

Troubleshooting Guide

*Scroll to page 10 for Coapt Troubleshooting

Problem	Possible Cause	Options
Lack of hand movement	Electrical/Hardware <ul style="list-style-type: none"> ● Faulty or damaged electrode wire 	Electrical/Hardware <ul style="list-style-type: none"> ● Check electrode wires. If wires are twisted, this can cause a short. ● If no visual damage is seen, try testing the Ability Hand with another set of sound electrodes. ● If sound electrodes work, replace non-working electrodes. ● If electrodes do not work or no extra set of sound electrodes are around, call PSYONIC for technical support.
	<hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> ● Battery is not sufficiently charged or is not connected properly 	<hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> ● Check battery life on the PSYONIC app and recharge if needed. For a faster recharge, use the provided wall charger. ● Check if battery cable is properly connected into PSYONIC power switch.
	Physical <ul style="list-style-type: none"> ● Poor socket fit <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> ● Patient’s muscles are co-contracting 	Physical <ul style="list-style-type: none"> ● Adjust socket for improved signals <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> ● Instruct patient to practice while looking at signals on Control Signals page in the PSYONIC app. ● Provide Occupational Therapy referral. ● As a last resort, switch patient to single-site using only one electrode. Make sure to switch to “Single-Site Direct Control” in the Control Systems page in the PSYONIC app.

Problem	Possible Cause	Options
Lack of hand movement	<p>PSYONIC App</p> <ul style="list-style-type: none"> ● Gain/threshold levels need to be adjusted <hr/> <ul style="list-style-type: none"> ● “First Over Control” is toggled/turned off <hr/> <ul style="list-style-type: none"> ● Incorrect control system is selected 	<p>PSYONIC App</p> <ul style="list-style-type: none"> ● In the Control Signals page, increase gain levels or lower threshold levels to help patients who have weaker muscle contractions. <i>Note:</i> levels might differ between open and close based on patient’s abilities. <hr/> <ul style="list-style-type: none"> ● Go to settings by clicking on the gear icon located in the top right-hand corner of the Home Screen. Toggle/turn on “First Over Control”. <hr/> <ul style="list-style-type: none"> ● In the Control System page, make sure that the correct system is selected: <ul style="list-style-type: none"> ○ Direct Control is used for dual-site EMGs ○ Bluetooth Command is used to override any external control such as EMGs or Coapt (used for troubleshooting purposes or demos) ○ Single-Site Direct Control is used for single-site systems using only one EMG ○ Linear Transducer is used for patients with a harness who control the Ability Hand with shoulder movements ○ COAPT is used only for patients using Coapt’s pattern recognition system

<p>Finger is stuck</p>	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> Recalibration is necessary <p>PSYONIC App</p> <ul style="list-style-type: none"> Finger motor has not been properly updated 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> Go to settings by clicking on the gear icon located in the top right-hand corner of the Home Screen. Scroll all the way down and click on “Recalibrate”. If recalibrating from the settings page does not work, make sure that “Recalibrate Fingers on Power Up” is toggled/turned on. Turn the hand off by pressing and holding down the power button on the power switch for 3 seconds until a white light flashes 3 times and turns off. Then turn the hand back on by pressing and holding the power button for 3 seconds until a white light flashes 3 times. During the recalibration, try forcibly pushing the finger into its intended position. <p>PSYONIC App</p> <ul style="list-style-type: none"> Call PSYONIC for technical support.
<p>Ability Hand inadvertently switches to another grip</p>	<p>PSYONIC App</p> <ul style="list-style-type: none"> Gain/threshold levels need to be adjusted <hr/> <ul style="list-style-type: none"> “Grip Switching” settings need to be adjusted <hr/> <p>Physical</p> <ul style="list-style-type: none"> Movement of limbs 	<p>PSYONIC App</p> <ul style="list-style-type: none"> Lower gain levels and increase threshold levels to make the hand less sensitive to motion. <hr/> <ul style="list-style-type: none"> In the Grip Switching page, make sure that grip switching methods at the bottom of the page (double open, double close, etc.) are not activated causing the unintended switching of grips. <hr/> <p>Physical</p> <ul style="list-style-type: none"> Due to socket moving around during limb movement, inadvertent electrode stimulation can cause grip switching. Note that Freeze mode can be used to prevent this from happening. To turn on Freeze mode, by default, triple tap the power button until the light flashes to indicate the hand is in Freeze mode. If number of taps has been reconfigured in the Power Switch page, tap the power

