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**CAUTION**

**POWER REQUIREMENTS** — Before connecting the device to the power line, check that the voltage and frequency ratings of the power line are the same as those indicated on the unit's label. If this is not the case, do not connect the system to the power line until you adjust the unit to match the power source.

In the U.S.A., if the installation of this equipment will use 240 V rather than 120V, the source must be a center-tapped, 240V, single-phase circuit.

This equipment is suitable for connection to public mains as defines in CISPR 11.

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**CAUTION**

**RESTRICTED SALE** — U.S. federal law restricts this device to sale by or on the order of a physician.

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**CAUTION**

**SECURITY** — The web browser which runs in conjunction with the ApexPro server is intended for hospital INTRANET use only. If confidential patient information is made available from the hospital intranet, the security of the data is the responsibility of the hospital.

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**CAUTION**

**SUPERVISED USE** — This equipment is intended for use under the direct supervision of a licensed health care practitioner.

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**CAUTION**

**UNINTENTIONAL RADIO FREQUENCY (RF) INTERFERENCE** — Unintentional RF interference could degrade the reliability and performance of the wireless data link. The facility must maintain an RF environment free from unintentional interference. Refer to the service manuals for more information.

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**CAUTION**

**VENTILATION REQUIREMENTS** — Set up the device in a location which affords sufficient ventilation. The ventilation openings of the device must not be obstructed. The ambient conditions specified in the technical specifications must be ensured at all times.

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## Notes

Note statements provide application tips or other useful information.









The following note statements apply to this system.






- Put the CIC Pro center in a location where you can easily see the screen and access the operating controls.
- This product is not likely to cause abnormal operation of other patient-connected equipment such as cardiac pacemakers or other electrical stimulators. Exceptions are noted in the pacemaker monitoring section, if applicable.
- This product is protected against the effects of cardiac defibrillator discharges to ensure proper recovery, as required by test standards.
- This equipment is suitable for use in the presence of electrosurgery.

## Equipment symbols

### NOTE

Some symbols may not appear on all equipment.

|   |  |
|---|--|
|    | ATTENTION: Consult accompanying documents.   |
|  | TYPE B APPLIED PART: Non-isolated applied part suitable for intentional external and internal application to the patient excluding direct cardiac application.<br><br>[Medical Standard Definition:] Applied part complying with the specified requirements of IEC/EN/UL 60601-1 Medical Standards to provide protection against electric shock, particularly regarding allowable leakage current.   |
|  | TYPE CF APPLIED PART: Isolated (floating) applied part suitable for intentional external and internal application to the patient including direct cardiac application. "Paddles" outside the box indicate the applied part is defibrillator proof.<br><br>[Medical Standard Definition:] F-type applied part (floating/isolated) complying with the specified requirements of IEC/EN/UL 60601-1 Medical Standards to provide a higher degree of protection against electric shock than that provided by Type BF applied parts. |
|  | Interface connector(s)   |
|  | Complies with IPX3 standards (IEC 60529) for protection against water ingress under test conditions; water sprayed at an angle up to 60 degrees on either side of the vertical axis shall have no harmful effects, with device not in actual use.  |
|  | Complies with IPX7 standards (IEC 60529) for protection against water ingress under test conditions; immersion in one meter of water for 30 minutes, with device not in actual use.  |
|  | Operation of this equipment requires the prior coordination with a frequency coordinator designated by the FCC for the Wireless Medical Telemetry Service.   |
|  | Non-ionizing electromagnetic radiation: To indicate elevated, potentially dangerous, levels of non-ionizing radiation. Note - In case of application in a warning sign the rules according to ISO 3864-1 shall be adhered to.<br><br>IEC 60878 note: See safety sign ISO 7010 - W005 "Warning, non-ionizing radiation".  |

|   |  |
|---|--|
|  | This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment. |
|  | This symbol indicates the date of manufacture of this device. The first four digits identify the year and the last two digits identify the month.  |
|  | Medical Equipment<br>With respect to electric shock, fire and mechanical hazards only in accordance with UL 60601-1, CAN/CSA C22.2 NO. 601.1, IEC 60601-1, IEC 60601-1-1, IEC 60601-2-27 and IEC 60601-2-49.   |
|  | Manufacturer name and address.   |
|  | European authorized representative.  |

## Equipment compliance

### IEC, UL, and EN 60601-1 device classification

|  |  |
|--|--|
| Type of protection against electrical shock  | Transmitter — Internally powered<br>Receiver system — Class I  |
| Degree of protection against electrical shock  | T14 transmitter — Type CF Defibrillation proof applied part  |
| Degree of protection against harmful ingress of water  | T14 transmitter — IPX7 (IEC 60529) <sup>1</sup><br>Receiver system — Ordinary Equipment (enclosed equipment without protection against ingress of water) |
| Degree of safety of application in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide | Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide                                |
| Method(s) of sterilization or disinfection recommended by the manufacturer   | Not applicable   |
| Mode of operation  | Continuous operation   |

<sup>1</sup>The T14 transmitter is designed to be IPX7 compliant, so it can withstand inadvertent submersion. The transmitter should not be exposed to spray or shower during patient monitoring.

## FCC compliance information statement

The CARESCAPE Telemetry T14 transmitter complies with Part 95 Subpart H of the FCC rules to be used in wireless medical telemetry service. Operation of this equipment requires prior coordination with a frequency coordinator designated by the FCC for the Wireless Medical Telemetry Service.

Installation and maintenance of this transmitter should be performed by a person certified as technically qualified to perform such operations. Replacement of any transmitter component or modifications to the transmitter could result in a violation of the rules. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Use only GE approved replacement parts, non-approved parts may result in a violation of the FCC rules.

