Admitting Under Special Conditions

Circumstance	Effect on Admit Function
Bedside monitor is powering up.	Patient admission is not possible.
CPU/receiver is offline.	Patient admission is not possible.
Bedside monitor/bedside CPS/ transmitter cannot communicate with the network.	The MULTIVIEW WORKSTATION exits tl Admit screen without accepting any changes, displays a blank BEDVIEW screen, and generates a serious alar Patient admission is not possible.
The patient either goes into or comes out of standby.	No effect; the demographic informati can be viewed and edited.
The bedside monitor is removed for transport (PICK AND GO).	The MULTIVIEW WORKSTATION exits tl Admit screen without accepting chan and displays a blank BEDVIEW screen banner BED DISCONNECTED appear BEDVIEW and in CLUSTERVIEW. 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

Discharging a patient varies for different patient groups:

- all *non-telemetry patients* must be discharged at the bedsi monitor.
- *local telemetry patients* are discharged at the MULTIVIEW WORKSTATION.
- *remote telemetry patients* are discharged at their respectiv MULTIVIEW WORKSTATION. Remote discharge is not pos ble.

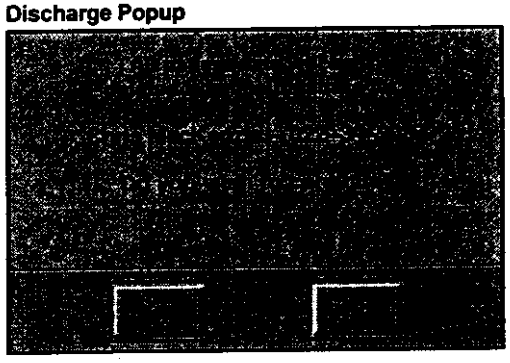
When you discharge a patient

- demographics are replaced by system defaults.
- all patient setup data such as alarm limits, arrhythmia setu etc. is replaced by system defaults.
- trends are deleted.
- all pending and active recordings are cancelled.
- the patient's channel is put into standby.

Steps: Discharging a Telemetry Patient

1. Access the patient's BEDVIEW screen.
2. Click on the **Admit** button in the BEDVIEW menu bar.
3. Click on the **Discharge...** menu selection. This activ Admit screen with the discharge popup window.

Discharge Popup



4. Click on the **Yes** button inside the popup to discharg patient or on the **No** button to cancel the discharge a miss the window.

8 Arrhythmia/ECG Monitorin

This chapter describes how to customize the arrhythmia s
an individual patient. For non-telemetry patients, these se
supersede the defaults of the bedside monitors. For telem
patients, these settings replace the defaults defined under
Arrhythmia Defaults menu (see chapter 4, *Telemetry Syst
Setup)*. In both cases, the original defaults are restored au
cally once you discharge the patient. At the end of this cha
messages associated with arrhythmia/ECG monitoring ta

Overview

For telemetry patients, the MULTIVIEW WORKSTATION perfor arrhythmia analysis in parallel to QRS processing, and on the same leads. For non-telemetry patients, these functions are exe cuted by the monitors.

After each QRS complex, the monitor computes the heart rate using the last eight R-R intervals. The two longest and two sh est R-R intervals are disregarded. The remaining R-R interval are averaged, and converted into the heart rate.

A learning period begins when arrhythmia monitoring is first enabled in order to form the beat classification template. After learning period is completed, the algorithm determines whethe or not a QRS complex is a paced beat and if it compares to the learned beat, in which case it is classified as normal. If the pre ous conditions are not met, the QRS complex is classified as a ventricular beat.

The system maintains one dominant normal template per moni tored lead against which it compares each detected beat for cla fication.

Because beat classification is difficult in the presence of exces sive baseline shift, the system examines the baseline continuou and considers each beat questionable if it exceeds a certain lim Arrhythmia monitoring resumes within 35 seconds after the la appearance of a baseline shift.

Because needs differ from patient to patient, you can configur each individual patient's arrhythmia setup separately. For exar ple, you can adjust the alarm grade, count and rate, as well as event storage and recording functions.

Relearning the Template

The purpose of the relearning process is to establish a be
fication template against which each detected beat is con
and classified.

An automatic relearning is initiated under the following
stances:

- arrhythmia monitoring is enabled for the first time.
- a patient comes out of standby.
- you change the processing mode (ECG1 or ECG 1&
- you assign a different lead to a channel.

During the learning process no arrhythmia events are rep
and the parameter area displays the abbreviation *LRN*.

NOTE: The algorithm only 'learns' the leads that are ava
For example, if you assign more than one lead and if only
these leads is available, the algorithm will learn that lead

We recommend that you initiate a relearning of the patie
mal template manually under the following circumstance

- 8 hours after the last relearning occurred
- after the patient's electrodes have been repositioned,
or disturbed
- if the message *CANNOT LEARN* <lead> or *CANNOT*
is displayed

Steps: Initiating a Relearning

Initiate a manual relearning of the patient's template as follow

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Relearn** button.
3. Click on the **Relearn ECG** button.

Once the learning phase is completed successfully, the assigne leads do not require a new relearn if they fall off and are recon nected.

If the message *CANNOT LEARN* is displayed in the patient's waveform channel, try to relearn once more and confirm the qu ity of the signal. If the message persists, reposition or replace t electrodes after cleaning the skin site thoroughly, then try to relearn again.

➤ **NOTE:** Whenever you click on **Relearn ECG**, a relearning of t arrhythmia template is initiated. If the ST option is unlocked, th ST algorithm also performs a relearn of the ST template. During the ST relearn, the ST parameter box appears blank (there is no *LRN* message).

Restoring Arrhythmia System Defau

For Telemetry patients the arrhythmia system defaults an and setup at the MULTIVIEW WORKSTATION (see chapter *Telemetry System Setup,* for detailed information). For nc telemetry patients these system defaults are stored at the monitor (see the operating instructions of the bedside mo information on default settings).

Although system defaults are restored automatically whe discharge a patient, you can restore them manually at any For non-telemetry patients you must reactivate the defaul bedside monitor (consult the appropriate User's Guide). I telemetry patients, you can restore the defaults directly at MULTIVIEW WORKSTATION.

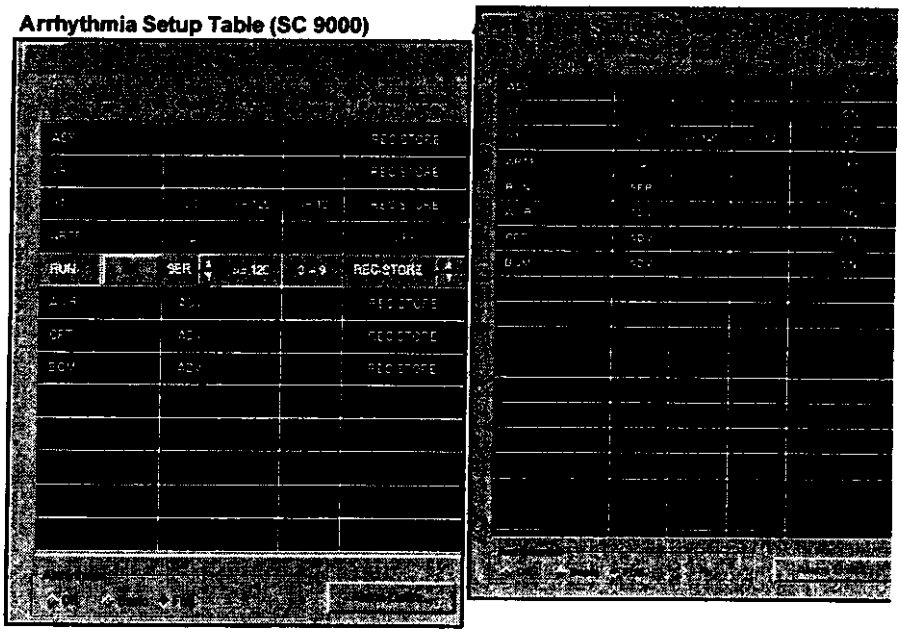
Steps:

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection to displa arrhythmia setup table.
4. Click on the **Restore System Defaults** button.

Customizing a Patient's Arrhythmia Setup

The Setup Arrhythmia Table allows you to setup arrhythmia functions for telemetry and non-telemetry patients alike. Depending on whether or not you are dealing with an SC 600(or an SC 9000 bedside monitor, the last column in the Arrhyth mia Setup table varies slightly (see illustrations below). If a telemetry patient is admitted to Event Disclosure, the arrhyth- mia setup table with the 'Alarm Archive' column appears. If the telemetry patient is *not* admitted to Event Disclosure, the arrhythmia setup table resembles the SC 6000 table, which does not have the STORE and REC/STORE setting.The first column of the table lists the events that the bed can detect. Th remaining columns are for modifying the attributes of each event. Fields that are not applicable for a certain event categor are blank, while those that cannot be modified are ghosted. Once you are finished with your setup of a parameter, click or the **OK** button within the selected row to store your selection and dismiss the configuration buttons.

Arrhythmia Setup Table (SC 9000)



NOTE: For SC 6000 series monitors the setup arrhythmia table only contains information for VT parameters and the only available alarm grade setting is life-threatening (LT).

Selecting the Arrhythmia Mode

The MULTIVIEW WORKSTATION has three different arrh modes. The selected mode determines the amount of par ters that are included in arrhythmia processing. The choi and available parameters are listed in the following table

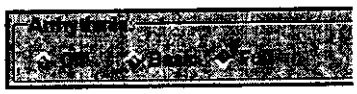
Setting	Available Event Categories
Basic	ASY, VF, VT (Ventricular Tachycardia), ARTF **Note**: For this setting, SC 6000 series monitors report only VT e
Full	ASY, FIB, VT, RUN, AIVR, CPT, BGM, ARTF
OFF	No arrhythmia monitoring is performed.

Note: *Bedside monitors*: the 'Full' arrhythmia capability at the MULTIVIEW WORKST is only active if the bedside monitor has the full arrhythmia capability also.
If you select 'OFF', the arrhythmia setup table and the arrhythmia field within the pati parameter area appear blank.

⚠ *CAUTION: If arrhythmia monitoring is turned off, arrh event alarms are also automatically turned off. The only e tions are asystole and ventricular fibrillation events, whic always generate an alarm since they are part of the ECG toring. However, these two events will not cause an alarm HR alarm function is also turned off. It is therefore recom mended that HR alarms are always turned on (see chapte MultiView WorkStation Setup) to ensure an audible al asystole and ventricular fibrillation events.*

Steps: Selecting the Arrhythmia Mode

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the desired **Arrhythmia** radio button below the arrhythmia setup table.



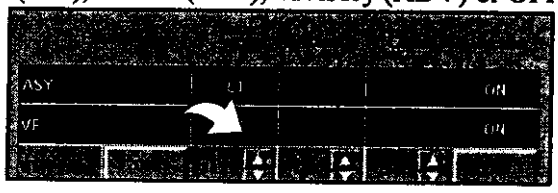
Assigning an Alarm Grade to an Event

The alarm grade determines how an event is reported visually and audibly at the MULTIVIEW WORKSTATION. Please see cha ter 11, *Alarms* for more information on the various alarm grad

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category for which you wish to select an alarm grade (the up/down arrows for that row are activated).

   NOTE: For SC6000 Series monitors, the Setup Arrhythmia Table only contains information for VT parameters and the only available alarm grade setting is life-threatening (LT).

5. Click on the up/down arrows in the "Alarm Grade" colum and scroll to one of the available settings: life threatening (L-T), serious (SER), advisory (ADV) or OFF (no alarms)



NOTE: The above illustration shows the arrhythmia setup table for an SC 6000 monitor or a Telemetry patient who has not yet been admitted to Event Disclosure. The columns in the Alarm Limits table for SC 9000 monitors (VC0) or a telemetry patient who has been admitted to Event Disclosure/Full Disclosure are identical except for the last column, labeled 'Alarm Archive' (with the settings STORE and REC/STORE) instead of Record

Once you have selected an alarm grade, the list disappears and the corresponding field in the table displays the new selection.

6. Click on the **OK** button next to the parameter label to confirm your change and transmit it to the bedside monitor.
7. Repeat steps 4 and 5 for additional events.

Setting the Rate and the Count

The ranges for event rates and counts are listed in the fol
table. The shaded table cells designate settings that cann
modified.

Event	Count (in beats)	Rate (in beats)
ASY		
VF		
VT	5 - 15 (increments of 1) Default: ≥10)	100 - 200 (increments of 1) Default: ≥ 120
ARTF		
RUN	Not adjustable; upper value is VT count - 1. Default: 3 - 9	Not adjustable; same as VT rate. Default: ≥ 120
AIVR	Not adjustable Default: ≥ 3	Not adjustable, upper value is VT rate - 1. Default: ≥ 119
CPT		
BGM		

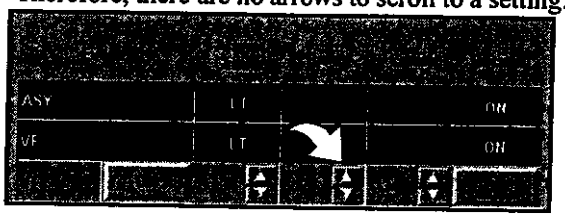
NOTE: Some arrhythmia settings are based on the Rate a
settings for other calls (e.g. RUN is dependent on the VT

Setting the Rate

The rate setting determines at what point an event call is trigge (in coordination with the count, if appropriate).

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category for which you wish to select a rate setting. The up/down arrows for that r are thus activated.
5. Click on the up/down arrows in the "Rate" column that become available to scroll to the desired setting (see table on page 8-9 for available settings).

➤ **NOTE:** Some arrhythmia settings are based on the Rate and Co settings for other calls (e.g. RUN is dependent on the VT setting Therefore, there are no arrows to scroll to a setting.



➤ **NOTE:** The above illustration shows the arrhythmia setup table for an SC 6000 monitor or a Telemetry patient who has not yet been admitted to Event Disclosure. The columns in the Alarm Limits table for SC 9000 monitors (VC0) or a telemetry patient who has been admitted to Event Disclosure/Full Disclosure are identical except for the last column which is labeled 'Alarm Archive' (with the settings STORE and REC/STORE) instead o Record.

6. Click on the **OK** button next to the parameter label to confi your change.
7. Repeat steps 4 and 5 if you wish to configure additional events.

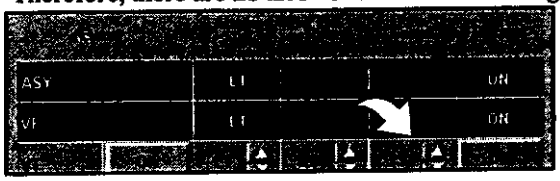
Setting the Count

The count indicates at what point an event call is triggere
coordination with the rate, if appropriate).

Steps:

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category for whic wish to select a count setting (the up/down arrows fo row are activated).
5. Click on the up/down arrows in the "Count" column become available to scroll to the desired setting (see p for available settings). Event-specific increments are

➤ **NOTE:** Some arrhythmia settings are based on the Rate ar settings for other calls (e.g. RUN is dependent on the VT s Therefore, there are no arrows to scroll to a setting.



➤ **NOTE:** The above illustration shows the arrhythmia setu for an SC 6000 monitor or a Telemetry patient who has no been admitted to Event Disclosure. The columns in the Al Limits table for SC 9000 monitors (VC0) or a telemetry pa who has been admitted to Event Disclosure/Full Disclosur identical except for the last column which is labeled 'Alar Archive' (with the additional settings STORE and REC/ST instead of Record.

6. Click on the **OK** button next to the parameter label to your change.
7. Repeat steps 4 and 5 if you wish to configure additio events.

Turning Event Recordings On or Off

When an event's alarm recording function is turned on, a time recording is generated automatically for each validated alarm condition.

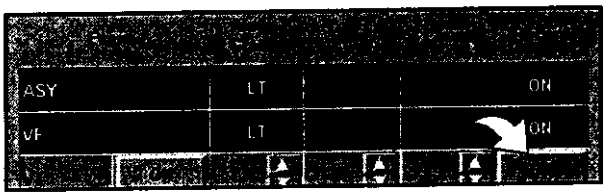
A timed recording consists of pre-event and post-event data. T recording duration and the ratio of pre-event and post-event d is configurable in the Setup Recorders menu (see page 3-10 fc detailed information).

Activating the alarm recording feature differs slightly dependi on whether you are dealing with an SC 6000 (see page 8-13), SC 9000 monitor (see page 8-14) or a telemetry patient (see pa 8-15 and page 8-16).

SC 6000 Monitors

Steps: Turning the event recording function on/

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category whose r setting you wish to change. The up/down arrows for are thus activated.
5. Click on the **ON/OFF** button in the "Record" colum button toggles to the opposite state.



6. Click on the **OK** button next to the parameter label to your change.
7. Repeat steps 4 and 5 if you wish to configure additio events.

SC 9000 Monitor

Steps: Turning the Event Recording Function On/Of

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category whose record setting you wish to change. The up/down arrows for that r are thus activated.
5. Click on the up/down arrow buttons in the "Alarm Archiv column and scroll to the setting 'REC'.

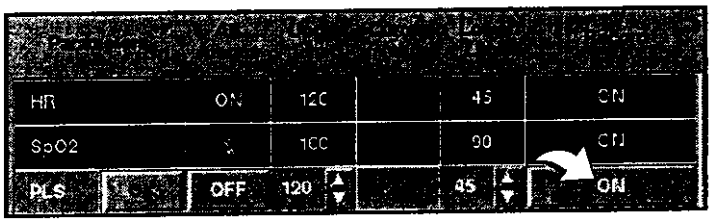
NOTE: On SC 9000 monitors prior to VC0, the event storage function was optional and has to be activated separately. The ab illustration shows an SC 9000 with software version VC0 or on with an earlier version whose event storage function is enabled. event storage is not enabled on a software prior to VC0, the last column is labeled RECORD and the available settings are 'On' a 'Off'.

6. Click on the **OK** button next to the parameter label to confi your change.
7. Repeat steps 4 and 5 if you wish to configure additional events.

Telemetry Patient (NOT admitted to Event Disclo

Steps: Turning the Event Recording Function Or

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the parameter whose alarm ing function you wish to change. This activates the pa ter's alarm setup mode.
5. Click on the **ON/OFF** button in the 'Record' column button toggles to its opposite state.



6. Click on the **OK** button next to the parameter label to your change and transmit it to the bedside monitor.
7. Repeat steps 4 and 5 to modify additional parameters

Telemetry Patient (admitted to Event Disclosure)

Steps: Turning the Event Recording Function On/Of

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the parameter whose alarm reco ing function you wish to change. This activates the param ter's alarm setup mode.
5. Click on the up/down arrow buttons in the "Alarm Archiv column and scroll to the setting REC.

6. Click on the **OK** button next to the parameter label to confi your change and transmit it to the bedside monitor.
7. Repeat steps 4 and 5 to modify additional parameters.

Turning Event Storage On or Off

NOTE: This function is only available for SC 9000 moni software VC0 or earlier versions with event storage enable Telemetry patients who are admitted to Event Disclosure.

When an event's storage function is turned on, waveform stored automatically for each occurrence of the event (the function does *not* have to be turned on for events to be st

This function allows you to significantly reduce the amou alarm strip recordings by enabling you to *store* instead of clinically relevant events for a patient. Later you can revie stored recordings and either print or delete them providec patient is admitted to the Event Disclosure system. Refer *Event Disclosure (Option)* section for detailed informatic accessing stored events at the MULTIVIEW WORKSTATIOI

Each stored event is 18 seconds long , the first 9 seconds having been collected before the event and the last 9 secc after.

At the MULTIVIEW WORKSTATION you can only enable a able the event storage function for telemetry patients and 9000 monitors. You cannot turn event storage on or off f 6000 monitors because there is no local event storage opt However, if an SC 6000 monitor is admitted to the Event sure application, *all* alarm conditions are sent to Event Di sure.

SC 9000 Monitors/Telemetry

NOTE: This function is only available for SC 9000 monitors w software VC0 or earlier versions with event storage enabled and Telemetry patients who are admitted to Event Disclosure.

Steps: Turning the Event Storage Function On/Off

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Setup** button.
3. Click on the **Arrhythmia...** menu selection.
4. Click on the table row of the event category whose record setting you wish to change (the up/down arrows for that rc are activated).
5. Click on the up/down arrow buttons in the 'Alarm Archive column and scroll to the setting 'REC'.

6. Click on the **OK** button next to the parameter label to confi your change.
7. Repeat steps 4 and 5 if you wish to configure additional events.

Arrhythmia Beat Classification

The following table lists the available beat classification: order of their priority. These abbreviations appear in the ter area and identify a certain event. If two or more diffe events occur simultaneously, the MULTIVIEW WORKSTA reports the one with the highest priority.

Abbreviation	Definition
LRN	Learning is in progress
ASY	Asystole
VF	Ventricular fibrillation
VT	Ventricular tachycardia
RUN	Ventricular run
AIVR	Accelerated idioventricular rhythm
CPT	Ventricular couplet
BGM	Bigeminy
ARTF	Artifact

Alarm Setup

Event/HR alarms are reported when set alarm limits are violat
Please refer to chapter 11, *Alarms* for detailed information on
ting up the various alarm functions outlined in the following
table. For a detailed list of arrhythmia/ECG messages that ide
tify the alarm cause and contain suggestions for troubleshooti
refer to page 8-21.

Setup function	Location of Instruction
Turning all alarms on/off	Chapter 11, page 11-16
Setting alarm limits	Chapter 11, page 11-18
Automatic alarm limit calculation for all patients	Chapter 11, page 11-20
Turning the alarm recording function on/off	Chapter 11, page 11-21
Turning alarm storage function on/off	Chapter 11, page 11-26

Arrhythmia Messages

The arrhythmia program produces numerous messages th
tify alarms or technical conditions that warrant your atter

Status Messages

Message		Description	Action?
Parameter Value	**Status Area**		
ARR:<blank>		• Regular rhythm is detected. • Paced rhythm is detected. • Arrhythmia monitoring is turned off.	
ARR:LRN	*ECG Relearning*	Arrhythmia is 'learning' the patient's QRS morphology to build a reference template.	Wait until the l period ends.
ARR:<blank>	*Cannot learn <lead label>*	Unable to relearn on the indicated lead. **Note:** An attention tone sounds at the MULTIVIEW WORKSTATION.	Try to initiate a ing phase ma (see page 8-4 fails again, re or replace the trodes after cl the skin site th oughly.
ARR:<blank>	*Cannot learn*	Unable to learn on any lead. **Note:** An attention tone sounds at the MULTIVIEW WORKSTATION.	

Arrhythmia Alarm Messages

The alarm messages listed in the following table pertain to the arrhythmia parameters. These alarm messages are displayed ir the status area in CLUSTERVIEW and in the top waveform channel in BEDVIEW. In addition, the parameter areas display an abbreviated message in the appropriate parameter field.

Alarm Message		Default Alarm Grade	Description	Action
Parameter Area	**Status/Information Area**			
ARR:ASY	*Asystole*	L-T	An asystole has been detected.	Check the patient anc treat appropriately.
ARR:VF	*Ventricular Fibrillation*	L-T	A ventricular fibrillation has been detected.	Check the patient anc treat appropriately.
ARR:VT	*ARR: Ventricular Tachycardia*	L-T	A ventricular tachycardia has been detected.	Check the patient anc treat appropriately.
ARR:RUN *	*ARR: Run*	selectable	A ventricular run has been detected.	Check the patient anc treat appropriately.
ARR:AIVR *	*ARR: Accelerated Idioventricular*	selectable	An Accelerated idioventricular rhythm as been detected.	Check the patient anc treat appropriately.
ARR:CPT *	*ARR: Couplet*	selectable	A ventricular couplet has been detected.	Check the patient anc treat appropriately.
ARR:BGM *	*ARR: Bigeminy*	selectable	A ventricular bigeminy has been detected.	Check the patient anc treat appropriately.
ARR:ARTF *	*ARR: Baseline Artifact*	selectable	Baseline artifact has been detected (too many questionable beats).	Make sure you have observed proper ECG preparation.

** For all of these event categories you can choose the alarm grade chapter 11, Alarms*

ECG Alarm Messages

The alarm messages listed in the following table pertain
HR parameter. These alarm messages are displayed in th
tus area in CLUSTERVIEW and in the top waveform chan
BEDVIEW. In addition, the parameter areas display an ab
ated message in the appropriate parameter field.

Alarm Message		Default Alarm Grade	Description	Action
Parameter Area	**Status/Information Area**			
HR: ASY	Asystole	L-T	Asystole	Check the patie treat appropriat
HR: VF	Ventricular Fibrillation	L-T	Ventricular fibrillation	Check the patie treat appropriat
HR <value>	HR > UL	SER	HR value exceeds upper alarm limit.	•Check the pati •Change the lin
HR <value>	HR < LL	SER	HR value is below the lower alarm limit.	•Check the pati •Change the lin
HR +++	HR Out of Range (High)	SER	Parameter value is outside the device's measuring range.	Hardware cond your Biomed or Siemens servic
*HR:**** *ARR:blank* *PVC/min:blank*	ECG Leads Invalid	ADV	QRS processing leads are invalid for 10 seconds or more or the ECG signal is not available.	Make note of a sages and dete cause of the ab signal.
*HR:*A** *ARR:blank* *PVC/min:blank* *STx:blank*	ECG Artifact	ADV	Persistent artifact.	Reapply electr proper prep tec
*HR:*L** *ARR:*L** *PVC/min:*L** *STx:*L**	LA Lead OFF[1] RA Lead OFF[1] LL Lead OFF[1] RL Lead OFF[1] Chest Lead OFF[1]	ADV	Indicated electrode is disconnected.	Check the resp trode connectio

[1] *These are one-shot alarms. Once you acknowledge them, they clear even though the condition m valid.*

9 MicrO$_2$ Monitoring

This chapter describes how to setup a Telemetry patient f
monitoring using a MicrO$_2$ oximeter. For non-telemetry
these functions are configured at the bedside monitors.

Overview

NOTE: Before you start your MICRO$_2$ monitoring session, read precautions listed in the front of this User's Guide on page viii.

MICRO$_2$ monitoring consists of determining 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 l els of red and infrared light. Since oxyhemoglobin and deoxyl moglobin 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 urated hemoglobin. Because light absorption varies with bloo volume and blood volume varies with the pulse rate, a pulse r can also be derived.

Screen icons and acoustic alarms alert you to limit violations, l battery conditions and sensor malfunctioning. The MULTIVIEW WORKSTATION displays SpO_2 values and the pulse rate in blu (there is no waveform data transmitted at the MICRO$_2$).

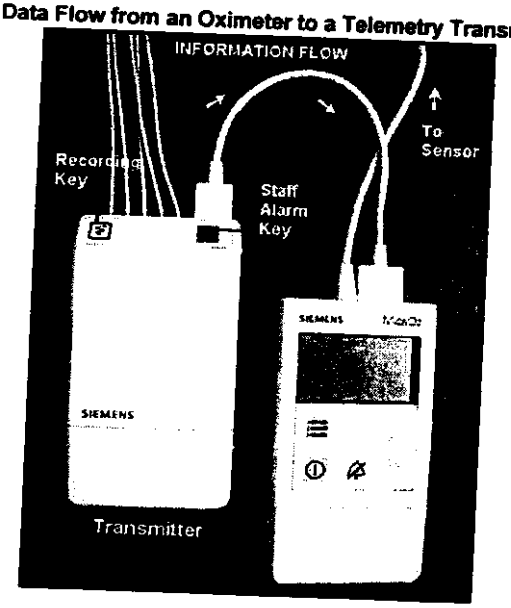
NOTE: Recycle and dispose of all batteries properly according EC Directive 91/156/EWG or equivalent, country-specific regul tion.

WARNING: To avoid explosion, do not recharge or d assemble a battery or dispose of it in fire.

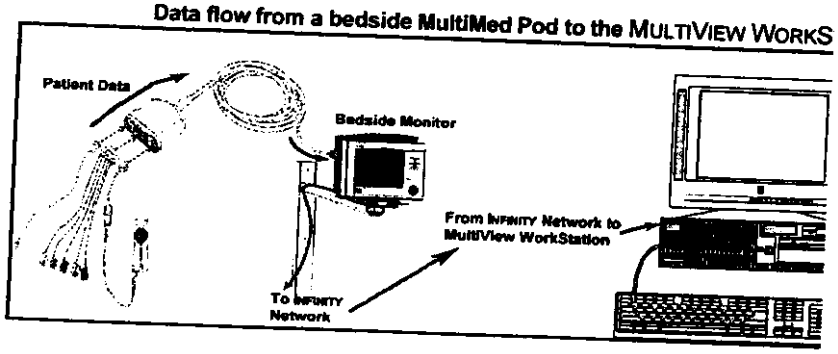
Signal Acquisition

For telemetry patients, the detected values are sent direct
transmitter, which relays them to the MULTIVIEW WORKS
for display (for non-telemetry patients, the signals are se
MULTIMED pod before being transmitted to the MULTIVIE
WORKSTATION).

Data Flow from an Oximeter to a Telemetry Transmitter



Data flow from a bedside MultiMed Pod to the MULTIVIEW WORKS



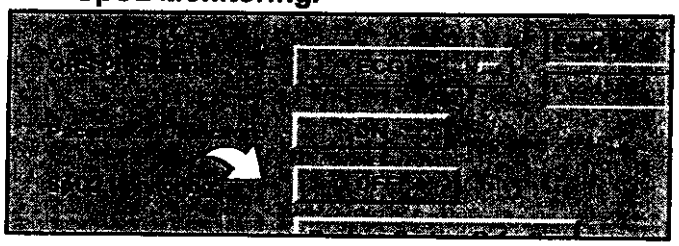
Turning MICRO$_2$ Monitoring On/Off

If MICRO$_2$ monitoring has been enabled as a system default (see page 4-10), you can turn it on or off for an individual teler try patient as follows:

WARNING: Please refer to the information entitled *MicrO2 Precautions* in the front of this User's Guide.

Steps:

1. Access the patient's BEDVIEW.
2. Click on the **Setup** button.
3. Click on the **Telemetry ▶** button (if this button is not vis ble, the Telemetry option must first be unlocked by your Biomed).
4. Click on the **Patient View** menu selection.
5. Click on the **ON/OFF** button next to the menu selection **SpO2 Monitoring.**



NOTE: If the button appears ghosted, the SpO$_2$ monitoring is d abled as a system default.

6. Click on the **Accept** button to confirm your selection or o the **Undo** button to retain the previous selection and exit t menu.

If SpO$_2$ monitoring is enabled as a system default, but turned c for an individual patient, the SpO$_2$ field within the parameter b appears blank.

For non-telemetry patients, refer to the respective User's Guid for detailed information on how to enable/disable this function

Display of MICRO$_2$

When MICRO$_2$ monitoring is turned on, the parameter are plays the following additional information:

- SpO_2 value and alarm limits (or crossed bells if alarms are turned off)
- Pulse rate (PLS) and alarm limits (or crossed bells if alarms are turned off)

MICRO$_2$ Alarm Functions

The MULTIVIEW WORKSTATION controls all SpO_2 and pulse r alarms. Therefore, all alarm setup functions must be performec the MULTIVIEW WORKSTATION. Refer to the sections outlinec the following table for specific setup instructions of the variou alarm functions.

Setup function	Location of Instruction
Turning all alarms on/off	Chapter 11, page 11-16
Setting alarm limits	Chapter 11, page 11-18
Automatic alarm limit calculation for all patients	Chapter 11, page 11-20
Turning the alarm recording function on/off	Chapter 11, page 11-21
Turning alarm storage function on/off	Chapter 11, page 11-26

In the event of an SpO_2/pulse limit violation or a technical cor tion such as a weak signal at the sensor, the MULTIVIEW WOR STATION initiates an audible alarm and displays a correspondi message. In addition, the display area on the oximeter identifi the alarm cause with a code. For example, the alarm message MICRO$_2$ *Weak Signal* at the MULTIVIEW WORKSTATION is ide fied at the oximeter with the code *P6*.

For a detailed list of MICRO$_2$ messages that identify the alarm cause and contain suggestions for troubleshooting, refer to pag 9-7.

MICRO$_2$ Alarm Messages

The alarm messages listed in the following table pertain t
MICRO$_2$ parameters. These alarm messages are displayed
status area in CLUSTERVIEW and in the top waveform ch
BEDVIEW. In addition, the parameter areas display an abb
message in the appropriate parameter field. At the MICRO
oximeter an additional code such as P1 identifies the aları
Please refer to the MICRO$_2$ operating instructions for furt
details.

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 patie •Reset the alarm
PLS: <value>	*PLS < LL*	SER	Parameter value is below the lower alarm limit.	•Check the patie •Reset the alarm
PLS: +++	*Pulse rate out of range*	SER	The pulse rate is outside the measurement range.	•Check the patie •Reset the alarm
SpO$_2$: <value>	*SpO$_2$ > UL*	SER	Parameter value exceeds the upper alarm limit.	•Check the patie •Reset the alarm
SpO$_2$: <value>	*SpO$_2$ < LL*	SER	Parameter value is below the lower alarm limit.	•Check the patie •Reset the alarm
SpO$_2$: "U" *PLS: "U"* *P1 (at oximeter)*	**MICRO2** *sensor unplugged*	ADV	Sensor is disconnected from the oximeter.	•Check all cable tions. •Replace sensor sary.
SpO$_2$: "A" *PLS: "A"* *P2 (at oximeter)*	**MICRO2** *transparent*	ADV	Sensor cannot detect any signals.	•Check the patie •Check sensor a ply or replace it sary.
SpO$_2$: "A" *PLS: "A"* *P3 (at oximeter)*	**MICRO2** *Opaque*	ADV	Sensor does not detect any light.	Make sure the LI oximeter is not t

Alarm Message		Alarm Grade	Description	Action
Parameter Area	Status/Information Area			
SpO_2: *"A"* *PLS: "A"* *P4 (at oximeter)*	**MicrO2** *Artifact*	ADV	Motion artifact	•Make sure the patient remains as still as pos ble. •Check the sensor; rea ply or replace it if nece sary.
SpO_2: *"A"* *PLS: "A"* *P5 (at oximeter)*	**MicrO2** *regulation error*	ADV	Too much ambient light	Cover the sensor with a opaque material.
SpO_2: *"A"* *PLS: "A"* *P6 (at oximeter)*	**MicrO2** *Weak Signal* *	ADV/ SER *	Pulse is weak or nonexistent.	•Check the patient. •Check sensor/oximete and reapply or replace if necessary.
SpO_2: *"N"* *PLS: "N"*	**MicrO2** *No Signal*	ADV	No signal is available from the oximeter.	Check connections and the $MicrO_2$ battery.

