Readit Scholar HD

Hardware Guide Rev B
English

An executive agency of the Department for

Transport

VisionAid International

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Introduction

Congratulations on choosing the Readit Scholar HD digital capture reading system – the most advanced reading system for low vision and blindness currently available.

The Readit Scholar HD combines high speed OCR, speech and reformatted text output with ease of use and portability. It can capture and read any printed material such as letters, bank statements, newspapers, food packaging etc. and weighs just 1.2 kg (3.3 lbs). It is also the only machine to feature A3 (double letter capture size) and full OCR at distance.

Readit Improvement program

Users are the best people to help us improve and develop our products so if you have any ideas or suggestions, no matter how small, please do contact us.

Suggestions contact information

Please use the following methods to contact us regarding your suggestions:

Email:
suggestions@visionaid.com

Post:

VisionAid International Ltd.
Bridge Lodge, Spalding, Lincolnshire
PE11 3AU
United Kingdom

Phone:

+44 (0) 1775 711 977

Thank you and we wish you many hours of enjoyment with your new portable digital capture reading assistant!

Ownership and intellectual property

The software makes use of third party software libraries that are redistributed under their own respective licenses.

LAME is distributed under the terms of the GNU Lesser General Public License (LGPL), a copy of which can be found at http://www.gnu.org/licenses/lgpl.html and is included in the software's program directory.

OpenCV is distributed under the terms of the Berkeley Software Distribution (BSD) license, a copy of which is included in the software's program directory.

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Box contents

Your Readit Scholar HD box should contain the following items:

1. 16 megapixel Scholar HD portable digital capture reading system with integrated USB cable.
2. Magnetic positioning guide for A3 / A4 (Double letter / Letter) paper sizes.
3. Over ear headphones with in line volume control.
4. Padded ruck sack carry case.
5. Installation DVD.
6. Laminated Quick Reference Guide.
7. This Hardware Guide.
8. Software instruction manual.

If any of these items are missing, please contact your local distributor.

Adjusting USB Cable Length

Scholar HD has an integrated cable management system in its base. This allows the user to adjust the USB cable to precisely the correct length, so there is no excess cable around the laptop or PC it is being used with.

The maximum length available is 110cm or 43 inches.

IMPORTANT:

USB extension cables will not work with Readit Scholar HD. If a longer cable is required, then a mains powered USB 2.0 or above hub must be used.

Increasing the cable length

1. Ensure the Scholar HD is in its folded configuration and unplugged.
2. Turn the Scholar HD camera over so that the base is facing upwards.
3. At the rear of the base, the USB cable exists out of a small hole in the middle. Feed approximately 4 cm of the cable inwards through the exit hole to help loosen the cable.
4. Trace the cable around the two cable grippers and carefully unwind the additional length of cable that is required.
5. Finally, carefully pull the unwound cable through the exit hole and ensure the cable has been pulled tightly so that the cable does not poke through the bottom of the base and cause the Scholar HD to be uneven.

Positioning Scholar HD for use

Remove Scholar HD from its rucksack and place it on a flat surface. When doing so, try and ensure that it's not directly underneath any bright lighting, as this can affect its accuracy, especially when reading glossy documents.

Unfolding Scholar HD camera

Getting Scholar HD ready for use takes just a few seconds and a few easy steps.

1).

Firstly, place the fingertips of one hand under the crossbar on the base and with your other hand, grasp the centre of the cross bar and lift it upwards. A locking pin will click into position to hold the arms upright once you have moved it far enough (around 65 degrees).

2).

With one hand on the base, using your other hand, grasp one of the two bars between the camera head and the crossbar and rotate it upwards 180 degrees until it stops and is in line with the main bars. A locking pin will click into position once you have moved it far enough.

3).

With the main stand in position, tilt the camera head downwards towards the desk until it stops or is parallel with the desk. As the camera head lowers down, it should locate itself automatically so that it is square. This will ensure it is in exactly the right position for photographing your documents.

4).

Pictured is the wedge shaped guide in the camera head that locates onto the wedge shaped guide on the camera stand as the Scholar HD camera head is titled downwards into the capturing position.

5).

The whole unfolding process should only take 10 seconds. Once unfolded, your Readit Scholar HD will look like this:

Folding Readit Scholar for transport

To fold Scholar HD for transport, practically the exact opposite method is required, plus to buttons must be pressed to release two locking pins on the left hand side of the stand.

1).

