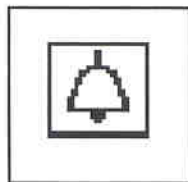


Transmitter Buttons

The transmitter is equipped with the following two push buttons:

- The red *staff alert* button allows the patient to initiate a serious alarm tone at the MULTIVIEW WORKSTATION. You can silence this alarm by clicking on the **Alarm Silence** button at the MULTIVIEW WORKSTATION. In addition, the message *STAFF ALERT* is displayed in the patient's waveform channel.



- The white *recording* button allows you to initiate a recording. For a timed recording press this button less than 3 seconds; for a continuous recording, press it longer than 3 seconds.



The two LEDs next to the recording button blink once for a timed recording and three times for a continuous recording.

If you press both transmitter buttons simultaneously, a 1 mV calibration pulse is superimposed on the ECG at the MULTIVIEW WORKSTATION.

tatus Patterns

The transmitter is equipped with four light indicators (LEDs), which show the transmitter's operating status and any malfunction such as a lead-off condition. The following table

describes the various LED patterns and their corresponding causes. (The illustration shows the orientation of the transmitter as you are examining the LED patterns.)



g LED pattern	To	Description	Action
●●●● ●●●● ●●●● ●●●●		Critical hardware error	Reinsert the battery. If the error persists, take the transmitter out of service.
		Serious error	
e		The battery charge is <i>very</i> low.	Replace the battery (see page 2-8).
	○○○○	The transmitter is outside the receiver range.	Reprogram the transmitter.
	○○○○	Hardware configuration error	Reinsert the battery. If the error persists, take the transmitter out of service.
	○○○○	The QuickView cable is connected.	<i>not applicable</i>
	○○○○	Pacer self-test failure.	Reinsert the battery. If the error persists, take the transmitter out of service.
	○○○○	EKG baseline recovery circuit failure.	
	○○○○	Configuration error	
	○○○○	Corrupted transmitter	Reprogram the transmitter.

Transmitter Operating Modes

The transmitter functions in one of two operating modes. In 'normal' mode, the transmitter is connected to the patient collecting data, which it relays to the MULTIVIEW WORKSTATION. In 'staff' mode, the transmitter is not connected to a patient, and you can diagnose its status.

Normal Operating Mode

When you first insert a battery into a transmitter, it performs a self-test and, if it is completed successfully, all of the LEDs flash for a brief moment. However, if an error is detected, the transmitter LEDs first flash all at once and then alternate with an error-specific pattern (see page 2-6). An error message may also appear at the MULTIVIEW WORKSTATION. For a list of possible messages and suggestions on how to solve common error conditions, consult page 2-18. If you cannot correct the problem, take the transmitter out of operation and contact your Biomed.

Should the transmitter detect a fatal error during normal operation, it resets itself or shuts down while the LEDs display an error code (see page 2-6).

Staff Mode

This mode is used to troubleshoot the transmitter. To activate the staff mode, press the red button for more than 3 seconds. The LEDs may identify the following possible error conditions:

- ▶ **NOTE:** The staff mode lasts for 30 seconds, after which it returns to normal operating mode.
- *Low battery* - The four LEDs ripple quickly once every 3 seconds.
- *Lead(s)-off* - the LED(s) corresponding to the detached lead(s) flash(es).
- *Reference lead-off* - all four LEDs flash simultaneously.
- ▶ **NOTE:** If you use a 3-lead cable, only 3 LEDs flash when the reference lead is off.
- *Low battery and lead-off* - the LED patterns alternate for each condition.

acing the Transmitter Battery

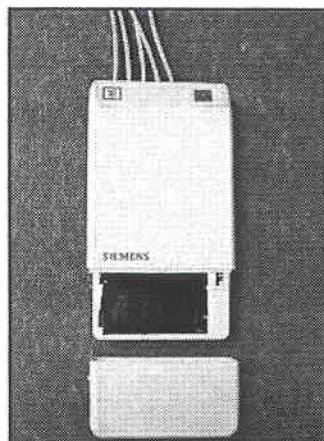
If the transmitter LEDs ripple quickly once every 3 seconds during normal operation, the battery is low and needs to be replaced.

The following table lists the compatible batteries.

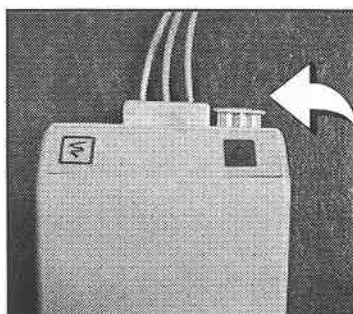
Type	Nominal Voltage	Typical Battery Life	Characteristics
manganese	9 V	2 days, minimum	General purpose battery; good shelf life
manganese	9 V	4 days, minimum	High energy density; excellent shelf life  WARNING: <i>If you use lithium batteries, use only the brand ULTRALIFE (model U9VI). Any other lithium battery may present a risk of fire or explosion.</i>
	8.4 V	4 days, minimum	Unlimited shelf life if sealed pouch is not opened. Use of this battery requires the vented battery cover.  CAUTION: <i>To prevent water from entering the battery compartment via the vent holes, the transmitter must be wrapped in plastic if it is worn in the shower.</i>
 Note: Recycle and dispose of all batteries properly according to EC Directive 91/156/EWG or equivalent, country-specific regulation.			
 WARNING: <i>To avoid explosion, do not recharge or disassemble a battery or dispose of it in fire.</i>			

