

# VA Telewound Toolkit: Parable Health

Cloud-based ◆ TRM ✓ ◆ VA ATO approved ◆ Go-live < 1 week ◆ No onsite server required

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## Revision History

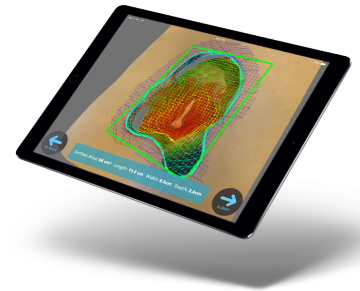
2019-10-31	Initial Draft	Parable Team
2020-06-04	Support contact update	Parable Team

## Overview

Parable Health is a cloud-based healthcare technology company headquartered in New York, with the following telewound/telehealth toolkit solutions:

### Parable for Chronic Wound Management

A comprehensive iPad-based wound care platform with untethered 3D scanning, automated measurements, clinical assessments, store-and-forward and live video collaboration, and decision support tools to help providers better monitor and manage chronic wound patients.



#### Key Features

- Untethered, full-color, hi-resolution 3D scanning and simultaneous 2D image capture.
  - 3D scan and images can be viewed on the device and remotely as soon as assessment is complete
- Capture unlimited photos per assessment (0 or more)
  - Option to annotate and label photos
- Automated 3D measurements of true, amoeba-shaped surface area, length, width, and deepest point
  - 3D scan indicates likely locations of undermining and tunneling
  - Designate wound area manually or using AI-assisted *Smart Trace*
- Completely customizable assessment protocols
  - Apply different assessment protocols for different wound types
  - Implement your own assessment protocol, or use existing VA and academic standards such as:
    - SCI-PUMT
    - BWAT
    - revPWAT
    - PUSH
    - Braden Scale
  - Assessment protocol is optional and can be skipped or removed entirely for select (or all) wound types
- Automated integration with VistA and VistA Imaging
  - Select from VistA patients directly in the Parable application
  - Parable images and clinical assessment data is automatically transmitted to VistA as soon as an assessment has been completed
- Point-of-care automated *Recommendation Engine*
  - Deliver clinical recommendations for anything from high level treatment plans to specific product usage

- Implement your own internal best practices or those of clinical partners/manufacturers
- Drive standardization and scale clinical best practices
- Formalized asynchronous review workflow
  - Trigger customizable review protocols based on assessment content, requests from assessors, or on-demand
  - Capture discrete review outputs, just like the assessment protocol itself
  - Track and manage outstanding and completed reviews
- Live video consultations
- Anatomical location model to hierarchically or visually select wound locations
- Operates on commodity hardware: iPads, iPhones, and web browsers
- Offline mode option
  - Seamlessly enables operation in low/no-connectivity areas without additional user action
  - Internet connectivity only required at the end of the day to sync data

## Parable for Ambulatory Follow-Up

A patented mobile platform connecting veterans and care teams, enabling home-based care via store-and-forward telehealth and remote clinical follow-ups through veterans' and/or caregivers' own mobile devices.

### Key Features

- Completely customizable assessment protocols, just like *Parable for Chronic Wound Management*
  - Assessments are completed by veterans rather than clinicians
  - Assessments are typically simple questions...
    - Measuring compliance with treatment plan
    - Detecting early signs of infection or complication
    - Measuring comfort or pain levels
    - Measuring subject healing progress or measures such as veteran-managed drainage
  - Clinicians specify follow-up schedule and veteran receives reminders walking them through the assisted photography and assessment process
- Asynchronous follow-up modality enables streamlined monitoring and mitigates federated clinician schedules, freeing up clinicians for critical in-person appointments
- HIPAA-compliant communication tools to connect veterans and care team
  - Put concerns at ease quickly without unnecessary in-person visits
  - Get quick feedback and answer questions



