

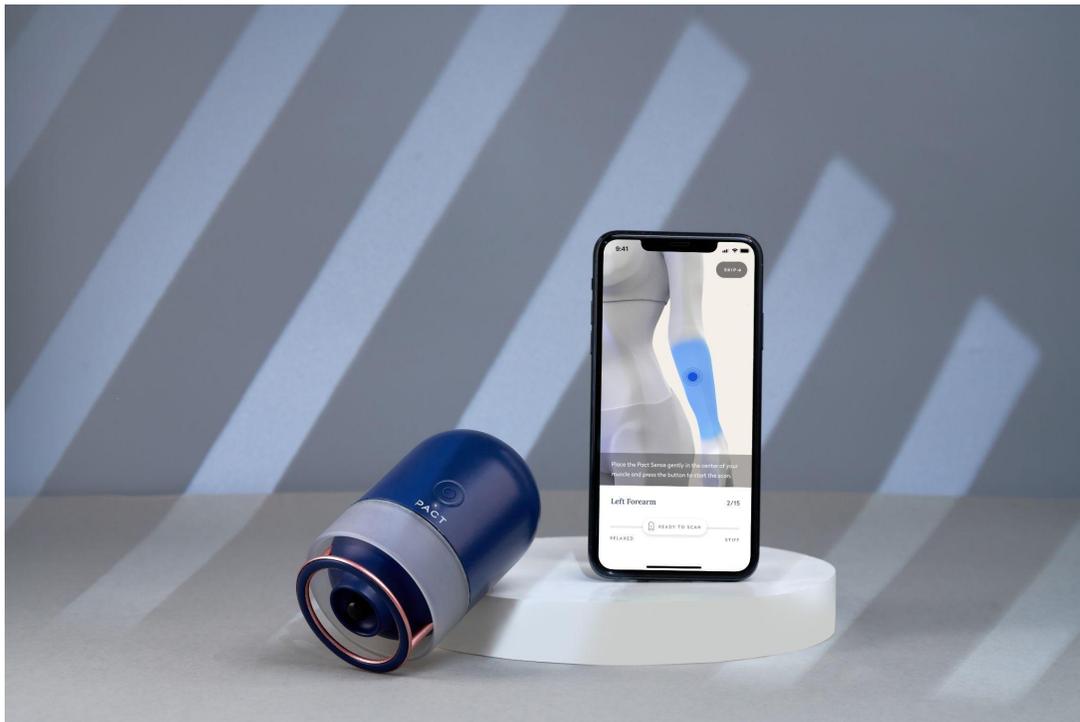
User Manual

Pact Sense Muscle Scanner

PLEASE READ PRIOR TO USE

v1.0

Sept 2022



Impact Biosystems, Inc.
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www.thepact.com support@thepact.com

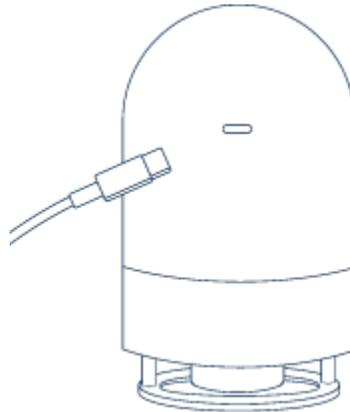
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Quick Start

Charge Pact Sense

Charge the scanner by plugging in the cable and wall adapter in the box into the device. The light's color will indicate the charge level. Solid green indicates 100% charged.



Setup the Pact Mobile App

Scan the QR Code to install the app. Follow in-app instructions to create your account.



<https://thepact.com/getting-started>

Unboxing

When unboxing the Pact Sense, please check that the package has not been damaged during the shipping. In case of any damage to the package, please [contact the Manufacturer](#) Open the package and compare its contents with the list of product items in the documentation. One package contains:

- One Pact Sense
- One USB-A to USB-C Charging Cable
- One 7.5W Power Adapter
- One Hard Shell Carry Case

If the content of the package does not conform to the list of documentation, contact the Manufacturer immediately.

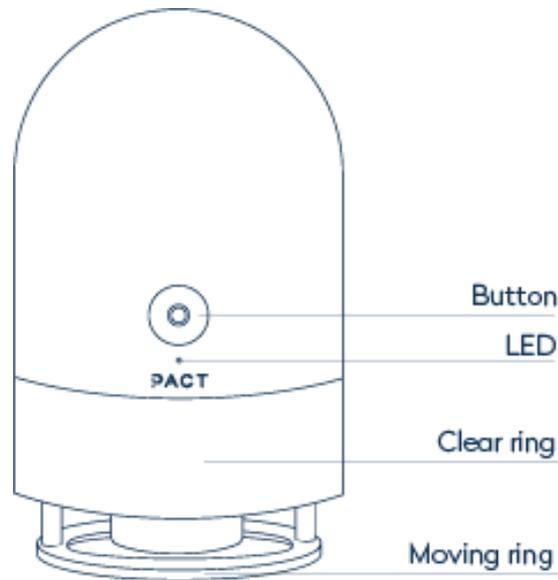
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Operation