Steps: Replacing the Battery

1. Remove the transmitter cover by grasping it firmly and pulling it straight down.
2. Insert a fully charged battery from the back of the transmitter (see illustration). The transmitter performs a selftest and, if it is completed successfully, all of the light indicators flash for a brief moment. If the lights ripple, or if some flash while others do not, the transmitter indicates one of several technical conditions (see page 2-6).
3. Slip the transmitter cover on with the sharp corners facing upward.



To prevent water from entering the battery compartment, wrap the transmitter in plastic if it is to be worn in the shower. Also, cover the transmitter's programming port with the protective cap (see arrow) before exposing it to water to prevent any damage.



NOTE: If the transmitter is not likely to be used for some time, remove the battery.

About the Transmitter

Transmitter Setup

The Transmitter Setup menu (illustrated below) provides not only transmitter setup and status information but also allows you to customize the transmitter according to the patient's needs. However, these functions can only be configured for *local* telemetry channels (a local patient is one who is being monitored by the MULTIVIEW WORKSTATION where s/he was admitted).

Using the Transmitter Setup Menu

1. Click on the patient's parameter area in CLUSTERVIEW to access the BEDVIEW window.
2. Click **Setup**.
3. Click on **Telemetry** ► (if this button is not visible, the Telemetry option must first be unlocked by your Biomed).
4. Click on **Transmitter Setup** to display the Transmitter Setup menu.

Exit Transmitter Setup

Received Transmitter Status

ID: 111 ECG Lead Wires: 5

Battery 8.9 V 0.0 -48.2 dBm

ECG Lead Prep (Kohm)

RA 2499 LA 2499

LL 2499 C 2499

Update Status

Transmitter Record: ON

Transmitter Staff Alert: ON

Program Transmitter

Accept Undo

Transmitter Status Information

The following illustration shows the upper portion of the Transmitter Setup menu.

Received Transmitter Status

ID: 111 ECG Lead Wires: 5

Battery: [Bar Graph] 8.9 V 0.0 [Bar Graph] -48.2 dBm

ECG Lead Prep (Kohn)

RA [Bar Graph] 2499 LA [Bar Graph] 2499

LL [Bar Graph] 2499 C [Bar Graph] 2499

[Update Status]

This part of the Transmitter Setup menu displays the following status information for the transmitter that is currently assigned to the selected telemetry channel:

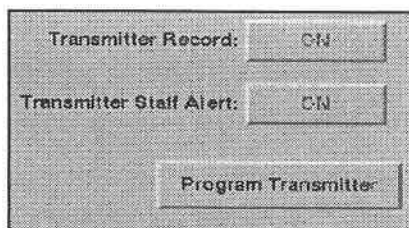
- the transmitter's ID (cannot be changed; it is configured by your Biomed)
- the selected lead wire type (either 3-lead or 5-lead)
- the battery voltage bar graph showing the battery charge and the current voltage. The color of the bar graph indicates the remaining charge in the battery (green = good; yellow = poor; red = discharged).
- the RF signal strength bar graph identifying the detected signal strength from the transmitter. The color of the bar graph indicates the signal quality (green = good; yellow = average; red = poor).
- ECG lead prep bar graphs for each lead. The color of the bar graph indicates the quality of the signal (green = good; yellow = poor; red = off).
- **Update Status** button allows you to update the screen with the latest status information.

Refer to page 2-10 for information on how to access the Transmitter Setup menu.

ble Functions on the Transmitter Setup Menu

In the lower portion of the Transmitter Setup menu (see illustration) you can do the following:

- customize the transmitter's recording ☐ and staff alert ☐ buttons.
- program a spare transmitter to the operating frequency of the corresponding receiver channel.



mizing the Transmitter Buttons

You can either activate or deactivate the transmitter's recording ☐ and staff alert ☐ buttons for a patient as follows:

NOTE: You can only activate/deactivate the transmitter buttons for an individual patient if the 'Per Patient' mode was selected during setup (see page 17-22).

Steps:

1. Access the Transmitter Setup menu (see page 2-10).
2. Click on the **On/Off** button next to the menu selection 'Transmitter Record:' to activate/deactivate the transmitter recording button.

and/or

Click on the **On/Off** button next to the menu selection 'Transmitter Staff Alert:' to activate/deactivate the transmitter staff alert button.

3. Click on **Accept** to store your selection or on **Undo** to revert to the previous setting.