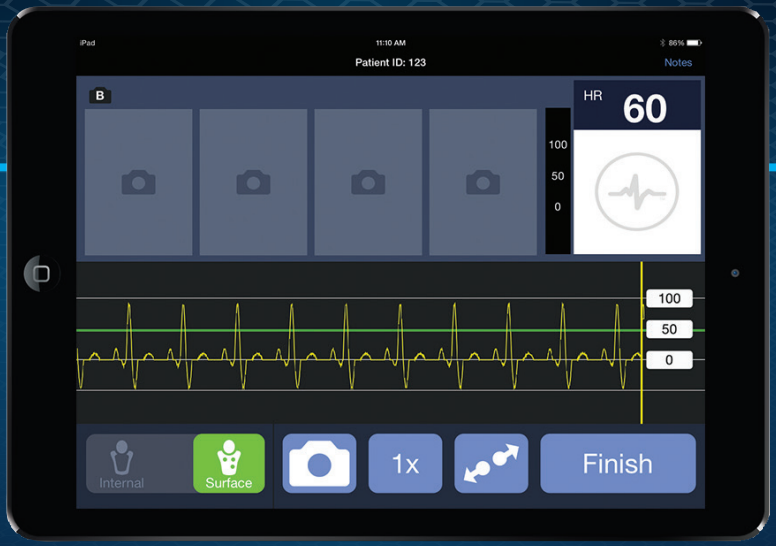



# C3 WAVE

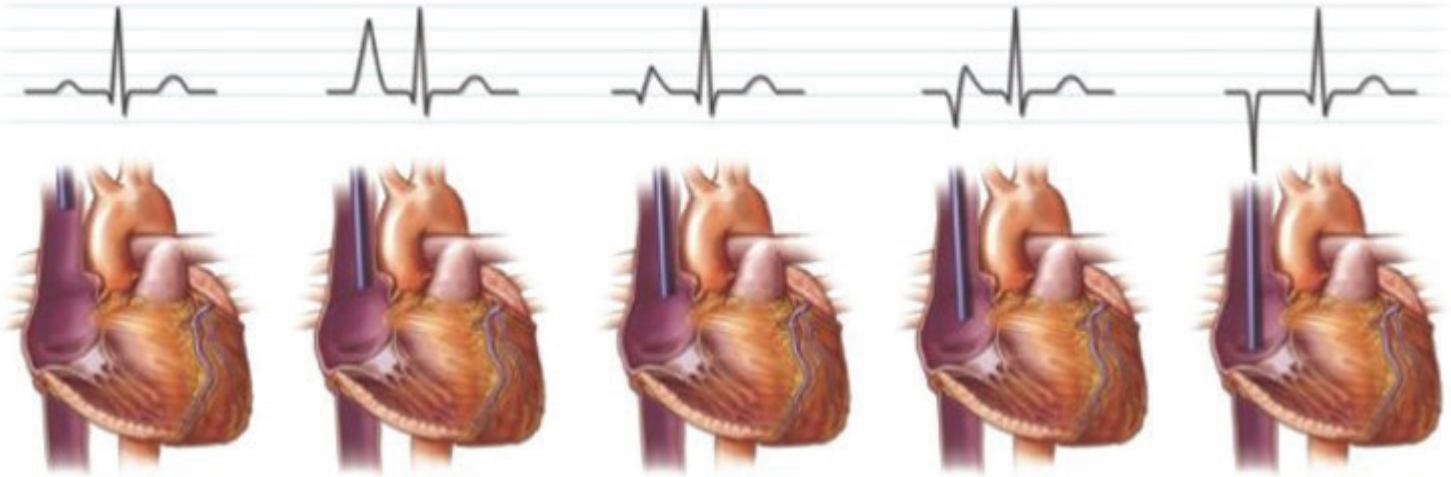
CONNECT / CAPTURE / CONFIRM

QUICK REFERENCE GUIDE

angiodynamics

# P-Wave and Catheter Placement

*"Position the tip of a CVAD in the lower segment of the superior vena cava at or near the CAJ for adults and children"* (INS 2016)



| | | | | |
|---|---|---|---|---|
| **No evident P wave changes** indicates catheter is not in acceptable position | **A P wave at its max height** will indicate the catheter is in the lower 1/3 of the SVC | **A downward deflection** edge of P wave indicated the catheter is entering the RA | **A biphasic P wave** indicated the catheter is in the RA | **An inverted P wave** indicated catheter is approaching the right ventricle |

[1] Alexander M. Infusion Standards. Journal of Infusion Nursing. 2016;39(4):181-182.