This device is not intended to diagnose, treat, cure, or prevent any disease



Performing a Scan

1. To **power on**: press and hold button for 2s until LED turns on
2. Enable **Bluetooth** on your mobile device
3. Use the **Pact App** to connect to your Sense
 - The Status LED will glow white when it is connected
4. Follow the app instructions to prepare your **scanning session**
5. Lightly **press** the Pact Sense into the target tissue
 - Follow app guidance for pressure and placement tips
 - Use on soft tissue only
6. **Tap the button** to start the measurement
7. Receive **results** in the app
8. **To power off**: press and hold button for 2s until LED turns off

Signals are subject to change. Please refer to the online documentation and release notes for the most up-to-date information on device signaling.

Status LED

- Off: device is powered down
- Breathing Blue: awaiting Bluetooth connection
- Solid White: connected to the app
- Slow Breathing White: ready to scan
- Fast Breathing White: performing measurement
- Solid Yellow: bootloader mode, waiting for firmware update
- While the device is charging, the LED will indicate charge status:
 - Solid Green: 100%
 - Green, pulsing: > 80%
 - Yellow: 60-80%
 - Orange: 20-60%
 - Red: < 20%

Audio Signals

Beeps are used to communicate throughout the scanning process

- One beep: the scanner will beep at the end of each muscle group in the scanning flow to indicate that it's time to move on to the next muscle

- Two beeps: the scanner will beep twice if the button is pressed while the scanner is unable to scan. This usually means the app requires attention before you can complete the next scan

Please immediately stop using the Pact Sense upon experiencing any pain or discomfort from the device. Use of the Pact Sense should be avoided on bruises, contusions, rashes, or irritated or injured areas of the body until they are fully healed.

Warranty

A manufacturer's warranty is included with your Pact Sense device for one year from the purchase date. To be covered under the warranty, all you need is your receipt. If your device was a gift, just gently twist the gift-giver's arm for proof of purchase (a bank or credit card statement is fine if they can't find a receipt).

This warranty excludes:

- Damage caused by accident, abuse, mishandling, or water
- Devices repaired by an unauthorized service representative
- Devices not used in accordance with Pact's usage, storage and care instructions
- Failure to provide a dated proof of purchase and serial number of your Pact Sense

To have your Pact Sense repaired or replaced under the warranty, please contact support@thepact.com to begin your claim. Please do not try and repair the unit yourself, as this will void the warranty. Unless otherwise instructed by Pact, the device must be returned in either its original packaging or packaging affording an equal degree of shipping protection to the facility specified by Pact.

Pact may ask the purchaser to provide proof of purchase details and respond to questions designed to help with identifying potential issues. If Pact determines that the problem with the device is not due to a manufacturing defect, the device is not properly returned to Pact, or otherwise does not qualify for warranty repair, then the purchaser will be responsible for all costs incurred by Pact necessary to return the device.

Maintenance

Cleaning the Measurement Probe

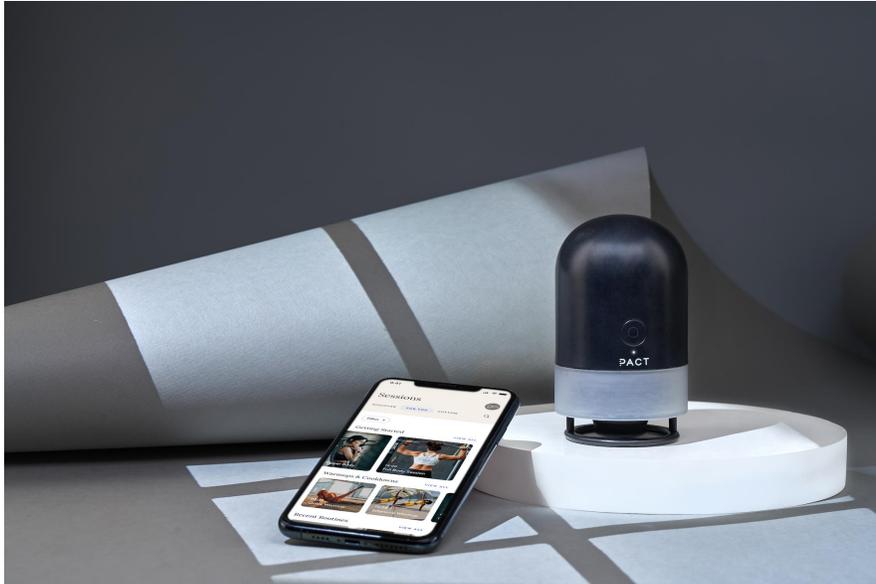
- Extend probe by triple tapping button with device on
- Use a alcohol wipe to clean probe
- Single tap to exit cleaning mode

Manufacturer Servicing

Pact Sense has no user-serviceable parts. Repairs, battery change, calibration and testing can be performed only by Impact Biosystems. Contact support@thepact.com for servicing requests.