### RF Exposure

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. The RF transmission power from the antenna conforms to the general public FCC limit of Specific Absorption Rate (SAR) 1.6 W/kg. The maximum SAR value measured from this device was 0.0555 W/kg. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Draft

# 2 Equipment overview

Draft

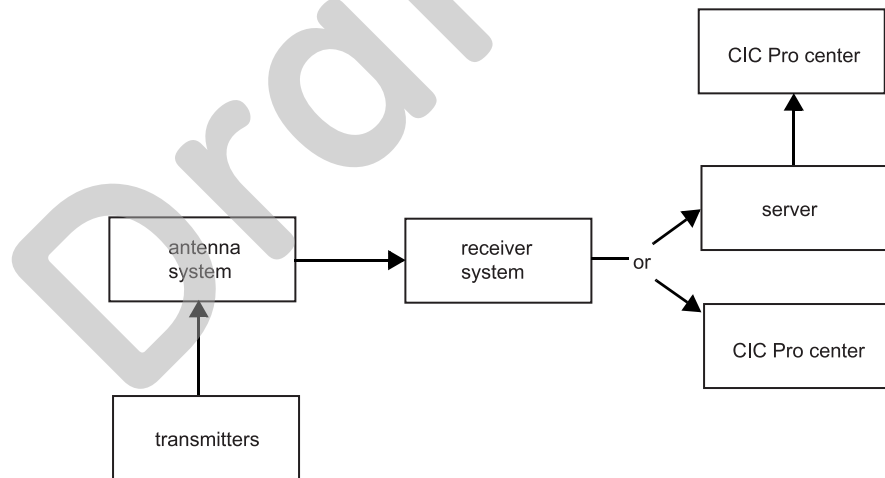
# Introduction

This chapter provides an overview of the equipment used in the ApexPro telemetry system. For detailed installation instructions, refer to the appropriate service manual.

## ApexPro telemetry system

The ApexPro telemetry system provides clinicians with patient data while allowing for patient mobility. The system consists of the following components:

- CARESCAPE Telemetry T14 transmitters
- Enterprise Access antenna system
- ApexPro receiver system
- Server hosting the ApexPro software
- CIC Pro center
- Apex oximeter
- Xpod oximeter
- Accutracker DX blood pressure monitor
- Dinamap Pro 100, 200, 300, and 400 series monitor



**ApexPro telemetry system**

## Transmitters

A transmitter connects to a patient, acquires ECG data, and converts it to digital format to send the patient data and RF status signals to the antenna system. For setup information, refer to [Transmitter setup on page 3-2](#).

There are three transmitter configurations that define the ECG lead analysis option and determine whether other devices, such as oximeters, can be connected to the transmitter's interface connector ports.

- **Single-Lead** with inactive interface connector ports (blue dust covers).
- **Single-Lead** with active interface connector ports (gray dust covers).

- **Multi-Lead** with active interface connector ports (gray dust covers).

For more information on ECG lead analysis options, refer to [Lead analysis on page 7-16](#).

The two **INTFC** (interface) connector ports are used for connecting serial interface devices. The ports are labeled **1** and **2** (on the dust covers).

- **2** is the inside port, closest to the leadwire set. It is for use with episodic monitoring serial devices, such as blood pressure monitors.
- **1** is the outside port, furthest from the leadwire set. It is for use with continuous monitoring serial devices, such as oximeters.

For more information on connecting devices to the transmitter, refer to [Equipment setup on page 3-1](#).

## Antenna system

The antenna system sends data to the receiver system. Data is then transmitted via a dedicated Ethernet connection to the server for further processing and viewing. For more information, refer to the Enterprise Access Service manual.

## Receiver system

The receiver system sends data via a dedicated Ethernet connection to the server for further processing and viewing. For more information, refer to ApexPro Receiver System Service Manual.

## Server

A server hosts the ApexPro software. The server can be an ApexPro Telemetry Server (ATS) or a CIC Pro center with a BCM or Nightshade server.

If your system includes an ATS, the ATS receives and analyzes patient and transmitter data from the receiver system, runs the ApexPro software, stores the data and sends the data to the CIC Pro center for display. For more information, refer to the ApexPro Telemetry Server Service Manual.

If your system includes a BCM or Nightshade server, the CIC Pro center receives and analyzes patient and transmitter data from the receiver system, runs the ApexPro software, stores and displays all telemetry patient data. For more information, refer to the appropriate CIC Pro center service manual.

## CIC Pro center

The CIC Pro center displays real-time data acquired from up to 16 networked GE monitors or transmitters. The CIC Pro center displays this telemetry bed patient data along with the patient data acquired from other monitors.

The transmitter number is displayed under the **ECG** parameter window and identifies the type of transmitter.

The CIC Pro center is also used to define telemetry defaults. For more information, refer to [System setup on page 4-1](#).

## Optional components

### Apex oximeter

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**CAUTION**

Do not use the Apex oximeter on neonatal patients. It is not designed for use on neonates.

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An Apex oximeter can be connected to a transmitter in order to monitor the patient's pulse oximetry data and send the SpO<sub>2</sub> data for display at the CIC Pro center. Only digital data is available; no waveforms are generated or transmitted. Digital data is stored in *Graphic Trends* and *Vital Signs*. For setup information, refer to [Apex oximeter on page 3-7](#).

### Xpod oximeter

An Xpod oximeter can be connected to a transmitter in order to measure arterial oxygen saturation (SpO<sub>2</sub>), peripheral pulse rate (PPR), and perfusion quality and send the data for display at the CIC Pro center. For setup information, refer to [Xpod oximeter on page 3-7](#).