## Product Specifications & Characteristics

	<b>Parable for Chronic Wound Management</b>	<b>Parable for Ambulatory Follow-Up</b>
<b>Devices and Platforms</b>		
Web Browsers	<p>Any modern web browser.</p> <ul style="list-style-type: none"> <li>● Safari version 6.0 or later</li> <li>● Google Chrome version 49.0 or later</li> <li>● Microsoft Internet Explorer version 10.0 or later</li> <li>● Microsoft Edge version 12.0 or later</li> <li>● Mozilla Firefox version 49.0 or later</li> </ul>	<p>A web browser is only required for patient / caregiver users for account creation during app on-boarding.</p> <p>Web browser requirements for clinical users are the same as Parable for Chronic Wound Management.</p>
Mobile OS	<p>Modern versions of Android and iOS.</p> <ul style="list-style-type: none"> <li>● Android 5.1+ (7+ recommended)</li> <li>● iOS 9.0+ (12+ recommended)</li> </ul>	
Mobile Devices	<ul style="list-style-type: none"> <li>● Any Android phone or tablet running a supported version of Android</li> <li>● Any Apple iPhone or iPad device running a supported version of iOS</li> <li>● 3D imaging requires modern iPad devices including the following (as well as newer devices in the same family) <ul style="list-style-type: none"> <li>○ 11-inch iPad Pro - 2018 - Models: A1980, A1934, A2013, A1979</li> <li>○ iPad (6th generation) - 2018 - Models: A1893, A1954</li> <li>○ 10.5-inch iPad Pro - 2017 - Models: A1701, A1709</li> <li>○ 12.9-inch iPad Pro (2nd gen) - 2017 - Models: A1670, A1671</li> <li>○ iPad (5th generation) - 2017 - Model: A1822, A1823</li> <li>○ 12.9-inch iPad Pro (1st gen) - 2015 - Models: A1584, A1652</li> <li>○ 9.7-inch iPad Pro - 2016 - Models: A1673, A1674, A1675</li> <li>○ iPad Air 2 - Late 2014 - Models: A1566, A1567</li> <li>○ iPad mini 4 - Late 2015 - Models: A1538, A1550</li> </ul> </li> </ul>	
<b>Connectivity</b>		

Ports and Protocols	Mobile and web applications operate over HTTPS protocol on TCP port 443
Offline Mode	<ul style="list-style-type: none"> <li>● Mobile application can operate fully offline</li> <li>● Connectivity is only required for initial authentication, re-authentication on session expiration (configurable), and data sync</li> </ul>
Data Synchronization	Mobile app automatically synchronizes data in the background when connectivity is available to ensure that important data is available offline before it is requested and to ensure data captured on the device is regularly sent to the web service to protect data integrity and accelerate availability. No user action is required as long as the app has not been killed, the user has authenticated, and intermittent connectivity is available
<b>Security &amp; Compliance</b>	
Encryption at Rest	Yes. FIPS 140-2 certified 256-bit AES
Encryption in Transit	Yes. FIPS 140-2 certified TLS
Customizable Security Parameters	<ul style="list-style-type: none"> <li>● Session Inactivity Timeouts</li> <li>● Password Requirements</li> <li>● IAM data sources</li> </ul>
Compliance	<ul style="list-style-type: none"> <li>● HIPAA &amp; HITECH compliant</li> <li>● Implements NIST SP 800-53 “moderate”-level security controls</li> <li>● Federal ATO granted - July, 2019</li> <li>● FedRAMP compliant cloud platform</li> </ul>
<b>Imaging</b>	
2D Wound Imaging	<ul style="list-style-type: none"> <li>● Available.</li> <li>● Output available as JPEG.</li> <li>● Other formats available upon request.</li> <li>● Capture images at full resolution of the device’s camera</li> <li>● Flash modes: none, on, auto, torch <ul style="list-style-type: none"> <li>○ NOTE: most tablets do not support flash</li> </ul> </li> </ul>
Visual Alignment Assistance	<ul style="list-style-type: none"> <li>● Available.</li> <li>● Toggleable semi-transparent overlay image available to assist user in consistent photographic alignment and positioning.</li> </ul>