		button the set number of times assigned to Freeze mode.
Ability Hand is not connecting on the PSYONIC app	<p>Phone</p> <ul style="list-style-type: none"> Bluetooth is turned off in phone settings <hr/> <ul style="list-style-type: none"> Another individual is connected to the hand 	<p>Phone</p> <ul style="list-style-type: none"> Turn on bluetooth in phone settings For Androids, make sure location is also turned on <hr/> <ul style="list-style-type: none"> Confirm that no other individual is connected to the hand. The hand can only be connected to one phone over bluetooth.
Vibration is not working	<p>PSYONIC App</p> <ul style="list-style-type: none"> Vibration is toggled/turned off in the PSYONIC app <hr/> <ul style="list-style-type: none"> Thresholds need to be adjusted <hr/> <p>Electrical/Hardware</p> <ul style="list-style-type: none"> FSR (Force Sensitive Resistor) touchpads are not working properly 	<p>PSYONIC App</p> <ul style="list-style-type: none"> Go to the Touch Sensing page in the PSYONIC app and make sure vibration is toggled/turned on at the bottom right-hand corner. <hr/> <ul style="list-style-type: none"> Go to the Touch Sensing page and the level of sensitivity. If the levels are set to a high number, the vibration will not go off until the signals go above the threshold. It will take more pressure on the touchpads to set off the vibration. <hr/> <p>Electrical/Hardware</p> <ul style="list-style-type: none"> Go to the Touch Sensing page and make sure signals are showing on the plot when applying pressure (or tapping) on the thumb, index, or pinky fingers. If there are no signals, the touchpads need to be replaced. This can be field serviceable by simply swapping out the finger. Contact PSYONIC to request a finger replacement. If signals are seen on the plot, the sensitivity is set to a low number, and it is difficult to get the signals to surpass the threshold by applying a lot of pressure or

	<hr/> Physical <ul style="list-style-type: none"> • Vibration motor placement needs to be adjusted 	tapping it hard, the touchpad needs to be replaced. This can be field serviceable by simply swapping out the finger. Contact PSYONIC to request a finger replacement. <hr/> Physical <ul style="list-style-type: none"> • Ensure placement of vibration motor is fixed in a spot where the patient has good sensation. • Placing the vibration motor between the inner socket and outer shell is optimal. Avoid placing it directly onto the patient's skin. Ensure the vibration can be felt through the inner socket.
Hand is not turning on	Electrical/Hardware <ul style="list-style-type: none"> • Power switch needs to be reset <hr/> <ul style="list-style-type: none"> • The red/black PWR cable and green/yellow COM cable are connected in the wrong ports 	Electrical/Hardware <ul style="list-style-type: none"> • Reset the power switch by unplugging the red/black PWR cable and replugging it. • Reset the power switch by pressing and holding down the power button for 10 seconds until the light flashes white and then release. Then restart hand by pressing and holding down the power button for 3 seconds. <i>Note:</i> vibration motor should go off during power cycle and then the hand should recalibrate. <hr/> <ul style="list-style-type: none"> • For a quick disconnect setup: check and make sure the red/black PWR cable is connected in port 1 of the coaxial plug and that the green/yellow COM cable is connected in port A of the coaxial plug. • For a short wrist setup: check and make sure the red/black PWR cable is connected in the port labeled "PWR" (should be 3-pronged) and the green/yellow COM cable is connected in the port labeled "COM". • For a wrist rotator setup <ul style="list-style-type: none"> ○ Motion Control (MC) Standard Wrist Rotator: check and make sure the red/black PWR cable is connected in the port labeled "Hand"