# Bluetooth® Pairing

## HUB BLUETOOTH® PAIRING

Press and hold the power button for about 8 seconds. The blue power LED will flash rapidly to indicate that the hub has erased pairing information.

On the new iPad® go to Settings & Support and press the "Pair" icon under Hub Serial #

On the hub press and hold the power button for 2 seconds until the blue LED begins to flash slowly.

On the iPad® press the area marked "Chest Hub". This will pair the hub with the iPad®.

You can verify that the hub has paired correctly by checking that the serial numbers match.

## REMOTE BLUETOOTH® PAIRING

Press and hold all four arrow buttons for about 5 seconds. This will remove all pairing information from the remote.

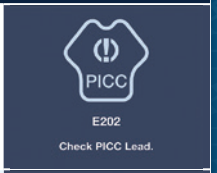
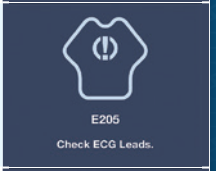
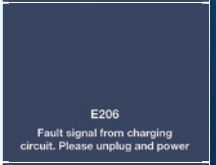
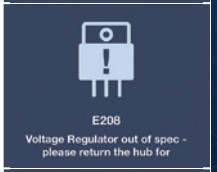
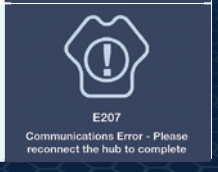
On the new iPad® go to Settings & Support and press the "Pair" icon under Remote Serial #

On the remote press any button and the blue remote LEDs will begin to flash slowly.

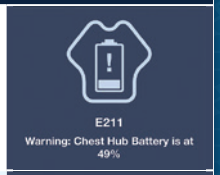
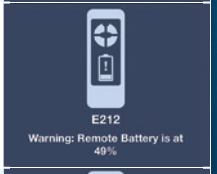
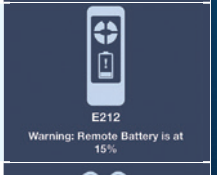
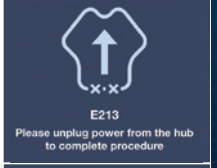
On the iPad® press the area marked "Remote". This will pair the remote with the iPad®.

You can verify that the remote has paired correctly by checking that the serial numbers match.

# Warning Screen Pop-Ups

| WARNING | CONDITION | PERSISTENCE | SCREENSHOT |
|---|---|---|---|
| **PICC Lead Off** | PICC lead disconnected from the patient.<br>App in "internal mode". | Skippable -<br>cleared by pressing "Dismiss" |  |
| **ECG Lead Off** | ECG lead disconnected from the patient. | Skippable -<br>cleared by pressing "Dismiss" |  |
| **Internal System Error** | I2C bus failure | Unskippable -<br>cleared by power cycling the device | |
| **Charger Error** | Battery charger failure | Unskippable -<br>cleared by removing and re-inserting the DC power connector |  |
| **Internal Power Error** | 3.3V power rail goes below 3.1V | Unskippable -<br>cleared by power cycling the device |  |
| **Hub Disconnected** | Wireless connection with the hub is lost | Unskippable -<br>cleared by reconnecting the hub |  |