* **Note:** After the 30-second advisory alarm, this alarm condition is upgraded to serious (to insure that co ditions like shock do not go unnoticed).

10 ST Segment Analysis (Opti

This chapter describes the ST analysis option of the MULT WORKSTATION and the corresponding setup functions. Fo segment analysis to become available, the option has to be unlocked in the Biomed menu. The ST setup functions de in this chapter are only applicable for telemetry patients (1 setup of non-telemetry patients, consult the User's Guide corresponding bedside monitor).

At the end of the chapter is a list of alarm messages that p exclusively to the ST segment analysis.

Overview

ST deviation measurements are performed on averaged ECG s ments. An averaged ECG segment is 900 ms long (to include t entire QRS complex and the ST segment) and is calculated fror minimum of 4 normal QRS complexes that occurred during th previous 15 seconds.

To eliminate the effects of artifact, only normal beats are included in the average (if no normal beats are available, the c responding ST field in the parameter box appears blank and nc complex is displayed). As soon as a new averaged complex is available, the existing complex is replaced.

ST monitoring is available as a locked option and must be enabled by your Biomed.

ST parameters are included in the trend function, and you can configure the ST setup functions as for any other parameter (see chapter 11, *Alarms*).

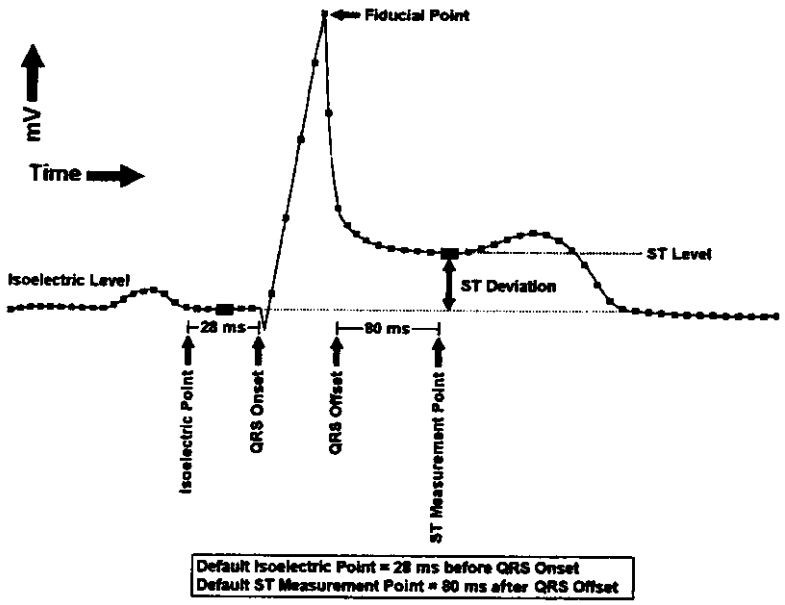
Depending on the system default setting, the ST units of measi appear either in mm or in uV.

ST Segment Morphology

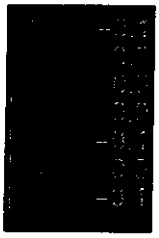
ST segment deviations are defined in terms of displacem mm) above or below the isoelectric level. The measurem compares the *isoelectric point* to the ST deviation measu point.

The isoelectric point defines the point of zero voltage (nc cal activity, 0 mm) with a default position of 28 ms befoi onset of the QRS complex on the horizontal (time) axis. deviation point occurs in the ST segment between the QR (J point) and the T-wave, at a default position of 80 milli after the QRS offset.

The value of the ST measurement point (in mm) is comp the isoelectric point value, and the difference between the ST deviation. The onset and offset points for the QRS co are determined by the QRS detection algorithm.



Parameter Display



As soon as the ST option is unlocked, the size of the parameter area is enlarged to accommodate the ST parameters. It lists the ECG leads (up to a maximum of seven) that have been selected by the user as sources for ST analysis (see page 10-17).

If the transmitter is configured for 3-lead mode, the ST values for lead II are displayed. In 5-lead mode, all sev ST deviation measurements are displayed.

As is true for any other parameter, either the selected alarm limi or crossed bells (if alarms are turned off) are displayed.

Relearning ST

The monitor initiates a relearn automatically under the fc circumstances:

- whenever you enable ST for the first time
- after you change leads
- when the patient comes out of standby
- after a device restart

You can also initiate a relearn manually at any time.

Steps: Initiating a relearn

1. Access the patient's BEDVIEW screen.
2. Click on the **Relearn** button, located in the upper pc the screen.
3. Click on the **Relearn ECG** button.

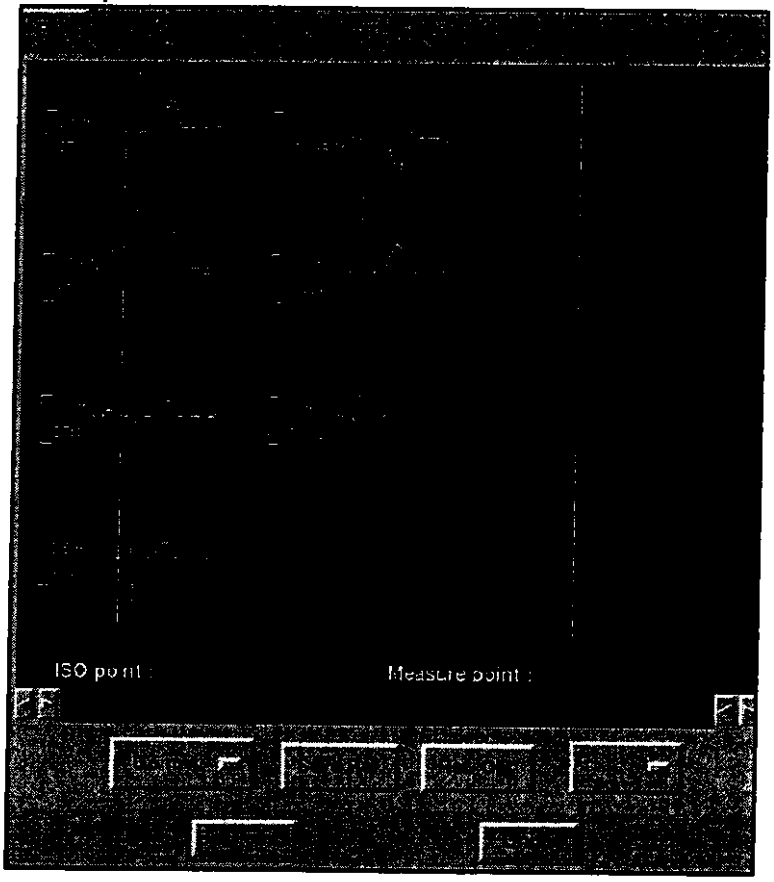
While the relearning is in progress, the ST fields within t parameter area appear blank. In addition, the message AF RELEARNING appears in the information area of the BED screen.

A vertical tic mark in the ST trend graphs marks the time relearn, and the letter 'R' is displayed if you move the tre sor on the tic mark. Also, for each relearn an entry is mac clinical events log.

Setup ST Points Menu

The Setup ST Points menu displays the current averaged comp for each lead with the corresponding ST deviation measureme values and time stamps. In addition, you can customize an ind vidual patient's ST functions and temporarily supersede the sy tem defaults until the patient is discharged or you restore the defaults manually.

The Setup ST Points menu



NOTE: If any of the buttons appear ghosted, remote control fo that patient is disabled.

Accessing the Setup ST Points Menu

1. Access the patient's BEDVIEW.
2. Click on the **Setup** button.
3. Click on the **ST Points** button to activate the menu.

The following sections discuss the available functions of Setup ST Points menu.

Display Order of ST Complexes

As the following table illustrates, the averaged ST compl displayed in a fixed matrix in the Setup ST Points menu, can accommodate up to 12 leads.

I	aVF	(blank)	I	aVF	V:
II	aVL	(blank)	II	aVL	V.
III	V	(blank)	III	V1	V:
aVR	(blank)	(blank)	aVR	V2	V(

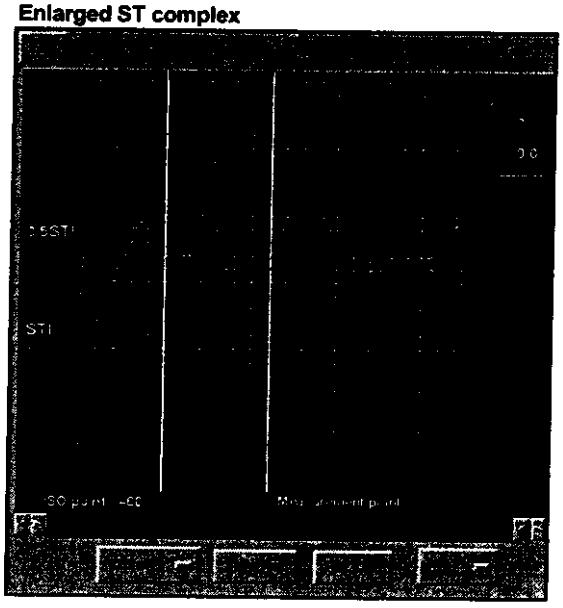
The averaged complexes and corresponding ST deviatior surements and time stamps are updated as each new com computed. If an averaged complex is not available, the re display area appears blank. You can change the gain of tl plexes and adjust the measurement points (see page 10-6

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

Zoom Mode

To examine an individual ST complex in greater detail and vie
the current ST measurement point selections, click on the desi
complex in the Setup ST Points menu to enlarge it.

Enlarged ST complex



The expanded complex is labeled with a lead label, ST deviati
measurements, a scale bar and a display gain. The screen
becomes blank if you select a gain that doesn't allow the whol
complex to fit on the screen.

Changing the ST Deviation Measurement Poin

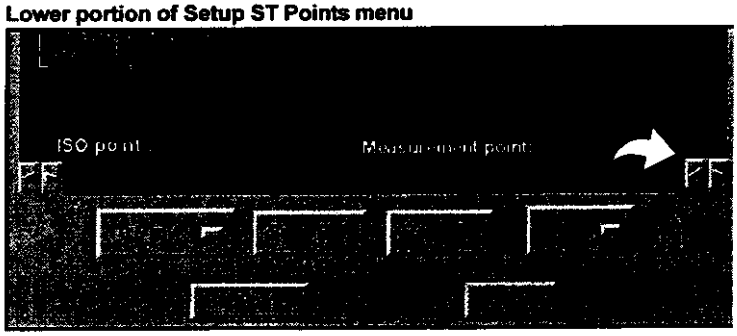
The ST deviation point is set from the QRS offset (or fid point) to the end of the displayed ECG complex (includir wave). The default setting is 60/80 ms.

Steps:

1. Access the patient's Setup ST Points menu (see page

2. Click on the left/right arrow buttons (see illustration) lower right corner of the Setup ST Points menu to sc the desired setting. The setting changes in 4 ms incre each time you click on the arrows.

Lower portion of Setup ST Points menu



3. Click on the **Set Points** button to activate your sele on the **Undo** button to retain the previous selection.

NOTE: Changing measuring points does not affect previ segment analysis.

As you change the measurement points, the ST deviation recomputed and the current value is displayed next to the *Measurement point:* A vertical marker is inserted into the trend graphs and a corresponding entry is stored in the cl events log. If you move the trend cursor over the marker, t 'M' becomes visible.

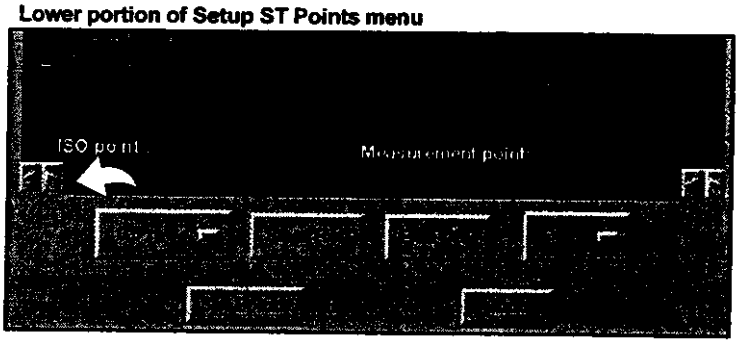
Changing the Isoelectric Point

You can define the *isoelectric measuring point* on the wavefo from the beginning of the complex to the fiducial point. The default is set at -28 ms.

Steps:

1. Access the patient's Setup ST Points menu (see page 10-7
2. Click on the left/right arrow buttons (see illustration) in th lower left corner of the Setup ST Points menu to scroll to desired setting. The setting changes in 4 ms increments ea time you click on the arrows.

Lower portion of Setup ST Points menu



3. Click on the **Set Points** button to confirm your selection on the **Undo** button to retain the previous selection.

NOTE: Changing the isoelectric point does not affect previous segment analysis.

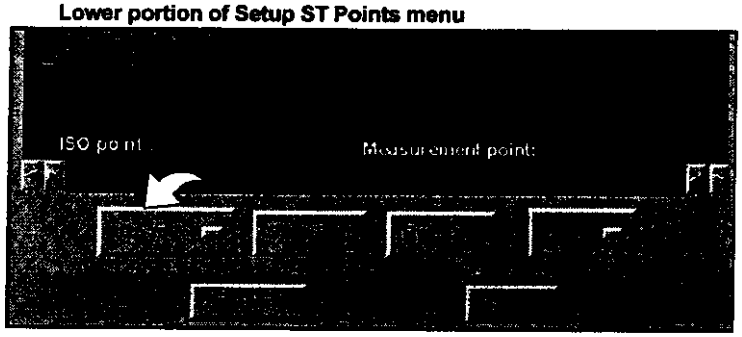
The number displayed next to the label *ISO point:* indicates th selected time in milliseconds before QRS onset. The point at which the isoelectric measuring point intersects the ECG wave form is indicated by a green vertical line. A vertical marker is inserted into the ST trend graphs and a corresponding entry is stored in the clinical events log. If you move the trend cursor o the marker, the label 'CHG' becomes visible.

Selecting the Display Size

You can adjust the gain of the averaged complexes as fol

1. Access the patient's Setup ST Points menu (see page
2. Click on the size option button (see arrow) to scroll t desired setting. Available choices are: 0.25, 0.5, 1, 2, mV/cm).

Lower portion of Setup ST Points menu



3. Click on the **Set Points** button to confirm your sele on the **Undo** button to retain the previous selection.

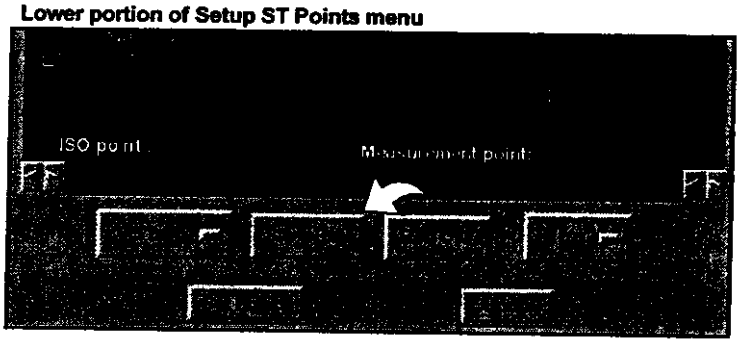
Updating Reference Complexes

In many clinical situations it is desirable to compare a referen ST complex with another, more recent ST complex (e.g. befor and after drug administration) to evaluate therapeutic interven tions.

Steps:

1. Access the patient's Setup ST Points menu (see page 10-7
2. Click on the **Save Ref.** button.

Lower portion of Setup ST Points menu



3. Click on the **Set Points** button to confirm your selection on the **Undo** button to retain the previous selection.

The old reference complexes are replaced with the updated ref ence complexes, which are labeled with the new time and date

Displaying the Reference Complexes

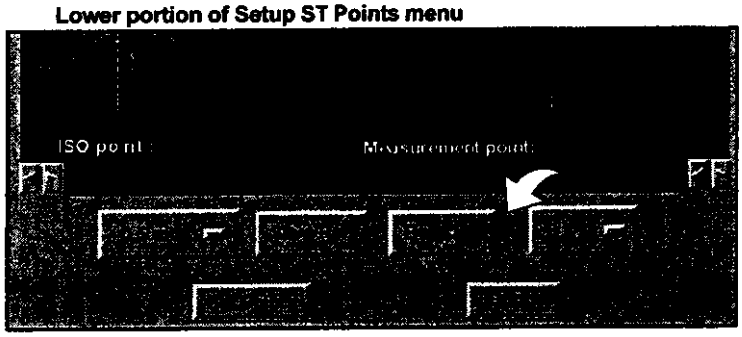
You can superimpose a stored reference QRS complex o
current complex for visual comparison as follows:

Steps:

1. Access the patient's Setup ST Points menu (see page

2. Click on the **Ref. On/Off** button (the button changes
opposite value whenever you click on it).

Lower portion of Setup ST Points menu



3. Click on the **Set Points** button to confirm your sele
on the **Undo** button to retain the previous selection.

When the reference complex is selected for display, it is
guished from the averaged complex by color (current con
appears green, and the reference complex appears purple

The Telemetry ST menu

The Telemetry ST menu allows you to customize a telemetry patient's ST setup. For non-telemetry patients, please consult user's guide of the corresponding bedside monitor for relative information.

Accessing the Setup Telemetry ST menu

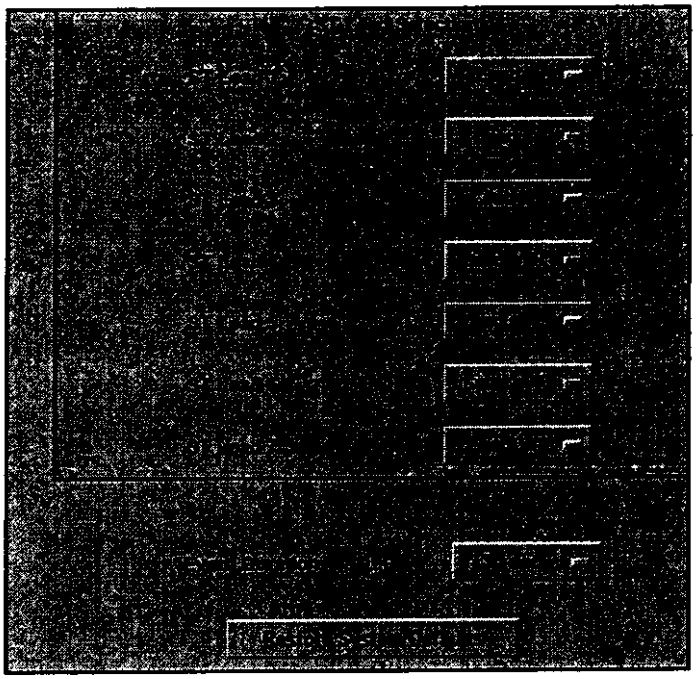
1. Access the patient's BEDVIEW.
2. Click on the **Setup** button.
3. Click on the **Telemetry ▶** menu selection.
4. Click on the **ST** button.

Selecting ST Leads 1 through 7

You can select the order in which ST leads are displayed
parameter area in the Setup ST Points menu as follows:

Steps:

1. Access the patient's Setup Telemetry ST menu (see p
   14).
2. Click on the desired **ST Lead x** stepper button(s) to
   the desired lead (**None, I, II, III, aVR, aVL, aVF,** a



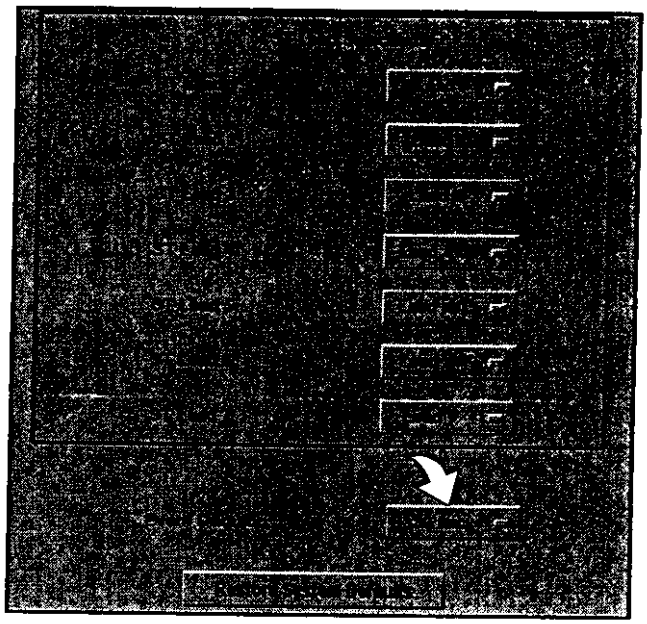
NOTE: When you set a transmitter to 3-lead mode, the se
Lead II is automatically assigned to the ST Lead 1 slot an
is assigned to the ST Lead 2 - 7 slots.

Selecting the ST Event Duration

The event duration specifies the time that an ST alarm conditic must persist before it is classified as a valid alarm. This featur minimizes the occurrence of distracting false alarms caused by artifact and non-clinical events.

Steps:

1. Access the patient's Setup Telemetry ST menu (see page 1 14).
2. Click on the **Event Duration** stepper button and select o of the available settings (OFF, 15, 30, 45, 60, 75, 90, 105, a 120 seconds).



3. Click on the **Accept** button to confirm your selection or c the **Undo** button to retain the previous selection.

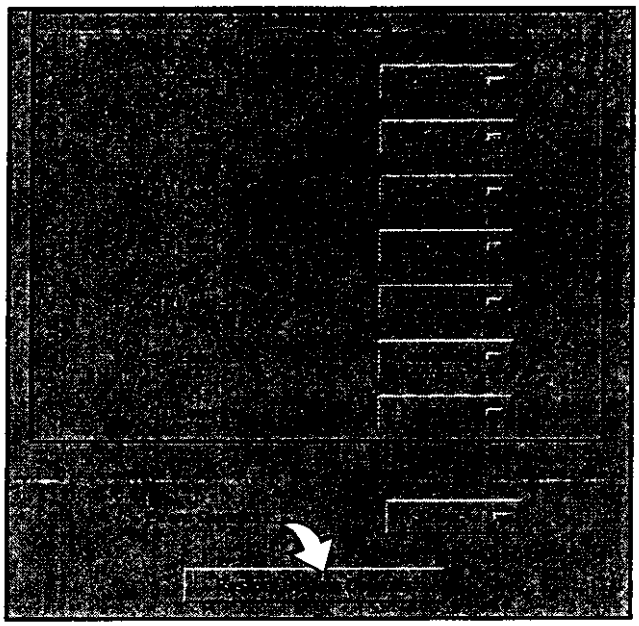
➤ **NOTE:** If you select 'Off', all ST events are reported.

Restoring ST System Defaults

ST system defaults are restored automatically when a pat
discharged. However, you can restore the ST system for a
at any time manually.

Steps: Restoring defaults

1. Access the patient's Setup Telemetry ST menu (see p
   14).
2. Click on the **Restore System Defaults** button.



3. Click on the **Accept** button to confirm your selectio
   the **Undo** button to retain the previous selection.

For more detailed information on ST defaults refer to cha
Telemetry System Setup.

Special Conditions

The following table lists some of the most common non-alarm conditions that may occur during ST segment analysis. These s related messages appear in the information area of the patient' BEDVIEW screen.

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

ST Alarms

An ST alarm occurs when the ST deviation measurement lead violates the set alarm limits for the user-selected dur (see page 10-16). An ST alarm is cleared if the majority vals following the alarm are within the specified limits.

ST alarms are subject to the same alarm guidelines as an parameters. Refer to chapter 11, *Alarms* for detailed infor on setting up the various alarm functions outlined in the f ing table.

Setup function	Location of Instruction
Turning all alarms on/off	Chapter 11, page 11-16
Setting alarm limits	Chapter 11, page 11-18
Automatic alarm limit calculation for all patients	Chapter 11, page 11-20
Turning the alarm recording function on/off	Chapter 11, page 11-21
Turning alarm storage function on/off	Chapter 11, page 11-26

ST Alarm Messages

The alarm messages listed in the following table pertain specifically to the ST parameters. ST alarm messages are displayed in the status area in CLUSTERVIEW and in the top waveform channel in BEDVIEW. 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.

Alarm Message/ Condition Message		Alarm Grade	Description	Action
Parameter Area	**Status/Information Area**			
STx: <value>	*STx > UL*	SER	Parameter value exceeds the upper alarm limit.	•Check the patient. •Reset the alarm limits.
STx: <value>	*STx < LL*	SER	Parameter value is below the lower alarm limit.	•Check the patient. •Reset the alarm limits.
STx: +++	*STx out of range (high)*	SER	Parameter value exceeds the upper measuring range.	•Check the patient. •Reset the alarm limits.
STx - - -	*STx out of range (low)*	SER	Parameter value is below the measuring range.	•Check the patient. •Reset the alarm limits.
STx: <blank>	*ST x Cannot Analyze*		The algorithm cannot determine the ST values.	•Check electrodes •relearn
	ECG Relearning		The ARR/ST morphologies are being relearned.	•Wait until relearning process is finished.

11 Alarms

This chapter describes how the MULTIVIEW WORKSTATI indicates alarms for telemetry and non-telemetry patients how it identifies technical alarm conditions for devices c nected to the INFINITY NETWORK network. It also contain instructions on how to customize the alarm setup for an i vidual patient.

➤ **NOTE:** The VIEWSTATION displays alarm messages only (audible alarms, flashing parameter areas etc.)

Overview

The MULTIVIEW WORKSTATION continuously monitors and displays the alarm status of each parameter. Furthermore, it reports any technical condition such as, for example, a networl communication error. Once the MULTIVIEW WORKSTATION detects an alarm condition, it classifies it according to three different alarm grades (life-threatening, serious, and advisory) and uses unique audible and visual signals to identify the alarn cause. When enabled, alarms are annunciated within ten seconds after the event has been recognized.

Whenever more than one alarm condition exists for a parameter, the MULTIVIEW WORKSTATION always reports the most recent one with the highest alarm grade. Each alarm condition triggers a new alarm. For example, if a serious alarm condition transitions into a life-threatening one, a new alarm with corresponding audible and visual alarm signals is reported.

All alarm tones are repetitive, except those associated with communication errors or failure conditions (see page 11-28, *Technical Communication Alarms)*.

For telemetry patients the MULTIVIEW WORKSTATION is the primary alarm annunciator as opposed to bedside patients, for whom the bedside monitor is the primary alarm annunciator.

The MULTIVIEW WORKSTATION indicates alarms for the following:

- any telemetry patient that is assigned to the MULTIVIEW WORKSTATION
- any bedside CPS that is connected to the network and assigned to the MULTIVIEW WORKSTATION for monitoring
- network recorders and recorder CPSs

When the surveillance feature is enabled, alarm messages appear in the status area of the MULTIVIEW WORKSTATION for life-threatening and active serious alarms of any bedside monitor that experiences such an alarm condition even though it is not assigned to any CLUSTERVIEW.

A

The MULTIVIEW WORKSTATION issues visual and audibl alarm signals for the following physiological and technic conditions:

- HR, SpO_2, PLS, ST, and arrhythmia event parameter exceed user-defined alarm limits
- technical conditions associated with the above-menti parameters (e.g. a defective SpO_2 sensor)
- technical network events
- error conditions that occur at the MULTIVIEW WORK-STATION or within the telemetry system (transmitters receivers etc.)

Any connected *remote display* mirrors only the visual ala indications of the MULTIVIEW WORKSTATION to which it linked. A remote display has no audio capabilities, nor do allow user interaction.

CAUTION: *For non-telemetry patients, the bedside mon should be used for primary monitoring and diagnosis and* MULTIVIEW WORKSTATION *only for remote assessment of a patient's status.*

Alarm Validation

The alarm validation timer is designed to avoid frequent alarms for events that only briefly violate alarm limits. Therefore, the MULTIVIEW WORKSTATION issues visual and audible alarm signals *only* if the parameter remains outside the alarm limits longer than the assigned delay time (see the following table).

Parameter	Upper Limit Alarm Delay	Lower Limit Alarm Delay
HR	2 seconds	0 seconds (no delay)
ST[1]	user-selectable (see chapter 10, page 10-16)	user-selectable (see chapter 10, page 10-16)
SpO_2	4 seconds	4 seconds
PLS	4 seconds	0 seconds (no delay)

[1] For telemetry patients only.

If the parameter returns to its assigned alarm limits before the delay timer expires, no alarm is triggered and the timer stops, ready to validate the next alarm condition.

Alarm Grades

The MULTIVIEW WORKSTATION reports the status of the assigned patients and the associated devices such as netw recorders and transmitters. If a physiological event such a violation of set alarm limits or a technical condition such transmitter failure is sent to the MULTIVIEW WORKSTATI annunciates it accordingly.

All alarms are classified according to three alarm grades, with its own unique tone and color scheme (see table on 6 for more detailed information). Depending on the serio of the alarm condition, alarms are either latching or non-l

➤ **NOTE:** If several alarms are simultaneously active for a s bed in CLUSTERVIEW, the MULTIVIEW WORKSTATION reports the most recent alarm with the highest alarm grade.

Latching alarms

Latching alarms indicate either life-threatening or seriou ditions such as an asystole or a ventricular fibrillation. Fc threatening alarms, the audible *and* visual alarm indicato sist even if the alarm condition is no longer valid until yo acknowledge the alarm manually (e.g. by clicking on the **Alarm Silence** button). Serious alarms behave similarly except that only the visual alarm indicators persist until y acknowledge the alarm. This ensures that a life-threateni a very serious condition does not go unnoticed.

➤ **NOTE:** A latching life-threatening alarm is cleared if ano life-threatening alarm occurs for the same parameter. A lat serious alarm message is cleared if a new alarm condition annunciated for the same parameter.

Non-latching Alarms

Non-latching (advisory) alarms, such as those for technic conditions, continue only for as long as the event exists. visual and audible alarm signals end automatically as soo the alarm condition ceases. You can also silence such ala manually (see page 11-11).

Visual and audible Alarm Signals

The MULTIVIEW WORKSTATION uses unique visual and audible signals to identify the different alarm grades.

Life-threatening (e.g. asystole, ventricular fibrillation) first or highest priority	Entire parameter area flashes red.	Only parameter area of respective parameter flashes red.	Two-tone, high pitched, rapid tone	Message is displayed in red in the top waveform channel.	Message is displayed in red in the information area.	The alarm messa is displayed the param ter are and th tone p sists u you ackno edge t alarm.
Serious (limit violation) second priority	Entire parameter area flashes yellow.	Only parameter area of respective parameter flashes yellow.	Two short tones of medium pitch followed by a pause	Message is displayed in yellow in the top waveform channel.	Message is displayed in yellow in the information area.	The m sage sists the wa form a until y ackno edge t alarm.
Advisory (e.g. network events, bedside events such as lead-off) third or lowest priority	Entire parameter area flashes white.	Only parameter area of respective parameter flashes white.	Single, short tone of low pitch	Message is displayed in white in the top waveform channel.	Message is displayed in white in the information area.	

The Surveillance Feature

This feature extends alarm annunciation for life-threaten and serious alarms to bedside monitors of selected care u that are not displayed in any CLUSTERVIEW. Alarms that generated under the surveillance feature must meet the fc ing criteria:

- the alarm must either be an active or a latched (not y acknowledged) life-threatening alarm.
- the alarm must be an active serious alarm (no latchec ous alarms are reported).

Multiple Alarm Situations/Priorities

If several bedside monitors issue surveillance alarms, the messages are displayed alternately for three seconds eacl veillance alarm messages are displayed over the time/dat in the status area along the bottom of the screen.

Silencing Surveillance Alarms

A surveillance alarm is reported until it is either acknowl or, in case of serious alarms, the alarm condition ceases.' can silence the audible alarm signal of a surveillance alar locally like any other alarm by either clicking on the **Ala Silence** button in the CLUSTERVIEW menu bar or by pre the **F1** fixed key (see page 11-12 for more details).

Requesting a Timed Recording

You can request timed recordings manually in several wa

- from CLUSTERVIEW
- from BEDVIEW
- from the transmitter

➤ **NOTE:** For information on how to setup the MULTIVIEW WORKSTATION to generate recordings automatically (e.g response to limit violations), refer to (see chapter 11, Alar

Steps: From CLUSTERVIEW *(for an individua patient)*

- Click on the **REC** button in the patient's parameter area. The **REC** button remains selected until the timed recording is finished. As soon as the recording starts printing, the text inside the button appears white until the recordin finished.

