



Protecting Your Digital Assets™



Forensic Labdock™ S5 and U5

User Manual

Features

- Easy attachment and write-blocked access to 2.5" and 3.5" IDE/PATA and SATA hard drives.
- Write-blocked access to USB thumb drives (U5 model only).
- Access SAS drives via a RedPort™ SAS write-blocked PCIe host bus adapter (S5 model only).
- Convenient storage cubby keeps your drives out of the way during imaging. A quiet fan keeps the cubby cool.
- Recognizes and reports the presence of a hidden area (HPA or DCO) on the hard drive. Included software utility can be used to configure the Forensic LabDock to handle these hidden areas in the way you prefer.
- Eight labeled LED indicators report real-time operational status.





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1 PRE-INSTALLATION STEPS

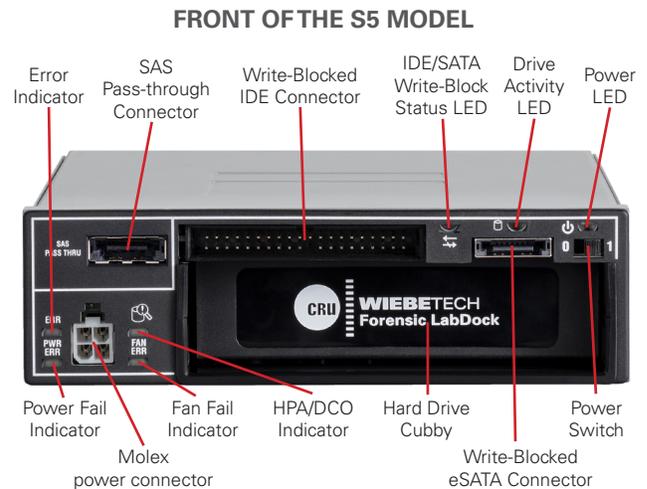
1.1 PACKAGE CONTENTS

The following list contains the items that are included in the complete configuration for this device. Please contact CRU if any items are missing or damaged:

Accessories	U5 Model	S5 Model
Forensic LabDock	1	1
4-pin Legacy Molex power cable	1	1
IDE cable for 3.5" drives (40-pin to 40-pin)	1	1
SATA data/power connector	1	1
USB A-type to B-type cable with bracket	1	0
USB B-type to 10-pin header cable	1	0
Packet of screws	1	1
Quick Start Guide	1	1

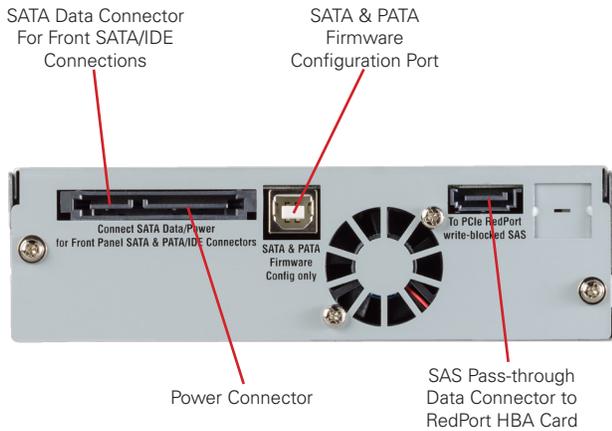
1.2 IDENTIFYING PARTS

Take a moment to familiarize yourself with the parts of the Forensic LabDock. This will help you to better understand the following instructions.

