

LIFEPAK® 15

Monitor/Defibrillator

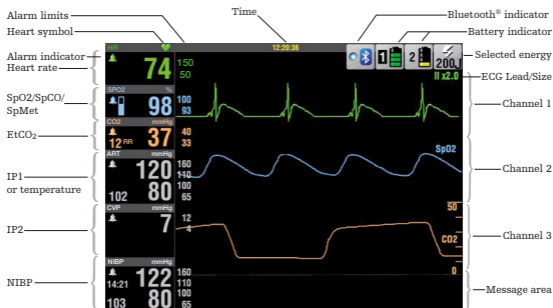
Pocket guide






This is not the complete instructions for use. Refer to the Operating Instructions for complete device information including directions for use, indications and warnings.

LIFEPAK 15 Monitor/Defibrillator

Home screen



Battery indicators

Indicator	Description
 Active battery	The defibrillator is using the battery in well 1 for power. Battery status indicators display up to 4 green bars. Each green bar represents approximately 25% remaining charge. For example, 3 green bars indicate about 75% remaining charge.
 Low battery	Battery in well 1 is in use and is low. One yellow bar indicates 5% to 10% remaining charge.
 Very low battery	Battery in well 1 is in use and is very low; 1 red flashing bar indicates 0 to 5% remaining charge. The defibrillator automatically switches to the other battery only if adequate charge is available. If both batteries show red bars, the REPLACE BATTERY voice prompt occurs.

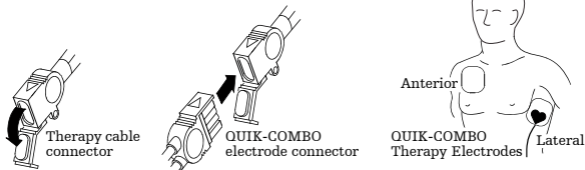
LIFEPAK 15 Monitor/Defibrillator

QUIK-COMBO® Electrodes with REDI-PAK™ preconnect system

- Reads ECG with lead II
- Delivers defibrillation shock
- Delivers external pacing

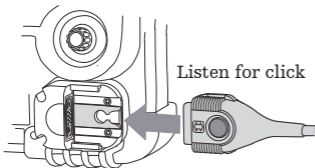


Connecting therapy electrodes

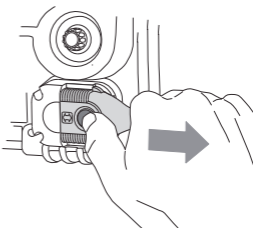


Connecting therapy cable to defibrillator

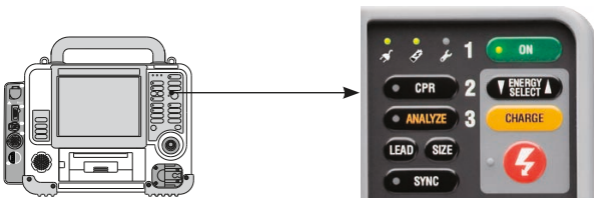
To connect a therapy cable to the defibrillator:










To disconnect the therapy cable from the defibrillator:

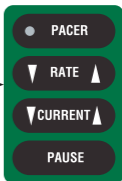
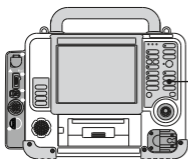


Manual defibrillation controls



GREEN ON button turns device on and off	1	
ENERGY SELECT increases or decreases energy level while in Manual Mode	2	
CHARGE charges the device in Manual Mode	3	
SHOCK initiates discharge of the defibrillator energy to the patient		
ANALYZE initiates analysis in AED Mode		
CPR initiates or silences METRONOME feature		
SYNC activates synchronization mode		

Noninvasive pacing procedure



Demand pacing

1. Press ON

2. Apply ECG electrodes

3. Apply and connect QUIK-COMBO® therapy electrodes; consider sedation if patient is conscious

4. Press PACER



5. Confirm placement of the sense marker (▼) is near the middle of each QRS

6. Press RATE to select desired pacing rate



7. Press CURRENT until electrical capture occurs



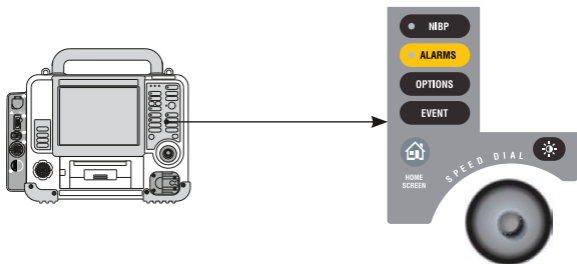
8. Check blood pressure and pulse to verify mechanical capture

PAUSE button facilitates temporary viewing of underlying rhythm



Note: Heart rate alarms are disabled during pacing. Observe patient continuously.