### Accutracker DX noninvasive blood pressure (NBP) monitor

**NOTE**

The Accutracker DX noninvasive blood pressure monitor has been modified by SunTech Medical Instruments to operate with the ApexPro system.

An Accutracker DX noninvasive blood pressure monitor can be connected to a transmitter in order to measure the systolic and diastolic blood pressures and send for display at the CIC Pro center. Digital values are stored in *Graphic Trends* and *Vital Signs*. For setup information, refer to [Accutracker DX on page 3-10](#).

### Dinamap PRO monitors

**NOTE**

The Dinamap PRO monitors' alarm limits are not configurable at the CIC Pro center, but they can be silenced at the CIC Pro center. However, alarms that are silenced at the CIC Pro center will not be silenced at the monitor. Refer to the Dinamap Pro 100–400 Operation Manual for detailed information.

A Dinamap PRO 100, 200, 300, and 400 monitor can be connected to a transmitter in order to monitor SpO<sub>2</sub>, NBP, and temperature and send the data for display at the CIC Pro center. For setup information, refer to [Dinamap PRO monitors on page 3-9](#).



# 3 Equipment setup

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# Transmitter setup




## Views



The transmitter has the following buttons and LEDs:



CARESCAPE Telemetry T14 Transmitter

102A

| Button/LED  | Function  |
|---|---|
| <p>RL RA LA LL Va Vb</p> <p>N R L F Ca Cb</p>                                       | <p>When first powered up, the lead LEDs flash rapidly, followed by two slow flashes. The transmitter begins functioning after the two slow flashes.</p> <p>When any of the transmitter's buttons are pushed, the lead LEDs flash twice.</p> |
|  | <p>When the battery power is running low, the change battery LED flashes.</p>   |
|  | <p>When pressed, the lead LEDs flash twice. If a lead is valid, its LED stays lit for one minute.</p>   |
|  | <p>When the <b>Pause Alarm</b> condition occurs, the pause alarm LED flashes until the condition ends. See <a href="#">Pausing alarms at the transmitter on page 5-5</a>.</p>   |

| Button/LED  | Function  |
|---|---|
|  | <p>When pressed, a 20-second graph strip is printed on the writer or printer.</p> <p>When pressed with an IMPACT.wf paging system (version II or later) also available in the same care unit, the <b>View on Demand</b> feature (also called the Apex Graph Button Push feature) is enabled. The IMPACT.wf server generates a sample page of the patient's ECG waveform and any other enabled/monitored non-arrhythmia parameters.</p> <p>If pressed again, it generates both an IMPACT.wf update and a standard ECG waveform graph at the CIC Pro center. The IMPACT.wf update is labeled <b>Sample</b> for display on the IMPACT.wf receiver and stored in history. Additionally, all receivers assigned to the patient receive an update/sample.</p> |
|  | <p>When pressed, a blue border displays around the event bed and an alarm tone sounds at the CIC Pro center. The message <b>Remote Event</b> displays under the <b>ECG</b> parameter window for approximately ten seconds. It also generates a 20-second graph and saves the event.</p>   |

## Battery installation

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### WARNING

INGESTION OF BATTERIES— Make sure the battery compartment is closed completely and closely observe patients to prevent ingestion of batteries.

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### CAUTION

Never store the transmitter with the batteries inside. Storing the transmitter with the batteries inside may result in damage to the transmitter.

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### CAUTION

GE recommends that you always replace both batteries at the same time. Re-using old batteries or using a combination of old and new batteries in the transmitter will compromise functionality of the transmitter and increase the risk of fire hazard.

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### CAUTION

LED INDICATOR — Replace the transmitter batteries promptly when the **Low Battery** message is displayed at the central station or when the **Change Battery** LED flashes on the transmitter. Failure to replace the batteries before they are completely depleted will result in interrupted patient monitoring and may cause damage to the transmitter.

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## NOTE

- When new batteries are installed, all LEDs on the transmitter flash, then flash again twice to acknowledge the new battery installation. The flashing LEDs do not indicate good leads. You must press the **Verify Leads** button to check lead status.
- When the **Change Battery** LED starts flashing, the transmitter has approximately one hour of reserve power before the unit shuts down.
- When a low battery condition occurs, approximately two hours before the battery loses power, a **Low Battery** message displays at the CIC Pro center without an audible alarm. When the battery is dead, an audible system warning alarm is generated at the CIC Pro center.

For optimum performance, follow these guidelines:

- Install two new AA alkaline batteries when you begin monitoring a new patient.
- Install two new AA alkaline batteries when the **Change Battery** LED flashes.
- Do not use rechargeable batteries.

To install batteries in the transmitter, follow these steps.

1. Locate the battery cover at the bottom of the transmitter.
2. Slide the cover over to open the battery compartment.
3. Insert the batteries according to the polarity signs on the lower back side of the transmitter.



4. Close the battery cover.

## Leadwire installation

The transmitter can use the following Multi-Link leadwire sets:

- Multi-Link 6-leadwire set
- Multi-Link 5-leadwire set
- Multi-Link 3-leadwire set

To install a leadwire set into the transmitter, align the leadwire pins with the connector on the top of the transmitter, then push the leadwire set firmly into the transmitter.



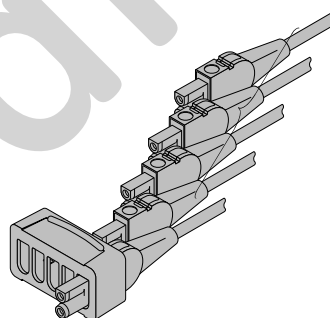
307C

To disconnect the leadwire set from the transmitter, grasp the molded end or the combiner firmly and pull away from the transmitter.