➤ **NOTE:** If the patient has been discharged, the monitor is standby or waveforms are stopped, the **REC** button for that patient is ghosted and you cannot request a timed recordin waveforms are stopped, first click inside the waveform are release the waveforms, then request the recording again. W the waveforms are stopped, you can request a print screen vided the laser printer is configured and connected to the M VIEW WORKSTATION. For further information, please refer t 12-23.

Special Surveillance Alarm Conditions

The following table outlines the behavior of surveillance alarms under special circumstances.

Circumstance	Effect on surveillance alarm
A bedside CPS goes offline or fails while a surveillance alarm for that bed is reported at the MULTIVIEW WORKSTATION.	The surveillance alarm is canceled.
A bedside monitor goes offline or fails while a surveillance alarm for that bed is reported at the MULTI-VIEW WORKSTATION.	
The bedside CPS or the monitor transitions into stand-alone mode.	
The bedside CPS or the monitor detects that it has the same IP address as another device on the network.	
The monitor is removed from the network for transport.	Any existing surveillance alarm is canceled.

Header Information

Like timed recordings, continuous recordings contain a h
which appears along the top of the strip recordings (see p
17). Headers for continuous recordings contain the same i
tion as those for timed recordings, except for the recordir
CENT. CONT and the delay time, which are not part of cor
recordings.

The parameter values, patient name, ID #, date, and time
updated and displayed on continuous recordings at regul
intervals.

Local Alarm Silence

You can silence *all* active alarms at the MULTIVIEW WOI STATION for 60 seconds as follows:

Click on the **Alarm Silence** button in the CLUSTERVIE menu bar.

or

Press the **Alarm Silence (F1)** key on the keyboard.

A local alarm silence has the following consequences:

- the alarm tone stops for all active alarms at the MULT WORKSTATION for 1 minute.
- the affected parameter area continues to flash in the c of the highest grade alarm.
- alarm messages and the **Bed Silence** icon remai played.
- the **Alarm Silence** button remains selected.

NOTE: The MULTIVIEW WORKSTATION maintains one com timer for all silenced alarms of a patient. When the timer e the MULTIVIEW WORKSTATION visually announces all alarm whose conditions are still valid but only emits an alarm to the highest grade active alarm.

Diagnostic Code

The following table describes what each letter/number re
sents in the diagnostic string which appears in the header
strip recording and provides important monitoring inform

Digit	Description	Pos-sible Val-ues	Definition
1	Lead processed for VF	1 2 3 L R F V X	Lead I Lead II Lead III Lead avL Lead avR Lead avF Chest lead None
2	ECG filter	M	Monitor
3	Pacemaker detection	P N	On Off
4	QRS processing mode	1 2	ECG1 ECG1 + ECG2
5	Beat classification lead(s)	1 2 B	First lead Second lead Both leads
6	Leads functional and available for processing	0 1 2 3	No valid processing lead ECG1 is valid ECG2 is valid ECG1 + ECG2 are valid
7	VT count	5-F	Value = VT count (where A to F = 10
8	VT rate	0-A	Value = (VT rate - 100)/10 (where A
9-20	Space	Blank space or _	n/a
21	Monitor model	T	Infinity telemetry system processor n
22-27	Software version	xxxxx x	First six characters of base software ample, VA1.1W)

Remote alarm silence can either be accomplished from CLUSTERVIEW or BEDVIEW as follows:

Steps: Bed Silence from CLUSTERVIEW

1. Click on the yellow **Bed Silence** icon, which ap in response to an alarm to the right of a patient's wav area in CLUSTERVIEW.

NOTE: For telemetry patients the bed silence icon is only available if *remote silence* is activated (see chapter 4, page

Steps: Bed Silence from BEDVIEW

1. Click on the patient's parameter area to access that patient's BEDVIEW.
2. Click on the **Bed Silence** button in the upper right l corner.

Manual vs. Automatic Event Recordings

Timed recordings are either requested manually or are ge
ated automatically when a parameter or arrhythmia event
occurrs whose recording function is enabled.

The following table summarizes the three different types
timed recordings.

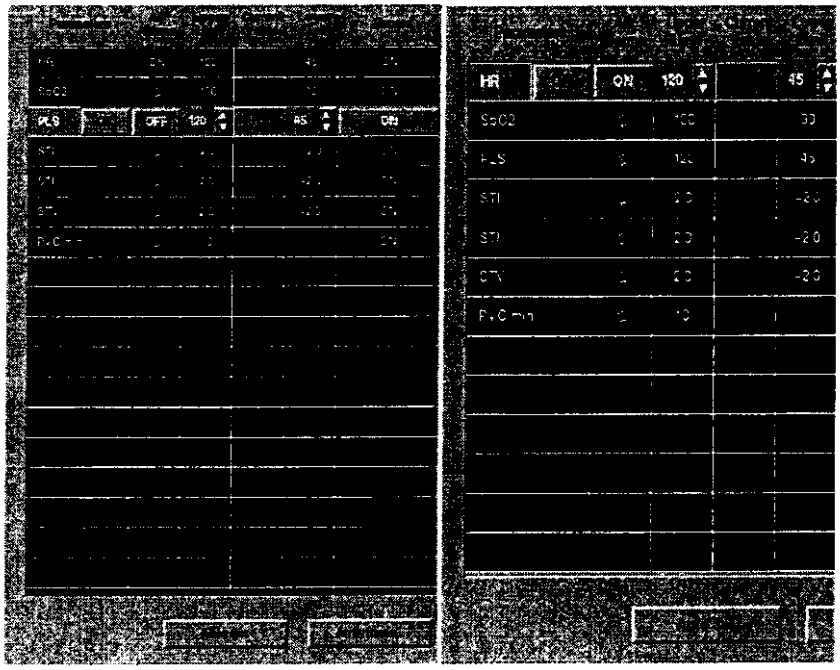
Timed Recording Type	Description
Timed manual recording	The user requests this recording by clickin the **REC** button either in BEDVIEW or in CI TERVIEW.
Automatic event recording	This type of recording is generated automa cally either • in response to an event whose recording function is activated or • in response to a limit violation for a paran ter whose recording function is activated.
Automatic alarm recording	A strip recording that is generated in respo to an alarm condition for an event/paramet whose recording *and* alarm functions are turned on.

An alarm strip recording is identical to a manually reques
one except for the alarm code (such as *ASY*), which is pri
in the header and identifies the alarm cause.

Configuring a Patient's Alarm Setup

The Setup Alarm Limits table allows you to customize ar
vidual patient's alarm functions. Depending on whether c
you are dealing with an SC6000 or an SC9000 bedside m
the last column in the alarm limits setup table, as well as
available choices, varies slightly (see illustrations below)
telemetry patient is admitted to Event Disclosure/Full Dis
the alarm setup table with the 'Alarm Archive' column ap
If the telemetry patient is *not* admitted to Event Disclosur
alarm setup table resembles the SC 6000 table, which doe
have the STORE and REC/STORE setting.

SC 6000 - Alarm Table **SC 9000 - Alarm Table**



For non-telemetry patients any changes in alarm settings
the MULTIVIEW WORKSTATION are transmitted to the bec
monitor as soon as you click on the **OK** button in the sele
parameter's table row (see instructions on the following p
As soon as the Telemetry option is unlocked, you can cor
the parameters SpO_2, PLS, and ST for telemetry patients
at the MULTIVIEW WORKSTATION.

Recording Types

The MULTIVIEW WORKSTATION offers the following typ recordings, which have their own unique properties. If se requests are present, the one with the highest priority is h ored.

Recording Type	Priority	Description
Continuous recording	1	A strip recording that ru it is manually interrupte continuous recording ca either be generated fron transmitter or the MULTI WORKSTATION.
Alarm recording	2	A timed recording that is matically generated in response to a limit violat a parameter whose recc function is enabled.
Manual timed recording	3	A strip recording that co of delay and real-time d runs for a specified amo time. A timed recording manually requested eith from the transmitter or t MULTIVIEW WORKSTA
Event recording	4	A timed recording that is matically generated in response to an occurrer an arrhythmia event wh recording function is en

The following sections describe each recording type in de

Optional Reports

Depending on the configuration of your MULTIVIEW WO STATION and the unlocked options that were purchased, t following reports may also be available (please refer to th specific sections of this User's Guide for detailed inform

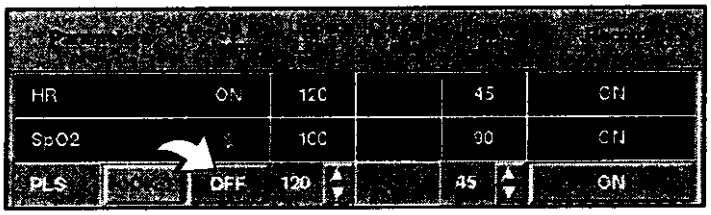
- Full Disclosure reports (strip report and one-hour rep
- Event Disclosure reports (strip report)

Non-Telemetry Patients

Non-Telemetry patients do not have an **All Alarms OFI** ton in the BEDVIEW main screen. However, you can supp alarms by deactivating the alarm function individually fo parameter in the Alarm Limits table.

Steps: Turning all alarms on/off

1. Access the patient's BEDVIEW.
2. Click on the **Setup** button.
3. Click on the **Alarm Limits** button.
4. Click on the **All Alarms On/Off** button in the corre ing parameter row. This activates the parameter's ala setup mode.



NOTE: The above illustration shows the Alarm Limits ta an SC 6000 monitor. The columns in the Alarm Limits tab SC 9000 monitors are identical except for the last column, is labeled 'Alarm Archive' instead of 'Record'.

5. Click on the **OK** button to confirm your selection.
6. Repeat steps 4 through 6 to modify additional param

NOTE: When the alarms for a parameter are turned OFF, entries in that row of the setup table are displayed in yello a crossed bell symbol (n) appears in the 'All Alarms' colu Otherwise, the entries are displayed in white.

Replacing the Recorder Paper

1. Open the paper door.
2. Pull out the paper roll from the spool holder and rem any paper remaining in the printing mechanism.
3. Place the new paper roll into the spool holder. Unroll inches of paper from the bottom. The printed side sh be facing up.
4. Align the paper roll with the paper guides. If not alig properly, the paper could jam.
5. Close the door.
6. Generate a timed recording to verify that the recorde connected properly and the paper is loaded correctly.

Laser Printer

The laser printer is used for print screens, trend reports, F Disclosure and/or Event Disclosure reports. Refer to the r facturer's operating instructions for specific information regarding your particular type of laser printer.

7. Repeat steps 4 through 6 to modify additional param

Active Recordings

If a recorder is available and no pending recordings of hi priority are present, the recording starts printing on the assigned recorder.

If the recorder becomes unavailable (e.g. the paper runs c while a recording is printing, it is interrupted. If another recorder is available, the recording is rerouted and printe there in its entirety. If no recorder is available, it become *pending* recording, and it is added at the top of the *pendi* recording list. This ensures that it is the first to be printed soon as a recorder becomes available.

Pending Recordings

If no recorder is available to process the print request it i stored (pended) until it can be printed.

➤ **NOTE:** If a timed recording is stored, the actual paramet the waveform, patient and configuration data are stored. F continuous recording only the request itself is stored (the c that is printed reflects therefore the time the recording is p not the time of the request).

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

- 2 manual timed recordings
- 1 continuous recording
- 1 automatic recording (alarm or event recording)

Remote Recording Requests

Remote devices such as other central stations or other be monitors can request recordings of local patients. Such requests are processed according to the recording attribut the remote device. Status messages notify the remote dev the recording's status.

Turning Alarm Recordings ON/OFF

When a parameter's alarm recording function is turned o timed recording is generated automatically for each valid alarm condition.

A timed recording consists of pre-event and post-event d The recording duration and the ratio of pre-event and pos event data is configurable in the Setup Recorders menu (s 3-10 for detailed information).

Activating the alarm recording feature differs slightly de ing on whether you are dealing with an SC 6000 (see pag 22), an SC 9000 monitor (see page 11-23) or a telemetry (see page 11-24 and page 11-25).

Special Conditions

What happens if...	Effect on alarm recording function
an alarm is reactivated(as is the case when an alarm condition is valid beyond the alarm silence state)	A new alarm recording is not generated.
you silence an alarm while an alarm recording is in progress or is waiting to be printed (pending)	All alarm recordings in progress and any pending alarm recordings are still printed completely.
a parameter's alarm function is turned off	An alarm recording is still generated if the alarm recording function is turned on.
the *alarm waveform* is activated in the Telemetry Recording Setup menu (see page 4-16) [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.

Recor

Timed and continuous recordings requested from CLUSTE VIEW or BEDVIEW print waveforms and parameters in the order in which they appear on the respective screens. If th Disclosure and/or Event Disclosure option is enabled, you also request Full Disclosure and/or Event Disclosure repo from a laser printer.

Status messages in the CLUSTERVIEW status area indicate when a request is accepted, canceled or rejected because t queue is full, and when the recording has started and finis These messages also alert you to certain problems that ma present during recordings. For a list of messages, see cha page 5-28.

Sample Recording Status Message in the Status Area

SC 9000 Monitor

Steps: Turning the Alarm Recording Function O

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activate parameter's alarm setup mode.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting REC.

NOTE: On SC 9000 monitors prior to VC0, the event sto function was optional and had to be activated separately. T above illustration shows an SC 9000 with software versior or one with an earlier version whose event storage functio enabled. If event storage is not enabled on a software prio VC0, the last column is labeled 'Record' and the available settings are ON and OFF.

6. Click on the **OK** button next to the parameter label tc firm your change and transmit it to the bedside moni
7. Repeat steps 4 through 6 to modify additional param

12 Recordings

This chapter describes the various types of recordings tha
be generated from the MULTIVIEW WORKSTATION.

Telemetry Patient (admitted to Event Disclosure)

Steps: Turning the Alarm Recording Function O

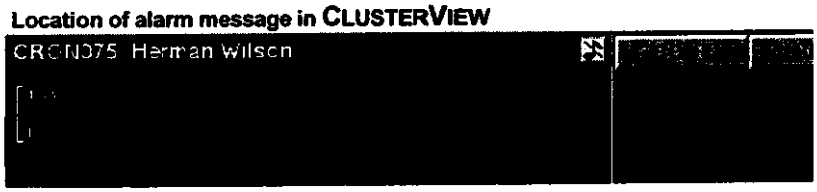
1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activates parameter's alarm setup mode.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting REC.

6. Click on the **OK** button next to the parameter label to firm your change and transmit it to the bedside monit
7. Repeat steps 4 through 6 to modify additional parame

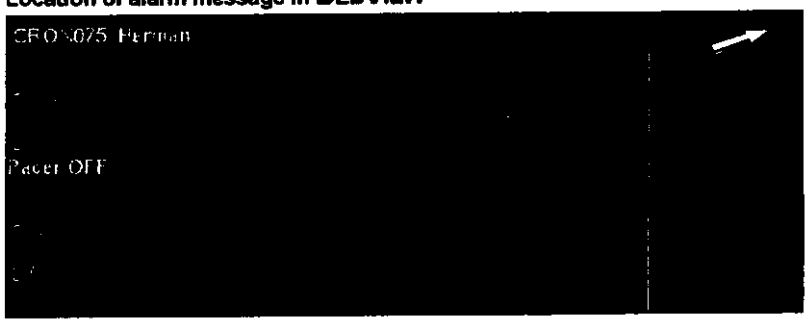
Display Location of Alarm Messages

Alarm messages that pertain to the MULTIVIEW WORKSTATION are displayed as black text in the status area at the bo of the CLUSTERVIEW screen. Alarm messages that origin from the bedside monitor or the telemetry transmitter are played in the color corresponding to the alarm grade in th patient's top waveform channel in CLUSTERVIEW and in information area in BEDVIEW.

Location of alarm message in CLUSTERVIEW



Location of alarm message in BEDVIEW

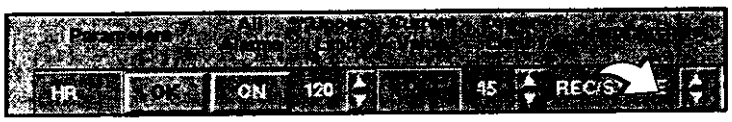


SC 9000 Monitors/Telemetry

NOTE: This function is only available for SC 9000 monit with software VC0 or earlier versions with event storage e and Telemetry patients who are admitted to Event Disclos

Steps: Turning the Alarm Storage Function On/C

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activates alarm setup mode for that parameter.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting STORE.



6. Click on the **OK** button next to the parameter label to firm your change and transmit it to the bedside monit
7. Repeat steps 4 through 6 to modify additional parame

MULTIVIEW WORKSTATION Communication

If the network configuration information of the MULTIVIE WORKSTATION is incorrect, it

- stops monitoring all beds.
- emits a serious alarm tone until the alarm is acknowl by clicking on the **Alarm Silence** button.
- displays the alarm message CENTRAL OFFLINE in the tus area of the CLUSTERVIEW for as long as the cond exists.
- records the event in the diagnostic log.

Telemetry Communication

If a telemetry transmitter or a receiver that is assigned to displayed CLUSTERVIEW stops communicating with the work, the MULTIVIEW WORKSTATION

- displays the message RECEIVER OFFLINE in the BED information area of the corresponding patient if the receiver goes offline.

- displays the serious alarm message DUPLICATE REC ADDRESS in the BEDVIEW information area of the cc sponding patient if the receiver has a duplicate IP ad

- displays the serious alarm message OFFLINE if the M VIEW WORKSTATION stops advertising the telemetry

- displays the message XXX DATA NOT SAVED in the TERVIEW status area when a setup change for a telen patient cannot be processed (and emits a serious one- alarm).

Telemetry Communication

If a telemetry transmitter or a receiver that is assigned to displayed CLUSTERVIEW stops communicating with the work, the MULTIVIEW WORKSTATION

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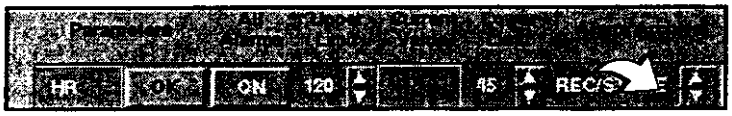
- displays the alarm message CENTRAL OFFLINE in the tus area of the CLUSTERVIEW for as long as the cond exists.
- records the event in the diagnostic log.

SC 9000 Monitors/Telemetry

NOTE: This function is only available for SC 9000 monit with software VC0 or earlier versions with event storage e and Telemetry patients who are admitted to Event Disclos

Steps: Turning the Alarm Storage Function On/C

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activates alarm setup mode for that parameter.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting STORE.



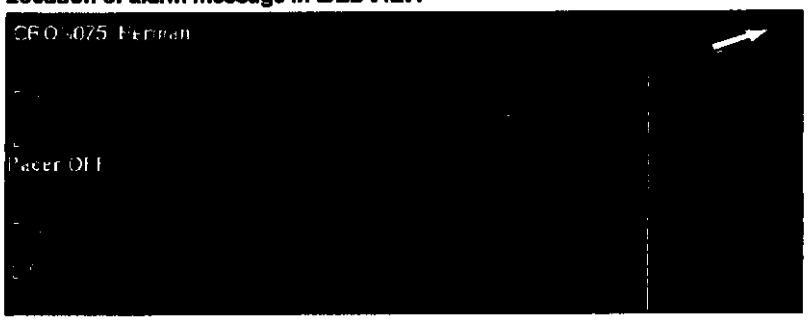
6. Click on the **OK** button next to the parameter label to firm your change and transmit it to the bedside monit
7. Repeat steps 4 through 6 to modify additional parame

Display Location of Alarm Messages

Alarm messages that pertain to the MULTIVIEW WORKSTATION are displayed as black text in the status area at the bo of the CLUSTERVIEW screen. Alarm messages that origin from the bedside monitor or the telemetry transmitter are played in the color corresponding to the alarm grade in th patient's top waveform channel in CLUSTERVIEW and in information area in BEDVIEW.

Location of alarm message in CLUSTERVIEW

Location of alarm message in BEDVIEW



Telemetry Patient (admitted to Event Disclosure)

Steps: Turning the Alarm Recording Function O

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activates parameter's alarm setup mode.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting REC.

6. Click on the **OK** button next to the parameter label to firm your change and transmit it to the bedside monit
7. Repeat steps 4 through 6 to modify additional parame

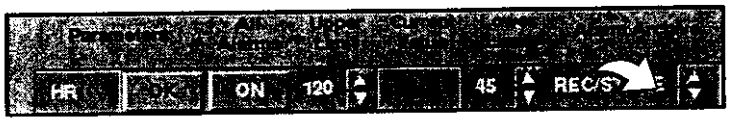
12 Recordings

This chapter describes the various types of recordings tha
be generated from the MULTIVIEW WORKSTATION.

SC 9000 Monitor

Steps: Turning the Alarm Recording Function O

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Setup** button
3. Click on the **Alarm Limits...** menu selection.
4. Click on the table row of the parameter whose alarm recording function you wish to change. This activate parameter's alarm setup mode.
5. Click on the up/down arrow buttons in the 'Alarm Archive' column and scroll to the setting REC.



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Timed and continuous recordings requested from CLUSTE VIEW or BEDVIEW print waveforms and parameters in the order in which they appear on the respective screens. If th Disclosure and/or Event Disclosure option is enabled, you also request Full Disclosure and/or Event Disclosure repo from a laser printer.

Status messages in the CLUSTERVIEW status area indicate when a request is accepted, canceled or rejected because queue is full, and when the recording has started and finis These messages also alert you to certain problems that ma present during recordings. For a list of messages, see cha page 5-28.

Sample Recording Status Message in the Status Area

Turning Alarm Recordings ON/OFF

When a parameter's alarm recording function is turned o timed recording is generated automatically for each valid alarm condition.

A timed recording consists of pre-event and post-event d The recording duration and the ratio of pre-event and pos event data is configurable in the Setup Recorders menu (s 3-10 for detailed information).

Activating the alarm recording feature differs slightly de ing on whether you are dealing with an SC 6000 (see pag 22), an SC 9000 monitor (see page 11-23) or a telemetry (see page 11-24 and page 11-25).

Special Conditions

What happens if...	Effect on alarm recording function
an alarm is reactivated(as is the case when an alarm condition is valid beyond the alarm silence state)	A new alarm recording is not generated.
you silence an alarm while an alarm recording is in progress or is waiting to be printed (pending)	All alarm recordings in progress and any pending alarm recordings are still printed completely.
a parameter's alarm function is turned off	An alarm recording is still generated if the alarm recording function is turned on.
the *alarm waveform* is activated in the Telemetry Recording Setup menu (see page 4-16) [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.

Active Recordings

If a recorder is available and no pending recordings of hi priority are present, the recording starts printing on the assigned recorder.

If the recorder becomes unavailable (e.g. the paper runs c while a recording is printing, it is interrupted. If another recorder is available, the recording is rerouted and printe there in its entirety. If no recorder is available, it become *pending* recording, and it is added at the top of the *pendi* recording list. This ensures that it is the first to be printed soon as a recorder becomes available.

Pending Recordings

If no recorder is available to process the print request it i stored (pended) until it can be printed.

> **NOTE:** If a timed recording is stored, the actual paramet the waveform, patient and configuration data are stored. F continuous recording only the request itself is stored (the c that is printed reflects therefore the time the recording is p not the time of the request).

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

- 2 manual timed recordings
- 1 continuous recording
- 1 automatic recording (alarm or event recording)

Remote Recording Requests

Remote devices such as other central stations or other be monitors can request recordings of local patients. Such requests are processed according to the recording attribut the remote device. Status messages notify the remote dev the recording's status.

7. Repeat steps 4 through 6 to modify additional param

Replacing the Recorder Paper

1. Open the paper door.
2. Pull out the paper roll from the spool holder and rem any paper remaining in the printing mechanism.
3. Place the new paper roll into the spool holder. Unroll inches of paper from the bottom. The printed side sh be facing up.
4. Align the paper roll with the paper guides. If not alig properly, the paper could jam.
5. Close the door.
6. Generate a timed recording to verify that the recorde connected properly and the paper is loaded correctly.

Laser Printer

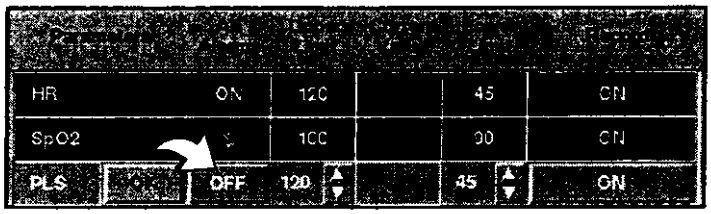
The laser printer is used for print screens, trend reports, F Disclosure and/or Event Disclosure reports. Refer to the facturer's operating instructions for specific information regarding your particular type of laser printer.

Non-Telemetry Patients

Non-Telemetry patients do not have an **All Alarms OFI** ton in the BEDVIEW main screen. However, you can sup alarms by deactivating the alarm function individually fo parameter in the Alarm Limits table.

Steps: Turning all alarms on/off

1. Access the patient's BEDVIEW.
2. Click on the **Setup** button.
3. Click on the **Alarm Limits** button.
4. Click on the **All Alarms On/Off** button in the corre ing parameter row. This activates the parameter's ala setup mode.



NOTE: The above illustration shows the Alarm Limits ta an SC 6000 monitor. The columns in the Alarm Limits tab SC 9000 monitors are identical except for the last column, is labeled 'Alarm Archive' instead of 'Record'.

5. Click on the **OK** button to confirm your selection.
6. Repeat steps 4 through 6 to modify additional param

NOTE: When the alarms for a parameter are turned OFF, entries in that row of the setup table are displayed in yello a crossed bell symbol (n) appears in the 'All Alarms' colu Otherwise, the entries are displayed in white.

Recording Types

The MULTIVIEW WORKSTATION offers the following typ recordings, which have their own unique properties. If se requests are present, the one with the highest priority is h ored.

Recording Type	Priority	Description
Continuous recording	1	A strip recording that ru it is manually interruptec continuous recording ca either be generated fron transmitter or the MULTI WORKSTATION.
Alarm recording	2	A timed recording that is matically generated in response to a limit violat a parameter whose recc function is enabled.
Manual timed recording	3	A strip recording that co of delay and real-time d runs for a specified amo time. A timed recording manually requested eith from the transmitter or t MULTIVIEW WORKSTA
Event recording	4	A timed recording that is matically generated in response to an occurrer an arrhythmia event wh recording function is en

The following sections describe each recording type in de

Optional Reports

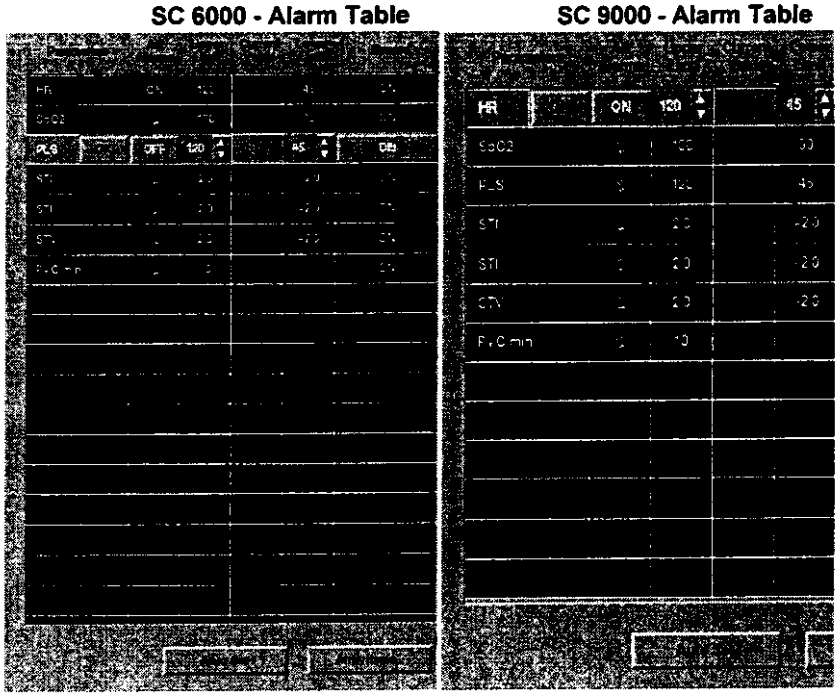
Depending on the configuration of your MULTIVIEW WO STATION and the unlocked options that were purchased, t following reports may also be available (please refer to th specific sections of this User's Guide for detailed inform

- Full Disclosure reports (strip report and one-hour rep
- Event Disclosure reports (strip report)

Configuring a Patient's Alarm Setup

The Setup Alarm Limits table allows you to customize ar
vidual patient's alarm functions. Depending on whether c
you are dealing with an SC6000 or an SC9000 bedside m
the last column in the alarm limits setup table, as well as
available choices, varies slightly (see illustrations below)
telemetry patient is admitted to Event Disclosure/Full Dis
the alarm setup table with the 'Alarm Archive' column ap
If the telemetry patient is *not* admitted to Event Disclosur
alarm setup table resembles the SC 6000 table, which doe
have the STORE and REC/STORE setting.

SC 6000 - Alarm Table **SC 9000 - Alarm Table**



For non-telemetry patients any changes in alarm settings
the MULTIVIEW WORKSTATION are transmitted to the bed
monitor as soon as you click on the **OK** button in the sele
parameter's table row (see instructions on the following p
As soon as the Telemetry option is unlocked, you can cor
the parameters SpO_2, PLS, and ST for telemetry patients
at the MULTIVIEW WORKSTATION.

Manual vs. Automatic Event Recordings

Timed recordings are either requested manually or are ge ated automatically when a parameter or arrhythmia event occurrs whose recording function is enabled.

The following table summarizes the three different types timed recordings.

Timed Recording Type	Description
Timed manual recording	The user requests this recording by clickin the **REC** button either in BEDVIEW or in CI TERVIEW.
Automatic event recording	This type of recording is generated automa cally either • in response to an event whose recording function is activated or • in response to a limit violation for a paran ter whose recording function is activated.
Automatic alarm recording	A strip recording that is generated in respo to an alarm condition for an event/paramet whose recording *and* alarm functions are turned on.

An alarm strip recording is identical to a manually reques one except for the alarm code (such as *ASY*), which is pri in the header and identifies the alarm cause.

Remote alarm silence can either be accomplished from CLUSTERVIEW or BEDVIEW as follows:

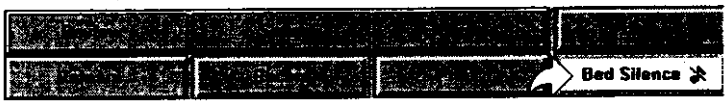
Steps: Bed Silence from CLUSTERVIEW

1. Click on the yellow **Bed Silence** icon, which ap in response to an alarm to the right of a patient's wav area in CLUSTERVIEW.

NOTE: For telemetry patients the bed silence icon is only available if *remote silence* is activated (see chapter 4, page

Steps: Bed Silence from BEDVIEW

1. Click on the patient's parameter area to access that patient's BEDVIEW.
2. Click on the **Bed Silence** button in the upper right l corner.



Diagnostic Code

The following table describes what each letter/number re
sents in the diagnostic string which appears in the header
strip recording and provides important monitoring inform

Digit	Description	Possible Values	Definition
1	Lead processed for VF	1 2 3 L R F V X	Lead I Lead II Lead III Lead avL Lead avR Lead avF Chest lead None
2	ECG filter	M	Monitor
3	Pacemaker detection	P N	On Off
4	QRS processing mode	1 2	ECG1 ECG1 + ECG2
5	Beat classification lead(s)	1 2 B	First lead Second lead Both leads
6	Leads functional and available for processing	0 1 2 3	No valid processing lead ECG1 is valid ECG2 is valid ECG1 + ECG2 are valid
7	VT count	5-F	Value = VT count (where A to F = 10
8	VT rate	0-A	Value = (VT rate - 100)/10 (where A
9-20	Space	Blank space or _	n/a
21	Monitor model	T	Infinity telemetry system processor n
22-27	Software version	xxxxx x	First six characters of base software ample, VA1.1W)

Local Alarm Silence

You can silence *all* active alarms at the MULTIVIEW WOI STATION for 60 seconds as follows:

Click on the **Alarm Silence** button in the CLUSTERVIE menu bar.

or

Press the **Alarm Silence (F1)** key on the keyboard.

A local alarm silence has the following consequences:

- the alarm tone stops for all active alarms at the MULT WORKSTATION for 1 minute.
- the affected parameter area continues to flash in the c of the highest grade alarm.
- alarm messages and the **Bed Silence** icon remai played.
- the **Alarm Silence** button remains selected.

NOTE: The MULTIVIEW WORKSTATION maintains one com timer for all silenced alarms of a patient. When the timer e the MULTIVIEW WORKSTATION visually announces all alarm whose conditions are still valid but only emits an alarm to the highest grade active alarm.

Header Information

Like timed recordings, continuous recordings contain a h
which appears along the top of the strip recordings (see p
17). Headers for continuous recordings contain the same i
tion as those for timed recordings, except for the recordir
CENT. CONT and the delay time, which are not part of cor
recordings.

The parameter values, patient name, ID #, date, and time
updated and displayed on continuous recordings at regul
intervals.

Special Surveillance Alarm Conditions

The following table outlines the behavior of surveillance alarms under special circumstances.

Circumstance	Effect on surveillance alarm
A bedside CPS goes offline or fails while a surveillance alarm for that bed is reported at the MULTIVIEW WORKSTATION.	The surveillance alarm is canceled.
A bedside monitor goes offline or fails while a surveillance alarm for that bed is reported at the MULTI-VIEW WORKSTATION.	
The bedside CPS or the monitor transitions into stand-alone mode.	
The bedside CPS or the monitor detects that it has the same IP address as another device on the network.	
The monitor is removed from the network for transport.	Any existing surveillance alarm is canceled.