Storage

- Store the Pact Sense in a dry location, between 0 °C - 40 °C
- Intended for indoor use only
- Operating temperature: 5 °C - 40 °C (40 °F - 105 °F)
- Relative air humidity: 0 - 50 %RH
- The Pact Sense should be placed moving ring side down as seen below



Cleaning

The external surfaces of the Pact Sense can be cleaned with a dry soft cloth. Avoid getting water and other liquids inside the device. Alcohol wipes can be used to disinfect surfaces that come in contact with skin, such as the measurement tip and moving ring.

For easier **measurement probe cleaning**, triple-tap the button. When the device is on and disconnected, this will cause the probe to extend. Tap the button again to retract the measurement probe.

Safety

Danger to reduce risk of burns, electric shock, fire, and personal injury and property damage, this product must be used in accordance with the following warnings, cautions, and safety instructions:

1. An appliance should never be left unattended when plugged in. Unplug from outlet when not in use.
2. Close supervision is necessary when this appliance is used by, on, or near children, or disabled persons.
3. Use this appliance only for its intended use as described in this manual.
4. Never operate this appliance if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the appliance to the manufacturer for examination and repair.
5. Do not carry this appliance by supply cord or use cord as a handle.
6. Keep the cord away from heated surfaces.
7. Do not use outdoors.
8. Do not drop the device
9. Do not insert any object into any opening.
10. Do not reach for an appliance that has fallen into water. Unplug immediately.
11. Do not use while bathing or in a shower.
12. Do not place or store appliance where it can fall or be pulled into a tub or sink. Do not place in or drop into water or other liquid.
13. Do not immerse unit in water. Keep liquids away from ventilation ports, buttons, and charging port.
14. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
15. Do not remove screws or attempt to disassemble.
16. Unplug the unit after charging or prior to use.
17. Always unplug this appliance from the electrical outlet immediately after using and before cleaning.
18. This is not a toy. For adult use only.
19. Use product only according to Instructional Use materials at <https://thepact.com>.

Technical Specifications

Pact Sense Device Type and Measurement Method

Classification Category

- Monitoring device for non-vital physiological parameters

Type of Device

- In vivo, non-invasive, mechanical measurement device for soft biological tissues

Measurement Sensor

- 2 x digital linear position sensors: 0 - 10 mm
- 2x Inertial Measurement Unit
- Current sensor

Measurement probe drive

- Linear Lorentz force actuator

Measurement probe force/pressure

- 0 - 5 N / 64 kPa

Measurement method

- The Sense applies a proprietary force waveform to the tissue and measures the underlying tissue response

Measurable parameters

- **Stiffness** [N/m] — Amount of force produced by the skin, as a result of the measurement probe depressing into the tissue
- **Stiffness Slope** [N/m²] — Relationship between stiffness and depth of the measurement probe when depressed into the tissue
- **Damping** [Ns/m] — Degree to which your muscles resist the end-effector's motion.
- **Damping Slope** [Ns/m²] — Relationship between damping and depth of the measurement probe when depressed into your soft tissue

System Precision

Coefficient of Variation when measured against Dragon Skin™ 20A

- Stiffness: 0.08%
- Stiffness Slope: 1%
- Damping: 0.15%
- Damping Slope: 5%

Signal Processing

- Proprietary algorithms for waveform generation & parameter extraction

Charging

Battery	<ul style="list-style-type: none"> • Built-in rechargeable Lithium Polymer Battery • 680mAh, 7.4V, 5.03Wh • Replaceable only by the manufacturer • Do not attempt to disassemble the battery
Charger	<ul style="list-style-type: none"> • AC-DC Adapter, Input AC 100-240V 50/60Hz • Output DC 5.0V, 1.5A, 7.5Watts, USB type A socket • USB-C Port, 5.0V, 500mA
Recharge time	<ul style="list-style-type: none"> • 60 minutes • LED will display solid green for full charge
Recharge cycles	<ul style="list-style-type: none"> • Min 500 cycles
Single Charge operation period	<ul style="list-style-type: none"> • Min 1,000 measurements
Power management	<ul style="list-style-type: none"> • Automatic shut-down in 10 minutes with Bluetooth connectivity • Automatic shut-down in 5 minutes without Bluetooth connectivity