Other features, right side



Control	Description
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NIBP	Initiates blood pressure measurement. LED illuminated when BP measurement is being obtained.
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ALARMS	Activates and silences alarms. LED illuminated when alarms are enabled and flashes when an alarm condition occurs.
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OPTIONS	Accesses optional functions
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EVENT	Accesses user-defined events
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	Returns to Home Screen display
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SPEED DIAL	Scrolls through and selects screen or menu items
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	Display mode button switches between color display and black and white display
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Noninvasive blood pressure monitoring procedure

NIBP measurement typically takes 40 seconds to complete. If the measurement is not completed in 120 seconds, the cuff automatically deflates.


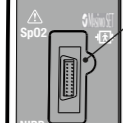

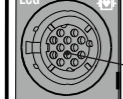

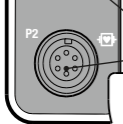


1. Press ON 
2. Select appropriate sized cuff, attach snugly to extremity; align cuff marking (if present) with artery
3. Connect tubing to the cuff and to the NIBP port on the monitor
4. Change initial inflation pressure if necessary—Default: 160 mmHg
5. Position extremity in relaxed and supported position at heart level
6. Inform patient that cuff will inflate and squeeze arm
7. Press NIBP to start measurement 





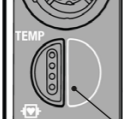


To cancel measurement, press NIBP again

When the measurement is complete, systolic, diastolic, and mean arterial pressures are displayed.

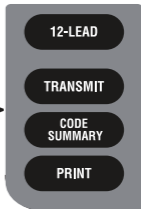
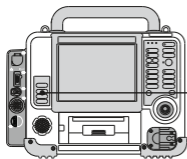
Features, left side, Invasive pressure option

Connection	Action
 The diagram shows a CO2 port with a circular door and a connector. An arrow points from the text to the connector.	<p>Connect: Open CO₂ port door, insert FilterLine[®] connector and turn clockwise until connector is firmly seated.</p> <p>Disconnect: Rotate FilterLine connector counterclockwise and pull connector out.</p>
 The diagram shows an SpO2 port with a rectangular cable connector. An arrow points from the text to the connector.	<p>Connect: Align cable connector with SpO₂ port and push in until connector clicks into place.</p> <p>Disconnect: Press the gray buttons on each side of the cable connector simultaneously and pull connector out.</p>
 The diagram shows an NIBP port with a circular tubing connector. An arrow points from the text to the connector.	<p>Connect: Insert NIBP tubing connector into the NIBP port.</p>
 The diagram shows an ECG port with a circular multi-pin connector. An arrow points from the text to the connector.	<p>Disconnect: Press the latch on the left side of the port and pull tubing connector out.</p>
 The diagram shows a P1 port with a circular connector. An arrow points from the text to the connector.	<p>Connect: To connect green ECG connector with ECG port, align green key on cable with notch on port. Insert cable until connector is firmly seated.</p> <p>Disconnect: Use the finger pull to pull the ECG connector straight out.</p>
 The diagram shows a P2 port with a circular connector. An arrow points from the text to the connector.	<p>Connect: Align the IP (invasive pressure) cable connector with the P1 or P2 port; position the gap on the connector facing up. Insert the cable connector into the port until the connector is firmly seated.</p> <p>Disconnect: Grip the connector and pull straight out.</p>

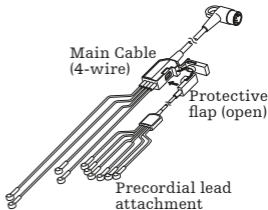
Features, left side, Continuous temperature option