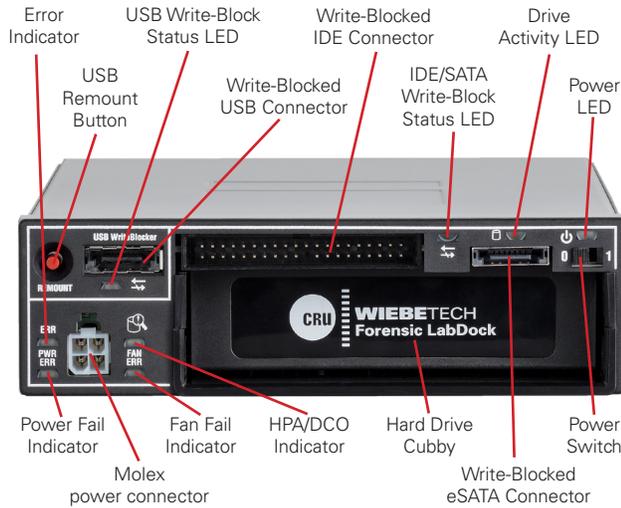




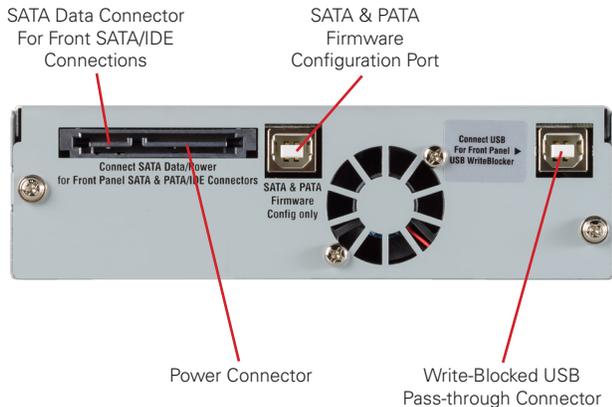
REAR OF THE S5 FLDs MODEL



FRONT OF THE U5 MODEL



REAR OF THE U5 MODEL



1.3 LED BEHAVIOR

LED	COLOR	STATE	DESCRIPTION
Power	Green	Solid	The Forensic LabDock is powered on.
Drive Activity	Amber	Solid or Blinking	The attached drive is being accessed.
Error Indicator	Red	Solid	The attached drive has reached 131°F/55°C, or an HPA/DCO-related disk command has failed.
Power Fail Indicator	Red	Solid	There is a problem with either the +5V or +12V power output to the attached drive.
HPA/DCO Indicator	Amber	Solid	An HPA or DCO area has been detected. Once lit, it will not be unlit until the LabDock's power is cycled.
Fan Fail Indicator	Red	Solid	The cooling fan has stopped working and needs replaced. Please contact CRU Technical Support.
USB Write-Block Status	Amber	Solid	The attached USB device is write-blocked.*
IDE/SATA Write-Block Status	Amber	Solid	The attached IDE or SATA drive is write-blocked.

* This LED appears only on the Forensic LabDock U5.

1.4 WARNINGS AND NOTICES

Please read the following before beginning installation.

General Care

- The main circuit board of the Forensic LabDock is susceptible to static electricity. Proper grounding is strongly recommended to prevent electrical damage to the enclosure or other connected devices, including the computer host. Avoid all dramatic movement, tapping on the unit, and vibration.
- Avoid placing the hard drives close to magnetic devices, high voltage devices, or near a heat source. This includes any place where the product will be subject to direct sunlight. Do NOT allow water to make contact with the drive or the Forensic LabDock.



- Before starting any type of hardware installation, please ensure that all power switches have been turned off and all power cords have been disconnected to prevent personal injury and damage to the hardware.

2 INSTALLATION STEPS

STOP! ■■■■■

The Forensic LabDock requires a SATA data connection inside your computer. The U5 model also requires a USB data connection for the write-blocked USB port, and the S5 model requires a SAS connection to a RedPort SAS write-blocked PCIe host bus adapter (HBA). If you do not already have the necessary connectors inside of your computer, you must add an HBA card with the appropriate connectors into an empty expansion slot inside your computer.

2.1 CONFIGURE HPA/DCO MODE

The Forensic LabDock gives you the ability to select the way hidden areas on hard drives (HPAs and DCOs) are handled. The Forensic LabDock will only notify you by default of the presence of these hidden areas by blinking the HPA/DCO LED indicator. Other modes allow you to view the information in these hidden areas.

To change modes, follow the steps below. If the default behavior is satisfactory, continue to Section 2.2.

- a. Connect a USB cable from your computer to the "SATA & PATA Firmware Config only" USB port on the rear of the Forensic LabDock. You may find this easiest to do before installing the Forensic LabDock inside a computer.
- b. Connect a SATA power cable from the computer's power supply to the rear of the Forensic LabDock.
- c. Flip the power switch to the **1** position to power the Forensic LabDock on.
- d. Download and install the Forensic Software Utility—a free software application designed for use with the Forensic LabDock: www.cru-inc.com/support/software-downloads/forensic-software-utility/
- e. Open the Forensic Software Utility and navigate to the HPA/DCO Behavior tab.
- f. Select the desired behavior (leave them in place, remove HPA temporarily but ignore DCO, remove HPA permanently but ignore DCO, or permanently remove them both).
- g. Click the Set HPA/DCO Behavior button.
- h. Turn the Forensic LabDock off and unplug it from the USB and SATA power cables.