Requesting a Timed Recording

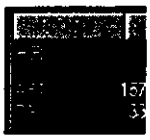
You can request timed recordings manually in several wa

- from CLUSTERVIEW
- from BEDVIEW
- from the transmitter

➤ **NOTE:** For information on how to setup the MULTIVIEW WORKSTATION to generate recordings automatically (e.g response to limit violations), refer to (see chapter 11, Aları

Steps: From CLUSTERVIEW *(for an individua patient)*

- Click on the **REC** button in the patient's parameter area. The **REC** button remains selected until the timed recording is finished. As soon as the recording starts printing, the text inside the button appears white until the recordin finished.



➤ **NOTE:** If the patient has been discharged, the monitor is standby or waveforms are stopped, the **REC** button for thai patient is ghosted and you cannot request a timed recordin waveforms are stopped, first click inside the waveform are release the waveforms, then request the recording again. W the waveforms are stopped, you can request a print screen vided the laser printer is configured and connected to the M VIEW WORKSTATION. For further information, please refer t 12-23.

The Surveillance Feature

This feature extends alarm annunciation for life-threaten and serious alarms to bedside monitors of selected care u that are not displayed in any CLUSTERVIEW. Alarms that generated under the surveillance feature must meet the fc ing criteria:

- the alarm must either be an active or a latched (not y acknowledged) life-threatening alarm.
- the alarm must be an active serious alarm (no latchec ous alarms are reported).

Multiple Alarm Situations/Priorities

If several bedside monitors issue surveillance alarms, the messages are displayed alternately for three seconds each veillance alarm messages are displayed over the time/dat in the status area along the bottom of the screen.

Silencing Surveillance Alarms

A surveillance alarm is reported until it is either acknowl or, in case of serious alarms, the alarm condition ceases. can silence the audible alarm signal of a surveillance alar locally like any other alarm by either clicking on the **Ala Silence** button in the CLUSTERVIEW menu bar or by pre the **F1** fixed key (see page 11-12 for more details).

Steps: From BEDVIEW

You can also request timed recordings from a patient's B VIEW, provided the patient is not in standby, has not beer charged and is not disconnected from the network.

1. Click in the parameter area in CLUSTERVIEW to acce patient's BEDVIEW.

2. Click on the **Record** button.

Record button in the BEDVIEW menu bar

The **Record** button remains highlighted until the timed recording is finished. As soon as the recordings starts pri the text inside the button appears white until the recordin finished.

NOTE: If waveforms are stopped, the **Record** button is g and you cannot request a timed recording. In this case, firs in the waveform area to release the waveforms, then reque recording again. While waveforms are stopped, you can re a print screen provided the laser printer is configured and nected to the MULTIVIEW WORKSTATION. For further inform refer to page 12-23.

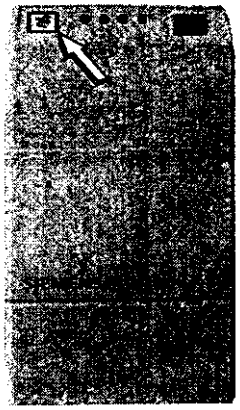
The waveforms are printed in the order in which they apı BEDVIEW.

Steps: From the Transmitter

You can also request a timed recording for a telemetry patient directly from the transmitter as follows:

- Press the transmitter's recording button for *less* than 3 seconds.

Transmitter recording key



Requesting a Continuous Recording

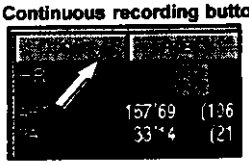
You can request a continuous recording either at the MUL VIEW WORKSTATION or, in case of telemetry patients, fr the transmitter.

At the MULTIVIEW WORKSTATION, continuous recordin only be generated from the CLUSTERVIEW.

Steps: Requesting a continuous recording

1. Click on the **CONT** button in the patient's parameter

Continuous recording button



The recording buttons **CONT** and **REC** merge into one c bined button, **CONTREC**. As soon as the recording start printing, the text inside the button appears white until the recording is finished.

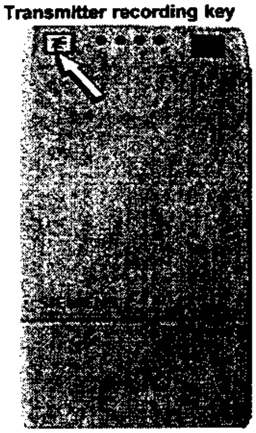
NOTE: If the patient has been discharged, the monitor is standby, or the waveforms are stopped, the **CONT** and **RE** tons are ghosted and you cannot request a continuous reco If the waveforms are stopped, first click inside the wavefo area to release them, then request the recording again. Wh waveforms are stopped, you can request a print screen pro the laser printer is configured and connected to the MULTIV WORKSTATION.

Steps: From the Transmitter

You can also request a continuous recording for a telemetry patient from the transmitter as follows:

- Press the transmitter's recording button longer than 3 seconds.

Transmitter recording key



Requesting a Print Screen Recording

Print screens are an exact representation of the screen at t time of the print screen request.

You can request a print screen of the CLUSTERVIEW and BEDVIEW provided the optional laser printer is configure the MULTIVIEW WORKSTATION. If you request a print scr and the printer is not configured, the message Printer Not figured is displayed in the MULTIVIEW WORKSTATION st area.

➤ **NOTE:** If your setup includes two displays, the print scre reflects the contents of the display to which the mouse arr pointing at the time of the print request.

Steps: Generating a CLUSTERVIEW print scre

- Press the **Print Screen** key on the keyboard while tl CLUSTERVIEW is displayed.

Steps: Generating a BEDVIEW print screen

To print the contents of the BEDVIEW window, proceed a lows:

1. Access the patient's BEDVIEW.

2. Click on the **Print** button in the BEDVIEW window.

Print button in BEDVIEW

➤ **NOTE:** If the Print button appears ghosted, the printer co tion was set to Off in the Configure Central menu (see cha *Biomed Functions*).

Requesting a Trend Report

To print out the currently displayed trend window on a connected laser printer.

Steps:

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Review** button.
3. Click on one of the following menu selections:

   Trend Graphs... to view the trend graphs

   Trend Table... to view the trend table.

4. Click on the BEDVIEW **Print** button.

NOTE: If the Print button appears ghosted, the printer connection was set to Off in the Configure Central menu (see chapter 1 *Biomed Functions*).

Full Disclosure/Event Disclosure Rep

If the Full Disclosure and the Event Disclosure options a activated at your MULTIVIEW WORKSTATION, additiona reports are available. Please refer to the sections in this U Guide entitled *Full Disclosure (Option)* and/or *Event Di sure (Option)* for detailed information on the respective reports.

Recording Status Messages

The MULTIVIEW WORKSTATION alerts you to the status of th recorder or the recording request(s) with status messages that are displayed in the CLUSTERVIEW status area (along the bot tom of the screen).

Recorder Status Messages

Status Message	Tone	Description	Action
• *Timed Recording Request Accepted <xxx>* • *Cont. Recording Request Accepted <xxx>* • *Cont. Recording Now Timed* *(for SC 6000 Series monitors only)*		The recording request has been accepted, but the recorder is currently unavailable to print it. The recording is pending or stored until a recorder becomes available.	None
• *Timed Recording Started <xxx>* • *Cont. Recording Started <xxx>*		The requested recording is being printed.	None
• *Timed Recording Finished <xxx>*		The recording has finished printing or has finished being stored.	None
• *Timed Recording Canceled <xxx>* • *Cont. Recording Canceled <xxx>*		The recording might have been canceled due to a special condition (see page 12-27).	None
• *Timed Recording Interrupted <xxx>* • *Cont. Recording Interrupted <xxx>*		The recording was interrupted because the recorder is out of paper, the door is open, the recorder is disconnected from the CPS or an error occurred during data transmission.	Contact your Biomed to check the recorder's status in the Show Devices screen. The recording will start printing agai when the recorde is operating properly.

Note: <*xxx*> stands for the device/host label.

Recorder Status Messages (continued)

Status Message	Tone	Description	Action
• ***Excessive Artifact - Timed Recording Canceled <xxx>*** • ***Excessive Artifact - Cont. Recording Canceled <xxx>***		Recording was canceled due to excessive artifact.	Check the p connections to correct th source of art
<xxx> Disconnected	Advisory	The recorder(s) is not connected to the network.	Connect the recorder.
<xxx> Door Open	Advisory	The recorder door is open.	Close the re door.
<xxx> Out Of Paper	Advisory	The recorder is out of paper.	Replace the recorder pap
<xxx> Failure	Serious	Recorder failed.	Take the rec out of servic contact the s personnel.
<xxx> Offline	Serious	The recorder CPS is offline. The recorder communication with the network has failed.	Contact you Biomed to cl the network nection to th
<xxx> Duplicate Address	Serious	The recorder CPS has detected a duplicate address.	Contact you Biomed.
Recording Request Not Accepted	Attention	The manual recording request was rejected because the bedside monitor's print queue is full. For telemetry patients this message appears when a recording is requested within 5 seconds of requesting a recording of a higher priority.	Wait until so the pending ings are req before you r another recc

Note: <xxx> stands for the device/host label.

Recorder Status Messages (continued)

Status Message	Tone	Description	Action
Recording Status Unknown - Connection Failed	Attention	The recording status is unknown due to a connection error to the bed (telemetry and non-telemetry patients).	Contact your Biomed.

Note: <*xxx*> stands for the device/host label.

Printer Status Messages

Status Message	Tone	Description	Action
Print Request Finished		The requested print screen is finished.	None
Printer Not Configured	Attention	A print screen was requested; however, no printer is configured for this MULTIVIEW WORKSTATION.	Configure the printer (see cha ter 17, page 17·
Print Request Not Accepted - Queue Full	Attention	The print screen request was rejected because the print queue can only accommodate one print screen request at a time.	Wait until the pr vious print scre requests are completed before you request anothe

13 Trends

This chapter describes the function of the MULTIVIEW W
STATION and the available display features of the trend g
and the trend table.

Overview

The MULTIVIEW WORKSTATION offers trend graphs and a tre table that display trend data for up to 28 hours for telemetry a SC 6000 patients and up to 24 hours of data for SC 9000 patie If a patient is monitored longer than the allotted time, the olde trend data is deleted and replaced with the most current. Trenc data is sampled every 30 seconds except for ST parameters, which are sampled at every 15-second averaged ECG comple

For non-telemetry patients, the *bedside monitors* process and store all of their own trend data and transmit it to the MULTIVI WORKSTATION for display. For telemetry patients, however, a trend information is processed and stored at the MULTIVIEW WORKSTATION. For all patients, the trend information is mad available for remote viewing by network client devices.

As soon as you access a Trend application, the patient's BED-VIEW main screen is replaced by the trend data except for the information area, the top waveform channel, the BEDVIEW me bar, and the BEDVIEW buttons, which always remain visible. I this way you can still observe the primary waveform and any alarm messages and banners as well as access other BEDVIEW menus while you are viewing the trend data.

Scroll bars located along the left edge or the bottom of the tre screen allow you to navigate through stored trend data. In addi tion, you can select different time intervals for the displayed da

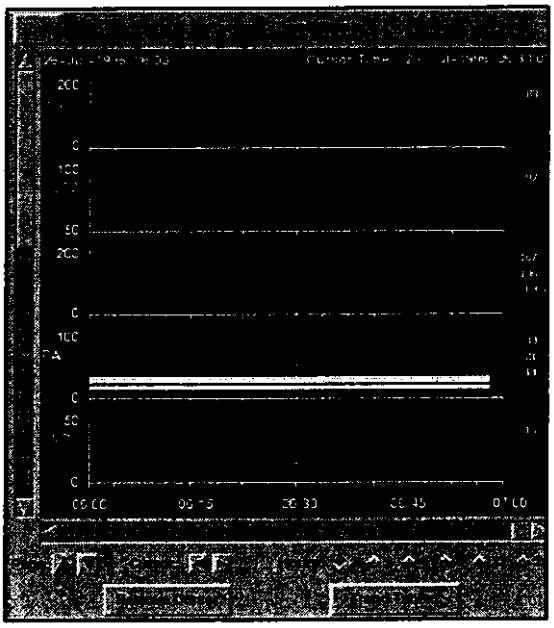
Special events such as an asystole or a technical occurrence su as a lead-off condition have special representation on a trend table or a trend graph.

Trend Graphs

Trend graphs display stored trend data in the form of ind graphs for each parameter (see illustration below). These show the behavior of the different parameters over a sign time period. One page in a trend graph screen can accom up to five individual graphs. If no parameter is assigned t given slot in the trend graphs display, it appears blank.

The trend graphs and parameter labels are displayed in th of the trends at the bed. Scale bars and scale labels appea

Trends are updated automatically, with the most recent d entering continuously at the right side.



Accessing a Patient's Trend Graphs

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Review** button.
3. Click on the **Trend Graphs...** menu selection.

➤ **NOTE:** If you are in the trend table window, click on the **Trenc Graphs...** button at the bottom of the window to access the trenc graphs window.

The displayed trend data portion depends on the cursor's statu: when you access the trend graphs.

Cursor is active Yes/No?	Then the Trend Graph displays...
No	The most recent trend data.
Yes	Data is centered around the cursor time **Note:** If centering the data around the cursor would leave part of the Trend Graph blank, the trend display shifts so the available data fills the trend window.

ʼailable Gain Settings

The following table lists the available gain settings for each parameter.

ırameter	Available settings	Default size
ːG	0.25, 0.5, 1, 2, 4, and 8 mV	1 mV
ʀT/IBP, LV, GP1, ᵖ2, a-P3d	0 to: 20, 40, 50, 100, 150, 200, 250, 300 mmHg	0 to 200 mmHg (adult) 0 to 100 mmHg (neonatal)
⅄, RV	0 to: 20, 40, 50 100, 150 mmHg	0 to 40 mmHg
⅄, CVP	(-5) to: 20, 40, 50, 100, 150, 200, 250, 300 mmHg	(-5) to 20 mmHg
⅄, ICP	0 to: 20, 40, 50, 100, 150, 200, 250, 300 mmHg	0 to 20 mmHg
$_{)}O_2$	10, 20, 30, 40, 50, 60, 70, 80, 90, 100%	40%
ːO2	0 to: 40, 80 mmHg	0 to 40 mmHg
ːntilator flow	-5 to 5L/min -10 to 10 L/min -20 to 20 L/min -50 to 50 L/min -100 to 100 L/min -200 to 200 L/min	(-100) to 100 L/min (Adult) (-20) to 20 L/min (Neonatal)
ːntilator pressure	-5 to 25 cmH2O -10 to 50 cmH2O -20 to 120 cmH2O	-20 to 120 cmH2O
ɟent (MGM): ɜlothane, Enflu-ne, Seflurane, ːsflurane	0 - 5% 0 - 10% 0 - 20%	0 - 10%
ː (MGM)	0 - 50%; 0-100%	0 - 100%
ɔte: MultiGas Module (MGM) data is not available in the US.		

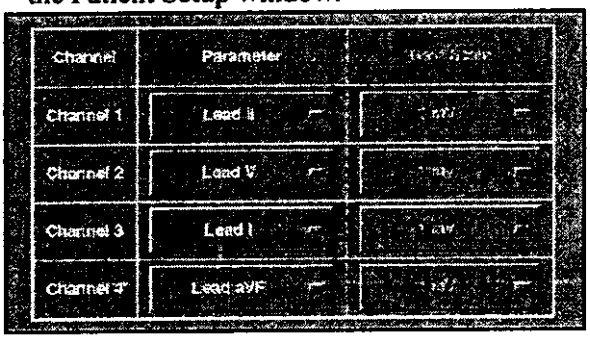
Full Disclosure (Option)

cting Waveforms for Storage

You can determine which waveforms or parameters will be 'captured' in the Full Disclosure database for each patient. These waveforms are initially selected at the time of admission; however, you can change them at any time. The defaults for each channel are outlined in the following table.

Channel 1	Lead II
Channel 2	Lead V
Channel 3	ART
Channel 4	SpO_2

1. Access the Full Disclosure Review screen (see page 14-15).
2. Click on the **Options** button in the upper menu bar.
3. Click on the **Storage Options...** menu selection to activate the Patient Setup window.



4. Click on the option button for the channel you wish to configure under the 'Parameter' heading. This activates a popup with a list of all available waveforms from the bedside monitor.
5. Click on the desired selection.
6. Repeat steps 4 and 5 for the other channels.
7. Click on the **Accept** button to confirm your selection, the **Defaults** button to return to the factory defaults (see table above) or on the **Cancel** button to cancel the procedure.

ırning the Display of Pacer Markers On/Off

You can turn the display of pacer markers (spikes) in the ECG waveforms on or off.

Steps:

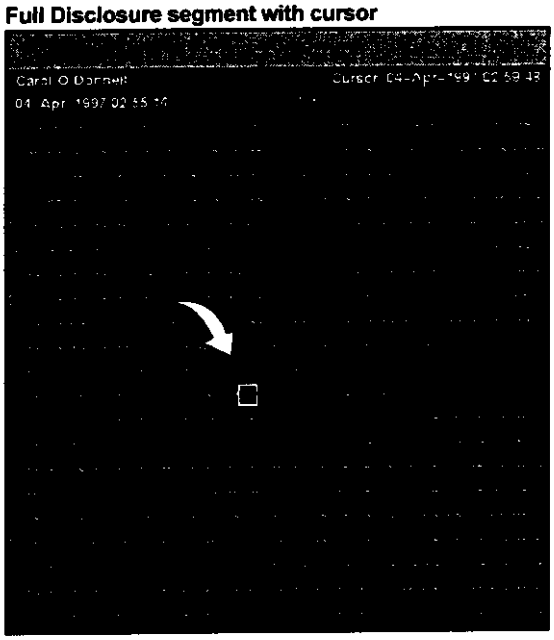
1. Access the Full Disclosure Review screen (see page 14-15).
2. Click on the **Options** button in the upper menu bar.
3. Click on the **Display Options...**menu selection to display the Patient Setup window.
4. Click on the **P.M.** button (Pacer Mark On/Off), which is located directly below the waveform selection table.

5. Click on the **Accept** button to confirm your selection, the **Undo** button to return the settings to the previously saved settings or on the **Cancel** button to cancel the procedure.

► **NOTE:** Pacer marks are only displayed at the MULTIVIEW WORKSTATION if available from the bedside monitor.

In Full Disclosure, the cursor appears as a box on the waveform (see illustration below). The cursor is a useful tool that highlights a point in time on a waveform. It also allows you to 'capture' a certain segment of a waveform and the corresponding data in order to view it in different applications (e.g. you can move from Full Disclosure to Trends and view the trend data at the same time). If the cursor is active when you enter the Full Disclosure application, the displayed data is centered around the cursor's time. When the cursor is not active, the screen displays the most recent waveforms. When the cursor is active, the corresponding cursor time is displayed in the upper right corner. If the cursor is not active, that field appears blank.

Full Disclosure segment with cursor

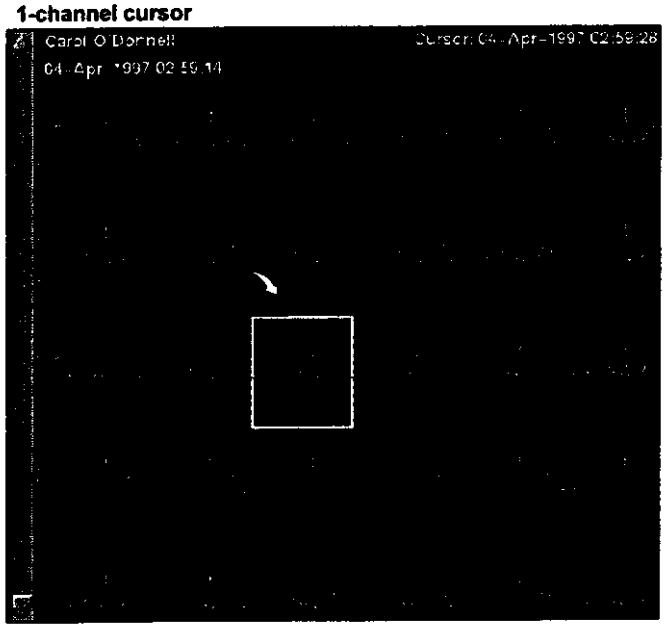


You can move the cursor on the screen by pointing and clicking the mouse on the displayed waveforms.

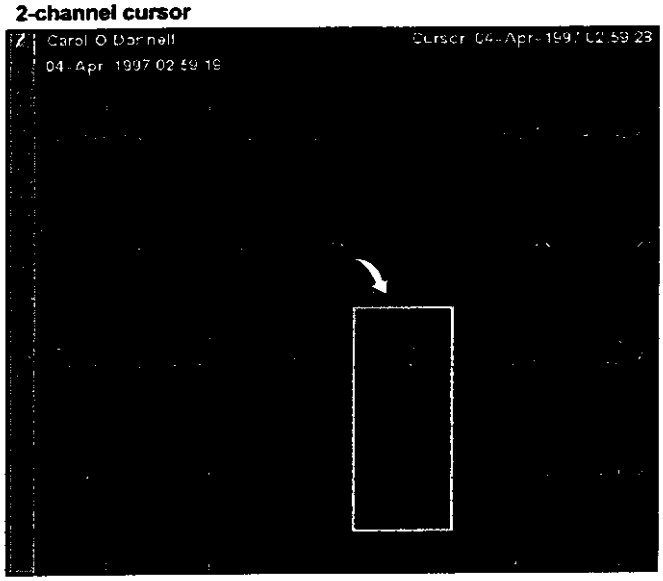
NOTE: The cursor's time does not change when you scroll through the data with the scroll bar or select a time on the time line. The cursor time only changes when you point and click on the actual waveform.

The height of the cursor is relative to how many channels you have selected for review.

1-channel cursor



2-channel cursor

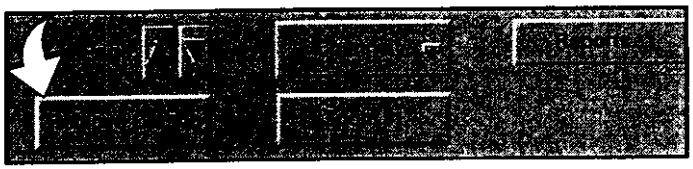


ıying/Removing the Cursor

You can either display or remove the cursor.

Steps:

1. Access the Full Disclosure Review screen (see page 14-15).



2. Click on the **Remove Cursor** button to hide the cursor or on the **Show Cursor** button to display it. Whenever you click on the button, it toggles to its opposite.

ull Disclosure Reports

The Full Disclosure application generates the following reports:

- Strip Report
- One-Hour Report

NOTE: You can request Full Disclosure reports from a server as well as a client.

The cursor is necessary to select a report since the cursor time marks the "request time" for the report. If the cursor is not active, the **Report** button is ghosted.

A message in the status area of CLUSTERVIEW indicates when a report is requested or rejected.

Depending on the printer setting, all Full Disclosure reports are either printed on a network laser printer or on a laser printer that is connected directly to the MULTIVIEW WORKSTATION. Full Disclosure report requests are processed even if you exit the Full Disclosure application.

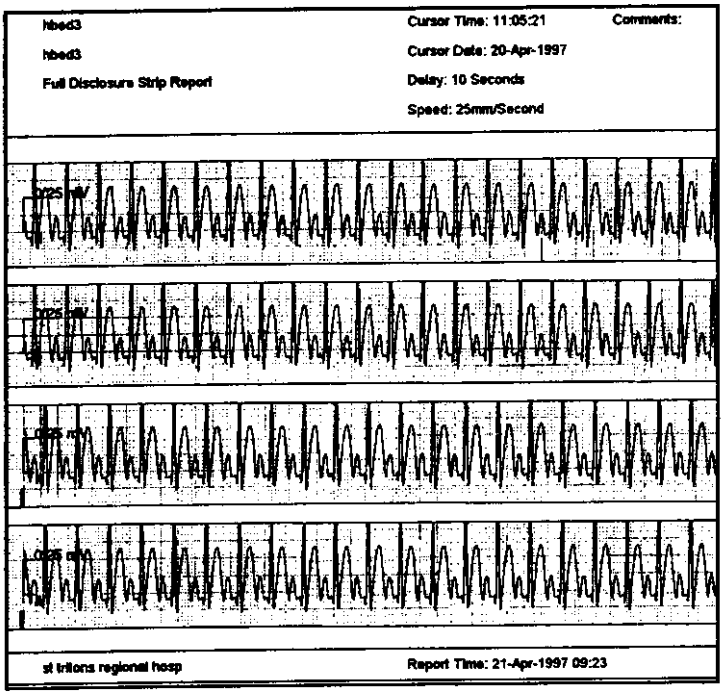
Pacer marks and time change indicators are printed where applicable.

NOTE: You cannot cancel Full Disclosure strip recordings or One-Hour reports.

Disclosure Strip Report

The following illustration depicts a Full Disclosure strip report. The waveforms that are displayed at the time of the recording request are the ones that are printed.

The report shows 10 seconds of waveforms before and 10 seconds after the cursor, which marks the center of the report. Each waveform is identified by the waveform label and the display gain. Each landscape-oriented page can contain a two-channel strip, each 20 seconds long. The one and two channel reports are one page long and the three channel report is two pages long.



The header of the Full Disclosure Strip report contains the following information:

- patient's name and ID#
- Print time of the report
- the report type (e.g. Full Disclosure Strip Report)
- the page number (x of y)
- the time and date corresponding to the cursor position
- the recording delay (10 seconds)
- the recording speed (25 mm/s)
- the hospital's name (defined at system setup)

NOTE: You cannot cancel Full Disclosure strip reports or One-Hour reports.

esting a Full Disclosure Strip Report

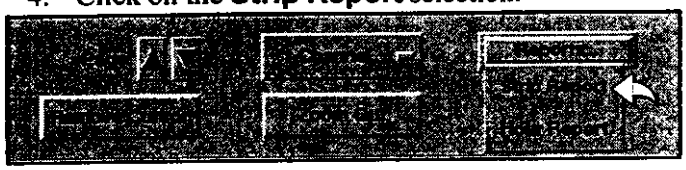
You can request a Full Disclosure Strip report from the Review screen.

Steps:

1. Access the Full Disclosure Review screen (see page 14-15).
2. Click on the **Show Cursor** button if the cursor is not already activated, and select the correct time frame by clicking directly on the waveform.

   NOTE: Because the cursor is the time reference point, you must activate it before you can request a Full Disclosure strip report.

3. Click on the **Reports...** button.
4. Click on the **Strip Report** selection.



ull Disclosure One-Hour Report

The Full Disclosure One-Hour report is illustrated on page 14-34. The cursor time marks the center of the report

The header of the One-Hour report contains the following information:

- patient name and ID#
- one-hour report label
- cursor date and time
- resolution
- channel labels
- gain

The footer identifies the hospital name, report time and page number.

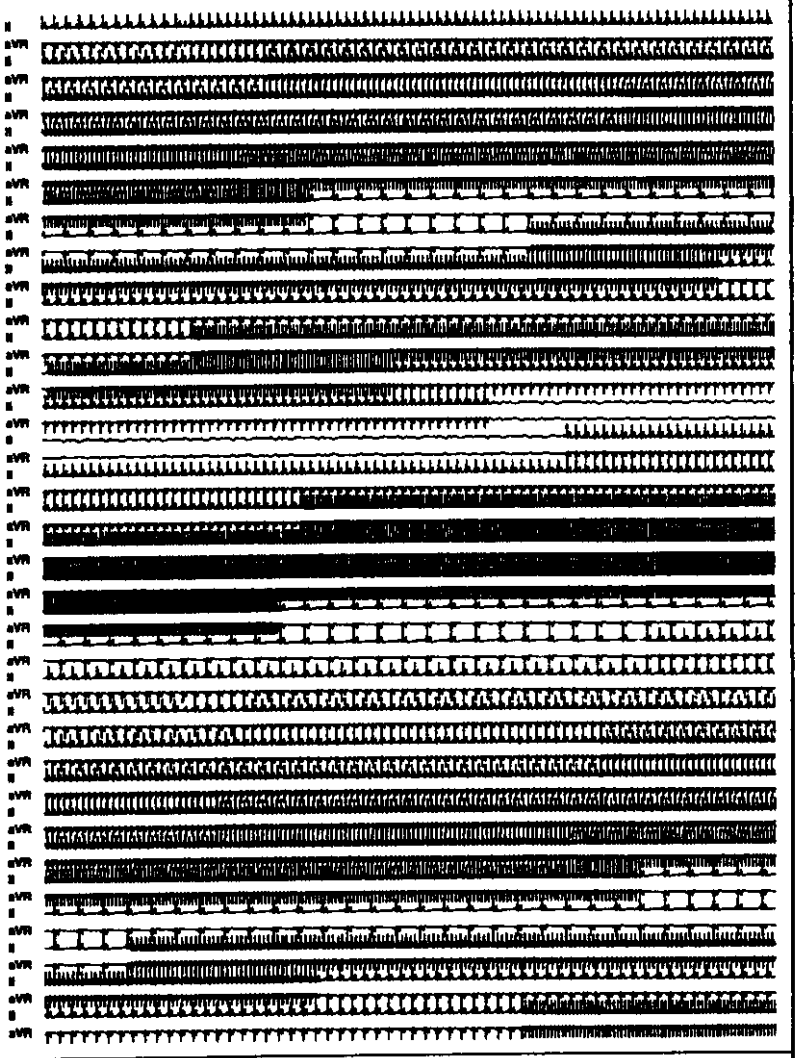
The One-Hour report prints one minute of data per line or sixty minutes per page (sixty lines per page). A One-Hour report for one channel is one page long, for two channels it is two pages long, and for three channels it is three pages long. The channels are represented the same way they are viewed on the display screen and are labeled as such at the left of each line of data.

Data is captured 30 minutes before the cursor time. The waveforms are printed by channel groups as displayed on the review screen.

NOTE: You cannot cancel Full Disclosure strip recordings or One-Hour reports.

ne-Hour Report

Cursor Time: 08:13:27 Resolution: 60 Sec/Line
Cursor Date: 24-Apr-1997 Channel: II aVR
closure One Hour Report Gain: 1.0 mV 1.0 mV



Report Time: 24-Apr-1997 18:44 Page 2 of 2

equesting a Full Disclosure One-Hour Report

You can request a Full Disclosure One-Hour report from the Review screen as follows.

Steps:

1. Access the Full Disclosure Review screen (see page 14-15).
2. Click on the **Show Cursor** button if the cursor is not already activated, and select the correct time frame by clicking on a waveform.

   NOTE: Because the cursor is the time reference point, you must activate it before you can request a Full Disclosure strip report.

3. Click on the **Reports...** button.
4. Click on the **Hour Report** menu selection.

;ial Conditions

Different circumstances during patient monitoring may affect the collection of Full Disclosure data as indicated in this table.

Condition	Effect
ıitoring device is ›wered up.	Full disclosure data storage resumes accordingly.
ıitoring device is pow-ʌn.	The Full Disclosure data is preserved.
dside monitor is ıas failed or is pow-ʌn.	Blank spaces appear for the duration of the interruption.
ient is put in standby.	Blank spaces appear for the duration of the standby.
' is canceled.	Storage of full disclosure data resumes.
:s discharged at the	Full disclosure data remains until manually deleted at the MULTIVIEW WORKSTATION.
demographics are t.	Full disclosure data is stored under the edited demographics.
monitor is discon-	The full disclosure data base shows blanks for the duration of the interruption. A message describes the absence of data.
tridge or a signal such as a transducer ›cted.	Full disclosure data collection begins for any displayed parameter that was selected for the Full Disclosure application.
tridge or a signal such as a transducer ınected.	For the duration of the interruption blanks will appear in the Full Disclosure display, provided the parameter was displayed and selected for Full Disclosure.
date and/or time is ıanged.	Up to 20 system time changes are stored. The time stamps on the waveforms mark the time the data was actually stored.

5 Event Disclosure (Option)

This chapter describes the Event Disclosure option of the MULTI-VIEW WORKSTATION, which allows you to view a patient's stored events. This option is purchased separately and must be unlocked in the Biomed menu.

rview

With the Event Disclosure option you can track and analyze a patient's clinically significant events over a period of 28 hours.

The Event Disclosure application is only accessible on MULTIVIEW WORKSTATIONS operating with enhanced level software. As soon as the option is unlocked (see Biomed chapter for details), the Event Disclosure application is available. The option is packaged in groups of eight patients (8 or 16 per MULTIVIEW WORKSTATION).

> **NOTE:** If you unlock the Full Disclosure and the Event Disclosure application at the same time but select the 1-8 Patient option for one application and the 9-16 Patient option for the other, the MULTIVIEW WORKSTATION defaults to the lower patient number for both options. In addition, if both options are unlocked and you admit a patient to Full Disclosure, he or she is automatically admitted to Event Disclosure as well (and vice versa).

Depending on whether you purchase the Event Disclosure Server option or the Client option, the availability of functions varies (see the following table).

h the Event Disclosure Server tion you can...	With the Client Option you can...
nit/discharge patients to the Event sclosure application end event disclosure data re events for the selected patients ect waveforms for storage w stored events from its own data-se uest event strip recordings	•view event disclosure data from any event disclosure server on the network •request event strip recordings

For each patient the MULTIVIEW WORKSTATION can store a maximum of 1000 events over 28 hours. Once the maximum storage capacity is reached, the oldest events are replaced by current ones.

You can view, delete and print these stored events selectively at any time.

NOTE: On a MULTIVIEW WORKSTATION with the Event Disclosure Server option enabled, you can only view Event Disclosure data for 'its own' patients (e.g. patients that are admitted to the Event Disclosure application of that MULTIVIEW WORKSTATION). However, if you have theClient option enabled in addition to the Event Disclosure Server option, you can view patients of other Event Disclosure servers.