3D Wound Imaging	<ul style="list-style-type: none"> <li>• Yes.</li> <li>• Output viewable in web viewer and available for export in OBJ and PLY formats.</li> <li>• Other standard 3D model + texture formats available upon request.</li> <li>• Requires attachable infrared 3D sensor</li> </ul>	n/a
Photo Annotations	<ul style="list-style-type: none"> <li>• Optionally draw color-coded annotations with labels as an overlay to photos at the time of capture</li> </ul>	
Supporting Photos	<ul style="list-style-type: none"> <li>• Optionally capture multiple additional photos for a single assessment</li> <li>• Optionally add descriptions for each photo</li> </ul>	
<b>Measurement</b>		
Wound Segmentation	Optional manual segmentation and computer-assisted Smart Segmentation available	n/a
Manual 2D Wound Measurement	Fully customizable support for manual measurements and calculations such as length, width, depth, surface area, undermining, and tunneling.	n/a
Automated 2D Wound Measurement	<ul style="list-style-type: none"> <li>• Automatically measure surface area, length, and width.</li> <li>• Requires disposable calibration stickers</li> </ul>	n/a
Automated 3D Wound Measurement	<ul style="list-style-type: none"> <li>• Automatically measure surface area, length, width, and depth</li> <li>• Requires 3D scanner attachment for iPads</li> </ul>	n/a
<b>Workflows</b>		
Untethered functionality	Yes, fully mobile with no wires or connectivity to terminals/COW's.	

Custom documentation templates	Yes, fully customizable quantitative and qualitative documentation/assessment templates.	Yes, fully customizable patient self-reporting survey templates.
Custom clinical alerts	Yes, custom alerts based on desired clinical “trigger” criteria.	Yes, custom alerts based on desired clinical “trigger” criteria.
Recommendation Engine	Yes. Customizable automated clinical recommendations at the point of care based on organization-provided or manufacturer-provided rules and best practices	
Async Reviews / Consultations	<ul style="list-style-type: none"> <li>• Optional formalized async clinical review / consultation process</li> <li>• Can be initiated based on customizable trigger conditions including on-demand triggers by field or back office clinicians</li> <li>• Customizable review protocols</li> <li>• Notifications + status tracking for outstanding + completed reviews</li> </ul>	
Live video consultations	Coming soon	
<b>Supported Settings</b>		
Clinician-to-clinician collaboration	Yes.	Yes.
Veteran-to-clinician communications	Yes, can be paired with “Parable for Ambulatory Follow-up” capabilities.	Yes. Secure, HIPAA-compliant asynchronous communication channel between patients and clinical team.
Home-based veteran store-and-forward telehealth	Yes, can be paired with “Parable for Ambulatory Follow-up” capabilities.	Yes. Secure, scheduled reminders for patients to submit images

		and self-assessments.
<b>Hosting / Storage / Data Management</b>		
Managed Solution	Web application and centralized data store are fully managed and provided as a service; no need to deploy on-premise servers or manage data directly	
Data Storage Limits	Unlimited data storage for patient data, clinical assessment data, images, and 3D scans	
Data Export	Many CSV and PDF data exports and reports available	
US-based	<ul style="list-style-type: none"> <li>● Data is hosted in the US and managed by US citizens</li> <li>● Support is available during normal US business hours</li> </ul>	
<b>Interoperability</b>		
EHR integrations	Live or Prototype Integrations with: <ul style="list-style-type: none"> <li>● VistA, VistA Imaging, and CPRS (bidirectional)</li> <li>● Cerner Homeworks (bidirectional)</li> <li>● Cerner Millennium (bidirectional &amp; SMART on FHIR)</li> <li>● Homecare Homebase (bidirectional*)</li> <li>● Epic, Allscripts, and most major Ambulatory EHRs via integration partners</li> </ul>	
Interface Support	<ul style="list-style-type: none"> <li>● RESTful API</li> <li>● SMART on FHIR</li> <li>● HL7</li> <li>● SFTP</li> <li>● Email</li> </ul>	

### Current VA Deployment

VA San Diego Healthcare System - Multiple settings (e.g. SCI unit, CBOC, home-based veteran care)  
 Contact: Dr. Kevin Broder, Telehealth Director and SCI Plastic Surgeon (Kevin.Broder2@va.gov)

### How to Get Started

### Purchase of License

The Parable Health 3D Wound Care operates on VA issued iPad's. Once a VA iPad has been issued, a Parable license is required to enable the app to work on the VA iPad. The Parable Health 3D Wound

Care License is provided by a VA VetBiz Verified SDVOSB vendor known as Standard Communications. Please send an email to [Parable3DWoundCare@stdcomm.com](mailto:Parable3DWoundCare@stdcomm.com) and [Info@ParableHealth.com](mailto:Info@ParableHealth.com). It is recommended that a product education session and clinical workflow review be conducted. For assistance or more information, please contact the VA Verified 3D Wound Care Contractor point of contact, Rick Williams, at 816-853-0217.