	<ul style="list-style-type: none"> • The green/yellow COM cable is connected incorrectly <hr/> <ul style="list-style-type: none"> • The red/black PWR cable is connected incorrectly 	<p>and the green/yellow COM cable is connected in the port labeled “Digital”.</p> <ul style="list-style-type: none"> ○ Motion Control (MC) ProWrist Rotator: check and make sure the red/black PWR cable is connected into the 2-pronged port of the ProWrist switch block and the green/yellow COM cable is connected into the ProWrist “Data Only” cable. <hr/> <ul style="list-style-type: none"> • Check the 2-pin half moon connector is connected the right way. If unsure, reverse the orientation of the connection to change polarity and try turning the hand on again to re-test. <i>Note:</i> if the hand does not appear on the PSYONIC app when scanning, this means the hand is not getting power. <hr/> <ul style="list-style-type: none"> • For a quick disconnect setup: check the 3-pin connector or 2-pin half moon connector is connected the right way. If unsure, reverse the orientation of the connection to change polarity and try turning the hand on again to re-test. <i>Note:</i> for the 3-pin connector, this is not feasible. Additionally, if the hand does not appear on the PSYONIC app when scanning, this means the hand is not getting power. • For a wrist rotator setup <ul style="list-style-type: none"> ○ Motion Control (MC) Standard Wrist Rotator: check the 2-pin half moon connector is connected the right way. If unsure, reverse the orientation of the connection to change polarity and try turning the hand on again to re-test. ○ Motion Control (MC) ProWrist Rotator: check the 2-pin half moon connector is connected the right way. If unsure, reverse the orientation of the connection to change polarity and try
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	<ul style="list-style-type: none"> • The red/black PWR cable is damaged <hr/> <ul style="list-style-type: none"> • Loose cable connection <hr/> <ul style="list-style-type: none"> • Batteries are damaged <hr/> <ul style="list-style-type: none"> • Batteries need to be charged 	<p>turning the hand on again to re-test. <i>Note:</i> due to the shape of the port in the switch block, it is difficult to plug in the connector incorrectly.</p> <hr/> <ul style="list-style-type: none"> • Check both ends of the red/black PWR cable to make sure no physical damage is apparent. If wires are twisted, this could cause a short. Additionally, check that the wires have not been pulled out of the housing. • If there is no visible damage, contact PSYONIC for technical support. <hr/> <ul style="list-style-type: none"> • Check that the red/black PWR cable is properly seated into port 1 of the coaxial plug (quick disconnect), port labeled “PWR” (Short Wrist), port labeled “Hand” (MC Standard Wrist Rotator), port in switch block (MC ProWrist). Additionally, check the connection of the red/black PWR cable into the PSYONIC power switch. <hr/> <ul style="list-style-type: none"> • Check PSYONIC batteries are not bent or bloated. <hr/> <ul style="list-style-type: none"> • Check battery life by tapping the power button once (<i>note:</i> this is only by default; if Power Switch page in the PSYONIC app has been reconfigured, the number of taps to check battery life will depend on what has been assigned in the app). The light will briefly change to either a red, orange, or green light to indicate 0-25%, 25-75%, or 75-100%, respectively. • If it is red, charge batteries for at least 10 minutes and try turning on the hand again to re-test. <i>Note:</i> using the provided wall charger will charge the batteries the fastest with the ability to fully charge in 1 hour. Other USB-C chargers will require a longer time for full charging.
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	<ul style="list-style-type: none"> • Hand is not fully seated onto the socket (<i>for quick disconnect only</i>) <hr/> <ul style="list-style-type: none"> • An electrical component in the system is not working 	<ul style="list-style-type: none"> • If it is orange or green, check the above options for any hardware damage. <hr/> <ul style="list-style-type: none"> • Remove the coaxial plug from the socket by removing the small o-ring (tweezers work well to remove o-ring). Then plug coaxial plug into the Ability Hand and re-test. <hr/> <ul style="list-style-type: none"> • If none of the above options are observed, contact PSYONIC for technical support.
<p>Light flashes red and turns into a dim solid red color (this means COM does not work and the following features will not be available: touch sensing, tapping the button to switch grips, light changing color to indicate grip change, and Freeze mode)</p>	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Hand is not fully seated onto the socket (<i>for quick disconnect only</i>) <hr/> <ul style="list-style-type: none"> • The green/yellow COM cable is not connected properly <hr/> <ul style="list-style-type: none"> • The green/yellow COM cable is damaged 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Remove the coaxial plug from the socket by removing the small o-ring (tweezers work well to remove o-ring). Then plug coaxial plug into the Ability Hand and re-test. <hr/> <ul style="list-style-type: none"> • Make sure the cable is connected in the proper orientation. To test, try reversing the polarity. • Check that no visible damage appears on either end of the cable or on any part of the cable in between. <i>Note:</i> most often, the damage occurs at either end from either twisting the cable or pulling the wires too hard off the housing. • For quick disconnect: make sure the cable is seated fully onto the coaxial plug. <i>Note:</i> there should be a white plastic screw in the coaxial plug to prevent the PWR and COM cables from being pulled loose. • Check the cable connection to the power switch by gently tugging the cable in all directions and wiggling it side to side. If it feels loose, try disconnecting and reconnecting it. <hr/> <ul style="list-style-type: none"> • Check both ends of the green/yellow COM cable to make sure no physical damage is apparent. If wires