Event Disclosure Census Window

Event Disclosure Census operations include:

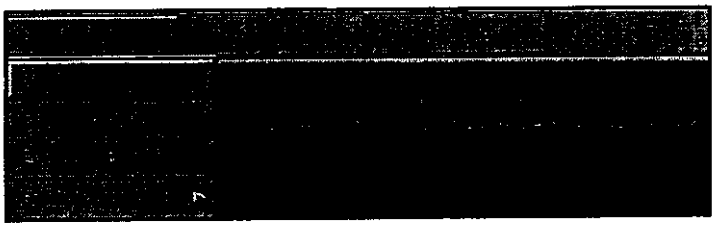
- **Admitting** a patient to the Event Disclosure application (only from a server)
- **Appending** a patient to an existing data set (only from a server)
- **Discharging** a patient from the Event Disclosure application (only from a server)
- **Viewing** a patient's stored events

ssing the Census Screen

NOTE: The **Event Disclosure...** button is only visible if the Event Disclosure option has been unlocked. You may also see a **Full Disclosure...** button if the Full Disclosure option has been unlocked (as is illustrated below).

From CLUSTERVIEW:

1. Click on the **View** button in CLUSTERVIEW.
2. Click on the **Event Disclosure...** button to activate the Census window.

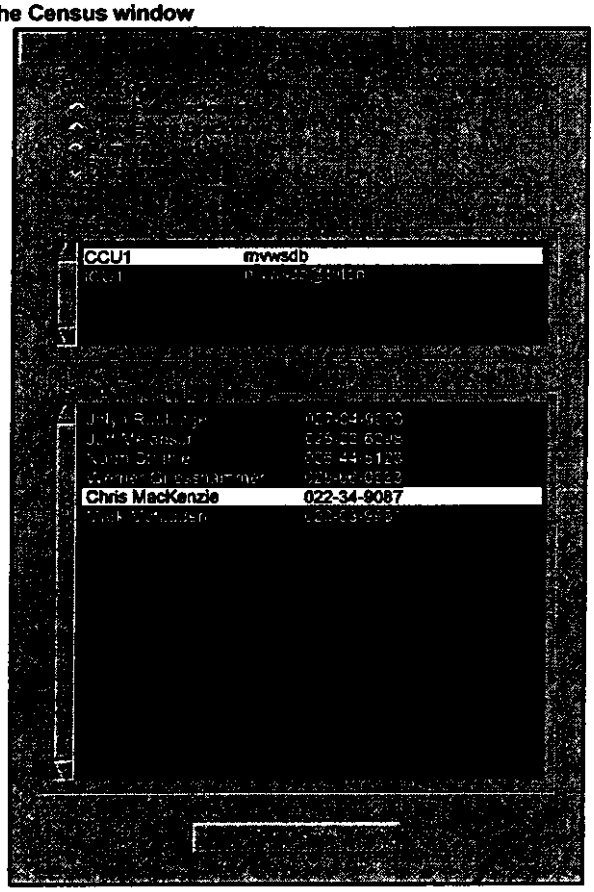


From BedView:

1. Click on the **Review** button.
2. Click on the **Event Disclosure...** button (this activates the Event Review screen).
3. Click on the **Census** button.

NOTE: The **Event Disclosure...** button *and* the **Full Disclosure...** button are only visible if both the Event Disclosure and the Full Disclosure options have been unlocked.

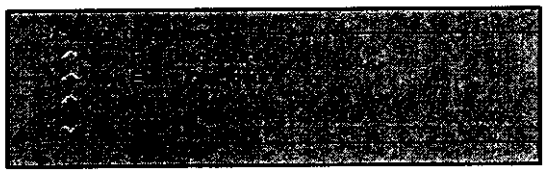
The Census window



ıt of the Census Screen

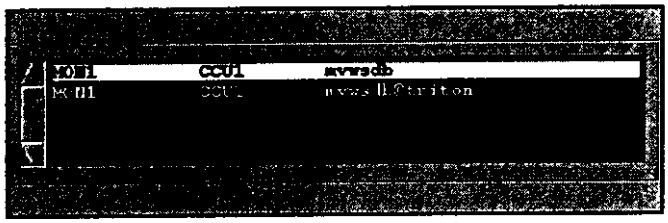
The Census screen is divided into three sections:

The upper portion contains the radio buttons for **Census Operation(s): View Full Disclosure** (if option is unlocked), **View Event Disclosure, Admit/Append** and **Discharge.** These buttons determine the mode of the Census screen (e.g. View mode or Discharge mode). Depending on which of these buttons you select, the layout and the configuration of the screen varies.

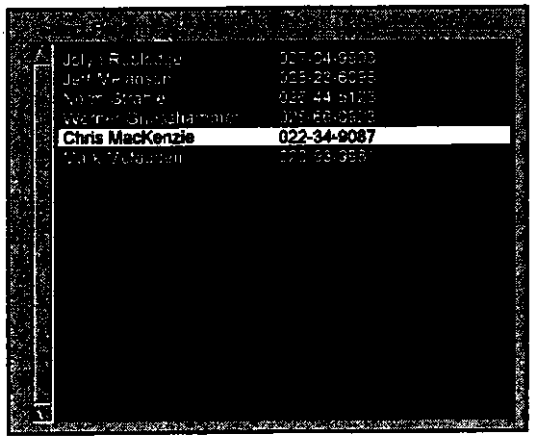


NOTE: If your MULTIVIEW WORKSTATION is only equipped with the *client* version, the **Admit/Append** and **Discharge** buttons are ghosted. Furthermore, the **View Event Disclosure** button *and* the **View Full Disclosure** button are visible only if both options have been unlocked. Otherwise only the button corresponding to the unlocked option is visible.

The middle section shows the Select Unit list with all available Event Disclosure servers. The server listed as... mvwsdb...is the local server on which you are working. Servers listed as...mvws@xxxx... are the names of other servers on the network. This list is displayed in View mode only.



The lower portion shows the Select Patient list, which contains all the patients with their ID numbers and current Event Disclosure status.



The patient list changes depending on whether you are in **View Event Disclosure, Admit/Append** or **Discharge** mode (see the following table).

Display mode of the Census screen	List label	Status
View Event Disclosure	No label	Patients who are admitted to the selected Event Disclosure server
Admit/Append	*Inactive* or Not Admitted	Patients admitted to this server but no longer available on the network; or, Patients not admitted to this server
Discharge	*Admitted* or Inactive	Patients who are admitted to this server

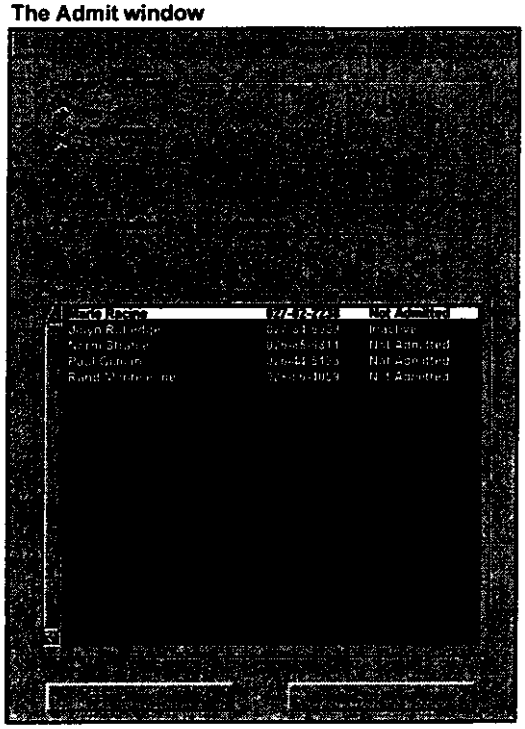
ıitting/Discharging a Patient

You must *admit* a patient to the Event Disclosure server to begin storing events. Only patients who are admitted at the bedside monitor (or in the case of telemetry patients at a MULTIVIEW WORKSTATION) with a name and ID number can be admitted to the Event Disclosure server of the MULTIVIEW WORKSTATION.

> **NOTE:** You can only admit patients from within the monitoring unit of the MULTIVIEW WORKSTATION that is equipped with the Event Disclosure *Server* version. The *Client* version does not allow patient admission (the **Admit/Append** buttons appear ghosted). If both the Event Disclosure and the Full Disclosure server options are unlocked, patients are also automatically admitted to Full Disclosure when they are admitted to Event Disclosure (and vice versa).

The Admit window (see illustration on the following page) displays a list of patients who are either currently not admitted to the Event Disclosure (status: *Not Admitted*) or whose data collection has been interrupted (status: *Inactive*). The *inactive* status occurs during PICK AND GO applications (e.g., transfers for procedures, O.R., bed transfer, etc.). As long as the patient remains on the same monitor, the waveform data collection resumes when the patient is reconnected to the monitoring unit of his MULTIVIEW WORKSTATION.

The Admit window



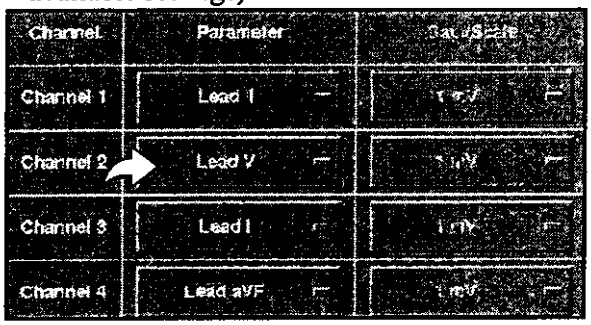
The patient list in the Admit window shows only those patients and their Event Disclosure status who are in the monitoring unit of the MULTIVIEW WORKSTATION.

The Admit window also indicates the number of filled and available slots. Once the maximum capacity is reached (8 or 16 patients depending on the server option), new patients are admitted as slots become available as a result of discharges.

tting a New Patient

You admit a patient to the Event Disclosure application as follows:

1. Access the Census window (see page 15-4).
2. Click on the **Admit/Append** button to access the Admit window with the list of all patients within the monitoring unit who are not admitted to the Event Disclosure server.
3. Click on the patient you wish to admit (as soon as you make the selection, the **Accept New Patient** button is no longer ghosted).
4. Click on the **Accept New Patient** button. This activates the waveform storage selection table which allows to choose the waveforms to be included in that patient's Event Disclosure data storage. These waveforms may be changed at any time (see page 15-23) for details).
5. Click on the field in the table's *Parameter* column for the channel you wish to configure (this activates a popup with available settings).



6. Click on the parameter you wish to assign to that channel.
7. Repeat steps 5 and 6 for additional channels.
8. Click on the **Admit** button to complete the admission and start the data collection for that patient or on the **Cancel** button to dismiss the popup and return to the Admit window.

You may also click on the **Defaults** button to restor channel to the server's default settings (see the follo table).

Channel 1	Lead II
Channel 2	Lead V
Channel 3	ART
Channel 4	SpO_2

As soon as the patient is admitted, the name appears in t Disclosure Census list.

Interruption in Data Collection

The patient remains admitted to the server and the Event sure data storage continues for as long as the patient rem the same monitor on the network and within the monitori The same holds true for telemetry patients; as long as the admitted to the same MULTIVIEW WORKSTATION, data s continues.

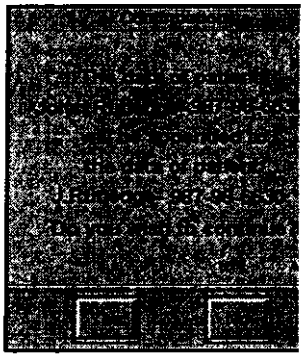
If the patient leaves the monitoring unit and returns with t bedside monitor or, in case of telemetry patients, returns same MULTIVIEW WORKSTATION, Event Disclosure wav storage resumes automatically when reconnected to the I NETWORK even if the patient name and the ID have been changed.

Appending Event Disclosure Data

The append feature of the Event Disclosure application allows you to 'combine' two sets of data. This may be necessary whe patient's demographics have changed or the patient is being m itored by a different monitor or, in the case of a telemetry patie by a different MULTIVIEW WORKSTATION and thus two sets o data are generated for the same patient.

Steps: Appending Data

1. Access the Census window (see page 15-4).
2. Click on the **Admit/Append** button to access the Admit window, which displays a list of all patients in the monitori unit who are not admitted to the Event Disclosure server a whose data collection status is 'inactive'.
3. Select and click on the 'inactive' patient whose data you w to append. When you click on the patient name, the **Appe To New Patient** button is unghosted.
4. Click on the **Append to New Patient** button. A list of patients in the monitoring unit who have not been admitted the Event Disclosure server appears.
5. Click on the patient for whom continued Event Disclosure storage is desired.
6. Click on the **Append Data** button. A popup displays the name and ID# of both selected patients
7. Click on **Yes** within the popup to confirm that the correct patients have been selected or **No** to cancel the selection.



The existing waveform data is relabeled with the name/ID of t patient and appended to the end of the stored data. As soon as t data is appended, the new name is removed from the Admit/ Append list and moved to the Census list and Event Disclosur data collection resumes.

Discharging a Patient from Event Disclo

Event Disclosure data collection is stopped by *dischargir* patient from the Event Disclosure server (you cannot disc patient from a client device).

NOTE: If both the Event Disclosure and the Full Disclosu options are unlocked, patients are also automatically disch from Full Disclosure when they are discharged from Even sure (and vice versa).

You can only discharge a patient from the Event Disclosu server of the MULTIVIEW WORKSTATION at which the pa was originally admitted.

When you discharge a patient from the Event Disclosure the patient is *not* discharged from the bedside monitor. In same way a patient who is discharged from the bedside m still admitted to the Event Disclosure server and all of his/ is still stored at the MULTIVIEW WORKSTATION.

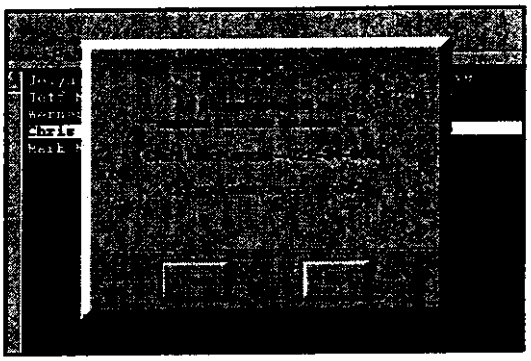
When you discharge a patient from the Event Disclosure real-time monitoring or the display of real-time data at the VIEW WORKSTATION is not affected.

CAUTION: *When you discharge a patient from the Even sure application, all Event Disclosure data as well as any Event Disclosure reports are deleted for that patient. Ther is important to generate Event Disclosure reports periodic you wish to maintain a history of the patient's Event Disc session.*

Steps: Discharging a Patient

You discharge a patient from the Census window as follows:

1. Access the Census window (see page 15-4).
2. Click on the **Discharge** button (located in the top portion the screen). The Census list with all of the patients current admitted to the Event Disclosure application is displayed.
3. Click on the desired patient (this activates the **Discharge Data** button).
4. Click on the **Discharge Data** button (this activates the fi lowing confirmation popup).



5. Click on the **Yes** button within the popup to discharge the patient from the Event Disclosure server or on the **No** butt to cancel the discharge and continue the data collection fo that patient.

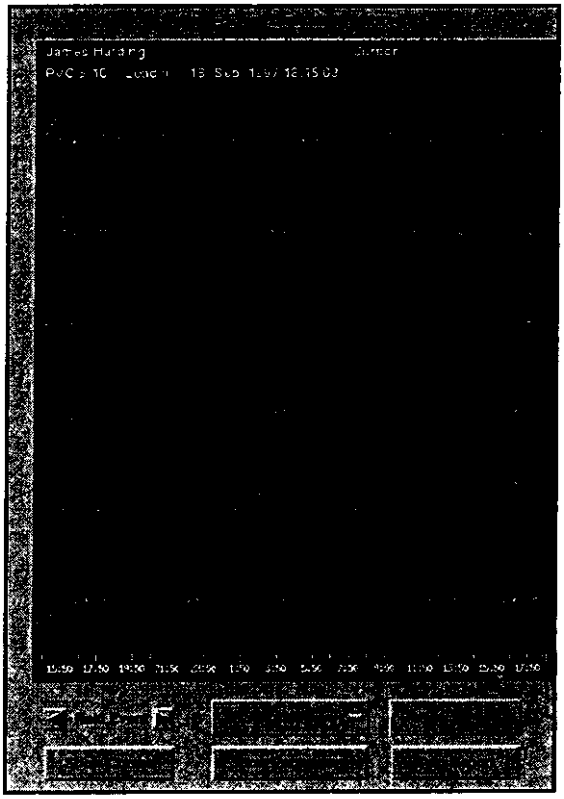
   If you click on **Yes**, the patient's name is removed from tl census list.

   NOTE: When a client device is viewing data of a patient who h been discharged from the server, the screen appears blank excep for the message DATA DISCHARGED.

The Event Review Screen

The Event Disclosure application stores up to 1000 even
patient over the past 28 hours. All of these events origin
the bedside monitor or, in the case of telemetry patients,
transmitter. Once the maximum capacity is reached or e
older than 28 hours, they are deleted on a first-in first-ou
Whenever you access the Event Review menu, the most
event is displayed unless the cursor is activated, in which
data is centered around the cursor time.

The Event Review screen



Accessing the Event Review Screen

On the Event Review screen you can perform numerous functi such as viewing events, generating reports, customizing the patient's waveform storage, etc.

You can access a patient's Event Review screen either from CLUSTERVIEW or from BEDVIEW.

From CLUSTERVIEW:

1. Click on the **View** button.
2. Click on the **Event Disclosure...** button.
3. Click on the desired unit from the list of servers.
4. Click on the desired patient to activate the **View Data** but ton.
5. Click on the **View Data** button which activates the Event Review screen.

From BEDVIEW:

1. Click on the **Review** button.
2. Click on the **Event Disclosure...** button (this activates t Event Review screen).

Whenever you access the Event Review screen, the most recer event is shown, or the event closest to the cursor (if it is activated). The event display consists of two waveforms, each 18 seconds long. Of these 18 seconds, the first 9 seconds represer data *before* the occurrence of the event and the other 9 second consists of waveform data that occurred *after* the event.

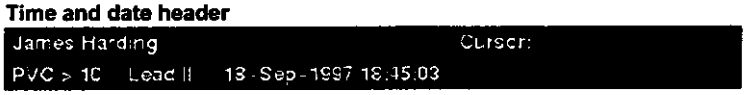
Layout of the Event Review Screen

The Event Review screen consists of the following comp

Header

The header spans across the top of the Event Review scr the left corner it displays the patient's name. The cause o rently displayed event and the time and date it occurred a played directly below the patient's name. In addition, if th is activated, the time and date corresponding to the curso tion are indicated to the right of the header. If the cursor i vated, that portion of the header appears blank.

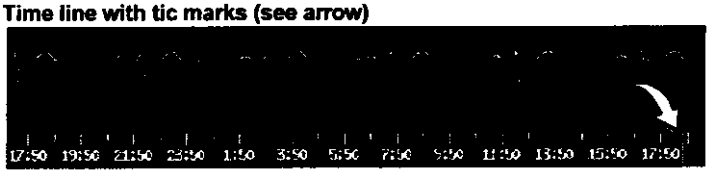
Time and date header



28-hour time line

This time line contains tic marks for all stored events in t selected class. The prominent tic mark identifies the curr displayed event. Clicking inside the time line activates th closest to the selected time within the selected event clas

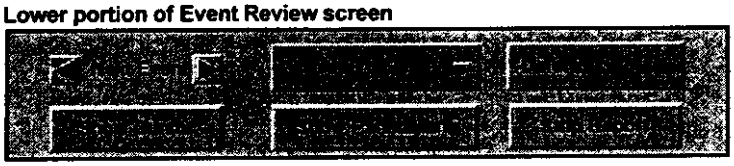
Time line with tic marks (see arrow)



Buttons

The lower portion of the Event Review screen contains the fol lowing buttons:

Lower portion of Event Review screen



- The ◀ **Next event** ▶ buttons enable you to scroll to the next/previous event on the time line.
- The event class button displays the label corresponding to currently selected event class as well as the total number c stored events for that class. Click on it to activate a list of available event categories for which events were stored.

  You can click on any of these event class buttons to 'filter out' individual categories. This is especially helpful when you are only interested in events of a certain category.
- The **Delete...** button allows you to either delete an individ event or an entire event class (see page 15-21).
- The **Remove Cursor/Show Cursor** toggle button enab you to activate/deactivate a cursor which acts as a 'time anchor' among different applications (e.g. when you mov between the trends and review events screens). As soon as you click on the **Show Cursor** button, it toggles to **Remove Cursor** and vice versa.
- The **Show Parameters/Remove Parameters** toggle b ton activates a snap shot view of all parameter values at th bedside monitor corresponding to the time of the event. A soon as you click on the **Show Parameters** button, it to gles to **Remove Parameters** and vice versa.
- The **Strip Report** button allows you to request a strip rep on a laser printer.

Available Functions on the Event Review Screen

From the Event Review screen you can:

- view individual events (see page 15-19)
- view parameter values (see page 15-20)
- delete unwanted events, individual events or entire ev classes (see page 15-21)
- customize event storage (see page 15-23)
- request strip recordings (see page 15-27)

The following sections describe each function in detail.

Viewing Events

You can view and navigate through stored events as follo

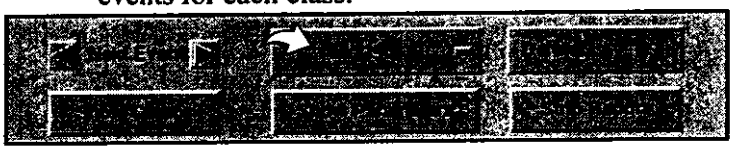
- by clicking on the time line of the Event Review scre using the ◀ **Next event** ▶ arrow buttons to fine-tun selection

or

- by first selecting the event class to narrow your searc 'filter out' unwanted event categories and then proce described above.

Steps: Viewing an Event

1. Access the Event Review screen (see page 15-19).
2. Click on the event class button (see arrow) to activate a list available event classes as well as the total number of stored events for each class.



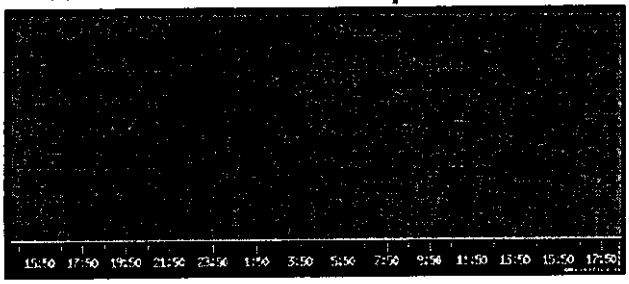
NOTE: Only event classes for which at least one event has been stored during the last 28 hours are included in the event class list.

3. Click on the desired event category. This allows you to narrow your search by 'filtering out' tic marks of unwanted event categories on the time line. If you click on the **All** button (default selection when you first enter the Event Review screen), all event categories with stored events are displayed.

Viewing Parameter Values

You can request a snap shot view of all available parameter values at the bedside at the time of the event as follows:

1. Access the Event Review screen (see page 15-19).
2. Click on the **Show Parameters** button to activate a window with all of the available parameters of the selected event.



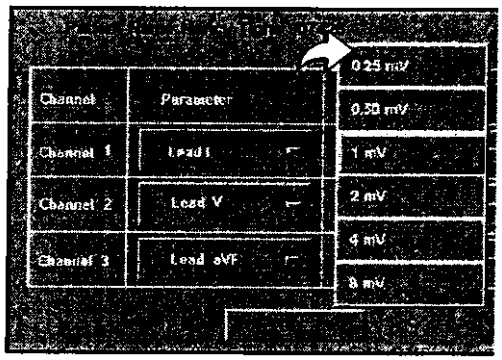
3. Use the arrow buttons on either side of the window to scroll through the parameter list (the arrow buttons appear only if the number of parameters exceeds the display area of the Show Parameters window).

Selecting the Display Gain

You can select the gain of each channel. The available gain se
tings for each parameter are listed in a table on the next page.

Steps:

1. Access the Full Disclosure Review screen (see page 14-15
2. Click on the **Options** button in the upper menu bar.
3. Click on the **Display Options...** menu selection to open t
   Patient Setup window.
4. Click on the option button for the channel you wish to con
   ure under the 'Gain/Scale' heading to activate a popup wit
   available settings.
5. Click on the desired size in the popup.
6. Repeat steps 4 and 5 for the other channels.
7. Click on the **Accept** button to confirm your selection, the **Undo** button to return the settings to last saved setting or the **Cancel** button to cancel the procedure



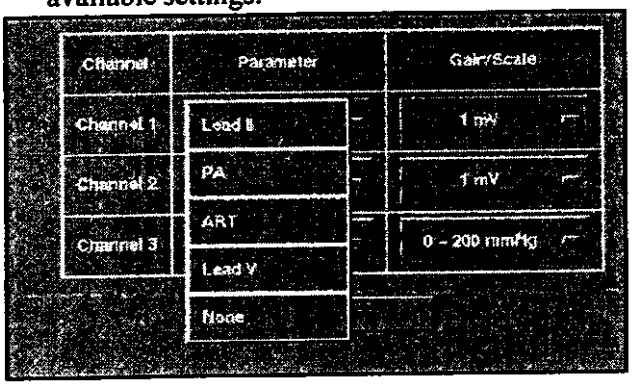
NOTE: If you select different waveforms for display, the gain changes to the default setting for the new waveform.

Selecting Waveforms for Display

During the Full Disclosure Admit process you choose fo forms for storage in the Full Disclosure database. At any you can select three of these waveforms for display in th channels and assign the order in which they are displaye function is available at server and client devices.

Steps: Selecting waveforms for display

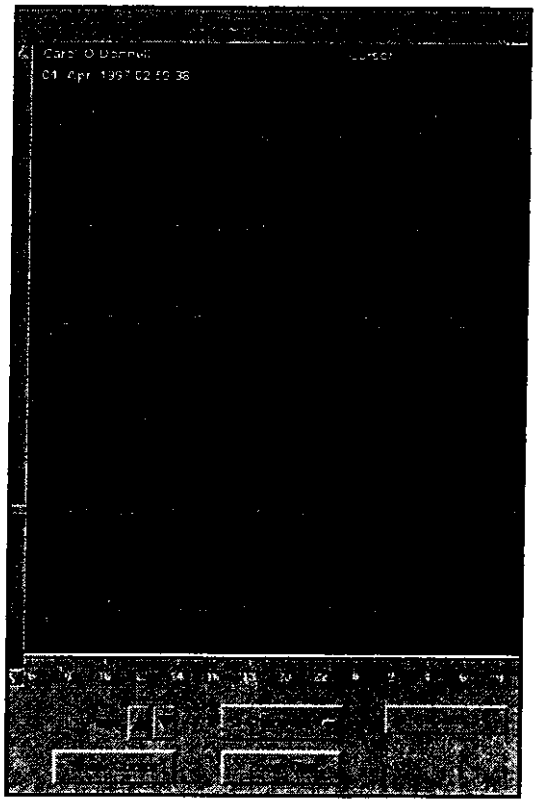
1. Access the Full Disclosure Review screen (see page
2. Click on the **Options** button in the upper menu bar.
3. Click on **Display Options...** to activate the Patient window.
4. Click on the option button for the channel you wish t ure under the 'Parameter' heading to activate a popu available settings.



5. Click on the desired setting in the popup to assign a form for that channel.
6. Repeat steps 4 and 5 for other channels.
7. Click on the **Accept** button to confirm your selectio **Undo** button to return the settings to last saved setti the **Cancel** button to cancel the procedure.

The Expanded Waveform Display Zoom In)

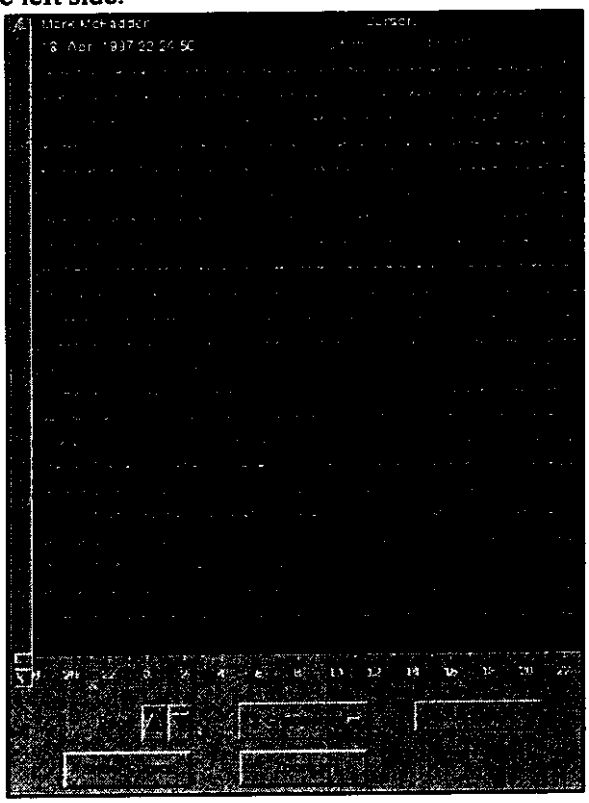
In this display mode you can view waveforms in more detail. Y may view as much as 36 seconds of waveforms for a single ch nel on one screen page. Vertical grid lines divide the screen in one-second intervals. When two and three channels are display the amount of available data is decreased. At the beginning of each line of waveform data is a scale bar, a waveform label an the display gain with units of measure. The background of the expanded display screen is divided into one-second intervals.



NOTE: If the cursor is active the displayed data is centered arot the cursor's time. When the cursor is not activated, the screen di: plays the most recent waveforms.

The Compressed Display Format (Zoom Out)

This display allows you to review more information in on and enables you to quickly identify waveforms needing examination. When you are viewing one channel you wil to see approximately nine and a half minutes of wavefon screen page. With two and three channels displayed, the of data visible on the screen is correspondingly less. To through compressed data, use the page keys or the scroll the left side.



NOTE: If the cursor is active the displayed data is centere the cursor's time. When the cursor is not activated, the scr plays the most recent waveforms.

The Full Disclosure Screen Formats

You can view a patient's Full Disclosure data in two display modes:

- the **ZOOM OUT** compressed format
- the **ZOOM IN** expanded format

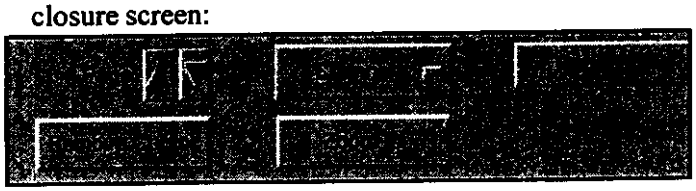
In both display formats you can:

- navigate through the stored Full Disclosure data
- select how many channels of data you wish to view and sel gain settings
- select the order of the waveform display
- generate Full Disclosure reports
- activate or deactivate a cursor which acts as a reference po among different applications (e.g. when you move from Fu Disclosure to Trends etc.)
- zoom in or out of waveforms
- access the Census window and its applications via the Full Disclosure menu bar
- select waveforms for storage via the Full Disclosure menu bar
- move between Full Disclosure and bedside applications

NOTE: A small gap in the Full Disclosure waveforms may app when a patient is added/removed from the CLUSTERVIEW layout the Full Disclosure application.

Buttons

The following buttons are located at the bottom of the Fu
closure screen:



- the **Page: arrow keys** buttons allow you to naviga through the Full Disclosure screen page by page.
- the **I, 2, 3 Channel(s)** button allows you to select h many channels of stored data you wish to view at one the Full Disclosure screen. You can view a maximum channels simultaneously. You can assign the wavefo played in each channel and the order in which the ch appear (see page 14-21).
- the **Remove Cursor/Show Cursor** button activat sor that identifies a point in time on a waveform and functions as a reference point for navigating among applications (e.g. from Full Disclosure to the Trend
- the **Zoom In/Zoom Out** button allows you view wa in greater or lesser detail.
- the **Reports** button allows you to request Full Discl reports.

Features of the Full Disclosure Review Screen

At the top of the waveform display you will find the following information.

- the patient's name
- the patient's ID #
- the date and time corresponding to the oldest displayed da (upper left)
- the date and time corresponding to the cursor's position in t upper right corner (provided the cursor is activated)
- waveform labels and gain settings to the left of each displayed waveform in the compressed screen (zoom out).
- waveform labels and gain settings above the displayed wa forms in the expanded screen (zoom in).

All time changes that occur at the MULTIVIEW WORKSTATION are identified on the waveform by a yellow tic mark.

Appended data is marked with a flashing white tic mark which represents the time the data was appended.

NOTE: When moving between Full Disclosure and other scree such as Trends, near a time change, you may find that the time-stamps are slightly different on the two screens. This occurs because the MULTIVIEW WORKSTATION and the bedside monitors have different methods of annotating the time. However, these ti differences do not affect the displayed data which *correlates exactly in both applications* to an internal time stamp.

Accessing the Full Disclosure Revie Screen

On the Full Disclosure Review screen you can perform n functions such as zooming in and out of waveforms, gen reports, customizing the patient's waveform storage, etc.

You can access a patient's Full Disclosure Review scree from CLUSTERVIEW or from BEDVIEW.

Steps: From CLUSTERVIEW:

1. Click on the **View** button.
2. Click on the **Full Disclosure...** button.
3. Click on the desired unit from the list of servers.
4. Click on the desired patient to activate the **View Dat** ton.
5. Click on the **View Data** button, which activates the closure waveform screen.