## Configuration and Customization

Parable recognizes that each clinical team has its own unique set of needs. As such, the platform is highly configurable and customizable. Prior to each deployment, a pre-launch customization checklist will be reviewed. Items in this checklist include:

- Identifying the initial group that will be using Parable, as well as an expansion plan
- Establishing supported wound types and telemedicine question sets
- Defining organizational facets (e.g. branches, teams, etc).
- Deciding on enablement of optional features (e.g. electronic consent, treatment recommendation engine, case reviews, smart alerts, etc).
- Validating clinical workflows

## Training and Deployment

Once an organization's Parable instance is provisioned, it's time for training and deployment. Training is provided using a "train the trainer" approach. This approach, combined with Parable's cloud-based nature, usage of commodity hardware, and commercial application design, makes it easy for groups to begin using Parable quickly. Parable is ready for immediate deployment and go-live once users are trained.

## Cleaning and Disinfection Recommendations

The Parable solution is comprised of both software and hardware components. The hardware component uses a 3D infrared sensor attachment for iOS devices (optimized for various models of iPad).

Parable recommends the following hardware cleaning and disinfection methods to maintain safe, healthy, and optimal working conditions.

1. Disinfecting Wipes - Research shows that Sani-Cloth® CHG 2% Wipes and Clorox® Disinfecting Wipes were the most effective wipes in a 2014 study.<sup>1</sup> Sani-Cloth CHG 2%, in particular, demonstrated "a substantial residual antimicrobial effect was seen for >6h after wiping the iPad with Sani-Cloth CHG 2% despite repeated recontamination and without further disinfection" without causing damage to the device's functionality or visual appearance, despite repeated use.
2. UV Disinfection - a disinfection method that uses short-wavelength ultraviolet (UV-C) light to kill or inactivate microorganisms. UV disinfection vendors include:
  - a. CleanSlate UV ([cleanslateuv.com](http://cleanslateuv.com) )

- b. Seal Shield ElectroClave  
([sealshield.com/Products/Device-Management/ElectroClave-UV-Disinfection-Device-Manager.html](http://sealshield.com/Products/Device-Management/ElectroClave-UV-Disinfection-Device-Manager.html))

<sup>1</sup> Howell, V, et al. "Disinfecting the iPad: Evaluating Effective Methods." *The Journal of Hospital Infection*, U.S. National Library of Medicine, June 2014, <https://www.ncbi.nlm.nih.gov/pubmed/24746231>.

## Common Troubleshooting Topics

- Login
  - Forgot password
    - All login forms that require a password include a *Forgot Password* button either below the password field or at the bottom of the screen. Use this *Forgot Password* button with your email address entered. You will receive an email with instructions on resetting your password.
  - Account locked due to excessive failed login attempts
    - Attempting to login with an incorrect password multiple times in a row will result in your account being temporarily locked. If this happens you will receive an error message informing you your account was locked as well as an email to your account email address. Follow the instructions in the email you receive to unlock your account.
  - Other account issues: Don't have an account, unsure how to access Parable, or different access restrictions required
    - Contact the system owner for your local Parable instance or support if you are unsure who this is. System owners manage access to Parable platform.
- Finding a patient
  - Unable to find a patient
    - Use the search bar at the top of the patient list rather than scrolling through the list.
      - Type just a few letters from the patient's last name to avoid typos and quickly find the patient
      - Check for typos
      - Try a different part of their name
      - Try searching by MRN
    - Be sure you are online. If a patient has not yet synced to your device (which happens automatically all the time), you must be online in order to find the patient by searching
    - Contact your local system owner to confirm you have the correct Parable access granted and that the patient does indeed exist in Vista/CPRS
- Image Capture