Connection	Action
 The diagram shows the CO2 port on the left side of the device. It consists of a circular door with a handle on top. An arrow points from the text to the handle area.	<p>Connect: Open CO2 port door, insert FilterLine connector, and turn clockwise until connector is firmly seated.</p> <p>Disconnect: Rotate FilterLine connector counterclockwise and pull connector out.</p>
 The diagram shows the SpO2 port, which is a rectangular connector with a multi-pin interface. An arrow points from the text to the connector.	<p>Connect: Align cable connector with SpO2 port and push in until connector clicks into place.</p> <p>Disconnect: Press the gray buttons on each side of the cable connector simultaneously and pull connector out.</p>
 The diagram shows the NIBP port, which is a circular port with a central opening for tubing. An arrow points from the text to the central opening.	<p>Connect: Insert NIBP tubing connector into the NIBP port.</p>
 The diagram shows the ECG port, which is a circular port with a latch on the left side and multiple pins. An arrow points from the text to the latch area.	<p>Disconnect: Press the latch on the left side of the port and pull tubing connector out.</p>
 The diagram shows a green ECG connector being inserted into the ECG port. An arrow points from the text to the green connector.	<p>Connect: The green ECG connector with the green ECG port. Insert the cable connector into the port until the connector is firmly seated.</p>
 The diagram shows the TEMP port, which is a semi-circular port with a finger pull on the left side. An arrow points from the text to the finger pull.	<p>Disconnect: Use the finger pull to pull the ECG connector straight out.</p>
 The diagram shows a temperature adapter cable being inserted into the TEMP port. An arrow points from the text to the cable.	<p>Connect: Align the temperature adapter cable to the temperature port. Attach selected temperature sensor to adapter cable.</p>
<p>Disconnect: Grip the connector and pull straight out.</p>	

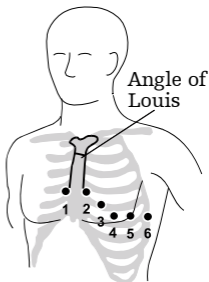
Acquiring a 12-Lead ECG



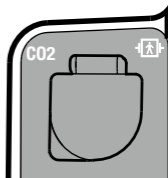
1. Press **12-LEAD** Button
2. **AGE** Menu – enter Age
3. **SEX** Menu – enter Sex
4. 12-Lead acquires, analyses and automatically prints the 12-Lead ECG



Lead	Location
V1/C1	Fourth intercostal space to the right of the sternum
V2/C2	Fourth intercostal space to the left of the sternum
V3/C3	Directly between leads V2/C2 and V4/C4
V4/C4	Fifth intercostal space at midclavicular line
V5/C5	Level with V4/C4 at left anterior axillary line
V6/C6	Level with V5/C5 at left midaxillary line



EtCO₂ monitoring procedure



1. Press **ON**

2. Select appropriate EtCO₂ accessory for the patient

3. Open CO₂ port door and insert FilterLine connector, turn connector clockwise until tight

4. Verify CO₂ area is displayed

5. Display CO₂ waveform in Channel 2 or 3

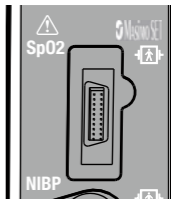
6. Connect FilterLine set to the patient

7. Confirm the EtCO₂ waveform is displayed

Auto-zero is part of initialization self-test performed by monitor. Scale is automatically selected for best visualization.

Note: If you use a ventilation system, do not connect FilterLine set to the patient/ventilation system until self-test is complete

SpO₂ / SpCO / SpMet monitoring procedure



SpO₂

1. Press ON

2. Connect the pulse oximeter cable to the monitor and sensor

3. Attach sensor to ring finger of the non-dominant hand and orient so cable is on back of patient's hand

4. Observe the pulse bar for fluctuation, amplitude of the pulse bar indicates relative signal quality

5. Confirm SpO₂ reading appears and is stable

SpCO & SpMet

Perform steps 1-5, then:

6. Verify that SpCO / SpMet sensor is in use; ONLY Rainbow® sensors are capable of reading SpCO / SpMet

7. Rotate Speed Dial to outline SpO₂ area

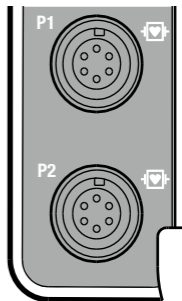
8. Select parameter

9. Select SpCO or SpMet. Selected value displays for 10 seconds.

Note: If SpCO or SpMet reading is above normal limits (SpCO >10%, SpMet >3%) an Advisory message occurs.