Steps: From BEDVIEW:

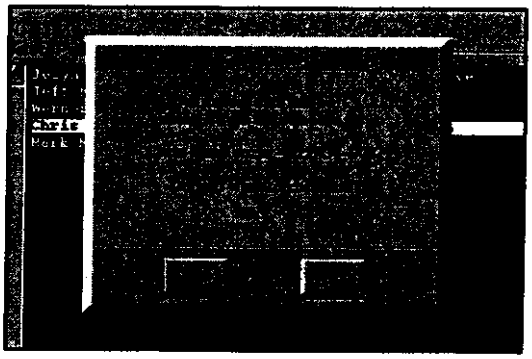
1. Click on the **Review** button.
2. Click on the **Full Disclosure...** button.

You are now viewing the patient's Full Disclosure data i pressed screen (zoom out) format.

The following section describes the information and displ tions that appear on the Full Disclosure Review screen.

Steps: Discharging a Patient

1. Access the Census window (see page 14-4).
2. Click on the **Discharge** button. The Census list with all c the patients currently admitted to the Full Disclosure appli tion is displayed.
3. Click on the desired patient (this activates the **Discharge Data** button).
4. Click on the **Discharge Data** button (this activates the fc lowing confirmation popup).



5. Click on the **Yes** button within the popup to discharge the patient from Full Disclosure or on the **No** button to cancel t discharge and continue data collection for that patient.

   If you click on **Yes**, the patient's name is removed from tl census list.

➤ **NOTE:** When a client device is viewing data of a patient who h been discharged from the server, the screen appears blank excep for the message DATA DISCHARGED.

Discharging a Patient from Full Disclo

Full Disclosure data collection is stopped by *discharging* patient from Full Disclosure.

You can only discharge a patient from the Full Disclosur of the MULTIVIEW WORKSTATION at which the patient w nally admitted.

➤ **NOTE:** If both the Event Disclosure and the Full Disclosu options are unlocked, patients are also automatically disch from Event Disclosure when they are discharged from Ful sure (and vice versa).

When you discharge a patient from the Full Disclosure se patient is *not* discharged from the bedside monitor, or in c telemetry patient, from the MULTIVIEW WORKSTATION. same way a patient who is discharged from the bedside m still admitted to the Full Disclosure server and all of his/h is still stored at the MULTIVIEW WORKSTATION.

Discharge from Full Disclosure does not affect real-time ing or the display of real-time data at the MULTIVIEW WC STATION.

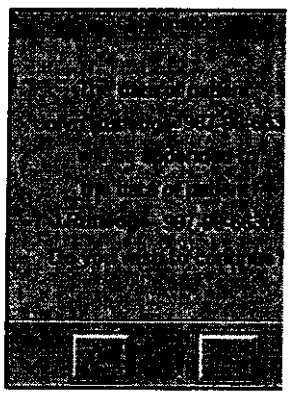
⚠ ***CAUTION:*** *When you discharge a patient from Full Disc all Full Disclosure data as well as any pending Full Discl reports are deleted for that patient. Therefore, it is importa generate Full Disclosure reports periodically if you wish t tain a history of the patient's Full Disclosure session.*

Appending Full Disclosure Data

The append feature of the Full Disclosure application allows y to 'combine' two sets of data. This may be necessary when a patient has been moved to a different monitor or, in the case o telemetry patient, to a different MULTIVIEW WORKSTATION, a two sets of data are generated for the same patient.

Steps: Appending data

1. Access the Census window (see page 14-4).
2. Click on the **Admit/Append** button to access the Admit window, which displays a list of all patients in the monitor unit who are not admitted to Full Disclosure and whose da collection status is 'inactive'.
3. Select and click on the 'inactive' patient whose data you w: to append. When you click on the patient name, the **Appe To New Patient** button is unghosted.
4. Click on the **Append to New Patient** button. A list of patients in the monitoring unit who have not been admitted this Full Disclosure server appears.
5. Click on the patient for whom continued Full Disclosure st age is desired.
6. Click on the **Append Data** button. The following popup appears.
7. Click on the **Yes** button within the popup to confirm that the correct patients and data have been selected or **No** to cancel the selection.



The waveform data is relabeled with the new name/ID and appended to the end of the stored data. As soon as the data is appended, the name is removed from the Admit/Append list and moved to the Censu: list, and Full Disclosure data collection resumes.

You may also click on the **Defaults** button to restor channel to the server's default settings (see the follov table).

Channel 1	Lead II
Channel 2	Lead V
Channel 3	ART
Channel 4	SpO_2

As soon as the patient is admitted, the name appears in th Disclosure Census list.

Interruption in Data Collection

The patient remains admitted to the server and the Full Di data storage continues for as long as the patient remains same monitor on the network and within the monitoring u same holds true for telemetry patients; as long as they rer admitted to the same MULTIVIEW WORKSTATION, data st continues.

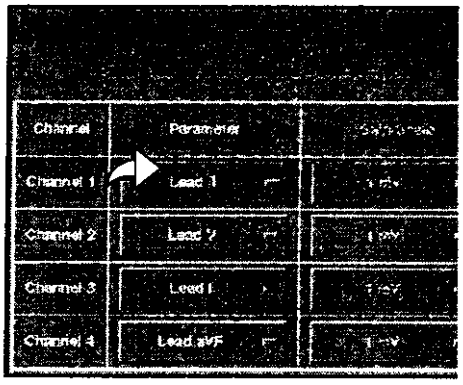
If the patient leaves the monitoring unit and returns with t bedside monitor or, in the case of telemetry patients, retu the same MULTIVIEW WORKSTATION, Full Disclosure wa storage resumes automatically when reconnected to the lI NETWORK even if the patient name and the ID have been changed.

Admitting a New Patient

You admit a patient to the Full Disclosure application as follo

Steps:

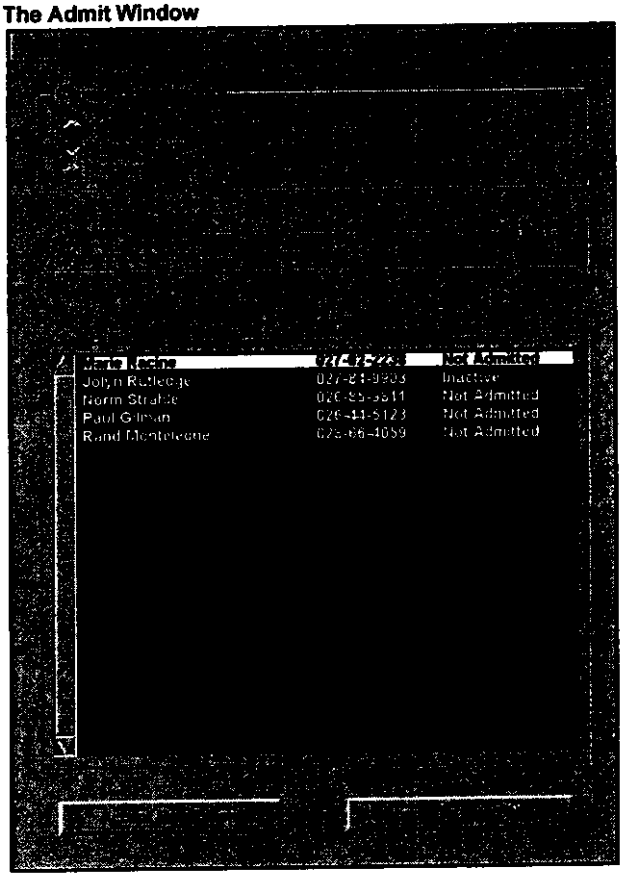
1. Access the Census window (see page 14-4).
2. Click on the **Admit/Append** button to access the Admit window with the list of all patients within the monitoring u who are not yet admitted to Full Disclosure.
3. Click on the patient you wish to admit (as soon as you ma the selection, the **Accept New Patient** button is no long ghosted).
4. Click on the **Accept New Patient** button. This activates waveform storage selection table, which allows you to choose the waveforms to be included in that patient's Full Disclosure data storage. These waveforms may be change any time (see page 24, *Selecting Waveforms for Storage* f details).
5. Click on the field in the table's *Parameter* column for the channel you wish to configure (this activates a popup with available settings).
6. Click on the lead you wish to assign to that channel.



7. Repeat steps 5 and 6 for additional channels.
8. Click on the **Admit** button to complete the admission and start the data collection for that patient or on the **Cancel** t ton to dismiss the popup and return to the Admit window.

Full Disclosure (O

The Admit Window



The Admit window also indicates the number of filled an able Full Disclosure slots. Once the Full Disclosure capa reached (8 or 16 patients, depending on the server option patients are admitted as slots become available as a resul charges.

Admitting a Patient to Full Disclosure

You must *admit* a patient to Full Disclosure to begin collectin Full Disclosure waveform data. Only patients who are admitted the bedside monitor (or in the case of telemetry patients at the MULTIVIEW WORKSTATION) with a name and ID number can admitted to Full Disclosure.

> **NOTE:** You can only admit patients from within the monitorin unit of the MULTIVIEW WORKSTATION that is equipped with the F Disclosure *Server* version. The *Client* version does not allow patient admission. If both the Event Disclosure and the Full Dis sure server options are unlocked, the patient is also automaticall admitted to Event Disclosure when you admit him/her to Full D closure (and vice versa).

The Admit window displays a list of patients who are either cu rently not admitted to Full Disclosure (status: *Not Admitted*) o whose Full Disclosure data collection has been interrupted (sta tus: *Inactive*).

The Inactive status occurs during PICK AND GO (e.g., transfer for procedures, O.R., bed transfer, etc.). As long as the patient remains on the same monitor, the waveform data collection resumes upon reconnection to the monitoring unit of his MULT VIEW WORKSTATION.

The patient list in the Admit window shows only those patient and their Full Disclosure status who are in the monitoring unit the MULTIVIEW WORKSTATION.

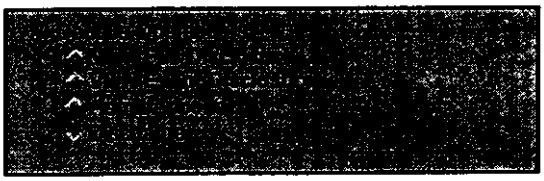
The lower portion shows the Select Patient list, which con the patients with their ID numbers and current Full Discl status. The list changes depending on whether you are in **Full Disclosure, Admit/Append** or **Discharge** mode.

Display mode of Census screen	List label	Status
View Full Disclosure	No label	Patients who admitted to tł selected Full closure serve
Admit/Append	*Inactive* or *Not Admitted*	Patients adm this server, bı longer availal the network; or Patients not ε ted to this seı
Discharge	*Admitted* or *Inactive*	Patients admi this server

Layout of the Census Screen

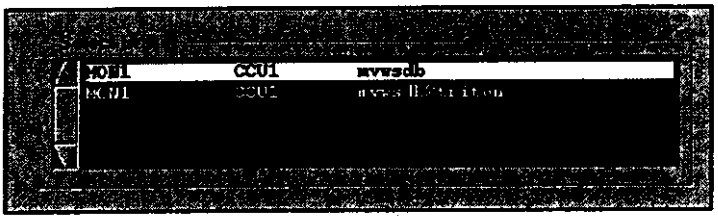
The Census screen is divided into three sections:

The upper portion contains the radio buttons for **Census Op ation(s): View Full Disclosure** (if option is unlocked), **Vi Event Disclosure, Admit/Append** and **Discharge.** Thes buttons determine the mode of the Census screen (e.g. View mode or Discharge mode). Depending on which of these butto you select, the layout and the configuration of the screen varie



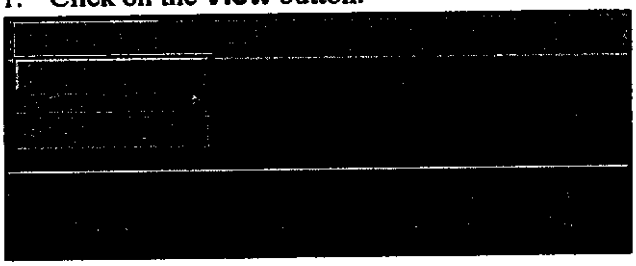
NOTE: If your MULTIVIEW WORKSTATION is only equipped with *Client* version, the **Admit/Append** and **Discharge** buttons are ghosted. Furthermore, the **View Event Disclosure** button *and* t **View Full Disclosure** button are only visible if both the Event D closure option and the Full Disclosure options have been unlock Otherwise only the button corresponding to the unlocked option visible.

The middle section shows the Select Unit list with all availabl Full Disclosure servers. The server listed as... mvwsdb...is the local server on which you are working. Servers listed as...mvws@xxxx... are the names of other servers on the netw that appear when the client option is unlocked. This list is displayed in View mode only.



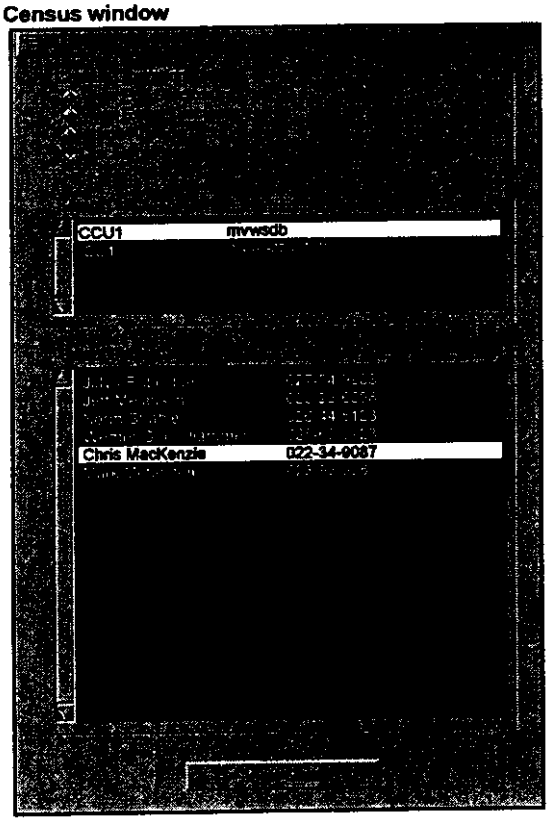
From CLUSTERVIEW:

1. Click on the **View** button.



2. Click on the **Full Disclosure...** button (this activate compressed screen).

The Census window



The Full Disclosure Census Window

Full Disclosure Census operations include:

Admitting a patient to Full Disclosure (only from a server)

Appending a patient to an existing data set (only from a server)

Discharging a patient from Full Disclosure (only from a server)

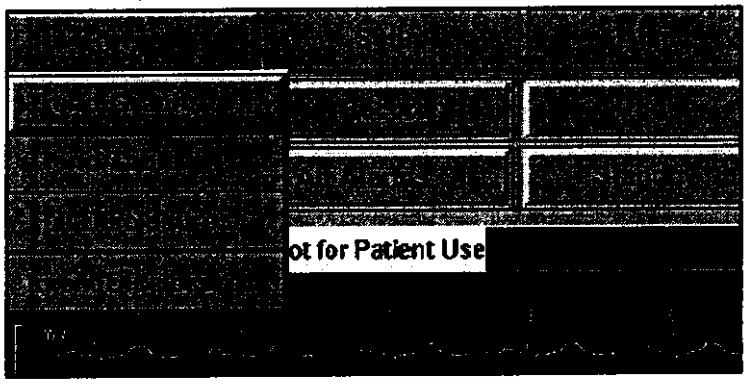
Viewing Full Disclosure data of a patient

Accessing the Census Screen

➤ **NOTE:** The **Full Disclosure...** button is only visible if the Full Disclosure option has been unlocked. You may also see a **Event Disclosure...** button if the Event Disclosure option has been unlocked.

From BEDVIEW:

1. Click on the **Review** button in BEDVIEW.
2. Click on the **Full Disclosure...** button to activate the Census window.



Full Disclosure (O

Once a patient is admitted to Full Disclosure, waveform
begins immediately.

A patient is identified in the Full Disclosure database by
and identification number as stored at his or her bedside
monitor. As long as the patient remains on the same moni
Disclosure data collection automatically resumes if there
interruption in network monitoring, e.g. when patient is
nected from the network. However, if the source monito
changes, the patient must be readmitted and the new data
appended to the previous data set.

Full Disclosure data is stored and displayed until the pati
discharged from the Full Disclosure application at the M
VIEW WORKSTATION.

Overview

The Full Disclosure function is an option which allows you to store and review up to four continuous waveforms for as many sixteen patients. The Full Disclosure application always stores t most recent 28 hours of data for each patient. As soon as the 2 hours are filled, the oldest data is replaced by the most recent.

The Full Disclosure application is only accessible on MULTIVIE WORKSTATIONS operating with enhanced level software. As soon as the option is unlocked (see chapter 17, *Biomed Functions)*, the Full Disclosure function is available.

➤ **NOTE:** If you unlock the Full Disclosure and the Event Disclosı application at the same time but select the 1-8 Patient option for (application and the 9-16 Patient option for the other, the MULTIVI WORKSTATION defaults to the lower patient number for both options. In addition, if both options are unlocked and you admit patient to Full Disclosure, he or she is automatically admitted to Event Disclosure as well (and vice versa).

Full Disclosure is available in two different versions:

- The *Full Disclosure Server* version allows you to store coı tinuous waveforms, select waveforms for storage, view Fu Disclosure data from that server and request reports as wel as admit and discharge patients to and from Full Disclosur
- The *Client* version allows you to view Full Disclosure datı from any Full Disclosure server and request reports. How- ever, you cannot admit and/or discharge patients from Full Disclosure or perform any waveform storage configuratioı functions.

➤ **NOTE:** On a MULTIVIEW WORKSTATION with the Full Disclosure Server option enabled, you can only view Full Disclosure data fı 'its own' patients (e.g.e.g. patients that are admitted to the Full I closure application of that MULTIVIEW WORKSTATION). However, you have the Client option enabled in addition to the Full Disclo sure Server option, you can view patients of other Full Disclosuı servers.

14 Full Disclosure (Option)

This chapter describes the Full Disclosure option of the I
VIEW WORKSTATION.

Requesting a Trend Report

You can print out the currently displayed trend window on a la: printer. Depending on your setup, this printer is either connect directly to the MULTIVIEW WORKSTATION or it is an assigned network laser printer.

Steps:

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click on the **Review** button.
3. Click on one of the following menu selections:

   Trend Graphs... to view the trend graphs

   Trend Table... to view the trend table.

4. Click on the BEDVIEW **Print** button.

NOTE: If the Print button appears ghosted, the printer connecti was set to Off in the Configure Central menu (see chapter 17, *Biomed Functions*).

Condition	Representation in Trend Table		Representation in Trend	
	Telemetry Patients	Non-Telemetry Patients	Telemetry Patients	Non
Time change at the bedside monitor	*not applicable*	Yellow line between trend columns (only the last time change is identified)	*not applicable*	Blank the g
A trend event has been stored by initiating a mini-calc computation at the bedside.	*not applicable*	Column designated with this symbol ◀ and a green time stamp	*not applicable*	not s grap
Change in units of measure	The new units take effect during the next patient admission.	*not applicable*	The new units take effect during the next patient admission.	*not a*
Power loss in server	Blank spaces are stored in place of trend values			
Telemetry receiver goes offline.	Blank spaces instead of trend values	*not applicable*	Blank spaces instead of trend values	*not a*
Patient is put into standby.	Blank spaces are stored in place of trend values			
Change of language	Text strings appear in current language			
Relearning of ST complexes	R	*not applicable*	Vertical dotted line that exter the entire graph	
Changing of ST measuring points	CHG	*not applicable*	Vertical solid line that extend the entire graph	

Representation of Special Conditions

Special events, such as an asystole or a lead-off condition, are indicated in the trend table and the trend graphs in place of a tr value as follows:

Condition	Representation in Trend Table		Representation in Trend Graph	
	Telemetry Patients	Non-Telemetry Patients	Telemetry Patients	Non-Telem Patients
Discrete trend samples such as those associated with NBP and CO measurements	*not applicable*	Column designated with a green time stamp	*not applicable*	Vertical line a gap in the ter indicating mean value
A trend event that has been stored by selecting the **Mark Event** fixed key at the SC 9000 bedside monitor	*not applicable*	Column designated with this symbol and a green time stamp	*not applicable*	Not shown ir graphs
Physiological conditions such as an asystole or an apnea	ASY = Asystole VF = ventricular Fibrillation	ASY = Asystole FIB = Ventricular Fibrillation APN = Apnea	Parameter value of 0	Parame value of Parame value of Parame value of
No parameter could be derived.	* * *		Blanks in the graphs	
Lead-Off condition	"L"	***	"L"	***
Out-of range values	+ + + (high) or - - - (low)		blanks (if you move the cursor over blanks, the actual values are displa	
Artifact	"A"	***	"A"	***
Lead wires, electrodes are unplugged	"U"		"U"	
Hardware failure	"F"		"F"	
Interference	"I"	*not applicable*	blanks in the graphs	*not applicabl*
No signal	"N"	Blank spaces instead of trend values	Blanks in the graphs	

Displaying the Trend Cursor

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.
2. Click on the **Review** button.
3. Click on the **Trend Table...** or **Trend Graphs...** n selection.
4. Click on the **Show Cursor** button in the lower left c the trend screen.

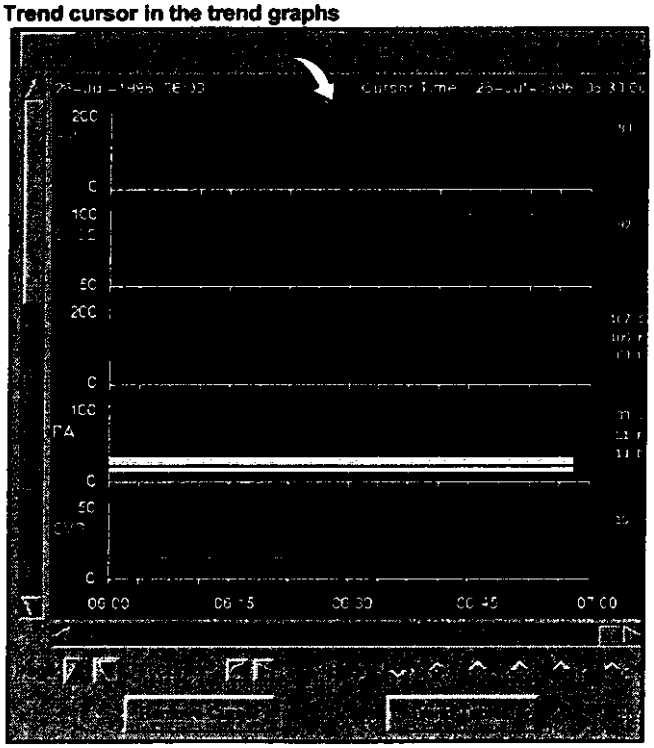
If the cursor is already active when you access the trend v it is displayed according to the following rules:

- If the cursor time matches one of the column time st the *trend table* exactly, the cursor is positioned on th umn and appears in the center of the screen. If the cur in *trend graphs* is within the time boundaries of the c trend screen, the cursor is displayed along with the tr ues corresponding to the cursor's position.
- If the cursor time does not exactly match one of the c in the trend table, as may be the case if you switch fr graphs to the trend table, the cursor time is displayed cursor itself is not. In this case, click on any time col display it on the current trend table page.

➤ **NOTE:** Whenever you move the cursor as described abo cursor time changes accordingly.

- If the cursor time is not within the boundaries of the trend page, the cursor time is displayed, but the curs is not. In this case, scroll to the desired data to displa cursor on the current trend page.
- If the cursor time is older than any of the available tre the oldest trend data is displayed without the cursor. case, the cursor time is displayed.

Trend cursor in the trend graphs



If the cursor is active, you can move it over the displayed tren data by clicking anywhere on the trend graphs or on any displayed column in the trend table.

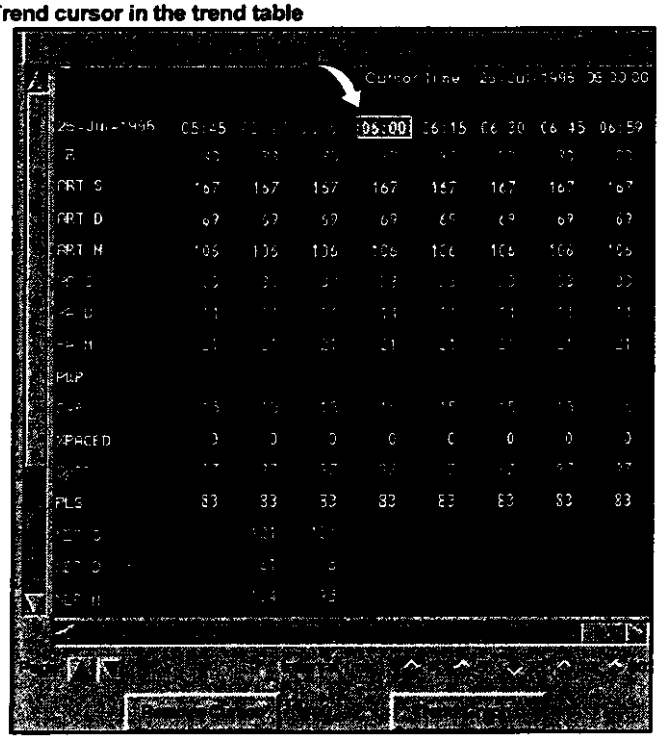
NOTE: In the trend graphs you can also use the cursor arrow b tons to move the cursor over the graphs in small increments.

The time corresponding to the cursor position is displayed in t time and date header. However, if the trend cursor is not activ this field is blank.

Trend Cursor

The trend cursor is a useful tool in pinpointing a patient's
tion at a specific time. In the trend graphs it appears as a
line that extends from the top graph down to the time lin
illustration on next page). In the trend table the cursor ap
a box drawn around a column's time stamp (see illustrati
below).

Trend cursor in the trend table



Changing the Time Interval

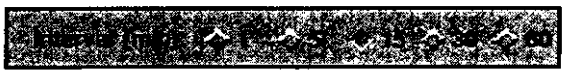
You can select the time interval between the trend table colun as follows:

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.

2. Click on the **Review** button.

3. Click on the **Trend Table...** menu selection.

4. Click on the desired **Interval (min)** radio button located below the trend table: 1, 5, 15, 30, or 60 minutes. The butt highlighted in a different color represents the selected setti



NOTE: If the trend cursor is active, the trend data is centered around the cursor time when you choose a different time interva

- The **interval buttons**  located below the trend table allow you to select the time interval between di trend samples (see page 13-18).

- The **Show Cursor/Remove Cursor** button, locate lower left corner of the trend window, is used to disp remove the trend cursor (see page 13-19).

- The  button allows you to access the tre graphs from the trend table window.

- The **Exit** button, located in the upper left corner of th display, allows you to leave the trend table and retur BEDVIEW main screen.

- the **time stamps** along the top of the trend window appea gray and indicate the time the trend samples for all param ters were taken. Time stamps appear gray unless they iden a trend sample initiated between scheduled intervals by pe forming a calculation or by pressing the **Mark** fixed key at SC 9000.

- the **trend cursor** appears as a box around the time stamp highlighting a patient's condition at a specific time (for m detailed information, refer to page 13-21). Its date and tim are displayed in the date and time header.

- the **vertical scroll bar**, located along the left edge of the trend window, allows you to scroll through the trend table Click on one of the arrows at either end of the scroll bar t scroll up or down by one row (clicking on the arrows with releasing the mouse key allows you to scroll through the d automatically).

➤ **NOTE:** You can also click on the sliders inside the vertical and horizontal scroll bars and 'drag' them to the desired data.

- The **horizontal scroll bar**, located below the trend table, allows you to scroll forward or backward in time one colu at a time.

- The  arrow buttons, located below the trend tab allow you to view the previous or the next trend page.

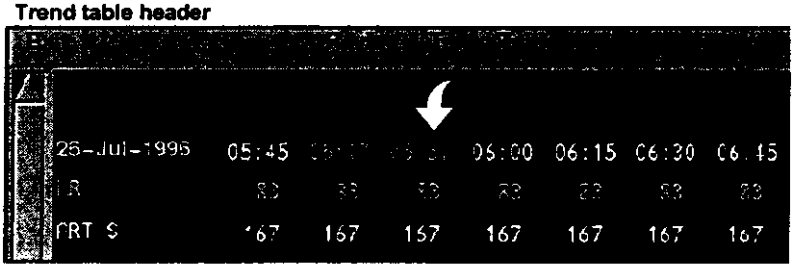
The Trend Table Layout

Regardless of the selected time interval, a trend table (see tion on page 13-12) contains 8 columns of data (fewer co less data is available). A trend table may also represent s events such as a lead-off condition (see page 13-22 for m detail).

A trend table consists of the following elements:

- the **time and date header** spans across the top of the At the left edge it contains the starting time and date trend data followed by the time stamps (hour and mi above each column. The cursor time appears above t stamps in the upper right corner of the window. If th is not active, this field appears blank.

Trend table header



- **parameter labels** appear in the first column of the tr table. Parameter labels appear in shades of dark and l grey. Time stamps appear light grey.

NOTE: If units for selected parameters are displayed at t side monitors, they are also displayed in the trend table wi For telemetry patients units are always displayed.

- A non-selectable green **mark event icon** may ap the first table row above the column time stamps. Th identifies that a trend sample has been stored betwee uled time intervals by selecting the **Mark** fixed key a 9000 monitor. Such a trend sample is further labeled green time stamp.

Accessing a Patient's Trend Table

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.

2. Click on the **Review** button.

3. Click on the **Trend Table...** menu selection.

➤ **NOTE:** If you are in the trend graphs window, click on the **Tre Table...** button at the bottom of the window to access the trend table.

The displayed trend data portion depends on the cursor's statu when you access the trend table.

Cursor is active Yes/No?	Then the Trend Graph displays...
No	The most recent trend data
Yes	Data is centered around the cursor time. **Note**: If centering the data around the cursor would leave part of the trend table blank, the trend display shifts so the available data fills the trend window.

To make the trend table more easily readable, the trend v
appear in rows or groups of associated parameter rows in
ing shades of dark and light grey.

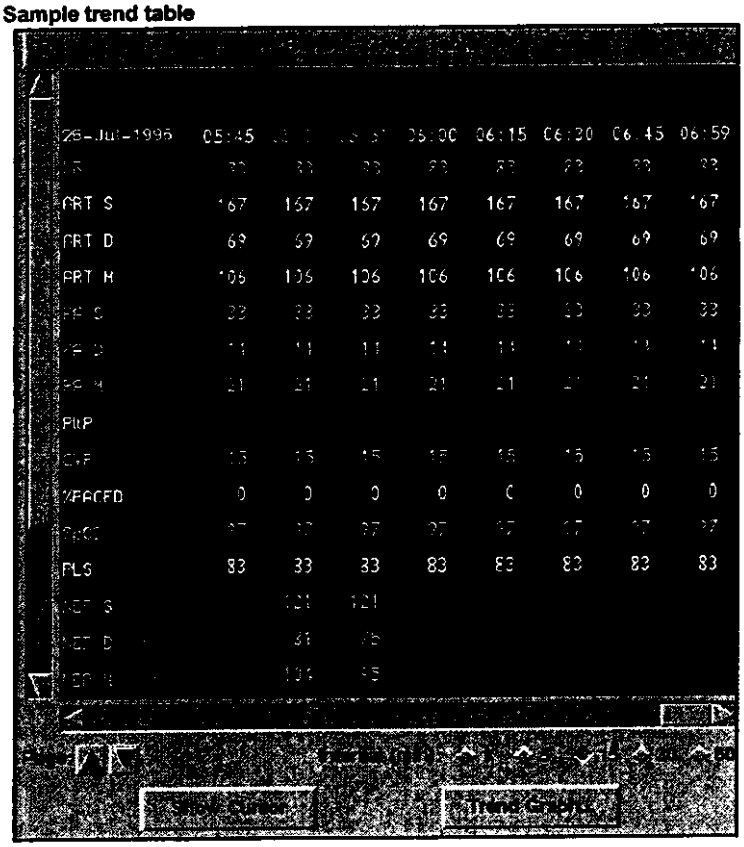
Discrete events such as an NBP or CO measurement cau:
of trend data to be stored for all parameters. Such data ap
a separate trend column and is labeled with a green time
The same is true for an SC 9000 when the **Mark** fixed ke
pressed or a mini-calc computation has been initiated. In
to the green time stamp, 'mark event' trend samples and
calc computations are further identified with the 'mark e'
icon ⊢◀ .

If you are viewing the most recent trend data, the trend ta
updates automatically whenever a time interval elapses. T
column with the most recent time stamp appears at the ri
and the whole table shifts to the left to accommodate the
data.

Trend Table

The trend table arranges stored trend data in an easy-to-read ta
lar format. Each row in the table represents one parameter, an
each column represents one set of trend data for all parameter
a certain time. If a parameter that is assigned to a trend slot do
not have any data, the row is still displayed with the label, but
without the data.

Sample trend table



Choosing a Different Time Base

You can determine the time span of the displayed data in graph as follows:

1. Click on the patient's parameter area in CLUSTERVIE access the BEDVIEW window.

2. Click on the **Review** button.

3. Click on the **Trend Graphs...** menu selection.

4. Click on the desired **Hours** radio buttons which are at the bottom of the trend graphs window: 1, 2, 4, 8, 1 hours. The button highlighted in a different color rep the selected setting.

NOTE: If the trend cursor is activated, the trend data is c around the cursor time when you choose a different time b

- The **Show Cursor/Remove Cursor** button, located in t lower left corner of the trend window, allows you to displ and remove the trend cursor (see page 13-19 for further inf mation).