	<ul style="list-style-type: none"> • Hand is not getting power (typically occurs with a wrist rotator included in the system) 	<p>are twisted, this could cause a short. Additionally, check that the wires have not been pulled out of the housing.</p> <ul style="list-style-type: none"> • If there is no visible damage, contact PSYONIC for technical support. <hr/> <ul style="list-style-type: none"> • For a MC Standard Wrist Rotator: check that the red/black PWR cable is connected into the port labeled "Hand" and that the polarity is correct. • For a MC ProWrist: make sure that both electrodes with the 3-pin half-moon connectors are plugged into the switch block and that the red/black PWR cable is fully seated into the switch block.
Hand does not respond	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Hand needs to be reset <hr/> <ul style="list-style-type: none"> • Hand is not getting power <hr/> <ul style="list-style-type: none"> • For Android phones, both bluetooth and location need to be turned on 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Power cycle the hand by turning it off and back on again. To power down the hand, press and hold power button for 3 seconds until vibration motor goes off. Repeat to power the hand back up. <hr/> <ul style="list-style-type: none"> • Make sure red/black PWR cable is connected in correct orientation and no loose connections are present. <i>Note:</i> one way to check whether the hand is getting power is by checking if hand appears in the PSYONIC app when scanning. <hr/> <ul style="list-style-type: none"> • Go to your settings in your phone and make sure both bluetooth and location is turned on.
Hand suddenly operates extremely slow	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Three audible beeps indicates overtemp 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> • Motors are overheating in the hand. Contact PSYONIC for technical support.