Invasive pressure monitoring

Label	Description
ART	Arterial Pressure
PA	Pulmonary Artery Pressure
CVP	Central Venous Pressure
ICP	Intracranial Pressure
LAP	Left Atrial Pressure



Invasive pressure monitoring procedure

1. Prepare transducer system according to local protocol

2. Position transducer at the patients phlebostatic axis – zero-reference

3. Press ON

4. Connect IP cable to the transducer and to the port on the monitor, P1 or P2 connector and Channel 2 or 3 can be used for IP monitoring

5. Use default or select ART, PA, CVP, ICP, LAP

6. Use speed dial to outline and select **CHANNEL 2** on Home Screen

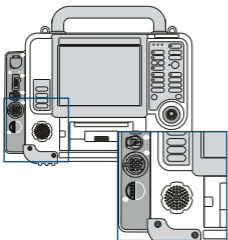
7. Select **WAVEFORM** and then label as desired

8. Open transducer stopcock to air to zero the transducer and remove stopcock cap. Select P1 area. Select **ZERO** from menu. P1 **ZEROED** appears once complete and pressure values displayed as zeros.

9. Close the stopcock to air. Patient's pressure waveform should be displayed. Scale automatically selected. Confirm pressure amplitude correlates with digital readout.

Note: If you place a cap on an open port before you close the port to air, an error message may appear. You will be required to zero again.

Monitoring continuous temperature



1. Press ON

2. Connect adapter cable to TEMP port on monitor

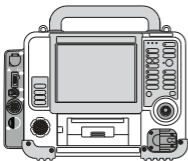
3. Connect temperature probe to adapter cable

4. Attach temperature probe to patient according to probe Instructions for Use

5. Confirm temperature reading appears and is stable

Note: The temperature probe may require three minutes to equilibrate after patient placement.

Auxiliary power management





1. Connect power cord to power adapter and auxiliary power source

2. Confirm LED strip on power adapter is illuminated

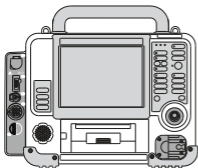
3. Connect power adapter output cable to power adapter

4. Connect green end of output cable to auxiliary power connector on back of defibrillator

5. Confirm  (power connected) and  (battery charging) LEDs are illuminated

Note: At least one battery should be installed at all times. Keep monitor/defibrillator connected to auxiliary power whenever possible to maintain battery charge level.

Battery power management



1. Install batteries in battery wells 1 and 2

2. Press ON

3. Check battery indicators for charge level of each battery

4. If battery is low, replace with charged battery
or connect defibrillator to auxiliary power using
approved power adapter

Therapy electrode placement

Proper skin preparation is critical to obtaining a quality signal and successful monitoring using QUIK-COMBO electrodes




Prepare the patient's skin:

1. Remove all clothing from the patient's chest
 2. Remove excessive chest hair. Avoid nicking or cutting the skin. Avoid placing electrodes over broken skin, implanted devices or medication patches.
 3. Clean and dry the skin
 4. Briskly wipe the skin dry with a towel or gauze
 5. Do not use alcohol, tincture of benzoin or antiperspirant to prep the skin
 6. Discard the electrode if gel is not intact or Use By date has passed
-

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

Manual defibrillation

Observation	Action
Monitor displays (---) dashed lines when therapy electrodes connected	Limb or precordial leads selected but patient connected to therapy cable. Select PADDLES LEAD.
Charge time to 360 J exceeds 10 seconds	Replace battery with fully charged battery or connect to AC power
Energy not delivered to patient when  (shock) button pressed	<ul style="list-style-type: none">• Wait for tone and message indicating full charge• Press  (shock) button within 60 seconds of full charge• For hard paddles, simultaneously press  (shock) buttons
CONNECT CABLE, CONNECT ELECTRODE or PADDLES LEADS OFF message appears	<ul style="list-style-type: none">• Check cable connection• Check therapy electrode connection• Review skin prep section and reapply new electrodes• Replace damaged therapy cable and perform daily checks per Operator's Checklist

