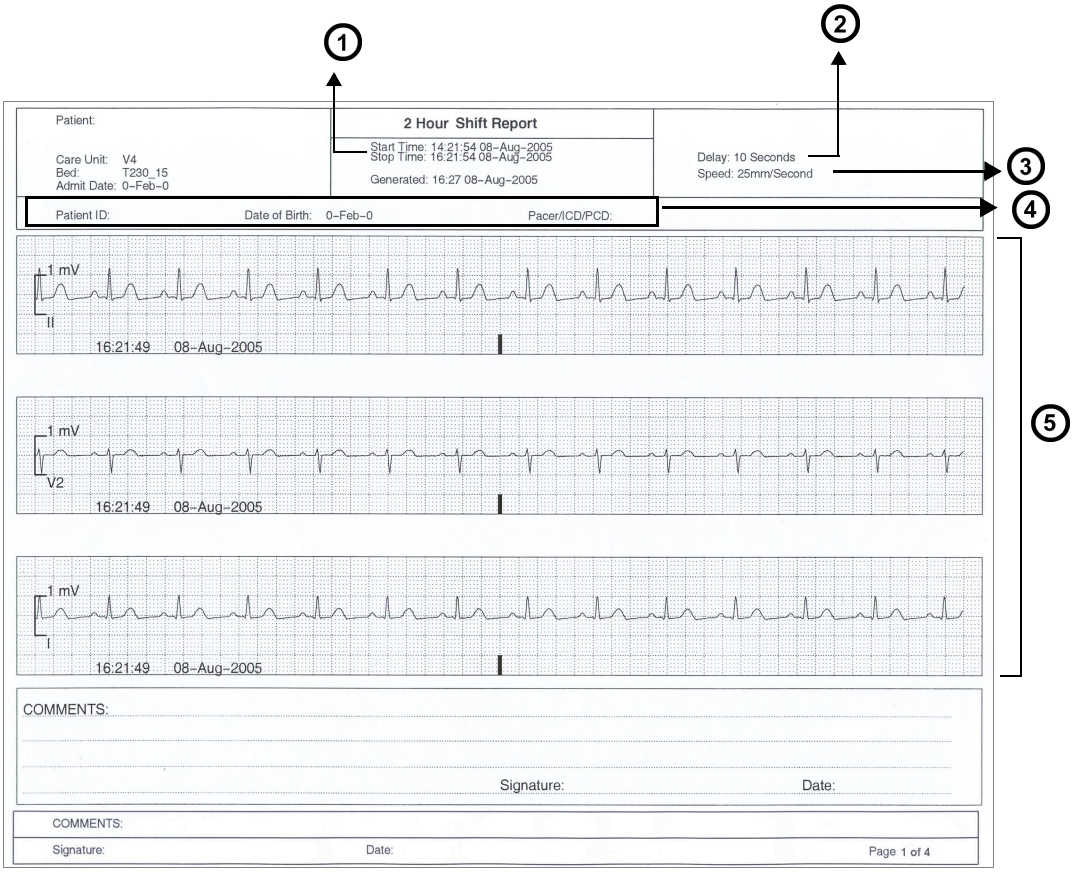
The shift report has four sections:

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 16-8).
- 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.

Shift Report Cover



1	Cursor time minus selected report length (2, 4, 8, 12, 24 hrs)
2	Delay
3	Recording Speed
4	Patient information
5	Each waveform contains 5 seconds of pre-event data and 5 seconds of real-time data.