- The  arrow buttons, located below the trend graphs when the cursor is displayed, allow you to move th cursor over the trend graphs in small increments. To scroll through the data faster, click on the arrows without releasi the left mouse button.

- The  button allows you to access the trend table from the trend graphs window.

- The **Exit** button, located in the upper left corner of the trer graphs window, allows you to leave the trend graphs and return to the BEDVIEW main screen.

- the **vertical scroll bar**, located along the left edge o trend graphs window, allows you to scroll through t graphs. Click on one of the arrows at either end of th bar to scroll up or down by one graph (clicking on th without releasing the mouse key allows you to scroll the data automatically).

NOTE: You can also click on the sliders inside the vertic horizontal scroll bars and 'drag' them to the desired data.

- the **horizontal scroll bar**, located below the trend g window, allows you to scroll forward or backward i Click on one of the arrows at either end of the scroll scroll backwards or forward in time according to the time base (see the following table).

Selected Time Base	Scrolling Interval
1 hour	15 minute
4 hours	30 minutes
8 hours	1 hour
12 hours	1 hour
24 hours	1 hour

- The  buttons, located below the trend gra dow, allow you to view the previous or the next page data.

- The **Hours** radio buttons,  located below the trend graphs window, allow you to select the time base (see page 13-11 for further inf tion). The button highlighted in a different color repr the selected setting.

- **scale bars** with tic marks indicating the top, bottom, and middle of the scale are displayed to the left of each graph. The scale range is indicated at the top and bottom tic mark

- the **time labels** are located below the trend graphs. All grap share a common time line. Labeled time intervals in the tir line vary according to the selected time base as described i the following table:

Time labels

Selected Time Base	Time Intervals on Time Line
1 hour	15 minutes
2 hours	15 minutes
4 hours	30 minutes
8 hours	1 hour
12 hours	90 minutes
24 hours	3 hours

A short, vertical, yellow line beneath the time line marks the la est time change.

- the **trend cursor** appears, when activated, in trend graphs a vertical line that extends from the first graph down to the time line. Its date and time are displayed in the time and da header.

Layout of the Trend Graphs

In addition to the individual graphs, the window consists elements described below as well as special events such a off condition (please refer to page 13-22 for further infor

- the **time and date header** spans across the top of the graphs window. At the left edge it contains the starti and date of the trend data. At the right edge the heade the date and time corresponding to the cursor's posit the cursor is not active, this field appears blank.

Trend graph header

- Depending on the parameter type, each **trend graph** ted in a unique way (see following table).

Parameter Type	Representation on Trend Graph
Single-value, continuous such as HR	Single, continuous line
Single-value, intermittent such as C.O.	Cross hairs representing each value.
Multi-value, continuous such as ART	Colored band with a black line indicating mean value.
Multi-value, intermittent such as NBP	Vertical colored line with a black dot indic the mean value

- **parameter labels** are displayed along the left edge o trend graphs window.

NOTE: If units for selected parameters are displayed at t side monitors, they are also displayed in the trend graphs below the parameter label. For telemetry patients, units ar displayed.

Trend Graph Scales

For non-telemetry patients the trend scales are determined by t
bedside monitor. For telemetry patients, they are listed in the f
lowing table.

Parameter	Lower/Upper Scale
HR	0 to 200 beats/min
PVC/min	0 to 60
% Paced	0 to 100%
SpO_2	50 to 100%
PLS	0 to 200 beats/min
ST I	-5mm to 5mm -0.5mV to 0.5mV
ST II	
ST III	
ST aVR	
ST aVL	
ST aVF	
ST V	

Display Order

For non-telemetry patients, the individual graphs are disp
the order specified at the bedside monitor. For telemetry p
the display order is fixed (see the following table).

Parameter	Display Order
HR	1
PVC/min	2
% paced	3
ST I	4
ST II	5
ST III	6
ST aVR	7
ST aVL	8
ST aVF	9
ST V	10
SpO_2	11
PLS	12

Deleting Events

To make room for additional events you can either delete
ual events or entire event categories as follows:

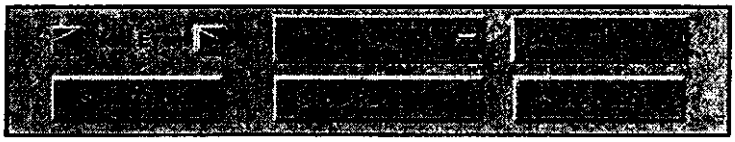
Steps: Deleting individual events

1. Access the Event Review screen (see page 15-19).
2. Select the event you wish to delete (see page 15-19 f
   mation on how to access an individual event).
3. Click on the **Delete...** button.
4. Click on the **Event** button to delete the currently dis
   event (the previous event is displayed; if no previous
   exist, the next event is displayed instead).

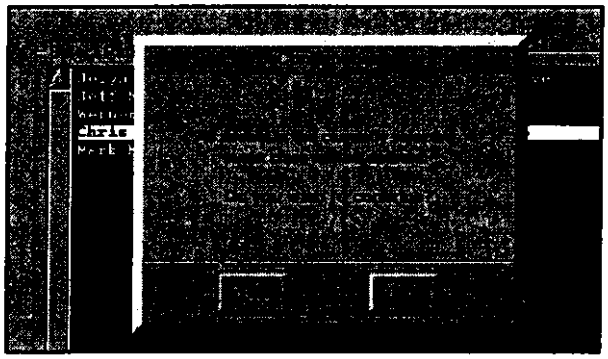
As soon as you delete an event, the number of stored even
event class button reflects the change.

Steps: Deleting an entire event class

1. Access the Event Review screen (see page 15-19).
2. Click on the event class button (see arrow) to activate a lis available event classes.



3. Click on the event class you wish to delete.
4. Click on the **Delete...** button.
5. Click on the **Event Class** button to delete the entire ever class. This activates the following confirmation popup.



6. Click on the **Yes** button within the popup to delete all of t events for the selected class or on the **No** button to exit th popup without deleting any events.

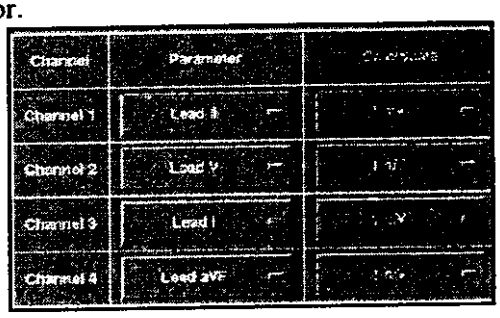
Selecting Waveforms for Storage

You can determine which waveforms or parameters will
tured' in the Event Disclosure database for each patient.
waveforms are initially selected at the time of admission;
ever, you can change them at any time. The defaults for e
channel are outlined in the following table.

Channel 1	Lead II
Channel 2	Lead V
Channel 3	None
Channel 4	SpO_2

Steps:

1. Access the Event Review screen (see page 15-19).
2. Click on the **Options** button in the upper menu bar.
3. Click on the **Storage Options...** menu selection to
   the Patient Setup window.
4. Click on the option button for the channel you wish tc
   ure under the 'Parameter' heading. This activates a p
   with a list of all available waveforms from the bedsid
   tor.

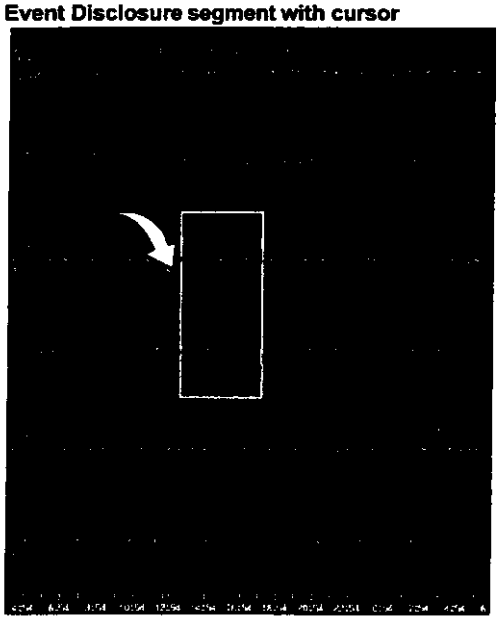


5. Click on the desired selection.
6. Repeat steps 4 and 5 for the other channels.
7. Click on the **Accept** button to confirm your selectio
   Defaults button to return to the factory defaults (see
   above) or on the **Cancel** button to cancel the proced

Cursor

The cursor is a tool that identifies a point in time on a wavefor It also allows you to 'capture' a certain segment of a waveforr and the corresponding data in order to view it in different appl tions (e.g. you can move from Event Disclosure to Trends). If cursor is active when you enter the Event Disclosure applicati the displayed data is centered around the cursor's time. When cursor is not active, the screen displays the most recent wavefo data. When the cursor is active, the corresponding cursor time displayed in the upper right corner. If the cursor is not active, t field appears blank. In the Event Disclosure screen the cursor appears as a box (see illustration below).

Event Disclosure segment with cursor



You can move the cursor on the screen by pointing and clickir the mouse on the displayed waveforms.

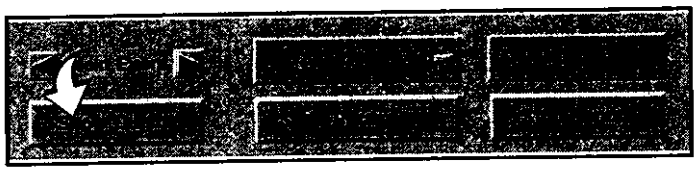
NOTE: The cursor's time does not change when you scroll through the events with the scroll bar or select a time on the tim line. The cursor time only changes when you point and click on actual waveform.

Displaying/Removing the Cursor

You can either display or remove the cursor.

Steps:

1. Access the Event Review screen (see page 15-19).



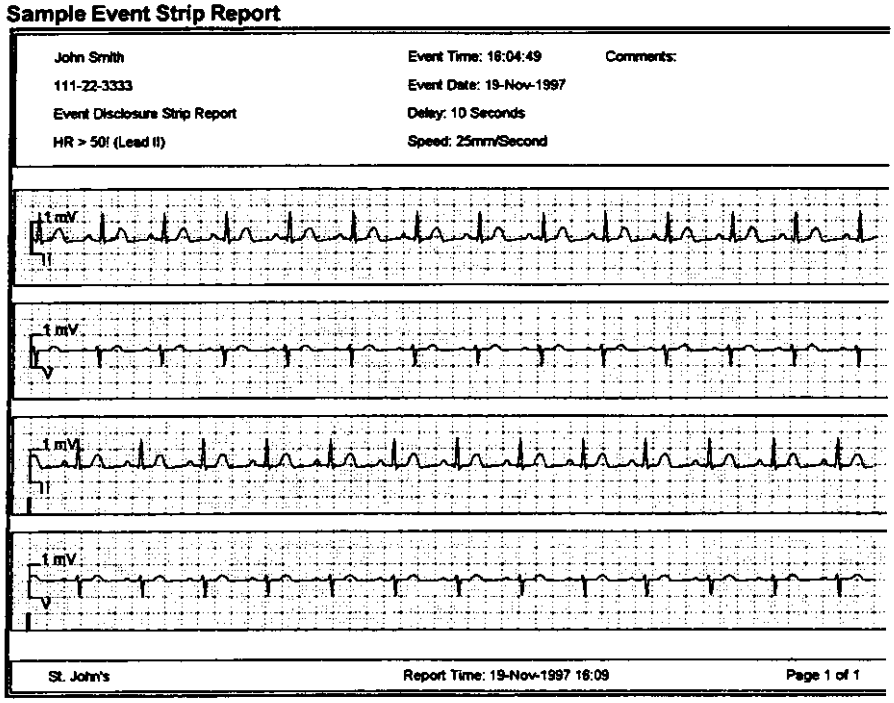
2. Click on the **Remove Cursor** button to hide the cu
on the **Show Cursor** button to display it. Whenever
click on the button, it toggles to its opposite.

Event Disclosure Strip Reports

NOTE: You can request Event Disclosure reports from a server as well as a client.

An event disclosure strip report consists of 20 seconds of even data (10 seconds pre-event and 10 seconds post-event data). The report also includes the cause of the event (event class label), the time of the event, the date and, if applicable, the ECG lead on which the event was detected.

Sample Event Strip Report



You can request a total of 10 reports at one time. You are notifi when the print queue is full. Please wait until some of the repo are printed before requesting any more. A message in the statu area of CLUSTERVIEW indicates when a report is requested or rejected.

All Event Disclosure reports are either printed on a netwo printer or on a laser printer that is connected directly to th MULTIVIEW WORKSTATION, depending on the printer set Event Disclosure report requests are processed even if yo the Event Disclosure application.

Pacer marks and time change indicators are printed where cable.

NOTE: You cannot cancel Event Disclosure strip recordi

Requesting a Strip Recording

You can request a strip recording of a stored event provid laser printer is configured (see page 17-9).

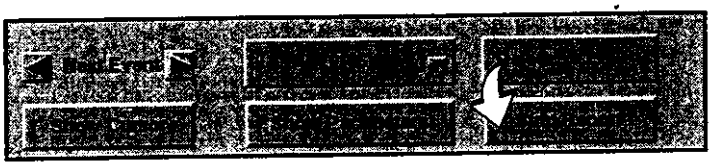
Steps:

1. Access the Event Review screen (see page 15-19).
2. Click on the time line to select a tic mark and access t desired event

or

Click on the event class button and select the desired category. This allows you to narrow your search by 'f out' tic marks of unwanted event categories on the tin

3. Click on the **Strip Report** button.



Special Conditions

Different circumstances during patient monitoring may affect collection of Event Disclosure data as indicated in the followi table.

Special Condition	Effect
The monitoring device is being powered up	No events are stored until the monitor is operational.
The monitoring device is powered down	The Event Disclosure data is preserved.
CPS/bedside monitor is offline, has failed or is powered down	No events are stored during the interruption.
The patient is put in standby	No events are stored for the duration of the standby.
Standby is canceled	Storage of Event Disclosure data resumes.
Patient is discharged at the bedside	Event disclosure data remains until manually deleted at the MULTIVIEW WORKSTATION.
Patient demographics are changed	Event Disclosure data is stored under the new demographics
Bedside monitor is disconnected	No events are stored while the monitor is disco nected.
Network date and/or time changes	Up to 20 system time changes are stored. The time stamps on the event calls and the waveform indicate the time of the actual event storage.

16 The VIEWSTATION Option

The VIEWSTATION™ is a scaled-down model of an Enhar
MULTIVIEW WORKSTATION. With this option you can rev
vital patient information from almost anywhere in the hos
and perform certain basic functions away from the MULTI
WORKSTATION. Because patient information is accessible
many users, access to setup functions is restricted. You ca
fore *view*, but not change any the patient setup.

The VIEWSTATION is available as a single screen option th
display up to 16 patients in a single waveform format. The
screens and functions mimic the MULTIVIEW WORKSTATI
with the exception of remote control capabilities and audi
alarms.

VIEWSTATION Capabilities

On a VIEWSTATION you can

- assign patients to one of four CLUSTERVIEW layouts
- request timed and continuous recordings from CLUSTE
- access BEDVIEW screens and other patient data
- stop waveforms
- view logs
- request print screens

The following functions are not available on a VIEWSTATION

- remote control functions including: alarm silence, bed silence, alarm limits setup, arrhythmia setup, relearn, and editing of patient demographics (these functions appear ghosted and are non-selectable).
- audible and visual alarms (with the exception of alarm m sages which are displayed as described below).
- attention/error tones, bed silence enable, and bed control enable in the Setup Central menu.

CLUSTERVIEW

You can assign patients within the monitoring unit of the VIE STATION to any of the following layouts in the VIEWSTATION CLUSTERVIEW (main screen):

- **8 x 1** - 8 patients, one waveform each
- **4 x 2** - 4 patients, 2 waveforms each
- **8 x 2** - 8 patients, 2 waveforms each
- **2 x 4** - 2 patients, 4 waveforms each
- **4 x 4** - 4 patients; 4 waveforms each
- **16 x 1**- 16 patients, 1 waveform each.

You can perform all other CLUSTERVIEW functions on the VI STATION. Please refer to the CLUSTERVIEW chapter of the MULTIVIEW WORKSTATION User's Guide for detailed inform tion.

BEDVIEW

The BEDVIEW screen of the VIEWSTATION is similar to th MULTIVIEW WORKSTATION. It allows you to view an ind patient's data but the **Relearn** and the **Bed Silence** but ghosted. You can view the alarm settings table, and arrhy setup, but you cannot edit it.You can perform all other BE functions from the ViewStation. Please refer to the Patien Chapter for detailed information.

Alarms

The VIEWSTATION does not issue audible alarms. An alar sage is shown in the upper left corner of the waveform are color corresponding to the grade of the alarm. Please refe Alarms Chapter for more detailed information on alarms.

Full Disclosure/Event Disclosure

The VIEWSTATION offers the *Client* option which allows view stored full disclosure and/or event disclosure wavefo from any server in the network. Although you can request from the VIEWSTATION, you must admit or discharge the to and from the full disclosure/event disclosure server. Pl refer to the section(s) entitled *Full Disclosure (Option)* an *Disclosure (Option)* for detailed information.

Biomed

The only locked option that you can activate/deactivate at VIEWSTATION is the Client Option. Please refer to the 'Bi section for detailed information.

17 Biomed Functions

This chapter describes the password-protected Biomed menus, for biomedical or service personnel, and is divided into two par addresses general functions such as accessing Biomed menus, i ing available options and viewing logs, while Part II, beginning 17-23, deals with Biomed functions specific to the telemetry sy

Part I - General Setup

Part II - Telemetry Setup

Overview

The Biomed menus are password-protected and intended only the hospital's biomedical or Siemens service personnel. These menus provide important information regarding the status of t MULTIVIEW WORKSTATION and other devices on the network and offer a variety of setup features.

NOTE: Anyone who has access to the Biomed password auton ically has access to the functions protected by the clinical passw

The following Biomed menus are available.

Name of Menu	Description
Show Devices...	This menu allows your Biomed to view the status of networked devices (e.g. offline, standby, discharged etc.) within the monitoring unit of this MULTIVIEW WORKSTATION.
Configure Central...	This menu provides access to setup features (e.g. language, the clinical password on/off feature etc.)
Configure Locked Options...	This menu allows your Biomed to unlock available options.
Configure Telemetry...	See page 17-23.
System Console...	This menu activates a UNIX window with a prompt from where remote diagnostics can be performed, the MULTIVIEW WORKSTATION can be shut down, Rest ECG report formats can be selected etc.
Clinical Events log	The *clinical events log* contains information on 1000 events of clinical significance, such as alarm detection, alarm silence requests, recording status, and remote control of bedside monitors.
Diagnostic log	the *diagnostic log* contains a record of 1000 hardware and software error conditions. These logs are helpful in determining the status of the system.

Accessing the Biomed Menus

1. Click on the **Biomed** button in the CLUSTERVIEW m
   This activates a pull-down menu with the names of t
   able Biomed menus.

2. Click on the desired menu selection (**Show Device**
   Configure Central..., Configure Locked Optio
   System Console...) Clinical Events log, Diagn
   log or **Configure Telemetry** (see page 17-23). Th
   word popup window appears.

3. Enter the Biomed password. As you type the passwor
   isks (****) are displayed instead of the actual charac
   safeguard the password.

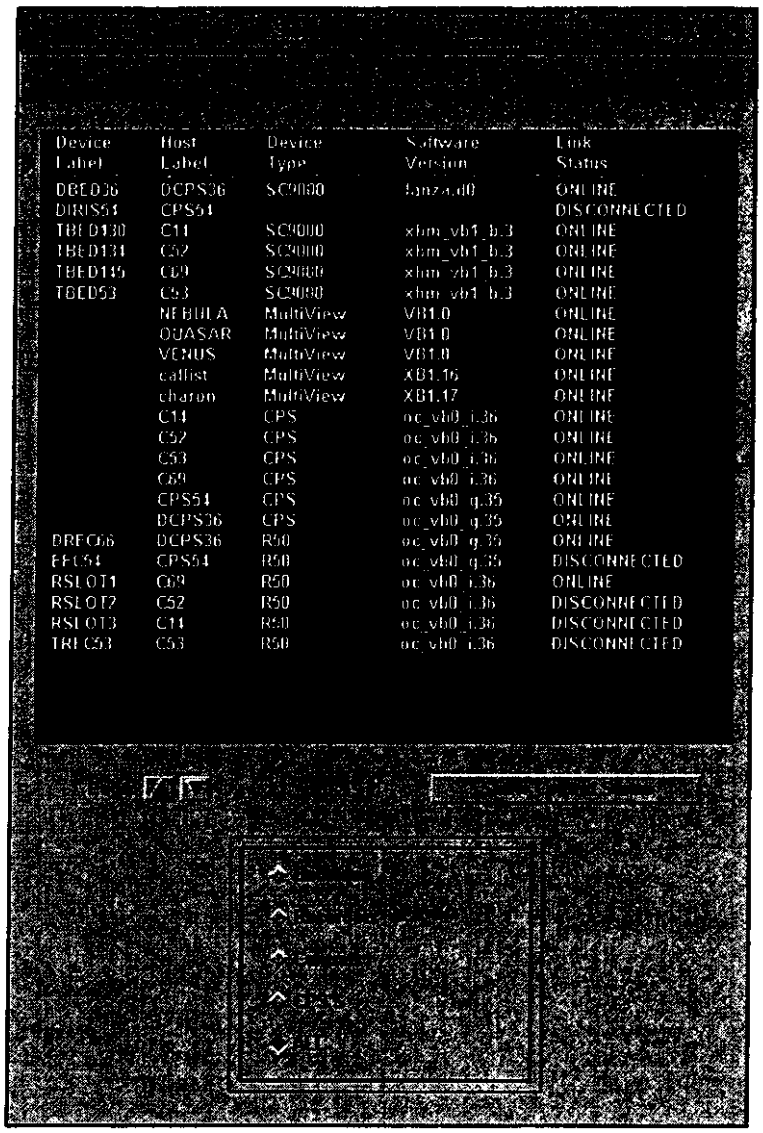
4. Click either on the **Accept** button to confirm the pas
   or on the **Cancel** button to dismiss the popup and re
   CLUSTERVIEW.

   If the password is accepted, the requested window is
   played. If not, an error tone sounds, the text entry bo
   cleared, and an error message in the popup informs y
   the password was entered incorrectly. Verify the pass
   and try to enter it again as described above.

Once you have accessed a Biomed menu, you can cycle t
all other Biomed menus without having to enter the Biom
word each time you wish to view another menu unless yo
to CLUSTERVIEW or select another menu bar button, in w
case you will have to perform the above-mentioned steps.

The Show Devices Menu

This menu lists status information for all network devices (recorders, CPS, bedside monitors, receivers etc.) assigned to monitoring unit of the respective MULTIVIEW WORKSTATION



Layout of the Show Devices Menu

The Show Devices menu consists of the following eleme

Network information area

This area displays the following information for each dev the network and within the monitoring unit of the MULTI WORKSTATION:

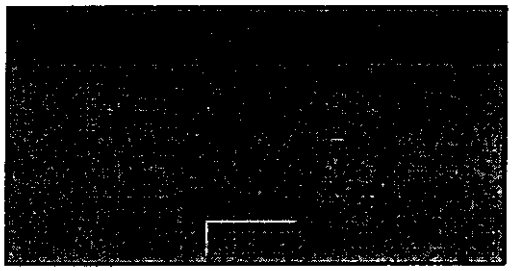
- *device label* - for bedside monitors and recorders onl (assigned to the devices during network configuratio BED 1.)
- *host label* - either the label of the CPS or the MULTIV WORKSTATION (e.g. CPS 1)
- *device type* (SC6000, SC9000, MULTIVIEW, CPS, R 5 (for Telemetry beds) blank if patient is disconnected)
- software version (e.g. VC0)
- *link status* (e.g. standby, online, offline, etc.)

Page up/down arrow buttons

These buttons enable you to scroll through the available i tion page by page.

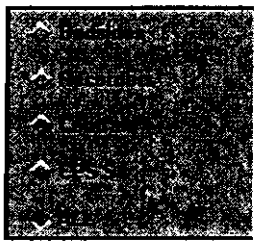
Show Central Status button

This button activates the following popup with current status information.



To dismiss the popup, click on the **Continue** button.

Network information filter button



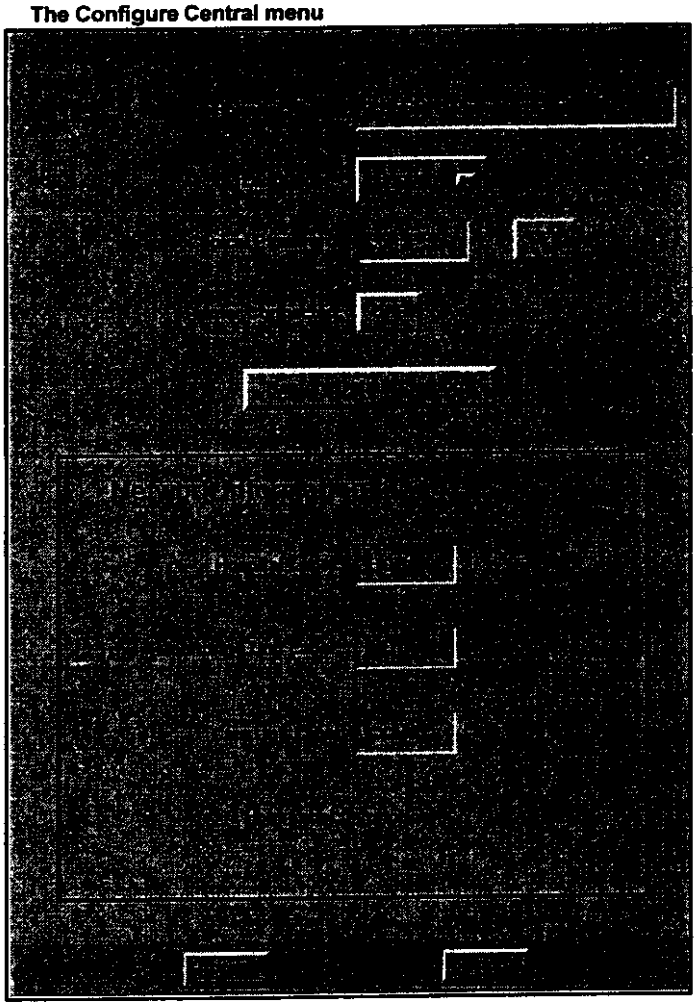
You can view the information in the Show Devices window either for an individual device or for all devices together.

Click on one of the 'filter' buttons, located in the lower portion of the Show Devices menu, to view only the information of a particular device category. If no information is available for a certain device category, the Show Devices window appears blank. The **All** button disables the filter and displays the information for all devices.

The Configure Central Menu

This menu offers a variety of setup possibilities. Specifica
can configure such settings as the hospital name, the care
label, the language, etc.

The Configure Central menu



The following sections describe the various functions.

Modifying Available Selections

The following table lists the selections that can be configured the Configure Central menu. To modify a setting, proceed as lows:

1. Access the Configure Central menu (see page 17-3 for details).
2. Click on the button or the text entry box corresponding to selection(s) that you wish to change. The available selecti are listed in the table below. Depending on your selection list of available choices appears, the selected button toggl to its opposite state, or you can enter text with the keyboa in the text entry box.

➤ **NOTE:** The flashing "I" bar indicates when a text box can acc text.

3. Click on the **Accept** button to store your selections, or cl on the **Undo** button to retain the previous settings.

Selection	Description	Available Settings	Factory Default
Hospital Name	This selection defines the hospital's name.	Up to 25 characters	None
Language	This selection determines the language of the MULTIVIEW WORKSTATION. **Note**: With each change in language, a popup appears indicating that the MULTIVIEW WORKSTATION has to be restarted before the new language takes effect. Each language change causes an entry to be stored in the clinical events log.	English, French, German, Italian, and Spanish.	None

Note: Click on the **Accept** button to store your changes, or click on the **Undo** butt to retain the previous settings.

Selection	Description	Available Settings	Factor Defaul
Clinical Password	This selection defines the clinical password. It functions in conjunction with the On/Off button located next to the text entry box. **Note**: Whenever the clinical password is modified, an entry is stored in the clinical events log.	Up to 8 characters	MVWS
Clinical Password On/Off	This selection enables or disables the clinical password. If this function is enabled, the setup menus can only be accessed after the clinical password (see above) has been entered correctly.	ON / OFF	ON
Printer Connected	This selection determines the printer connection.	•*Local* (the printer is connected directly to the MULTIVIEW WORKSTATION) •*Network* (the central is connected to a network printer) •Off	
Network Printer Address	This field (next to the assigned printer label) displays the IP address configured during installation (for viewing only). This is the IP address for the network printer connection		

Note: Click on the **Accept** button to store your changes, or click on the **Undo** to retain the previous settings.

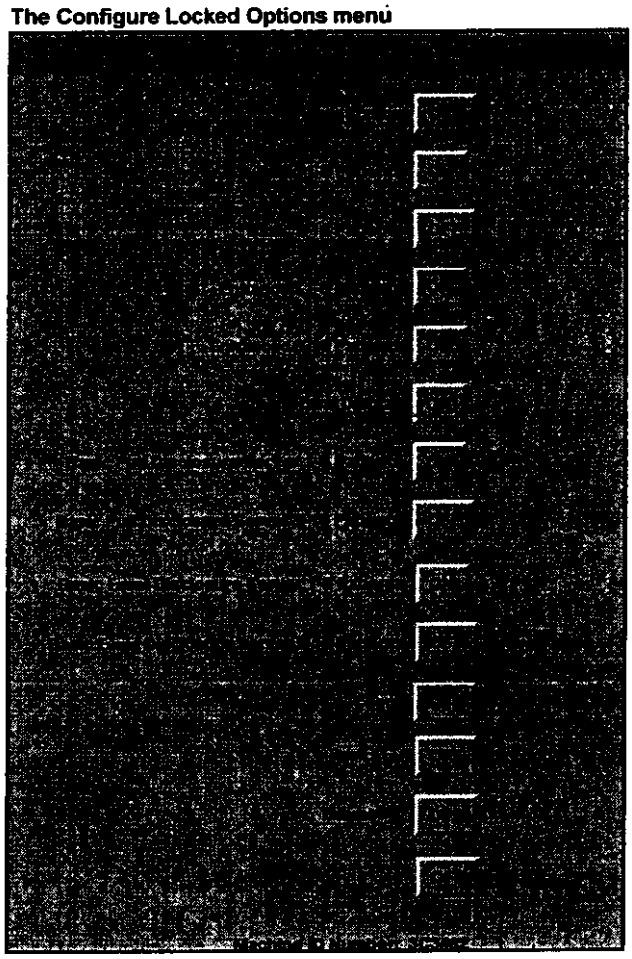
Selection	Description	Available Settings	Factory Default
Restore Default Settings	This selection restores settings to defaults. As soon as you click on this button, a confirmation popup appears to inform you that all settings will be restored to defaults except for network configuration information, central layout configurations, and locked options. **Note**: Whenever you restore defaults, a popup appears indicating that the MULTIVIEW WORKSTATION has to be restarted before they take effect. In addition an entry is stored in the clinical events log.	Not applicable	Not applic
Hospital Label	This selection defines the hospital label for the network.	Up to 7 characters	
Monitoring Unit Label	This selection defines the monitoring unit to which the MULTIVIEW WORKSTATION is assigned.	Up to 7 characters	
Care Unit Label	This selection defines the care unit to which the MULTIVIEW WORKSTATION is assigned.	Up to 7 characters	
Host Label	View only		

Note: Click on the **Accept** button to store your changes, or click on the **Undo** butt to retain the previous settings.

The Configure Locked Options Menu

This menu offers several options that must be purchased s
rately. An option can only be 'unlocked' after the Biomed
the password for that option which is unique for each MUL
WORKSTATION.

The Configure Locked Options menu



The following sections describe the available functions.

Unlocking/Locking Available Options

1. Access the Configure Locked Options menu (see page 17
2. Click on one of the following available menu choices (the password popup appears):

- VIEWSTATION On/Off
- Basic 1 - 8 Patients On/Off (always ON and ghosted)
- Basic 9 - 16 Patients On/Off
- Enhanced 9 - 16 Patients On/Off
- Enhanced 1 - 8 Patients On/Off
- Dual Display On/Off
- Basic Full Disclosure Server 1 - 8 Patients On/Off
- Basic Full Disclosure Server 9 - 16 Patients On/Off
- Basic Event Disclosure Server 1 - 8 Patients On/Off
- Basic Event Disclosure Server 9 - 16 Patients On/Off
- Client On/Off
- RestECG On/Off
- Telemetry On/Off
- ST On/Off

➤ **NOTE:** If you unlock the Full Disclosure and the Event Disclo application at the same time but select the 1-8 Patient option for and the 9-16 Patient option for the other, the MULTIVIEW WORK-STATION defaults to the lower patient number for both options. I addition, if both options are unlocked and you admit a patient t Full Disclosure, he or she is automatically admitted to Event Di closure as well (and vice versa).

3. Enter the password for the option you wish to unlock/lock As you type the password, asterisks (****) are displayed instead of the actual characters to safeguard the password

➤ **NOTE:** You can only enter the password if the mouse pointer within the boundaries of the password popup window.

Continued on next page...

4. Click either on the **Accept** button to confirm the pas
or on the **Cancel** button to dismiss the popup and ret
the Configure Locked Options menu. If the password
accepted, the corresponding feature is unlocked. In sc
instances unlocking a feature is only possible after a r
feature has been unlocked previously.