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

ECG monitoring

Observation	Action
ANY of these messages displayed: CONNECT ECG LEADSECG LEADS OFF XX LEADS OFF	<ul style="list-style-type: none">• Prepare skin and apply new electrodes• Connect ECG electrode• Connect ECG cable• Select another lead• Check ECG cable continuity• Select PADDLES lead, and use standard paddles or therapy electrodes for ECG monitoring
Poor ECG signal quality or baseline wander	<ul style="list-style-type: none">• Prepare skin and apply new electrodes• Check Use By date on electrode packages• Check or reconnect cable connections• Inspect ECG and therapy cables. Replace if damaged.
Fine baseline artifact	Prepare skin and apply new electrodes, confirm limbs are resting on a supportive surface
Monitor displays (---) instead of HR	HR is out of monitoring range (<20 bpm or >300 bpm) or pacing function is active
Monitor displays (---) with no LEADS OFF message when ECG electrodes are connected	PADDLES lead selected, but patient connected to ECG cable. Select one of the limb or precordial leads.

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

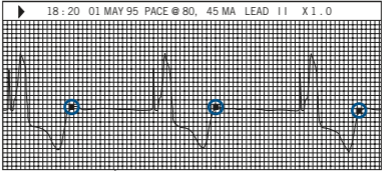
12-Lead ECG

Observation	Action
Noisy signal and/or message displayed: NOISY DATA! PRESS 12-LEAD TO ACCEPT	<ul style="list-style-type: none">• Prepare skin and apply new electrodes• Press 12-LEAD again to override the message. Examine printout to determine leads affected by noise. Replace or reposition the affected electrodes and lead wires.• Encourage patient to lie quietly• Stop vehicle while acquiring 12-lead ECG data
EXCESSIVE NOISE-12-LEAD CANCELLED	Press 12-LEAD to acquire another 12-lead

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

Pacing

Observation	Action
Failure to capture	<ul style="list-style-type: none">• Increase pacing current• Consider moving pacing electrode to another location
Oversensing	Change to a different ECG lead or reposition the ECG electrode
	
Noisy ECG signal	<ul style="list-style-type: none">• Confirm adequate skin preparation• Move the ECG electrodes farther away from the pacing electrodes• Consider selecting another ECG lead
Monitor screen displays distortion while pacing	<ul style="list-style-type: none">• Reposition electrodes away from pacing electrodes or select another lead (I, II or III)
Intrinsic QRS complexes not sensed when pacing	<ul style="list-style-type: none">• Increase ECG size or select another lead• Adjust PPM

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

NIBP

Observation/ Messages	Action
NIBP TIME OUT	<ul style="list-style-type: none">• Apply appropriately sized cuff and properly align cuff artery markings to extremity• Repeat measurement
NIBP WEAK PULSE	Check for pulse distal to cuff and ensure cuff fits snugly on the patient's arm
NIBP CHECK CUFF	<ul style="list-style-type: none">• Apply appropriately sized cuff and properly align cuff artery markings to extremity• Repeat measurement
NIBP MOTION	Have patient lie quietly with extremity relaxed and supported
NIBP AIR LEAK	<ul style="list-style-type: none">• Apply appropriately sized cuff and properly align cuff artery markings to extremity• Check that cuff/monitor connection is secure• Check cuff for leaks

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

EtCO₂

A CO₂ waveform appears when any CO₂ is detected, but:

-
- CO₂ must be >3.5 mmHg to display numeric value
-
- Valid breaths will not be detected unless CO₂ is at least 8 mmHg
-
- Valid breaths must be detected in order for the no breath alarm to function and count the respiratory rate (RR)
-
- The RR represents an average over the last 8 breaths
-

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

EtCO₂ continued

Observation	Action
NO BREATH ALARM message appears and waveform is solid line at or near zero	<ul style="list-style-type: none">• Check the patient• Twist connector clockwise until snug• Check for leaks or disconnected tubing
There is no EtCO ₂ value and the waveform is flat	Measured CO ₂ is <3.5mmHg. See detection above.
CO ₂ FilterLine OFF message appears and waveform is (---)	<ul style="list-style-type: none">• Connect FilterLine set to device port• Twist FilterLine connector clockwise until snug and firmly seated
CO ₂ FilterLine PURGING message appears and waveform is (---)	<ul style="list-style-type: none">• Disconnect then reconnect the FilterLine set• Twist FilterLine connector clockwise until snug and firmly seated
CO ₂ FilterLine BLOCKAGE message appears and waveform is (---)	<ul style="list-style-type: none">• Disconnect, reconnect• If unsuccessful, change the FilterLine set
XXX appears instead of EtCO ₂ value	Turn device off then on again. If problem persists, contact qualified service personnel.