Firstly ensure the camera is facing downwards, (in the standard picture taking position) and with your left hand, push and hold the top release button inwards. It's on the left hand side of the crossbar, facing away from you). With the release button fully depressed, gently lower the top part of the stand downwards 180 degrees with your other hand until it stops.

Push button down

2).

Next, grasp the crossbar with your right hand and then press in the bottom release button, (located on the left hand side of the base of the stand). With it depressed, gently lower the stand downwards until it is resting flat on the base. Finally, Ensure the camera head is also pushed flat to the base.

Push button down
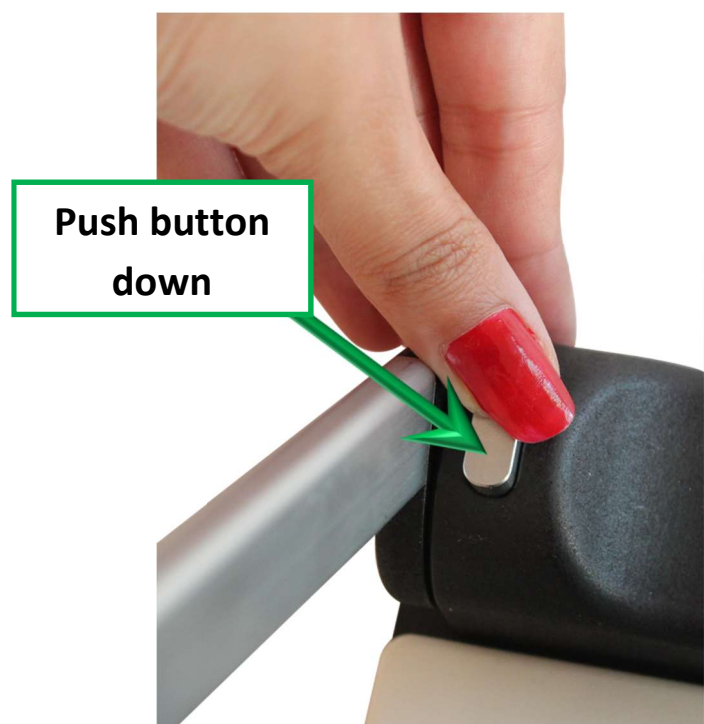
Plugging In

With Scholar HD unfolded, you can plug Scholar HD in to your PC or laptop. One USB 2.0 port is required. Below is a picture of typical USB ports found on a laptop computer:
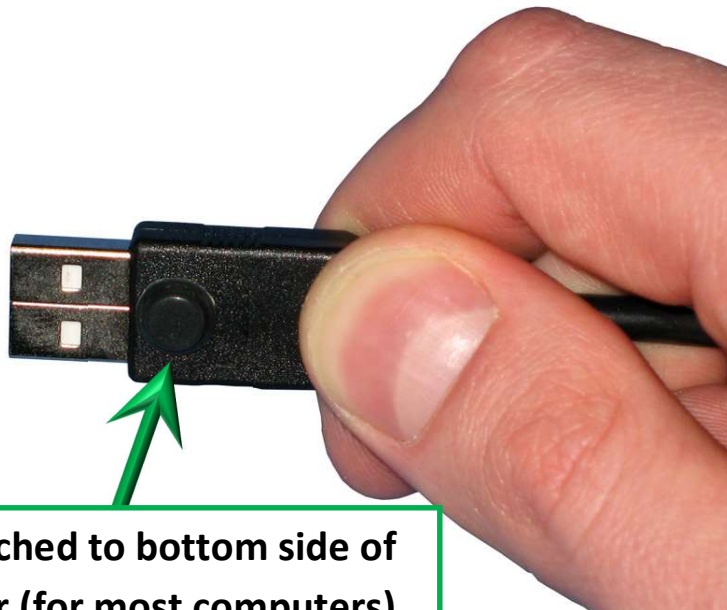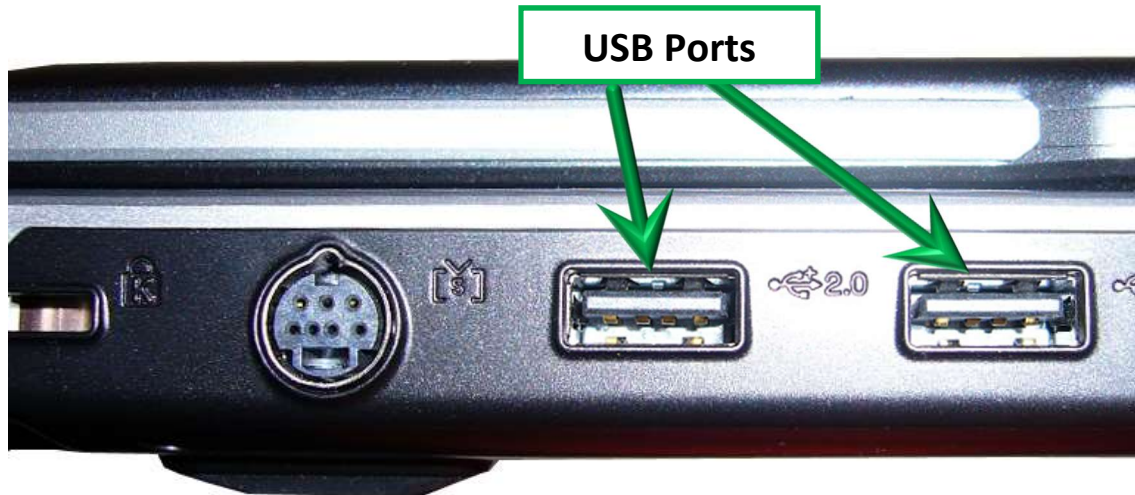
USB Ports