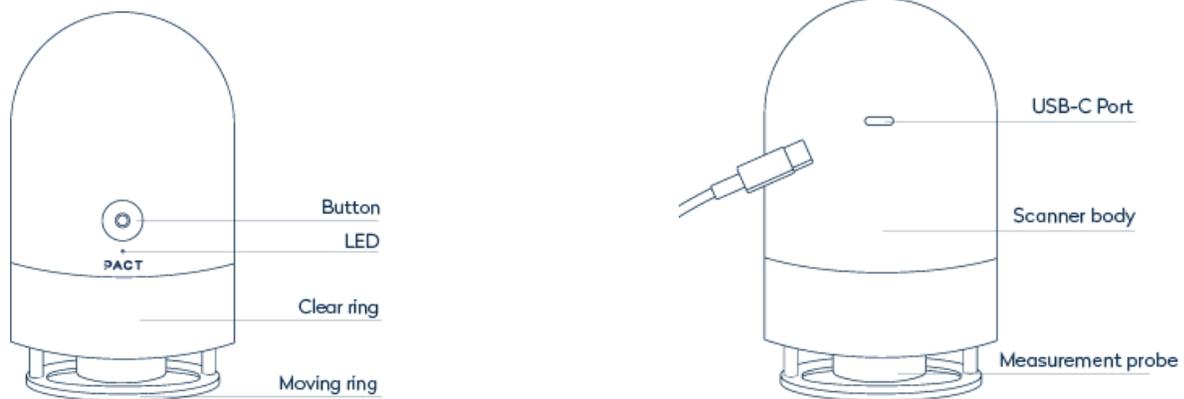
Status LED while Charging

While the device is charging, the LED will indicate charge status:

- Green, solid: 100%
- Green, pulsing: > 80%
- Yellow: 60-80%
- Orange: 20-60%
- Red: < 20%

WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance.

Dimensions and Weight



Product:

Height	110 mm
Diameter	70 mm
Weight	340 g



Packaging

Height	75 mm
Width	100 mm
Depth	180 mm
Weight (with device and charger)	550 g

Device Firmware

Firmware Upgrades

1. Turn the Pact Sense on and connect to it via Bluetooth using the Pact mobile app.
2. Go to Settings by clicking the gear icon
3. Click on “Update Firmware”
4. Follow the on screen instructions to complete the update process
5. Accept the Bluetooth Pairing Request popup by pressing “Pair”
6. Select the firmware image. If more than one is listed, select the one at the bottom of the list.
7. Allow the firmware update to complete: keep the app open, and keep your Pact Sense in close proximity to the mobile device.
8. The firmware update is complete when the app displays the popup “Firmware updated!” Press “Ok” to return to the app home screen.

See [Troubleshooting](#) for help with firmware update issues

Checking Firmware Version and Bluetooth Address

1. Turn the Pact Sense on and connect to it via Bluetooth using the Pact mobile app.
2. Go to Settings by clicking the gear icon
3. Scroll to the bottom of the Settings page. The Pact Sense’s information will be displayed as:
 - Scanner Firmware version
 - Scanner UUID (Bluetooth address)

Troubleshooting

Device not powering On

- Press and hold button for 2 seconds
- If device does not turn on, connect the device to the provided charger
- Connect the charger to a powered wall outlet
- If no LED indication occurs, try removing and reconnecting the USB C cable
- Triple tap button to attempt to enter cleaning/test mode
 - If LED remains off, but measurement probe moves, the LED may be broken
- If LED indication still does not turn on and the device will not enter cleaning/test mode, the device may be defective

Charging

- If LED indication does not turn on after plugging in a USB C cable, ensure that the included 7.5W charger is being used
- Connect the charger to a powered wall outlet
- If no LED indication occurs, try removing and reconnecting the USB C cable
- Triple tap button to attempt to enter cleaning/test mode
- If LED indication still does not turn on, the device may be defective

Cleaning/Test Mode

- Wake the device up by pressing the button until the LED lights up
- No bluetooth connection is required
- Triple tap the button
- Expected behavior
 - The measurement probe will stick out
 - Changing the position of the moving ring will result in the measurement probe moving as well
 - The LED will cycle through red, green, and blue, as a result of the moving ring position

Bluetooth Pairing

- Use the app to connect your phone to the device via Bluetooth
- To use the scanner while it is charging, tap the button to start Bluetooth so it can connect to the Pact app

LED Glowing Yellow

- If your scanner was accidentally placed in Firmware Update Mode, press and hold the button until the LED glows white. This puts the device in normal operation
- If a firmware update started but did not complete successfully, you will need to restart and complete the firmware update before you can use the device again
- Retry the update by going to Settings > Update Firmware

SAVE THESE INSTRUCTIONS

This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Change Log

Version	Change
v1.0	Initial Release