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

LIFEPAK 15 Monitor/Defibrillator

SpCO/SpMet

Because of the increased sensitivity of SpCO and SpMet monitoring, extra care is needed to ensure the technology will function appropriately. Careful attention to sensor placement and protection from ambient light is particularly important, as well as other identified solutions listed below.

Observation/Challenges	Actions
Low arterial perfusion	<ul style="list-style-type: none">• Choose a site that is well perfused (i.e., the warmest extremity)• Confirm BP cuff is on opposite extremity
Motion	<ul style="list-style-type: none">• Place sensor on ring finger of non-dominant hand and restrict patient movement• Consider adhesive sensor if available
Poor sensor placement	<ul style="list-style-type: none">• Orient the sensor so the cable is on the back of the patient's hand. The tip of the finger should touch the raised digit stop inside the sensor.• Reposition sensor as needed
Slender digits	Use on largest finger such as index or use the Pediatric/Slender sensor
Strobe or flashing light	Cover sensor with opaque material or sensor cover to protect from light
Ambient light	Cover sensor with opaque material or sensor cover to protect from light
Unexpected readings	In addition to above troubleshooting methods, take readings on 3 separate digits and average readings

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

Invasive Pressure (IP)

Observation	Action
Invasive pressure value is blank	Connect the transducer to the cable and the cable to the monitor
PX NOT ZEROED message appears	Zero the transducer
PX ZERO FAILED message appears	Confirm the transducer is open to air and repeat attempt to zero
Dampened waveform	<ul style="list-style-type: none">• Check the entire system for leaks. Tighten all connections. Replace any defective stopcocks.• Use syringe to draw back air or particles in catheter, then flush system
No waveform or pressure reading	Check patient. Check stopcock positions and monitor setup.
Invasive BP lower than cuff BP	<ul style="list-style-type: none">• Reposition transducer to correct height• Tighten all connections• Flush system• Open stopcock to air and rezero transducer
Invasive BP higher than cuff BP	<ul style="list-style-type: none">• Reposition transducer to correct height• Rezero• Change catheter tip position• Use mean pressure values
Inability to zero system	<ul style="list-style-type: none">• Check the stopcock position. Replace any defective stopcocks.• Replace transducer

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

Temperature

Observation	Action
Screen remains blank	Temp outside range of 24.8° and 45.2° C (76.6° and 113.4° F)
CHECK SENSOR message appears and value is (---)	<ul style="list-style-type: none">• Temp outside of range, the probe is dislodged, not connected or the cable not connected to the monitor• Check that probe is properly positioned
CHECK SENSOR message appears while value is displayed	Temp probe is dislodged and value is below 31° C (87.8° F) or above 41.0° C (105.8° F)
TEMP: ACCURACY OUTSIDE LIMITS message appears and value is XXX	<ul style="list-style-type: none">• Temperature module is not calibrated or accuracy check failed• Turn device off then on again. If problem persists, contact qualified service personnel.

NOTE: The temperature probe may require 3 minutes to equilibrate after placement on the patient monitoring site.

Troubleshooting Tips

For a complete list of troubleshooting tips, please consult the LIFEPAK 15 Operating Instructions

Refer to operating instructions for complete directions for use indications, contraindications, warnings, cautions, and potential adverse events.

Physio-Control is now part of Stryker.

For further information, please contact Physio-Control at 800.442.1142 (U.S.), 800.668.8323 (Canada) or visit our website at www.physio-control.com

Physio-Control Headquarters

11811 Willows Road NE
Redmond, WA 98052 USA
Tel 425 867 4000
www.physio-control.com

Customer Support

P. O. Box 97006
Redmond, WA 98073
Toll free 800 442 1142
Fax 800 426 8049

Physio-Control Canada

Physio-Control Canada
Sales, Ltd.
45 Innovation Drive
Hamilton, ON
L9H 7L8
Canada
Toll free 800 668 8323
Fax 877 247 7925

 **Physio-Control, Inc.**, 11811 Willows Road NE, Redmond, WA 98052 USA

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