# Warning Screen Pop-Ups

| WARNING | CONDITION | PERSISTENCE | SCREENSHOT |
|---|---|---|---|
| **Hub Low Battery** | Hub battery is below 50% | Skippable - cleared by pressing "Dismiss" |   |
| **Hub Critical Battery** | Hub battery is below 20% | Skippable - cleared by pressing "Dismiss" | |
| **Remote Low Battery** | Remote battery level is below 50% | Skippable - cleared by pressing "Dismiss" |   |
| **Remote Critical Battery** | Remote battery level is below 20% | Skippable - cleared by pressing "Dismiss" |   |
| **Hub Charging** | Hub is charging via charging base or power supply | Unskippable - cleared by unplugging or removing hub from charging base |   |
| **Informational Message: "…confirm entry…"** | Low [Grey] | Confirm selected action, such as "Finish Case", or "Delete File" | N/A |

# Troubleshooting ●○○○

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **Hub will not power on** | Battery fully discharged | Charge the hub |
| | Power button not held long enough | Press and hold the power button for 2 - 5 seconds until the button begins to flash |
| | Hub is charging and connected to the app for a procedure | Charge the hub and remove it from the charger before going into the app to start a procedure |
| **Hub will not turn off** | Power button not held long enough | Press and hold the power button for 2 - 5 seconds until the button begins to flash |
| **Hub will not connect** | Hub is off | Press and hold the power button for 2 - 5 seconds |
| | Not in a procedure | The hub and remote only connect on a new procedure |
| | Hub not paired | See "Pairing Hub with App" for instructions |
| | Bluetooth® turned off | In the iPad settings screen make sure that Bluetooth® is on |
| **Hub will not charge – no charge LED** | Hub power connector not inserted | Make sure the hub power connector is securely inserted |
| | Power adapter not plugged into the wall | Make sure the power adapter is plugged into the wall |
| | Outlet does not have power | Make sure AC power is present at the outlet |
| | Hub not seated on the charging cradle | Make sure the hub is fully seated in the charging cradle |
| **Hub will not charge – solid red charge LED** | Batteries over-discharged | If the LED shows solid red when charging replace the batteries |
| | No batteries present | Verify that approved medical grade batteries have been installed |

# Troubleshooting

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **Remote will not power on** | Batteries drained | Replace batteries |
| **Remote powers on but will not connect (continuous flashing)** | Remote not paired | See "Pairing Remote with App" for instructions |
| | Not in a procedure | The hub and remote only connect on a new procedure |
| | Bluetooth® turned off | In the iPad settings screen make sure that Bluetooth® is on |
| **No ECG signal (with a warning message E205)** | ECG lead disconnected | Check that each ECG lead is connected to the hub and to an ECG pad |
| | ECG pads loose | Check that the ECG pads are firmly attached to the patient |
| **Poor quality ECG or PICC signal** | Old ECG pads | Replace with new ECG pads |
| | Mismatched ECG pads | Make sure the ECG pads are from the same package and are placed at the same time |
| | Misplacement of pads | Verify that the pads have been placed in the correct location |
| | Improper skin preparation | Clean the ECG placement location with an alcohol pad before placing the electrodes |
| | Bad skin to electrode contact | When applying ECG pads press firmly against the patient to ensure good contact between the electrode and the skin |

# Troubleshooting

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **No PICC signal (with a warning message E202)** | ECG lead disconnected | Check that each ECG lead is connected to the hub and to an ECG pad |
| | ECG pads loose | Check that the ECG pads are firmly attached to the patient |
| | PICC lead disconnected | Check that the ECG pads are firmly attached to the patient |
| | Poor blood contact | Flush the PICC and wait about 30 seconds for signal capture |
| **No PICC or ECG Signal (no warning message)** | Hub incorrectly paired | Exit the app and open the iPad settings. Select Bluetooth® and under "My Devices" press the ⓘ next to each item marked "Chest hub". Select "Forget Device" for each item. On the hub press and hold the power button until it flashes rapidly (about 8 seconds). Re-pair the hub (see "Pairing the Hub" for instructions). |
| **ECG Wave Inverted** | Leads connected to pads in correctly | Verify that each lead is connected to the correct pad |
| | Leads connected to hub incorrectly | Verify that each lead is connected to the correct port on the hub |
| **Unable to print** | Cannot find the printer wireless access point in the iPad settings | See "Configuring the Printer" for instructions |
| | Cannot find the printer in the app print menu | Make sure that the iPad is connected to the printer. Wait 60 seconds and attempt to print again. |