After an option has been unlocked, a popup window appe
inform you that for the unlocked features to take effect, th
MULTIVIEW WORKSTATION must be restarted.

Whenever you lock or unlock a feature, a message is store
clinical events log.

The System Console

This menu consists of a UNIX window with a prompt that all the Biomed or service personnel to:

- run remote diagnostics for all network devices
- shut down or restart the MULTIVIEW WORKSTATION
- view an alarm history log for telemetry patient channels c sisting of the last 5000 events (with time and date of the alarm occurrences).
- select RestECG report formats

Refer to page 17-3 for information on how to access the Syste Console. For more detailed information, consult the Service d umentation.

RestECG Reports

RestECG reports are available in several formats.

NOTE: For the US, only the following report format is av
4x3 waves, 2.5 seconds with no diagnostic statements.

The format determines the content and the presentation o
report. Because several formats are available, you always
the flexibility to customize the Rest ECG reports accordi
your needs.

As soon as the data arrives from the SC 9000, the MULTI\
WORKSTATION analyzes it and generates the report accor
the selected format. The data is then sent either to a local
work printer, depending on the selected printer assignme
page 17-9).

An entry is made in the clinical events log whenever the
VIEW WORKSTATION issues a report successfully. If a rep
not be processed successfully, a corresponding entry is m
the diagnostic log (see page 17-19).

If multiple printing requests exist, the RestECG report is
until the assigned printer becomes available.

**WARNING: Diagnosis based on interpretation o
lead monitoring results should only be done by q
personnel. Prior to final interpretation and diagno
qualified physicians should review suggested dia
statements and all other available information.**

Available Report Formats

The format of a RestECG report determines the layout and th type of information included in the report. For example, some formats display complexes and waveforms whereas other forn display waveforms and diagnostic strings. Please consult the lowing table for a description of each format. For more detail information on report formats, please refer to the SC 9000 Us Guide.

NOTE: The Rest ECG function is pending 510 (K) review anc not yet commercially available in the US.

Report Type	Resolu-tion	Diagnostic Statements Y/N	# of Page s	Orientation
6x2 waves, 2.5 s	50 mm/s	Y	1	Landscape
6x2 waves, 2.5 s		N	1	
6x2 waves, 2.5 s		Y	2	Landscape, cabrera
6x2 waves, 2.5 s		N	1	
Complexes and 3 waves (V1, II, V5) 7 s	*Com-plexes*: 50mm/s *Wave-forms*: 25mm/s	Y	1	Portrait, standa
12 waveforms, each 5 s	50 mm/s	N	2	Cabrera
12 waveforms, each 5 s	50 mm/s	N	2	Landscape
3x4 waveforms, each 2.5 s	50 mm/s	N	1	
3x4 waveforms, each 2.5 s	50 mm/s	Y	2	

Steps: Choosing the Report Format

1. Access the System Console (see page 17-3).
2. Enter the following string (exactly as stated) at the $-

   rekgSelect

   The following selection menu appears:

```
      ---- Rest ECG Report Selection Menu ----

 1. 6x2 waves @ 2.5 secs, with diagnostics
 2. 6x2 waves @ 2.5 secs, without diagnostics
 3. 6x2 waves @ 2.5 secs, with diagnostics, cabrera format
 4. 6x2 waves @ 2.5 secs, without diagnostics, cabrera format
 5. Complexes @ 3 waves @ 7 secs, matrix diags
 6. 12 waves @ 5 secs, cabrera format (2 pages)
 7. 12 waves @ 5 secs (2 pages)
 8. 3x4 waves @ 2.5 secs, without diagnostics
 9. 3x4 waves @ 2.5 secs, with diagnostics (2 pages)
99. Set or change hospital name

Select from 1 - 9, 99 or press <Enter> for the default (1)
Enter Q or q to quit.
Select:
```

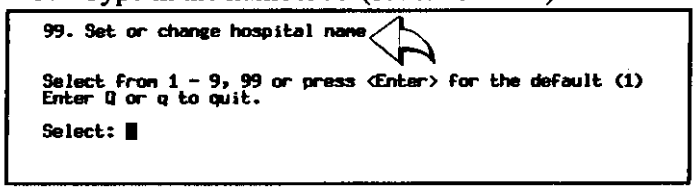
3. Enter the number corresponding to the report format wish to select (1 through 9).
4. Type in the letter **Q** or **q** to exit the RestECG menu o tinue with step 3 in the following section to enter the l name.

Steps: Entering/Changing the hospital name

1. Access the system console (see page 17-3).
2. Enter the following string (exactly as stated) at the $-pror

   rekgSelect

3. Type in the number 99 (see illustration).



4. Type in the new hospital name in the 'Enter hospital nam field.
5. Press **<Enter>** on the keyboard to return to the report sel tion menu.
6. Type in the letter **Q** or **q** to exit the RestECG menu.

Viewing Logs

The password-protected diagnostic log and clinical events store records of hardware and software conditions and cli events. These logs are especially helpful to biomedical an vice personnel for identifying possible equipment malfun

The *diagnostic log* contains a record of 1000 hardware an ware error conditions. These logs are helpful in determini status of the system.

The *clinical events log* contains information on 1000 ever clinical significance, such as alarm detection, alarm silenc requests, recording status, and remote control of bedside r tors.

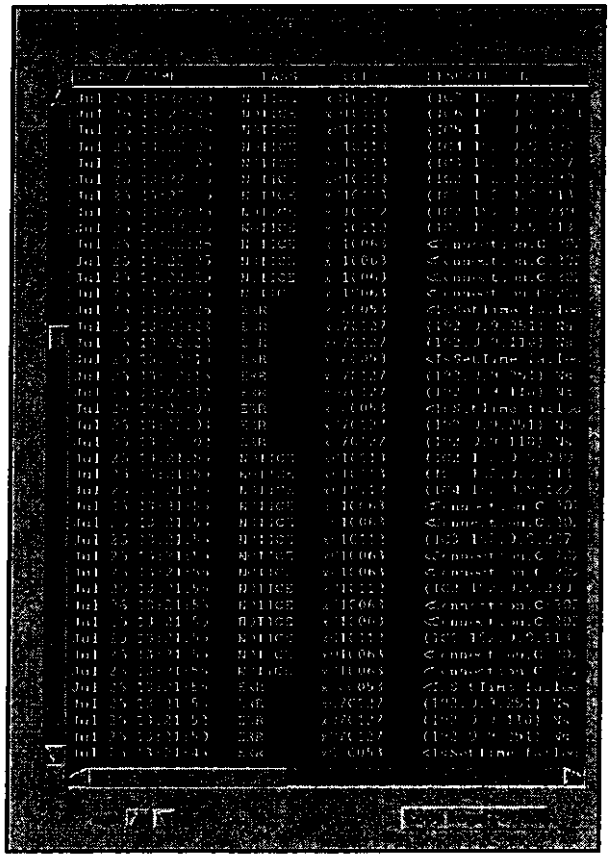
Together, these logs are a useful tool for biomedical or se personnel in analyzing possible malfunctions. In addition viewing the logs, you can also copy them to disk.

Log entries are displayed in chronological order with the r recent entry at the top of the screen. Each log entry appea separate line and displays the following information:

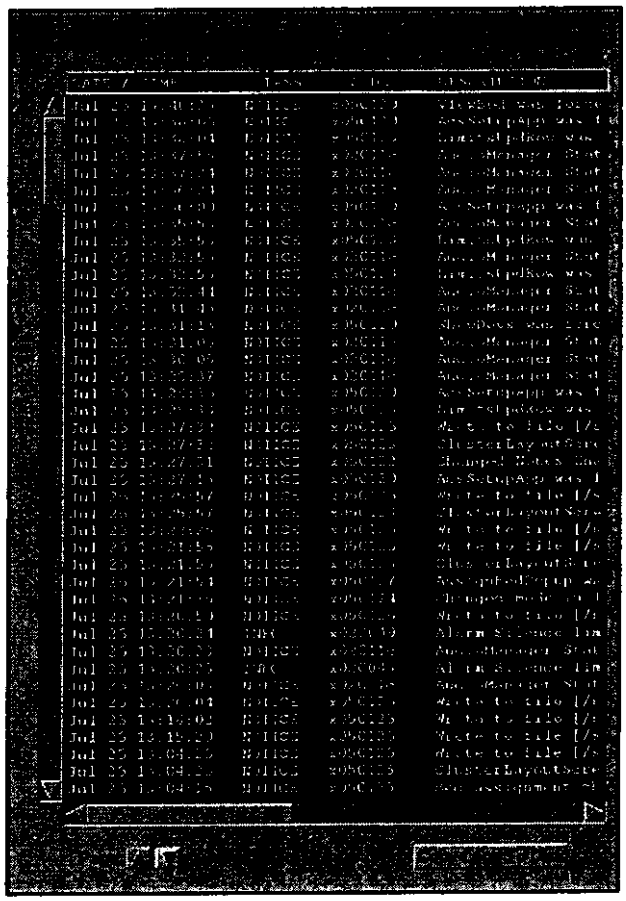
- date and time
- event class
- event code
- description of event

Please refer to page 17-3 for information on how to a these menus.

The Diagnostic Log



The Clinical Events Log



Copying the Logs to Disk

1. Insert a 3.5" high-density disk into the disk drive on the fr of the MULTIVIEW WORKSTATION CPU.

➤ **NOTE:** You do not need to format the disk before you copy th logs.

2. Access the log you wish to copy (see page 17-19).

3. Click on the **Copy Logs To Disk** button. The MULTIVIE WORKSTATION formats the disk automatically. This can t approximately 2 minutes.

➤ **NOTE:** The Diagnostic **and** the Clinical Events log are copied regardless of the windows from which you request a copy.

The logs are copied as individual files. Status messages, displayed in the status area, inform you of the start and end of th copying process. An attention tone accompanies the end of th copying message. During the copying process, the MULTIVIEV WORKSTATION is fully operational and you can execute any function, including exiting and re-entering the log screens. Th only exception is the **Copy Logs To Disk** button, which remains ghosted until the copying process is completed.

If copying of the logs should fail (e.g. due to a faulty disk), a status message with anaccompanying advisory tone will infor you.

Telemetry Setup

The following Biomed setup functions pertain exclusively
Telemetry System. Before you can perform any of these s
functions, you must unlock the Telemetry option (see pag
in this chapter for details).

Accessing the Telemetry Setup Menus

1. Access the **Configure Telemetry...** menu (see page 17- for details).

2. Click either on the **Receiver Setup..., Transmitter Setup...,** or **RF Diagnostics...** menu selection to acces the desired menu.

3. Enter the Biomed password. As you type the password, as isks (****) are displayed instead of the actual characters t safeguard the password.

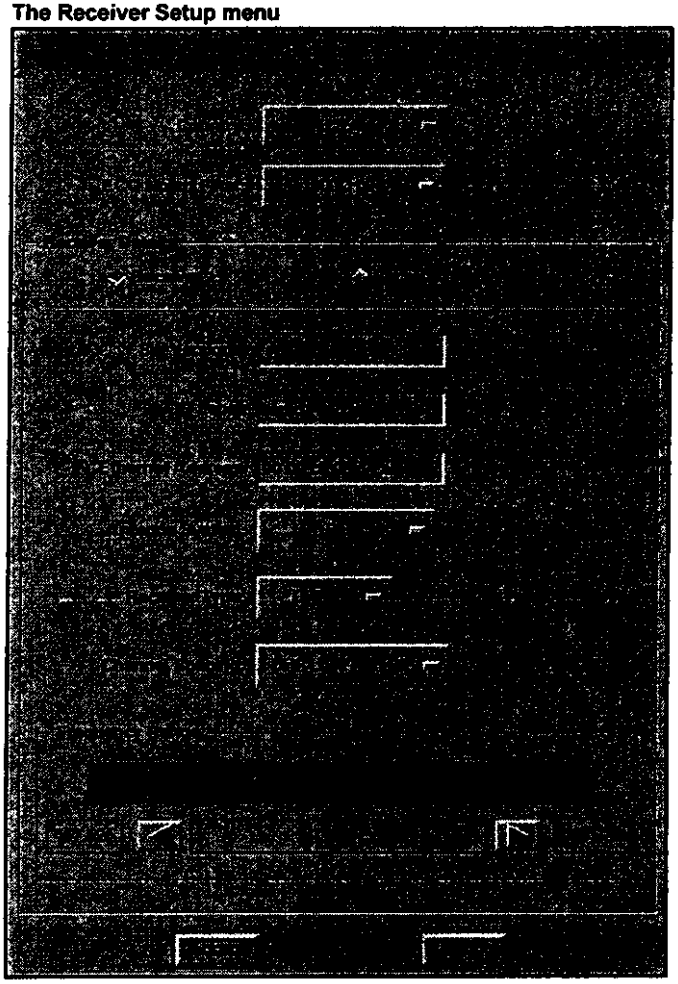
4. Click either on the **Accept** button to confirm the passwo or on the **Cancel** button to dismiss the popup and return t CLUSTERVIEW. If the password is accepted, the requested window is displayed. If not, an error tone sounds, the text entry box is cleared, and an error message in the popup informs you that the password was entered incorrectly. Ve ify the password and try to enter it again as described abo

Once you have accessed a Telemetry Setup menu under the Biomed password, you can cycle through all other Telemetry Setup menus without having to enter the Biomed password ea time you wish to view another menu unless you return to the CLUSTERVIEW or select another menu bar button, in which ca you will have to access the Telemetry Setup menus as describ above.

Receiver Setup

The Receiver Setup menu, illustrated below, is further pr
by a special password, which is only accessible to authori
vice personnel. For detailed information on the various se
functions of this menu, please consult the accompanying
documentation.

The Receiver Setup menu

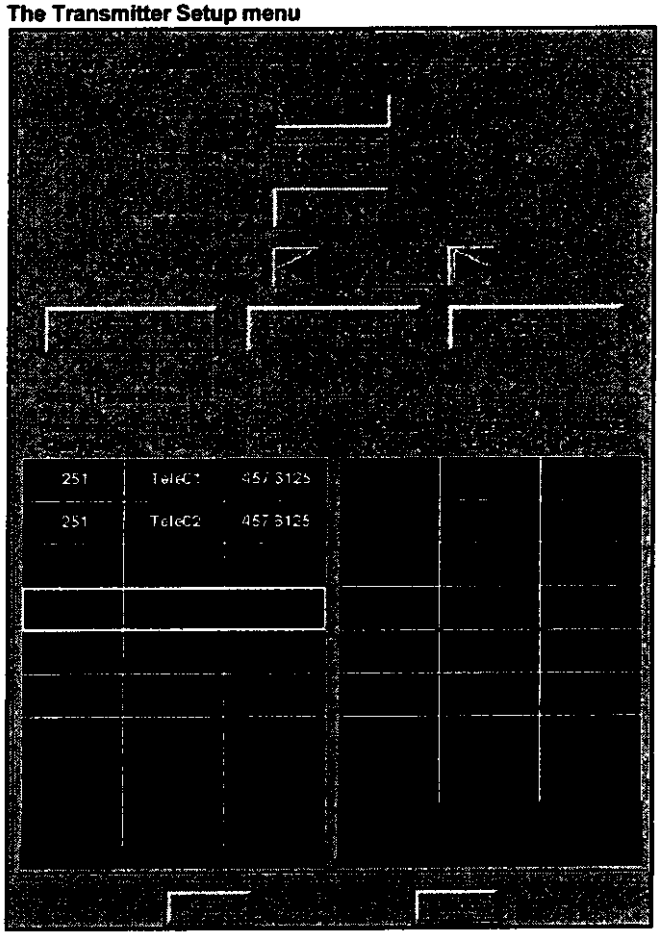


Transmitter Setup

The Transmitter Setup menu allows you to

- configure the transmitter buttons
- select either the 3-lead or 5-lead ECG cable
- enter the transmitter ID#
- set the individual receiver's channel operating frequency
- select the transmitter's operating frequency

The Transmitter Setup menu



Available Functions on the Transmitter Setup

The following table outlines the various functions that car
configured for each transmitter. Please refer to page 17-2
information on how to access the Transmitter Setup menu

Menu Button	Description	Available Settings	Factc Defa
Transmitter Record	This selection determines the operating mode of the transmitter's recording button (see chapter 2, page 2-12)	• All On • All Off • Per Patient	All On
Transmitter Staff Alert	This selection determines the operating mode of the transmitter's staff alert button (see chapter 2, page 2-12).	• All On • All Off • Per Patient	All On
Receiver Channel	This selection determines the receiver channel/transmitter pair to be programmed.	• 1, 2, ... 16 • Spare	
Channel Label	This selection determines the receiver channel/transmitter pair to be programmed.	Any 7 characters	Tele x
Frequency	This selection assigns a frequency to the transmitter within the receiver's range.		Any c freque within selecte receiv quenc

Note: Click on the **Accept** button to store your changes or click on the **Undo** button tc the previous settings.

Configuring the Transmitter Buttons

In the Transmitter Setup menu, you can configure the transm recording and the staff alert buttons. Basically, the selected setting determines whether or not a recording or a st alert can be initiated from the transmitter.

Steps:

1. Access the Transmitter Setup menu (see page 17-24).

The upper part of the menu con tains the **Transmitter Recorc** and the **Transmitter Staff Al** buttons.

2. Click on the **Transmitter Record** or the **Transmitter Staff Alert** button and scroll to one of the following setti

- *All On* - this selection activates the transmitter staff alert and recording buttons for **all** telemetry channels. Ther fore, if you press the recording button, a timed record is initiated and if you press the staff alert button, a seri alarm is generated at the MULTIVIEW WORKSTATION for corresponding patient. Furthermore, an alarm message is played in the corresponding waveform area of the CLUSTI VIEW and the BEDVIEW screens.
- *All Off* - the transmitter staff alert button and recording button are deactivated for **all** telemetry channels. You can generate any recordings or staff alert calls from any transi ter.
- *Per Patient* - this setting allows you the greatest flexibilit because the transmitter buttons can be enabled or disabled each patient **individually** on the Transmitter Setup menu (page 17-28).

3. Click on the **Accept** button to store the setting or click or the **Undo** button to revert to the previous setting.

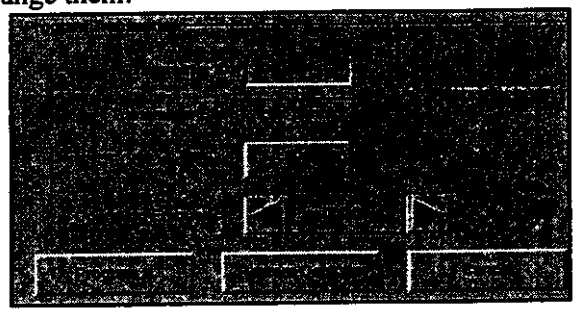
Programming the Transmitters

You can program each transmitter to its own receiver cha
follows:

NOTE: You cannot program a spare transmitter to the san
quency to which another transmitter is already programme

1. Access the Transmitter Setup menu (see page 17-24).
2. Make sure the programming port is connected properl
MULTIVIEW WORKSTATION CPU.
3. Click on the row corresponding to the setup function
which you wish to program a transmitter (you can onl
one row at a time). A popup with the message *Insert*
mitter In Programming Slot and Press Continue appe
4. Insert the transmitter into the pro-
gramming port and click on **Con-
tinue** in the popup. The message
Reading Transmitter Data appears.

As soon as the communication with the transmitter is established, the following popup appears. It shows the current settings of the transmitter and allows you to change them.



5. Configure the desired settings within the Setup Transmitt
popup. The available settings are listed in the following ta

Menu Button	Description	Available Settings	Factory Default
Transmitter ID	This setting is a unique identifier for the transmitter. Transmitters are shipped with an ID of '0'. This setting must be changed before the transmitter can be programmed. **Note:** Make sure every transmitter has a unique ID #.	1 to 255	
Transmitter S/W	This setting identifies the transmitter's software.		
ECG Lead Wires	This setting identifies the transmitter's lead mode (3 or 5 lead).	• 3 leads • 5 leads	5 leads
Operating Frequency	This selection identifies the transmitter's frequency. The available frequency settings depend on the country's regulatory frequency, the selected center frequency, and the channel spacing.	abc.defg.MHz (abc.defg is any center frequency within the selected receiver frequency range)	Closest 'legal' frequency to center of setup receiver ba
Restore Defaults	This selection restores all the transmitter's EEPROM settings to the factory defaults for the selected receiver type.		

6. Click on the **Program** button to transfer the changes to tl
transmitter or on the **Cancel** button to exit the popup and
retain the previous settings.

⚠ *CAUTION: Do not remove the transmitter from the programm port until the popup with the message **Programming Transmitter...,Warning, Do Not Remove Transmitter from Service Port During Programming** disappears.*

7. Remove the transmitter.

8. Insert a new transmitter and repeat steps 3 to 7 for additio
transmitters.

Transmitter Messages

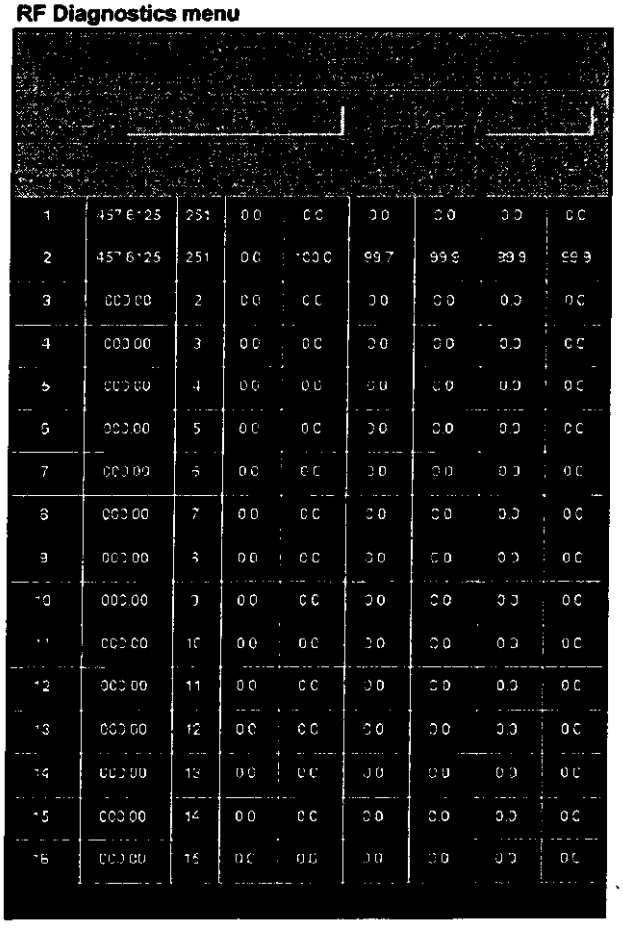
The messages listed in the following table may appear du programming of a transmitter.

Message	Description	Action
Reading Transmitter Data	The transmitter's current settings are being retrieved for display in the Setup Transmitter popup.	
Setup Data Write Error, try again	The programmed settings could not be read back for the second time to the transmitter for display in the Setup Transmitter popup.	Try to program the mitter again.
Programming transmitter...Warning, Do Not Remove Transmitter from Service Port During Programming	The new settings are being written to the transmitter.	Wait until the mess disappears.
No Transmitter in Programming Port	Communication with a transmitter cannot be established.	Make sure that the mitter battery is cha and reinsert the tra ter into the progran slot. Check that the proc ming port is connec the MULTIVIEW WOR STATION.
Transmitter is not compatible with current receiver settings	The transmitter type is not compatible with the selected receiver.	Change the receive to match the transn or vice versa.
Insert Transmitter in programming port and press Continue	Reads the transmitter's settings.	Wait until the popu appears.

Radio Frequency Diagnostics

The RF Diagnostics menu contains important information abc
the receiver.

RF Diagnostics menu



1	457.625	251	00	00	00	00	00	00
2	457.625	251	00	000	997	998	998	998
3	000.00	2	00	00	00	00	00	00
4	000.00	3	00	00	00	00	00	00
5	000.00	4	00	00	00	00	00	00
6	000.00	5	00	00	00	00	00	00
7	000.00	6	00	00	00	00	00	00
8	000.00	7	00	00	00	00	00	00
9	000.00	8	00	00	00	00	00	00
10	000.00	9	00	00	00	00	00	00
11	000.00	10	00	00	00	00	00	00
12	000.00	11	00	00	00	00	00	00
13	000.00	12	00	00	00	00	00	00
14	000.00	13	00	00	00	00	00	00
15	000.00	14	00	00	00	00	00	00
16	000.00	15	00	00	00	00	00	00

Available Information on the RF Diagnostics M

The RF Diagnostics menu provides the information outlin
the following table. This information is updated every mi
even as you are viewing it. Please consult the accompanyi
vice documentation for further information.

Information	Description	Possible Valu
Receiver Channel	Lists the channels of the receiver reported by the receiver subsystem	1 to 4; 1 to 8; 12; 1 to 16; bl
Frequ. MHz	Lists the center operating frequencies of the receiver's channels.	abc.defg; blan
ID	Lists the transmitter ID number for each channel as reported by the receiver subsystem. A blank means that no ID is reported (the transmitter signal is not being received).	1 to 255; blan
RSSI-dBm	Receiver's signal strength indicator for each channel (averaged over 1 minute)	0 to -125 dBm
1 min, 5 min, 10 min, 1 Hour, 24 Hours	Percentage of good ECG signal samples received over the specified interval	0 to 100%

A Patient Preparation

This appendix provides information on how to prepare a p
for telemetry monitoring and how to achieve the clearest s

Overview

The quality of patient monitoring depends largely on the clari of the signals the monitor receives. Low electrode impedance essential to high quality ECG signals with minimum artifact. T is achieved with proper skin preparation and the correct type a amount of electrode gel to conduct the signal.

➤ **NOTE:** The monitor passes a harmless low-voltage current between ECG electrodes on the patient's chest to detect lead qu ity.

The procedures outlined in this appendix are recommended b Siemens. They can, however, be replaced with your hospital's methods.

Selecting Electrodes

Ag/AgCl electrodes (adhesive and disposable) are recommen for their stability.

➤ **NOTE:** The electrodes intended for use must meet the require- ments for disposable ECG electrodes specified under AAMI gu lines EC12.

Selecting Lead Wires

Three and five lead sets are available for use with disposable electrodes. Always select the appropriate lead-wire type.

Inspect all lead wires for visible damage before using them.

Preparing the Patient

Prepare your patient according to your hospital's procedu

Preparing the Electrodes

1. Attach the leads to the electrodes.

2. Apply ¼ to ½ inch (½ to 1 cm) of gel to the contact a disposable electrodes without gel.

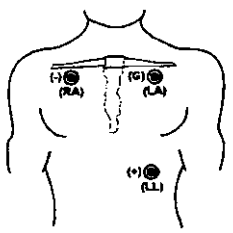
3. Examine pregelled, disposable electrodes to ensure th gel has not dried out and a sufficient quantity remains use disposable electrodes past their expiration date.

⚠ ***CAUTION:*** *Conductive parts of electrodes and associate nectors for applied parts, including the neutral electrode, : not contact other conductive parts including earth.*

Attaching the Electrodes

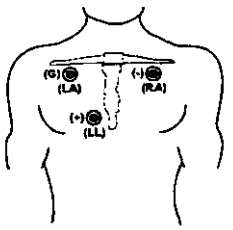
1. Position the electrodes in the configuration that provides t best ECG waveform (P and T wave amplitude of 1/3 or le of the QRS amplitude).
2. Select a flat, nonmuscular site to maximize electrode cont and minimize muscle artifact. Avoid joints or bony protul ances.
3. Apply the electrodes to the prepared skin site. To prevent gel from being squeezed out, apply the electrode pad with circular motion on the adhesive area first, then press gentl on the gel area. (To prevent motion artifact, secure the lea wires with tape directly beneath the connection.)

NOTE: Replace electrodes at least once every 24 - 48 hours.



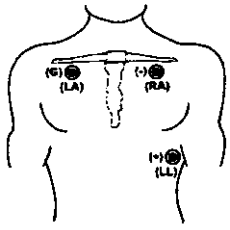
3 Lead Cable: RA-White: right shoulder, below clavicular hollow.
LA-Black: left shoulder, below clavicular hollow.
LL-Red: left side of chest, lowest palpable rib, mid-clavicular hollow.

- Lead II: Heart rhythm monitoring, shows clear p-waves.

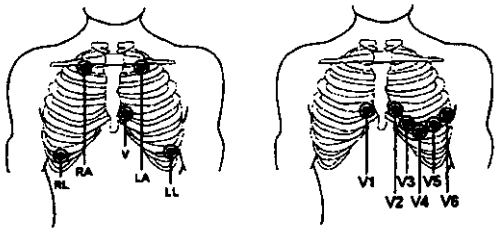


MCL1: LL-Red (+): fourth ICS, right sternal border (V1 position).
RA-White (-): left shoulder, below clavicular hollow.
LA-Black (G): right shoulder, below clavicular hollow.

- Distinguish left from right ventricular ectopy.
- Identify RBBB and LBBB
- Has clear-waves.
- Differentiate left ventricular ectopy from RBBB aberrations.



MCL6: LL-Red (+): left side of chest, lowest palpable rib, mid-axillary line.
RA-White (-): left shoulder, below clavicular hollow.
LA-Black (G): right shoulder, below clavicular hollow.



Chest Electrode Placement for V leads

Attaching the MicrO2 Pulse Oximeter

Observe the following guidelines as you apply the oximet patient:

1. Select a well perfused site such as a finger or a toe th be subjected to a minimum of motion artifact.

2. Remove any nailpolish (if present).

3. Cover the sensor with an opaque material to prevent i ence from direct sunlight.

B Technical Data

This appendix lists all the technical data for the MULTIVIEW WORKSTATION and the INFINITY Telemetry Option.

NOTE: Specifications are subject to change.

MultiView WorkStation Display

General	
Type	CRT flat screen (SVGA compatible)
Size	432 mm (17 inches) diagonal
Viewing area	▪ 399 mm (15.7 inches) diagonal, ▪ 300 x 225 mm (11.8 x 8.9 inches)
Resolution	1280 x 1024 pixels
User Interface	
Inputs	Video and sync, audio
Audio output	Dual speakers, 2 Watts each (typical), **Note**: Dual speakers are not active for the MULTI' IEW REMOTE DISPLAY.
Frequency response	100 Hz to 20 kHz (typical)
Physical Attributes	
Size (H x W x D)	418 x 438 x 438 mm (16.4 x 17.2 x 17.2 inches)
Weight	18.5 kg (40.7 lbs)
Electrical Specifications	
Input voltage	100 to 240 VAC (nominal), 50 or 60 Hz
Power consumption	1.5 A
Environmental Requirements	
Temperature range	Operating: 0°C to 35°C
Relative humidity	Operating: 5% to 90% (non-condensing)
Atmospheric pressure	Operating: 525 mmHg (70 kPa) minimum
Regulatory Standards	
Compliances	UL 1950, CSA 22.2 No. 950, FCC Class B, MPR II, EN60950, EMC Directive

MultiView WorkStation CPU

User Interface	
User controls	■ Mouse (to control on-screen men ■ keyboard
Disk drive	1.44 Mbyte 3.5 inch floppy drive
CD ROM	Quad speed
Alarms	■ life-threatening ■ serious ■ advisory
Connections	■ Two asynchronous serial ports ■ SCSI port ■ RGB video output ■ audio output ■ Ethernet 10BASE-T ■ keyboard
Physical Attributes	
Cooling	Temperature-controlled fan
Size (H x W x D)	159 x 419 x 457 mm (6.25 x 16.5 x 1 inches)
Weight	15.9 kg (35 lbs)
Electrical Specifications	
Input voltage	■ 100 to 125 VAC (nominal), 5.2 An (maximum) ■ 200 to 245 VAC (nominal), 2.6 Ar (maximum)
Mains frequency	50/60 Hz (nominal)
Power consumption	≤ 200 Watts (fully loaded)

MULTIVIEW WORKSTATION CPU (Continued)	
Environmental Requirements	
Temperature range	Operating: 16°C to 32°C Storage: 1°C to 60°C
Relative humidity	Operating: 8% to 80%, 23°C wet bulb Storage: 5% to 80%, 29°C wet bulb
Atmospheric pressure	operating: 586 mmHg (78 kPa) minimum
Regulatory Standards	
Compliances	FCC Class B, CISPR 22 Class B, EMC an Low Voltage Directives, VCCI Class 2, EN 60950, UL 1950.

Uninterruptible Power Supply (UPS), 120V

Physical Attributes	
Connections	MULTIVIEW WORKSTATION
Audio output	< 45 dB at 1 m (3 ft.)
Size (H x W x D)	165 x 114 x 368 cm (6.5 x 4.5 x 14. inches)
Weight	11.3 kg (25 lbs)
Electrical Specifications	
Input voltage	110, 120, 127 VAC ± 20 % (nomina selectable)
Mains frequency	60 Hz ± 5%
Output voltage	120 VAC
Output power	400 VA
VAC Regulation (on battery)	+ 5%, sinusoidal wave
Frequency regulation (on battery)	+ 0.5%
Battery charging time	3 to 8 hours
Backup time	5 to 10 minutes, fully loaded
Environmental Requirements	
Temperature range	Operating: 0°C to 40°C Storage: -20°C to 70°C
Relative humidity	Operating: 0% to 95% (non-conden Storage: 0% to 95% (non-condensi
Atmospheric pressure	Operating: 525 mmHg (70 kPa) min
Regulatory Standards	
Compliances	IEEE 446, NEMA PE1, ANSI C62.4 FCC Part 15 J, IEC 801-146, NSTA 1778, CSA 22.2, VDE approved, IE SEMKO, SETI