## Electrode attachment

1. Attach leadwires to the transmitter by plugging the Multi-Link leadwire set into the transmitter.

To use sets of Multi-Link individual leadwires, firmly press the individual leadwires into their appropriate locations on the combiner. Use the colors on the leadwires to place them in corresponding order with the colors that appear on the back of the transmitter.



308B

2. Attach leadwire clip to the terminal on the electrodes. Take care to attach the color-coded clips to the corresponding electrode locations.
3. Loop the leadwires and secure them to the patient with tape. Stress loops prevent the connection to the electrode from being loosened or pulled apart as the patient moves.

### NOTE

Do not tape across the electrode.

## Verify transmitter/leadwires status

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### CAUTION

**IMPROPER TRANSMITTER/LEADWIRE APPLICATION** — Applying a transmitter and/or leadwire that is not thoroughly dry to a patient can result in an electrically conductive path being established and a **Leads Fail** alarm not being provided if leadwires come off the patient.

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Use the following procedure to verify transmitter/leadwires status before applying to a patient:

1. Connect the leadwire to the transmitter, but do not connect the leadwire to a patient.
2. Insert batteries in the transmitter and close the battery door.
3. Wait for the transmitter to start up. The LEDs will first flash rapidly and then flash slowly twice. Wait until the LEDs are done flashing.
4. Press the **Verify Leads** button. All the LEDs flash twice to indicate the button was pushed.
5. Look for LEDs that light up and stay lit.
  - If the transmitter is dry, none of the LEDs light up.
  - If you are using a 5- or 6-leadwire and it is dry, none of the LEDs light up.
  - If you are using a 3-leadwire and it is dry, only the reference LED will light up and stay lit.
  - If the transmitter is wet and an electrically conductive path is established, some of the LEDs will light up.
6. If any of the LEDs stay lit, make sure the transmitter is dry. Allow the transmitter to air dry if other methods are not effective.

Do not attach the transmitter/leadwire to a patient until the transmitter/leadwire is thoroughly dry.

## Antenna system

Patient and transmitter status data are dependent on the telemetry system transmission coverage area. For more information on the telemetry coverage area in your institution, contact your biomedical or information technology engineers.



202A

## Optional components

### Xpod oximeter

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**CAUTION**

Use only Nonin SpO<sub>2</sub> probes with the oximeter. The reliability of SpO<sub>2</sub> data obtained with any other probe has not been verified.

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The Xpod oximeter uses the battery power supplied by the transmitter. Connect the oximeter to the **INTFC** connector (labeled **1** on its dust cover) on the transmitter and to the Nonin SpO<sub>2</sub> probe. Once connected, follow your unit's protocol for attaching the transmitter and the oximeter to the patient.



428A

### Apex oximeter

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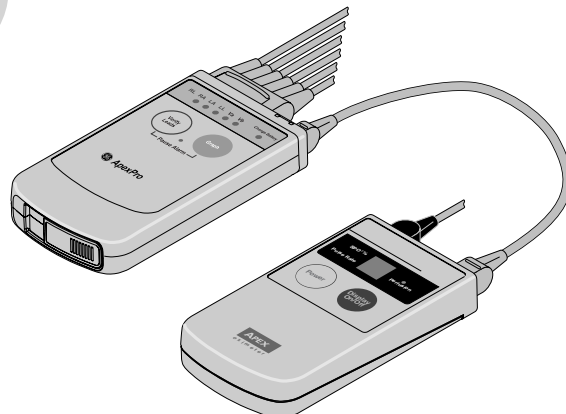
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**CAUTION**

Use only Nonin SpO<sub>2</sub> probes with the Apex oximeter. The reliability of SpO<sub>2</sub> data obtained with any other probe has not been verified.

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400C

The perfusion LED indicates the strength of the patient's SpO<sub>2</sub> signal.

To turn the digital display on or off at any time, press the **Display On/Off** button. To turn the display on continuously, press and hold the **Display On/Off** button for 2 seconds. The flashing **Power** LED turns off.

## NOTE

Using the Apex oximeter with the display on continuously will result in reduced battery life.

## Battery installation

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### CAUTION

GE recommends that you always replace both batteries at the same time. Re-using old batteries or using a combination of old and new batteries in the Apex oximeter will compromise functionality of the transmitter and increase the risk of fire hazard.

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## NOTE

When the digital display starts flashing, there is approximately one hour of reserve power left before the unit shuts down.

The Apex oximeter runs on two AA alkaline batteries. Battery life is approximately 60 hours. For optimum performance, follow these guidelines:

- Install two new AA alkaline batteries when you begin monitoring a new patient.
- Install two new AA alkaline batteries when the digital display starts flashing.

To install two new AA alkaline batteries:

1. Locate the battery cover at the bottom back of the oximeter.
2. Press the latch tab and lift up to open the battery compartment.
3. Insert the batteries as indicated with the polarity signs within the battery compartment.
4. Close the battery cover.

## Transmitter connection

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### WARNING

**DUST COVERS** — If the dust covers for the interface connectors become detached from the transmitter, they may pose a choking hazard for pediatric patients. Inspect the dust covers before each use to verify that they are securely attached. If the dust covers become detached and cannot be reinserted into their retaining slot, do not use them on the transmitter, and keep them out of pediatric patients' reach.

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1. Connect the non-sensor end of the SpO<sub>2</sub> probe into the 9-pin connector on the top of the oximeter.
2. Plug one end of the interconnection cable into the **INTFC** connector on the oximeter. Plug the other end into the **INTFC** connector (labeled **2** on its dust cover) on the transmitter. [See Interconnection cables on page 3-10.](#)



3. Turn the oximeter on. The digital display turns on and the power LED (horizontal bar) flashes. The digital display stays on for one minute.