Bump-on attached to bottom side of USB connector (for most computers)

IMPORTANT:

Some computers have their USB ports fitted the other way up!

USB connectors will only plug into USB sockets one way round. They do not require much force, so take great care when inserting them into a socket. Forcing a USB connector into its socket the wrong way round will break the socket and or the connector. This is not covered by warranty.

Turning Scholar HD's camera on and off

Turning on

Scholar HD has a small integrated battery which keeps the camera in standby mode for up to 5 days. This helps it to be instantly ready to power up when required, as soon as it is connected to your computer.

If the battery runs completely flat, ensure it is plugged into a USB port and your computer system is turned on, then press and hold the on / off button for 3 seconds.

The on / off button is located in the middle of the front panel of the camera head and is slightly raised.

From off, rather than standby, Scholar HD will take approximately 25 seconds to start up. Scholar HD's camera lens will briefly extend and then retract once it has completed starting up.

Turning off

There is no need to turn off the Scholar HD camera after use if it is going to be used within the next few days. The lens will automatically retract and it will go into a power saving mode when the Readit software it exited or the USB cable is unplugged.

Disabling "Camera connected" notification

When the Scholar HD is plugged into a USB port and the computer and camera are turned on, a "Camera Connected" screen will appear. This will happen by default, every time this occurs.

To disable this notification (recommended), do the following depending on your operating system:

Windows XP

1. Click "Cancel" on the window that has appeared
2. Left click "Start"
3. Left click "Control Panel"
4. Double left click "Scanners and Cameras (Note: If you can see "Pick a Category", left click "Switch to Classic View" first, then "Scanners and Cameras" will appear.)
5. Right click on "EK-GC110"
6. Left click "Properties"
7. Left click on the "Events" tab
8. Under "Actions" left click "Take no action"
9. Left click "Ok"

If you have several USB ports that Scholar HD's camera might be plugged in to, you may have to follow this procedure each time you plug Scholar HD's camera into a different USB port.

Windows Vista / 7 / 8

When the camera is turned on, the "AutoPlay" window will popup. To disable the AutoPlay window from popping up, do the following:

1. Click "Cancel" on the window that has appeared
2. Left click "Start"
3. Left click "Control Panel"
4. Make sure "View by:" (in the top right corner of the screen) is set to "Small Icons".
5. Double left click "Autoplay".
6. Scroll to the bottom of the AutoPlay window that appears and click the drop down box for the "EK-GC110" and select "Take no action".
7. At the bottom right, click "Save", then close the Control Panel window.

Positioning documents for capture

Scholar HD is capable of capturing documents up to A3, (11 x 17) in size at close-up. Documents must be placed onto its base plate in landscape orientation before capturing. The following section describes how best to align your documents.

There are three methods that can be used to accurately position your documents, two tactile and one visual. For all three, you should firstly ensure that the Scholar HD's camera head is 1. facing straight down at its base and 2. that it is square on to you, as shown in the following picture:

1).
Camera head facing straight down.