- Out of focus / blur
  - Be sure you are at least about 10cm away from the wound
  - Hold your hand steady when taking the photo and for a second or two after pressing the photo capture button. It can help to anchor your arms to the side of your body to more easily remain steady
  - Tap the wound if it is still out of focus. The camera will adjust focus to the area you tap
  - Check the camera lens to make sure it is not greasy or dirty. Try wiping it with a tissue or cloth
- Lighting
  - If the wound appears too dark or too bright in the photo, tap the wound before taking the photo to have the camera automatically adjust white balance to optimize for the area you tapped
  - If wounds still appear too dark, enable flash mode or torch flash mode if available or increase ambient or external lighting
  - If there is a glare from an external light source, take the photo from a different angle so the glare is no longer visible
- 3D Scanning
  - “Plug in scanner” (scanner not found)
    - If the scanner is plugged in but the device does not recognize it, unplug it and plug it back in to the lightning port. Check the lightning cable’s connection to the scanner as well.
    - If the scanner is firmly plugged in on both ends but the device still does not recognize it, it may be out of battery. Try charging the scanner.
    - If you still encounter issues, contact support.
  - Too close / cannot see scan cube
    - If you get warnings that you are too close, you cannot see the scan cube, or the scan button is disabled (“greyed out”), move the device further away from the wound until the cube becomes visible and the wound is inside the virtual scan cube bathed in a red-orange film. You should typically be at least 12 cm from the wound
  - Too far / can see scan cube but no red film within cube
    - If you get warnings that you are too far or you can see the scan cube but there is no red film covering the wound, move closer until a red film appears inside the scan cube and covers the area you wish to scan.
- Tracing problems
  - Smart Trace trouble
    - Confused how to use smart trace? First, draw a line that covers all of the different looking tissue of the wound. This can be a single linear line or a detailed scribble. Next, draw a second line cover the background tissue. The best way to do this is simply circle the outside of the wound a centimeter or more away from the boundaries of the wound. When you finish drawing the second line Smart Trace will attempt to identify the

wound. Tap the help (?) button in the top right during this stage of wound identification for more help and a video tutorial.

- If Smart Trace gets most of the wound but you'd like to add an area, start with your finger or stylus within the wound boundary that you'd like to expand and move outwards, nudging the wound boundary to expand it. Tap the help (?) button during this stage of wound identification for more help and a video illustration.
  - If Smart Trace gets some of the non-wound tissue and you'd like to remove an area, start with your finger or stylus outside the wound boundary that you'd like to contract and move inwards, nudging the wound boundary to contract it. Tap the help (?) button during this stage of wound identification for more help and a video illustration.
- App won't start / crash
    - Try restarting the device. If the issue persists, please contact support

For support related issues, please contact [support@parablehealth.com](mailto:support@parablehealth.com)

## Appendix

### Related Articles

1. "Innovative photo technology saves Veterans lives" (<http://bit.ly/pb-va-lives>)
2. "VA Telehealth Tool Moves Medical Data to the Cloud" (<http://bit.ly/pb-va-cloud>)
3. "VA doctors think new tablets could save time, money and lives" (<http://bit.ly/pb-va-sdnews>)
4. "VA Project Uses Telemedicine Tablets to Treat Veterans at Home" (<http://bit.ly/pb-va-telemed>)

### Reference Guide

*Please reference Parable\_Reference\_Guide.pdf.*

## Hardware Information: Structure Sensor

The Parable solution is comprised of hardware and software components.

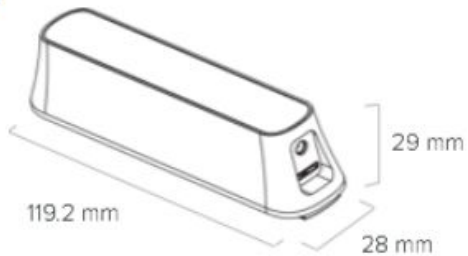
The hardware component uses the Structure Sensor, a 3D infrared sensor attachment for iOS devices (optimized for various models of iPad). Parable's software component enables the identification and measurement of wound boundaries based on the hardware inputs, along with the core functionality of clinical documentation/assessment, collaboration tools, and reporting & analytics.

This document outlines technical specifications, depth precision, and supported iPad models.

## Technical Specifications



### Dimensions



### Weight

95g



### Maximum Recommended Range

3.5m+



### Minimum Recommended Range

40cm



### Precision

0.5mm at 40cm (0.15%),  
30mm at 3m (1%)

[More detail](#)



### Resolution

VGA (640 x 480),  
QVGA (320 x 240)