Once connected, follow your unit's protocol for attaching the transmitter and the oximeter to the patient. A common method is to place them back-to-back in the same pouch and belt them on the patient.

## Dinamap PRO monitors

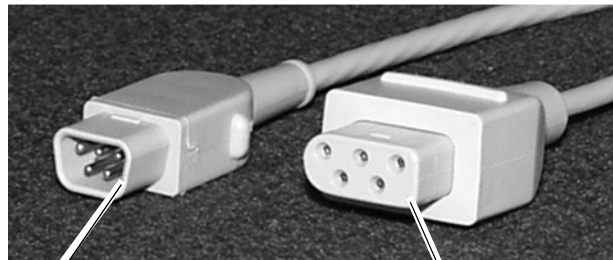
A DINALink serial cable is used to connect the transmitter to the Dinamap PRO 100–400 series monitors. The interconnect cable connects to either of the interface ports on the transmitter.



425A

## Interconnection cables

The interconnection cables used to connect the transmitter with the Apex oximeter and/or the blood pressure monitor are not the same as those used with the Apex S transmitter (CD Telemetry-LAN monitoring system). The connector ends that are plugged into the transmitters are different and are not interchangeable.



ApexPro system interconnection cable connector

CD Telemetry-LAN monitoring system interconnection cable connector

423A

## Accutracker DX

The blood pressure monitor allows telemetry monitoring of a patient's NBP data. The blood pressure cuff is connected to the blood pressure monitor, which measures and displays systolic and diastolic blood pressures using the auscultatory method. Digital values are also displayed at the CIC Pro center, and stored in **Graphic Trends** and **Vital Signs**.



403A

The **START/STOP** button starts and stops blood pressure readings. During the monitoring period, it can be used by the patient at the clinician's discretion. Pressing the **START/STOP** button once while a patient is being monitored wakes up the blood pressure monitor from sleep mode and offers the options to change the measurement interval, view the time left until the next measurement, or perform a manual reading by pressing the **START/STOP** button a second time.

## Battery installation

The blood pressure monitor contains an internal lithium battery capable of sustaining a maximum, cumulative period of 9 months (6400 hours) *without* AA alkaline batteries installed, over the life of the monitor. The four AA alkaline batteries will last for approximately 250 blood pressure readings, taken at an average interval of 15 minutes.

If the lithium battery is completely drained, the unit will not function. The internal lithium battery is *not* user replaceable. The unit must be returned for service if the lithium battery needs to be replaced.

For optimum performance, follow these guidelines:

- Store with four good AA alkaline batteries installed.
- Change the batteries when the message **Low Batt** displays.
- Install four new batteries when you begin monitoring a patient.
- Install new batteries and replace them every four months for long-term storage.
- Service the lithium battery every three to five years.

To install four new AA alkaline batteries:

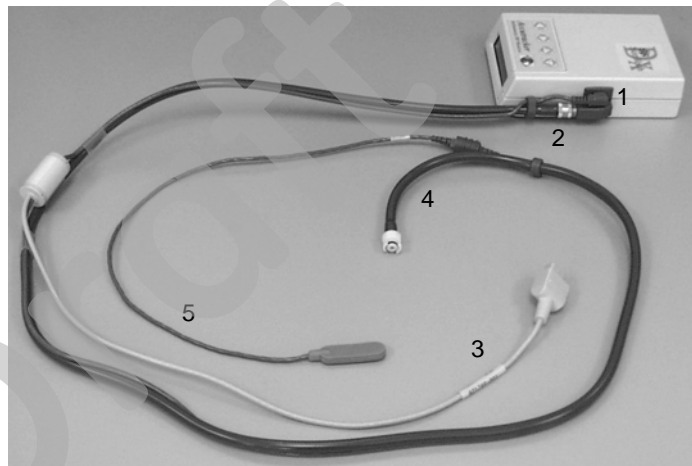
1. Locate the battery cover on the back of the monitor.
2. Press down and gently slide off the cover.

3. Remove the old batteries by lifting up on the ribbon in the battery case. Dispose of the old batteries properly, following your local ordinances.
4. Insert the new batteries, being careful to follow the polarity signs. Be sure to place the batteries on top of the ribbon.
5. Slide the battery cover back on securely.

## Connection

The patient cable, microphone cable, and interconnection cable are attached to one another in one assembly. See [Interconnection cables on page 3-10](#). To connect the blood pressure monitor, follow this procedure:

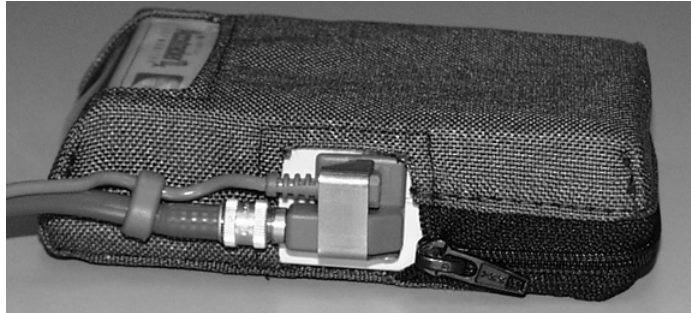
1. Attach the brass end of the patient cable to the brass air hose connector on the side of the monitor.
2. Connect the microphone cable to the 6-pin connector on the side of the monitor, near the air hose connector.