2).
Camera head's flat edge is facing straight towards you, parallel to the crossbar. It should locate automatically when tilted downwards.
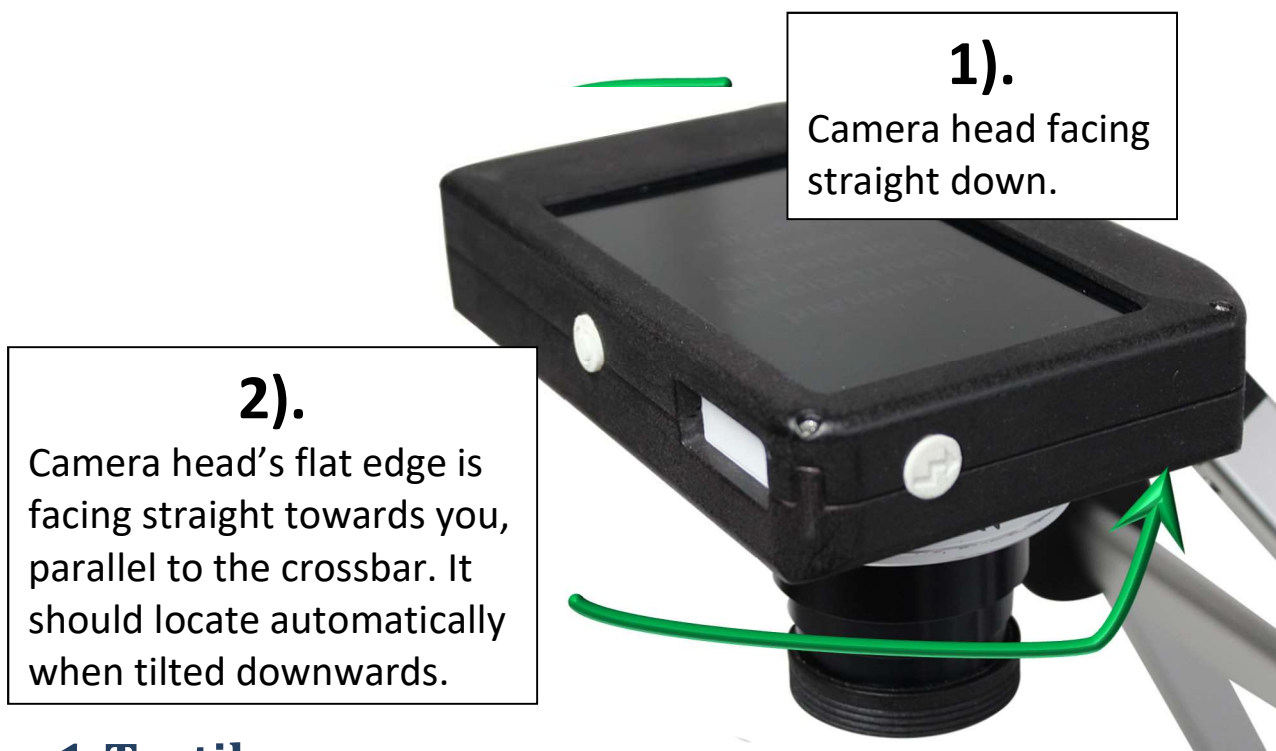
1. Tactile

Alignment - Magnetic Guide

The Scholar HD includes a guide that magnetises into either the A4 (Letter) or A3 (11 x 17) positions depending on its orientation. It slots over two grooves in the base and provides a "top left corner" position for you to slide your documents into before photographing.

The default location of the guide is in the transport position. The guide must always be returned to this position before transporting, where it is in rear groove and in-line with Scholar HD's baseplate.

Positioning Magnetic guide for A3 (11 x 17) sized documents

To locate the guide into the A3 position, place your fingers onto the guide (located just in front of the base bar) and simply slide it over to the left until it magnetises into position.

Positioning Magnetic guide for A4 (Letter) sized documents

To locate the guide into the A4 position, lift the guide up slightly and slide it towards you so that it's in line with the front (A4) groove. Then slide it to the left slightly until it magnetises into position.

2. Tactile Alignment - Grooves

The base includes two grooves (engraved horizontal lines). The rear one is for positioning the long edge of an A3 (11 x 17) size page up against. The front one is for positioning the long edge of an A4 (Letter) size page.

When aligning your documents on the A3 (11 x 17) groove, the left side of the page should be overhanging the base by 9cm (3.5 inches).

When aligning your documents on the A4 (Letter) groove, the left side of the page should be overhanging the base plate by 2cm (0.75 inches).