# Troubleshooting

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **iPad/App slow or crashing** | Insufficient battery | Plug the printer into a wall outlet or charge the battery |
| | No paper | Insert a label roll into the printer |
| | Failed to retrieve printer status | Verify that a compatible printer is connected. Power cycle the printer |
| **Charging circuit error (E206) displayed** | Overheating error | Allow the printer to cool down for 15 minutes |
| | Paper jam | Open the lid and clear the paper jam |
| | Replace paper cassette while printing. | Check that the label has been loaded correctly and that the printer has paper |
| **Internal system error (E201) displayed** | Feeding error or end of paper | Check that the label has been loaded correctly and that the printer has paper |
| **Internal power error (E208) displayed** | Please load the label roll (DK-2205) | Insert a label roll into the printer |

US AND INTERNATIONAL DISTRIBUTORSHIPS

**800-772-6446**
8AM-7PM EST, MON-FRI

Customer Service: Option 2
Clinical Specialists: Option 5
Hardware Services: Option 6

INTERNATIONAL DIRECT MARKETS

**+31 20 753 2949**
8AM-5PM EST, MON-FRI

Customer Service: Option 1

Consult your AngioDynamics representative for country specific product availability.

## IMPORTANT RISK INFORMATION

INTENDED USE/ INDICATIONS FOR USE: The C3 Wave System is indicated for use in the positioning of Peripherally Inserted Central Catheters (PICC). The C3 Wave provides real-time catheter tip location information by displaying changes in the patient's cardiac electrical activity. The C3 Wave is indicated for use as an alternative method to chest X-ray or fluoroscopy confirmation of PICC tip placement in adult patients.

NOTE: Limiting, but not contraindicated, situations for this technique are patients where cardiac rhythms may change presentation of the P-Wave:

- Atrial fibrillation
- Atrial flutter
- Severe tachycardia
- Pacemaker-driven rhythm
- Chronic obstructive pulmonary disorder (COPD)

Such patients are easily identified prior to PICC insertion. Use of an additional confirmation method is necessary to confirm catheter tip location.

WARNINGS: The C3 Wave™ System works with the normal sinus rhythm of the heart. Do not rely on ECG signal detection for catheter tip positioning when interpretation of the external or intravascular ECG P-wave is difficult. For example, when: • P-wave is not present • P-wave is not identifiable • P-wave is intermittent •Place ECG adhesive electrodes carefully at locations indicated in these Instructions for Use and ensure good skin-electrode contact. Failure to do so may cause unstable ECG waveforms and/or ECG waveforms that are not described in these Instructions for Use • All components in the accessory pack are single use items. Do not reuse or reprocess • Monitor catheter tip placement during insertion procedure and verify catheter tip location placement using your institutions' guidelines. • Failure to verify catheter placement may result in serious trauma or fatal complications. • Inspect package and product prior to use to verify that no damage has occurred during shipping. • Reuse or reprocessing may compromise the structural integrity of the device and/or lead to device failure which, in turn, may result in patient injury, illness or death. • Reuse or reprocessing may also create a risk of contamination of the device and/ or cause patient infection or cross- infection, including, but not limited to, the transmission of infectious disease(s) from one patient to another. • Contamination of the device may lead to injury, illness or death of the patient. • After use, dispose of product and packaging in accordance with hospital, administrative and/or local government policy.

Refer to Directions for Use and/or User Manual provided with the product for complete Instructions, Warnings, Precautions, Possible Adverse Effects and Contraindications. Observe all instructions for use prior to use. Failure to do so may result in patient complications.

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician.

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International > Haaksbergweg 75 (Margriettoren), 1101 BR, Amsterdam Z-O > The Netherlands
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