407A

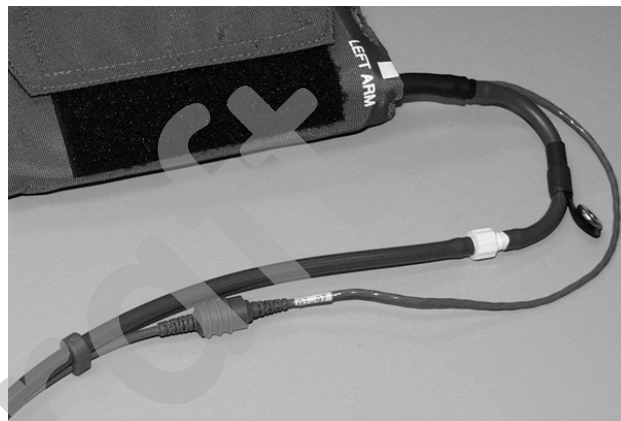
|   |                                      |
|---|--------------------------------------|
| 1 | Microphone cable connection          |
| 2 | Patient connection cable             |
| 3 | Transmitter interconnection cable    |
| 4 | Blood pressure cuff connection cable |
| 5 | Microphone cable                     |

3. Secure the cable by screwing on the metal cable cap, then insert the monitor into the nylon pouch.



411A

4. Attach the blood pressure cuff hose to the white plastic fitting on the patient cable. Turn the fitting to the right approximately one quarter turn. Some connector models will click when they are connected. Make sure that it is securely tightened. Then plug the 3-pin microphone connector into the 3-pin connector on the microphone cable.



404A

5. Connect the 5-pin end of the interface cable to the inside 5-pin **INTFC** connector on the transmitter (labeled **2** on its dust cover). The interface cable is already connected to the blood pressure monitor because it is a branch of the patient cable. Ensure that the transmitter's patient leadwires are properly connected. The leadwires must be connected for telemetry transmission of NBP data.

#### NOTE

- Use a microphone pad to maintain the best microphone position.
- Use a cuff anchor to maintain the blood pressure cuff's position.
- Advise the patient not to shower or bathe while being monitored.

# 4 System setup

Draft

## Bedside monitor setup

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### WARNING

INCORRECT ALGORITHMS, ARRHYTHMIA PROCESSING AND CALCULATIONS BASED ON PATIENT AGE — After manually updating or automatically retrieving patient demographic information from a network database, *always* confirm that the entered patient's date of birth matches the patient's actual date of birth. Otherwise the appropriate age-related algorithms, arrhythmia detection, and calculations will not be applied.

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### CAUTION

BEDSIDE MONITOR ECG COMPATIBILITY— The minimum software version of the following GE bedside monitors are required for ECG monitoring in **Rover** or **Rover Combo** modes:

- Dash 3000/4000 patient monitor v2B or later
- Dash 5000 patient monitor v6 or later
- Eagle 4000 patient monitor v5B or later
- Solar 7000 patient monitor v6 or later
- Solar 8000i patient monitor v4F or later
- Solar 8000M patient monitor v3D
- Tram critical care monitor (Tramscope) v7D or later

Monitoring other parameters is not compatible. Erroneous patient data may result.

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### NOTE

When the monitor is set for **Combo** mode, the second V lead can *not* be viewed or manipulated.

### NOTE

Users should be aware of a possible time discrepancy between the waveforms from the telemetry device and the waveforms hard-wired to the display device. Users should not consider these waveforms to be synchronous. If absolute synchronicity is desired, **Combo** mode should be discontinued and the ECG waveforms should be acquired via the hard-wired bedside device.

ApexPro system patient data can be viewed on most GE patient monitors. The monitor must be connected to the Unity network and in the same care unit as the ApexPro system.

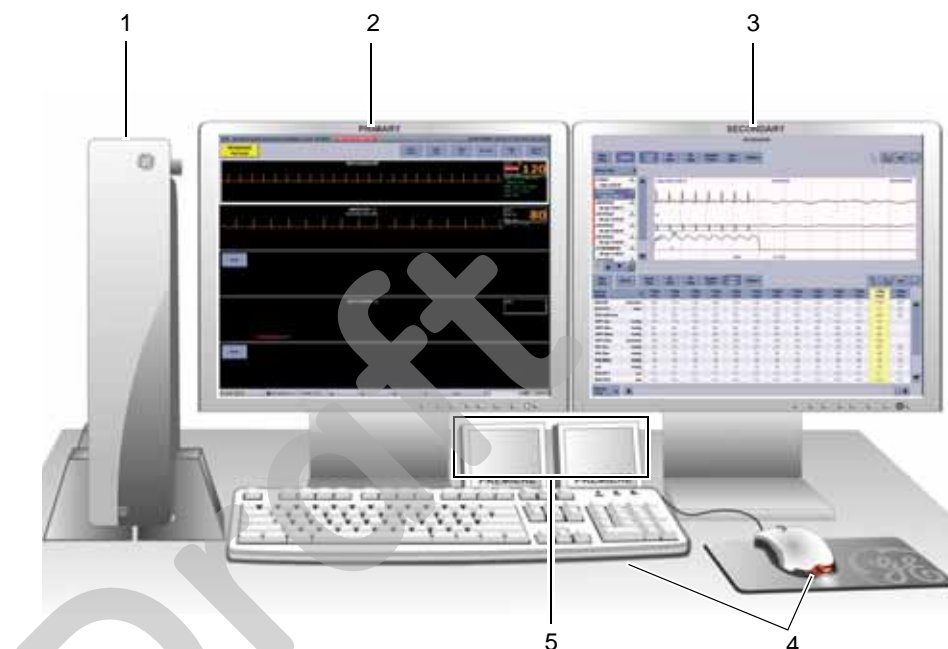
The telemetry patient can be viewed on the bedside monitor using the monitor's split screen view, or when the monitor is set for either **Combo** or **Rover Combo** monitoring mode.

Refer to the appropriate monitor's operator's manual for more information. Contact your sales/service representative if you have questions regarding compatibility.