Coapt Troubleshooting

Light flashes red and turns into dim solid red color

Electrical/Hardware

- Cable connections are incorrect or cable is damaged

Electrical/Hardware

- Check EQD Fabrication Guide with Coapt or Short Wrist Fabrication Guide with Coapt, depending on what setup is. Make sure Coapt cable labeled “Digital” is connected into black/white digital adapter labeled “Coapt Digital” and the other end of that cable is connected into the PSYONIC power switch in port “Digital”. Then the green/yellow COM cable needs to go from the power switch in port “COM” into a) port A of the coaxial plug for quick disconnect, b) port “COM” in Short Wrist connector, c) port labeled “Digital” in MC Standard Wrist Rotator, d) “Data Only” cable in MC ProWrist Wrist Rotator.
- If problem persists, next step to try is bypass the power switch and connect Coapt directly into the hand or other device.
 - For a quick disconnect setup: unplug Coapt from the black/white digital adapter cable and unplug the green/yellow COM cable from the coaxial plug. Then plug Coapt directly into port A of the coaxial plug. If Manual Test in Coapt behaves normally, contact PSYONIC to get power switch replaced. If Manual Test in Coapt behaves abnormally, contact PSYONIC for technical support.
 - For a short wrist setup: unplug Coapt from the black/white digital adapter cable and unplug the green/yellow COM cable from the short wrist connector port labeled “COM”. Then plug Coapt directly into the short wrist connector port labeled “COM”. If Manual Test in Coapt behaves normally, contact PSYONIC to get power switch replaced. If Manual Test in

		<p>Coapt behaves abnormally, contact PSYONIC for technical support.</p> <ul style="list-style-type: none"> ○ For a wrist rotator setup for both the Standard and ProWrist: unplug Coapt from the black/white digital adapter cable and unplug the green/yellow COM cable. If extra coaxial plug is available, remove wrist rotator altogether and plug red/black PWR cable, both electrodes, and Coapt directly into the coaxial plug. Test the Ability Hand in Manual Test of the Coapt app/software. If the hand behaves normally, add wrist rotator back in and connect Coapt directly into wrist rotator.
Hand does not respond	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> ● Either the hand has some electrical problem or Coapt system is malfunctioning 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> ● First, power cycle the hand. Then connect to the PSYONIC app and on the Home Screen, click on “Control System”. Select “Bluetooth Command” and go back to the Home Screen. Scroll down and click on “Demo”. On this page, click any grip. The hand should automatically go to that grip. Then use the joystick (red circle within black circle) to open and close the grip by sliding and holding down the red circle up and down (up opens the hand and down closes the hand). If hand responds normally, this indicates the hand has no electrical issues. If it does not, contact PSYONIC for technical support. ● Re-test the hand with Coapt by changing Control System back to Coapt. If the hand still does not respond, contact COAPT for technical support.
PSYONIC Hand is not recognized in Coapt	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> ● Power switch is defective 	<p>Electrical/Hardware</p> <ul style="list-style-type: none"> ● Bypass the power switch and connect Coapt directly into the hand or other device. <ul style="list-style-type: none"> ○ For a quick disconnect setup: unplug Coapt

	<ul style="list-style-type: none">• Ensure the hand is fully updated	<p>from the black/white digital adapter cable and unplug the green/yellow COM cable from the coaxial plug. Then plug Coapt directly into port A of the coaxial plug. If Manual Test in Coapt behaves normally, contact PSYONIC to get power switch replaced. If Manual Test in Coapt behaves abnormally, contact PSYONIC for technical support.</p> <ul style="list-style-type: none">○ For a short wrist setup: unplug Coapt from the black/white digital adapter cable and unplug the green/yellow COM cable from the short wrist connector port labeled “COM”. Then plug Coapt directly into the short wrist connector port labeled “COM”. If Manual Test in Coapt behaves normally, contact PSYONIC to get power switch replaced. If Manual Test in Coapt behaves abnormally, contact PSYONIC for technical support.○ For a wrist rotator setup for both the Standard and ProWrist: unplug Coapt from the black/white digital adapter cable and unplug the green/yellow COM cable. If extra coaxial plug is available, remove wrist rotator altogether and plug red/black PWR cable, both electrodes, and Coapt directly into the coaxial plug. Test the Ability Hand in Manual Test of the Coapt app/software. If the hand behaves normally, add wrist rotator back in and connect Coapt directly into wrist rotator. <ul style="list-style-type: none">• Power the hand on and connect to the PSYONIC app. Go to “Software Update” and click on “Check for PSYONIC Ability Hand Updates.” If necessary, update the hand.
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