2.2 INSTALL THE FORENSIC LABDOCK INTO YOUR COMPUTER

- a. Mount the Forensic LabDock into an empty 5.25" drive bay inside of your computer. Do not screw it into place until all the cables have been connected.
- b. Connect a SATA power cable from the computer's power supply to the rear of the Forensic LabDock.
- c. Attach the SATA data cable from your computer system to the rear of the Forensic LabDock.
- d. Connect the remaining open data port (USB on the U5 model and SATA on the S5 model) on the rear of the Forensic LabDock to your computer system. There are separate ways to connect for both SATA and USB devices, which are detailed on the next page.

STOP! ■■■■■

Both models contain a USB port that is used for firmware configuration only. Use the USB port on the far right that is labeled "Connect USB For Front Panel USB WriteBlocker" instead.



For USB, there are three ways to connect:

- If your motherboard has an available 10-pin USB header, use the “USB B-type to 10-pin header” cable.
- Use a USB B-type to B-type cable to connect to a USB host card.
- Use a USB B-Type to A-type cable and attach the A-type end to an available USB port on your computer.

For SATA:

- Connect a SATA data cable to the rear of the Forensic LabDock and the other end to an available port on your write-blocked RedPort SAS HBA card.

STOP! Connecting the pass-through port to any host other than a RedPort card will result in the corresponding front panel port becoming read/write rather than write-blocked.

- e. Use the provided screws to secure the Forensic LabDock into the 5.25” drive bay.

NOTE Using screws other than the provided mounting screws may put pressure on the drive cubby, making it difficult to insert and remove drives from it. Always use the provided mounting screws where possible.

Your Forensic LabDock is now ready to use!

2.3 CONNECTING HARD DRIVES TO THE FORENSIC LABDOCK

2.3.1 SATA Hard Drives

- a. Insert the hard drive into the cubby. Face the power and data connection side outward.
- b. Attach the included SATA data/power connector to the rear of the drive.
- c. Connect the 4-pin power cable on the SATA data/power connector to the power port on the front of the Forensic LabDock.
- d. Connect the eSATA data cable of the SATA data/power connector to the write-blocked eSATA port next to the power switch on the front of the Forensic LabDock.
- e. Flip the power switch to the **1** position to power the Forensic LabDock on.

2.3.2 IDE (PATA) Hard Drives

- a. Insert the hard drive into the cubby. Face the power and data connection side outward.
- b. Attach the included appropriately-sized IDE cable and the included 40-pin legacy Molex power cable to your hard drive. Both connectors are keyed to fit only one way.
- c. Remove any eSATA connector from the eSATA port next to the power switch on the front of the Forensic LabDock. IDE/PATA drives cannot be recognized if a SATA connection is detected.
- d. Connect the other ends of the IDE cable and the 40-pin legacy Molex power cable to the appropriate write-blocked ports on the front of the Forensic LabDock.
- e. Flip the power switch to the **1** position to power the Forensic LabDock on.



2.3.3 SAS Hard Drives (Available only on S5 models)

- a. Insert the hard drive into the cubby. Face the power and data connection side outward.
- b. Attach the included SATA data/power connector to the rear of the drive.
- c. Connect the 4-pin power cable on the SATA data/power connector to the power port on the front of the Forensic LabDock.
- d. Connect the eSATA data cable of the SATA data/power connector to the "SAS Pass Thru" port above the 4-pin legacy Molex power port on the front of the Forensic LabDock.
- e. Flip the power switch to the **1** position to power the Forensic LabDock on.

2.3.4 USB Thumb Drives (Available only on U5 models)

- a. Plug the device into the "USB WriteBlocker" port on the front of the Forensic LabDock.
- b. If the device has an On/Off switch, turn it on.
- c. Flip the power switch to the **1** position to power the Forensic LabDock on.

NOTE

If the computer fails to recognize the thumb drive, cycle the thumb drive's power (but removing and reinserting it or switching it off and on again) and then press the **Remount** button.

2.3.5 USB Drive Enclosures (Available only on U5 models)

This feature is useful for previewing the contents of a USB drive enclosure to determine if it contains digital evidence that you need to acquire. If it does, you can then decide whether to acquire the evidence through the USB connection or to open the drive enclosure and attach the bare hard drive to the Forensic LabDock with an IDE or SATA write-blocked connection.

Supported USB drive enclosures have the following characteristics:

- Are seen as a single physical device by your computer's OS
- Are powered by an AC adapter or an extra USB bus power cable

Connect the drive enclosure to the Forensic LabDock's "USB WriteBlocker" port with a USB cable and power the enclosure on. Then flip the power switch on the Forensic LabDock to the **1** position to power the Forensic LabDock on.