# CIC Pro center setup

Standard components include the following items:

- Processor box
- Primary display
- External speakers
- Standard keyboard
- Standard mouse



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|   | Item                         | Function   |
|---|------------------------------|--|
| 1 | Processor box                | Run the CIC Pro center application.  |
| 2 | Primary display              | Display real-time and stored patient data, control windows, and various system level operations. Up to two displays may be connected to the CIC Pro center simultaneously. |
| 3 | Secondary display (optional) | Display stored patient data.   |
| 4 | Standard mouse and keyboard  | Enter data, navigate menus, and choose options.  |
| 5 | External speakers            | Sound audible patient status and system status alarm tones.  |

## Configuring the CIC Pro center

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### WARNING

Before using this device for the first time, refer to the CIC Pro Clinical Information Center Operator's Manual for safety information.

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### WARNING

UNTESTED SOFTWARE—Do not load any software other than that specified by GE onto the CIC Pro center. Installation of software not specified by GE may cause damage to the server or loss or corruption of data.

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Before use, qualified personnel must configure the CIC Pro center for use within your monitoring environment:

- Service personnel must configure the CIC Pro center to work with your patient monitor. For more information, refer to the CIC Pro Clinical Information Center Bedrock Hardware Platform Service Manual.
- Clinical personnel must configure the clinical applications of the CIC Pro center. For more information, refer to the CIC Pro Clinical Information Center Bedrock Hardware Platform Service Manual and/or the CIC Pro Clinical Information Center Operator's Manual.

## Verifying proper operation

Before using this device, you should confirm that the CIC Pro center application and alarms are operating properly:

1. Check that the CIC Pro center is displaying waveforms and numerical data from selected patient monitors and telemetry beds.
2. Check that the CIC Pro center notifies you of an alarm condition when you verify the alarm function. For more information, refer to the CIC Pro Clinical Information Center Operator's Manual.

## Customizing the system

Three configuration levels control the features and functions of your CIC Pro Center. For a complete listing of configurations and instructions, refer to the CIC Pro Clinical Information Center Operator's Manual and/or CIC Pro Clinical Information Center Bedrock Hardware Platform Service Manual.

- Licenses (instituted): Licenses control the standard and specialized features available for your CIC Pro center. These licenses are instituted during installation, but can be changed by qualified personnel.
- Defaults (persistent): Defaults control the network, system, and clinical application settings of the CIC Pro center. Defaults are persistent, meaning they are recalled after a patient is discharged.

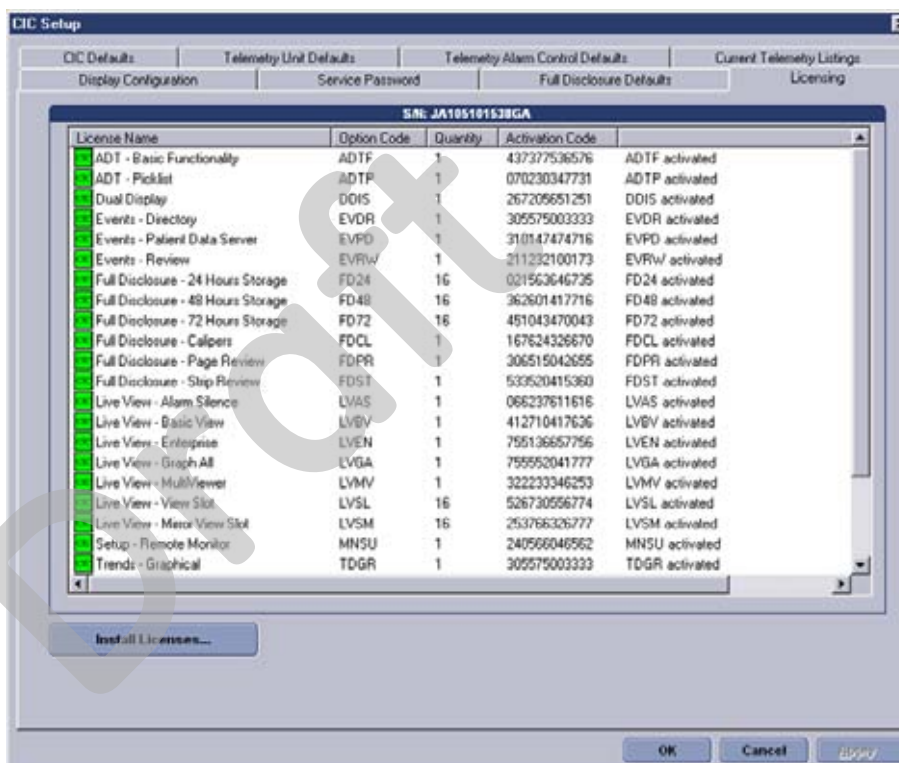


- Control settings (temporary): Control settings allow you to make temporary adjustments to some of the system and clinical application settings of the CIC Pro center. Control settings are temporary, meaning they apply to a selected patient and are erased when the patient is discharged.

## Licenses (instituted)

Licenses control the standard and specialized features available for your CIC Pro center. These licenses are instituted during installation, but can be changed by qualified personnel.

To view the licenses installed on your CIC Pro center from the multi-patient viewer, click *Setup CIC > Licensing*.



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Licenses are divided into the following categories:

- View: View real-time patient information for a maximum of 16 patients from the multi-patient viewer and one patient from the single patient viewer.
- Monitor: Admit and discharge patients, modify parameter limits, manage **Alarm Control**, and silence alarms.
- Review: Review historical patient information (e.g., events, trends, and full disclosure).
- Central surveillance: View single viewer applications from a secondary display, navigate multiple configured centralized CIC Pro centers using a single mouse and keyboard, and connect to your facility's Citrix server to view any CIC Pro center or Hospital Information System (HIS).
- Service: Remote service tools.