### Framerate

30 / 60 frames per second



### Battery Life

3-4 hours of active sensing,  
1000+ hours of standby



### Illumination

Infrared structured light projector, uniform  
infrared LEDs



### Field of View

Horizontal: 58 degrees,  
Vertical: 45 degrees



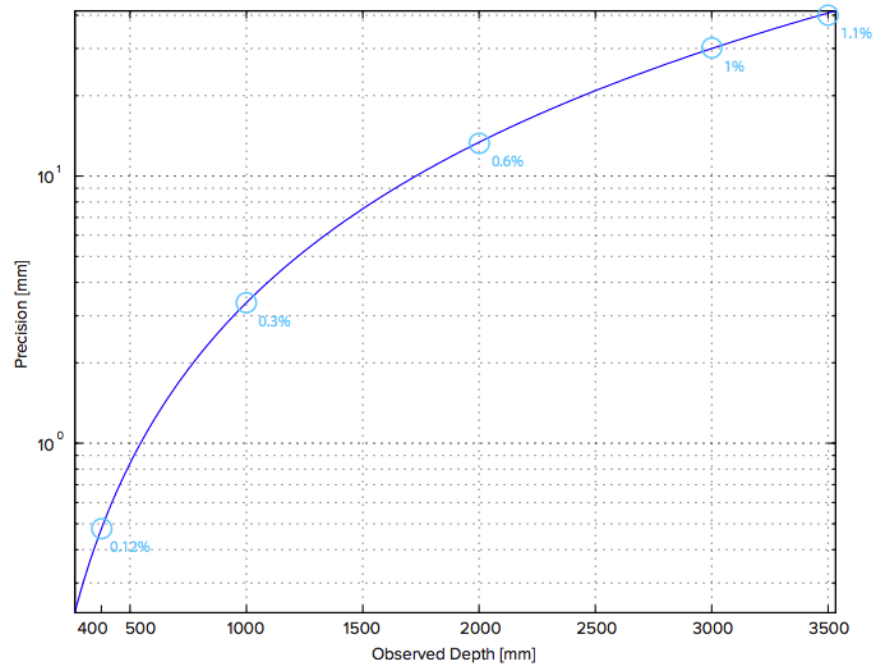
### Operating Temperature

0° to 35° C (32° to 95° F)

## Depth Precision

Below is a chart defining precision metrics for the infrared sensor. Wound/lesion measurements will also depend on the quality of the digital trace on the Parable mobile application.

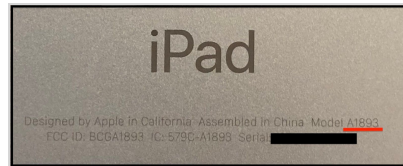
### Infrared Sensor Depth Precision Chart



## Supported Models

*last revised 4 Oct 2019*

To identify what iPad you have, take a look at the model number on the back cover:



Alternatively, you can go to "Settings -> General -> About -> Model". Tap "Model" once.

### **Fully Supported:**

- 12.9-inch iPad Pro (3rd gen) - 2018 - Model: A1876, A2014, A1895, A1983
- 11-inch iPad Pro - 2018 - Models: A1980, A1934, A2013, A1979
- iPad Air (3rd Generation) 10.5-inch - 2019 - Models: A2152, A2123, A2153, A2154
- iPad Mini 5 - 2019 - Models: A2133, A2124, A2126, A2125
- iPad (6th generation) - 2018 - Models: A1893, A1954
- 10.5-inch iPad Pro - 2017 - Models: A1701, A1709
- 12.9-inch iPad Pro (2nd gen) - 2017 - Models: A1670, A1671
- iPad (5th generation) - 2017 - Model: A1822, A1823
- 12.9-inch iPad Pro (1st gen) - 2015 - Models: A1584, A1652
- 9.7-inch iPad Pro - 2016 - Models: A1673, A1674, A1675
- iPad Air 2 - Late 2014 - Models: A1566, A1567
- iPad mini 4 - Late 2015 - Models: A1538, A1550

### **Deprecated (limited Functionality, brackets no longer produced):**

- iPad Air (1) - Late 2013 and early 2014 - Models: A1474, A1475, A1476
- iPad mini 3 - Late 2014 - (Note: We no longer manufacture brackets for this iPad.) Models: A1599, A1600
- iPad mini 2 - Late 2013 and early 2014 - (Note: We no longer manufacture brackets for this iPad.) Models: A1489, A1490, A1491
- iPad (4th Generation) - (Note: We no longer manufacture brackets for this iPad.) - Models: A1458, A1459, A1460

### **Incompatible:**

- iPad Mini - Models: A1432, A1454, A1455
- iPad (3rd Generation) - Models: A1416, A1430, A1403
- iPad 2 - Models: A1395, A1396, A1397