

## 12-Lead Placement

**RA:** Second intercostal space  
lateral right side or right  
arm

**LA:** Second intercostal space  
lateral left side or left arm

**LL:** Lower left lateral chest  
or left leg

**RL:** Lower right lateral chest  
or right leg

**V1:** Fourth intercostal space  
to the right of the sternum

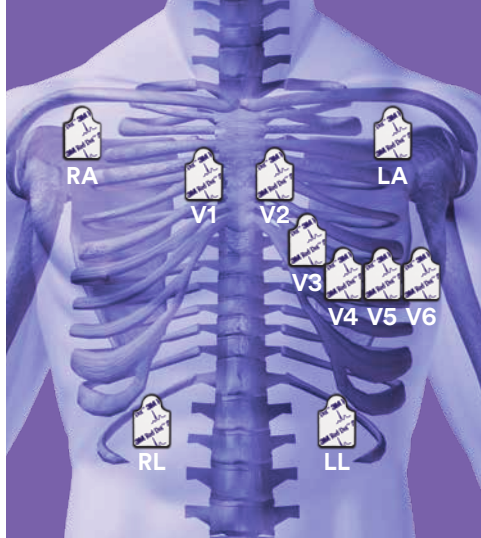
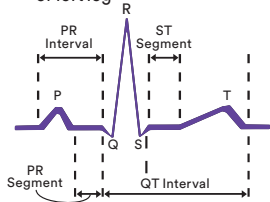
**V2:** Fourth intercostal space  
to the left of the sternum

**V3:** Between V2 and V4

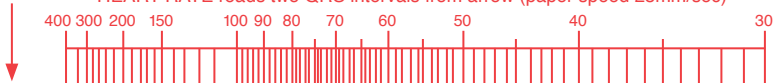
**V4:** Fifth intercostal space  
along the mid-clavicular  
line

**V5:** Fifth intercostal space  
between V4 and V6

**V6:** Fifth intercostal space  
along the mid-axillary  
line









HEART RATE reads two QRS intervals from arrow (paper speed 25mm/sec)



# Troubleshooting ECG Traces

 Troubleshoot each artifact in order, starting with **1**

Artifacts	Skin Impedance	Muscle Movement	Electrical Continuity	Electrodes	Cabling	Interference	Equipment
<b>“Lead(s) Off” Error Message</b> 	<b>4</b> Clean, then abrade the skin prior to replacing the electrode		<b>1</b> Check all electrode, leadwire and ECG cable connections	<b>3</b> Check for electrode gel dry out	<b>5</b> Replace ECG cable and/or leadwires		<b>2</b> Verify number of leads is correctly set on the monitor
<b>Base Line Wander</b> 	<b>1</b> Abrade the skin prior to replacing the electrode	<b>2</b> Move electrodes off muscle mass	<b>5</b> Check all electrode, leadwire and ECG cable connections	<b>4</b> Use the same ECG electrode on all sites	<b>6</b> Replace ECG cable and/or leadwires		<b>3</b> Adjust monitor filter settings to reduce artifact
<b>AC Noise (thick baseline)</b> 	<b>1</b> Abrade the skin prior to replacing the electrode	<b>7</b> May be untreatable involuntary muscle tremor	<b>5</b> Check all electrode, leadwire and ECG cable connections	<b>4</b> Check for electrode gel dry out	<b>6</b> Replace ECG cable and/or leadwires	<b>2</b> Move all power cords away from ECG cable and leadwires	<b>3</b> Adjust monitor filter settings to reduce artifact
<b>Intermittent Signal</b> 	<b>2</b> Abrade the skin prior to replacing the electrode		<b>1</b> Check all electrode, leadwire and ECG cable connections	<b>3</b> Check for electrode gel dry out	<b>5</b> Replace ECG cable and/or leadwires	<b>4</b> To remove possible static charge, touch metal (bedrail) prior to touching the patient	
<b>Motion Artifact</b> 	<b>2</b> Abrade the skin prior to replacing the electrode	<b>1</b> Move electrodes off muscle mass	<b>3</b> Check all electrode, leadwire and ECG cable connections	<b>5</b> Check for electrode gel dry out	<b>7</b> Replace ECG cable and/or leadwires	<b>6</b> Move ECG cable away from other equipment such as infusion pump	<b>4</b> Adjust monitor filter settings to reduce artifact
<b>Low Amplitude</b> 	<b>3</b> Abrade the skin prior to replacing the electrode		<b>2</b> Check all electrode, leadwire and ECG cable connections	<b>5</b> Check for electrode gel dry out	<b>6</b> Replace ECG cable and/or leadwires	<b>4</b> Move ECG cable away from other equipment such as infusion pump	<b>1</b> Adjust monitor settings to increase ECG amplitude