3. Visual Alignment

When capture has been initialised, the full area that will be photographed is visible on screen. Depending on the aspect ratio of your screen, black bars may appear on the left and right sides. As long as your document is completely in view on screen, it will be properly captured.

Visual alignment is the only way that distance capture can be achieved.

> **POSITIONING TIP:**
>
> **Readit Scholar HD has powerful document straightening and rotation abilities but for the highest accuracy and speed, try to position your document as squarely as possible and ensure pages are relatively flat.**

> **IMPORTANT:**
>
> **For capturing documents at A4 (Letter) and A3 (11 x 17) sizes, the close-up lens should not be attached to the Scholar HD lens.**
>
> **However, if you wish to zoom in and capture smaller objects or documents with extremely small print (less than 6pt size) you can zoom in up to 21x with the close up lens attached.**

Close-up lens attachment

IMPORTANT: **You must attach the magnetic close-up lens only for:**

1. **Real-time document viewing, handwriting and capturing with optical zoom levels higher than 4x.**
2. **Self-viewing.**

Failure to do so will mean Scholar HD will not focus.

Camera mode allows real-time viewing and handwriting on your documents.

To attach the close-up lens, do the following:

1).

Grasp the edges of the close-up lens, located at the left side of the camera head and gently remove it from its magnetised holding.

2).

Position the lens on to the magnetised camera lens barrel.

IMPORTANT: **Always ensure the lens is returned to the left side of the camera before folding and transporting Readit Scholar HD.**

Viewing the bottom of an A4 (Letter) Page in camera mode

When using the Scholar HD as a traditional video magnifier, in order to view the bottom of a page it is necessary to tilt the camera head towards you slightly. For magnification levels over 4x, the close-up lens must be attached for Scholar HD to be able to focus.

Self-Viewing

From the document capturing position, simply twist the camera up towards you to change it to self-viewing position. The close-up lens must be attached during self-viewing in order for the camera to focus correctly.

Most users will also wish to change the Readit software to mirror mode. Please refer to the user manual or quick reference guide for how to achieve this.

Distance Viewing

To view objects or text in the distance, from the document capturing position, simply lift the camera up towards you, (the same step as in Self-Viewing) and then rotate the camera around to face the item you wish to target.

The Readit software will automatically switch to distance viewing mode when lifted upwards and it remembers your zoom and colour settings.

Scholar HD's camera head can rotate 340 degrees. If you cannot access the angle you desire, try rotating the camera head around in the other direction.

Scholar HD flash

The flash pops out when the button on the right hand side of the camera head is pressed. It's located around 1 cm (half an inch) down the side.

However, this is currently reserved for future use and will not fire under any circumstances. This may be enabled in future upgrades.

To retract the flash, simply push it back in towards the camera head and it will click into place. The flash is located on the right hand side of the front edge of the camera (facing towards you when the camera is in the document capturing position).

Flash pop up button (flash currently inactive)

Headphones

Scholar HD includes a pair of over ear
in-line volume control. They have a
audio jack connector.

To use the headphones, (or any oth
already own), simply plug them int
socket on your PC or laptop.

To alter the headphone volume, w
recommend using the in-line volum
wheel, located on the headphone wir
It is also possible to adjust the volum
of the headphones using the volume control on your
computer.

In-line volume control

Appendix A: Safety

- Handle the Scholar HD with care. Rough handling may damage internal components and will void your warranty.
- Contact your VisionAid International distributor to service this equipment if necessary.
- Do not open or remove any parts of the Scholar HD as it will void the warranty.
- Do not expose the Scholar HD to excessive cold, heat or direct sunlight.
- Do not use the Scholar HD near inadequately shielded medical devices.
- To avoid risk of electrical damage, keep your Scholar HD away from fluids and chemicals.

Use of the Scholar HD other than described in this manual will exclude it from warranty.

Appendix B: Technical Information

General information	
Dimensions folded (LxWxH)	27 x 8 x 5.5 cm 10.6 x 3.1 x 2.2 inches
Dimensions unfolded: (LxWxH)	27 x 8 x 40.2 cm 10.6 x 3.1 x 15.8 inches
Weight:	1.2 kg (3.3 lbs)
Camera:	16 MP with 21x optical zoom and auto-focus

Operating conditions	
Relative Humidity:	<70%, no condensation
Temperature:	10 to 35 °C

Storage and transport conditions	
Relative humidity:	<95%, no condensation
Temperature:	5 to 45 °C