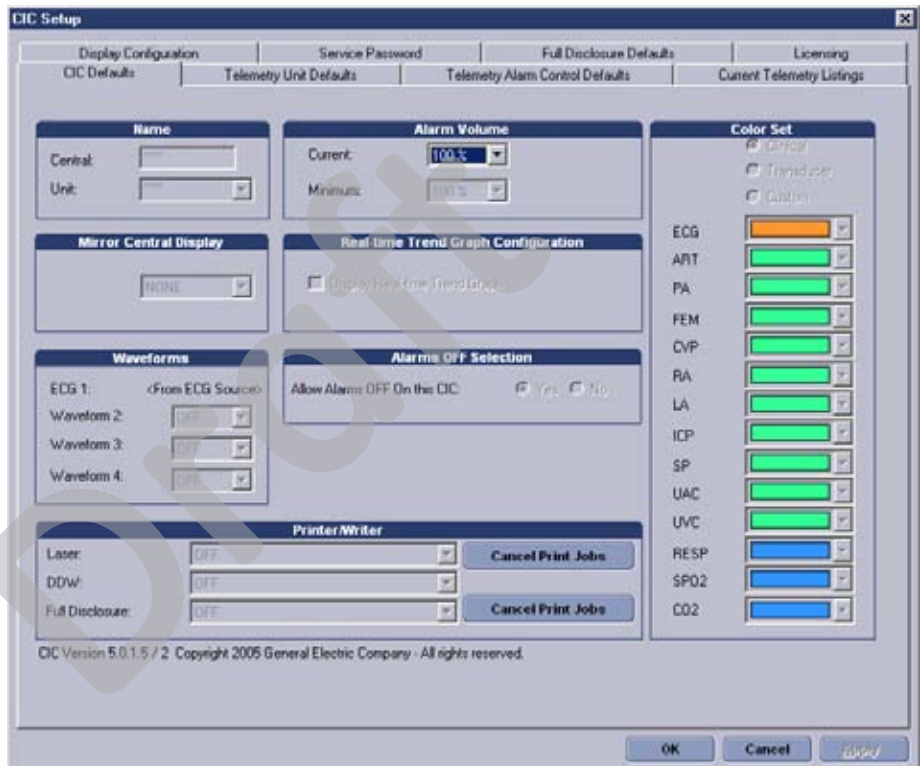
## Defaults (persistent)

Defaults control the network, system and clinical application settings of the CIC Pro center. Defaults are persistent, meaning they are recalled after a patient is discharged.

Defaults are divided into two categories:

- Service-level defaults: Service-level defaults are password protected and should be configured by qualified service and clinical personnel.
- User-level defaults: User-level defaults are not password protected and can be configured by any qualified user.

To view the *CIC Defaults* window, from the multi-patient viewer, click **Setup CIC > CIC Defaults**.



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## Service-level defaults

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### CAUTION

**QUALIFIED PERSONNEL** — The service mode is intended for use only by qualified personnel with training and experience in its use. The consequences of misuse include loss of alarm configuration, loss of patient data, corruption of the CIC Pro center's operating system software, or disruption of the entire Unity Network.

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Unless you are using the password protected CIC Pro center service mode, the service-level defaults appear in light, dimmed text.

To configure the service-level defaults, see the CIC Pro Clinical Information Center Bedrock Platform Service Manual.

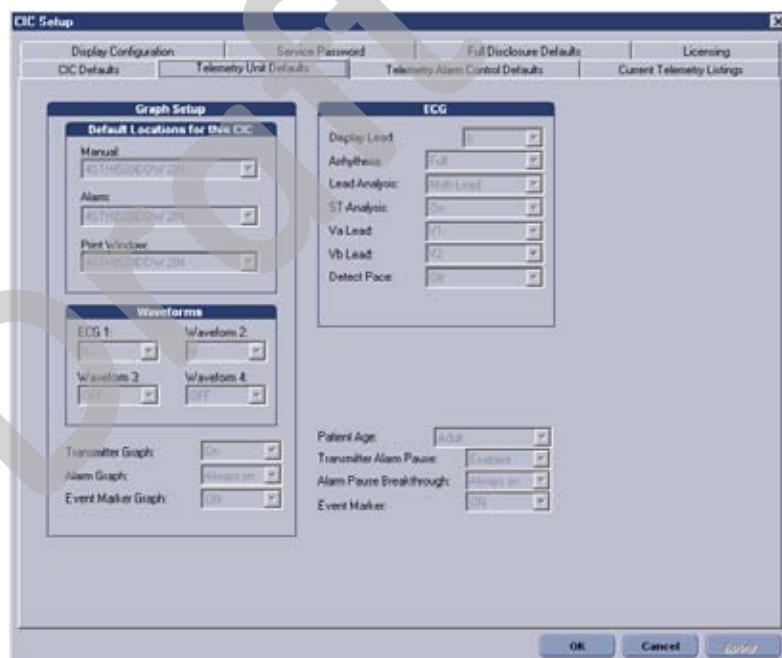
## User-level defaults (persistent)

In user mode, all of the controls are view-only. You must be in the Service mode to set defaults. For more information, refer to CIC Pro Clinical Information Center Bedrock Hardware Platform Service Manual.

### Telemetry unit defaults

This option sets telemetry unit default settings. In user mode, all of the controls are view-only. You must be in the Service mode to set the *Telemetry Unit Defaults* at the CIC Pro center.

To view the telemetry unit default settings, click *CIC Setup > Telemetry Unit Defaults*.



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