2.3.6 Other Types of Drives

Compatible SATA and PATA drive adapters are available that allow the Forensic LabDock to access to 2.5" PATA/IDE, Hitachi 1.8-inch, Toshiba 1.8-inch, MacBook Air 2010, mSATA, PCIe PATA, PCIe SATA, or PCIe USB drives.

- a. Connect the drive to the adapter.
- b. Attach the included 4-pin legacy Molex power cable to the adapter and the other end to the front of the Forensic LabDock.
- c. Connect the appropriate SATA or IDE cable to the drive adapter and the other end to the Forensic LabDock.
- d. Flip the power switch to the **1** position to power the Forensic LabDock on.



3 HOTSWAPPING WITH MAC AND WINDOWS OPERATING SYSTEMS

3.1 MAC OS X

Unmount the volume before powering down the Forensic LabDock by dragging the volume's icon to the Trash, or by selecting the volume then pressing **Command-E**. Once the volume has disappeared, turn the Forensic LabDock off. If you are using a SAS or SATA device, CRU recommends using a SAS or SATA host bus adapter (HBA) card that supports hotswapping. Otherwise, Mac OS X will not support hotswapping with SATA devices.

If you are connecting a USB device to the Forensic LabDock, swap out the new drive, turn the Forensic LabDock on, and Mac OS X will automatically detect the new drive.

3.2 WINDOWS OPERATING SYSTEMS

3.2.1 Hotswapping a SAS or SATA Device

CRU recommends using a SAS or SATA host bus adapter (HBA) card that supports hotswapping in order to easily eject and remount drives.

If you have a host bus adapter (HBA) card that supports hotswapping installed, unmount the volume before powering it down by left-clicking on the **USB plug icon** with the green checkmark on the Desktop task bar and then selecting the proper device from the menu that pops up. You may have to click on the **Show Hidden Icons arrow** on the task bar to find the correct icon. Windows will indicate when it is safe to turn the Forensic LabDock off. Reconnect a new drive to the Forensic LabDock, turn it on, and your system will automatically detect the new drive.

If you do not have an HBA installed, follow these steps:

- a. For the Windows 8 product family, press **WINKEY + X**, then select **Device Manager** from the menu that pops up.

For Windows 7, Vista, and the Windows Server 2008 and 2012 product families, right-click on the **Computer button** in the Start Menu and select **Manage**. In the left pane of the Computer Management window that opens, left-click on **Device Manager**.

- b. Expand the **Disk drives section**.
- c. Power off the Forensic LabDock by turning the power switch to the **0** position.
- d. In Device Manager, click the **Scan for hardware changes button** in the toolbar. Note that the target drive has disappeared from the list of drives.
- e. Connect a new drive to the Forensic LabDock S5.
- f. Turn the power switch on the Forensic LabDock S5 to the **1** position to turn the unit on.
- g. In Device Manager, click the **Scan for hardware changes button** in the toolbar again. The new volume will now appear.

3.2.2 Hotswapping a USB Device

Unmount the volume before powering it down by left-clicking on the **USB plug icon** with the green checkmark on the Desktop task bar and then selecting the proper device from the menu that pops up. You may have to click on the **Show Hidden Icons arrow** on the task bar to find the correct icon.



Windows will indicate when it is safe to turn the Forensic LabDock off. Reconnect a new drive to the Forensic LabDock, turn it on, and your system will automatically detect the new drive.

4 UPDATING FIRMWARE

CRU provides free firmware updates for the Forensic LabDock through our Configurator application.

Download it here: www.cru-inc.com/support/software-downloads/configurator-software-download/

If your product is running outdated firmware, you will see a prompt asking you to update once you launch the Configurator application. Follow the instructions on the prompt to update the firmware.

5 FORENSIC SOFTWARE UTILITY

The Forensic LabDock is compatible with CRU's Forensic Software Utility application. This software allows you to perform a write-block test on your Forensic LabDock and modify its HPA and DCO handling behavior. It also includes the ability to display details about attached write-blockers and drives and allows you to save that data to a file for easy inclusion in a case report.

Download it here: www.cru-inc.com/support/software-downloads/forensic-software-utility/

For information on HPA/DCO handling, see Section 2.1.

6 FAQ

6.1 WHAT IS AN HPA AND A DCO?

A Host Protected Area (HPA) and Device Configuration Overlay (DCO) are reserved areas on a hard drive that are not accessible by the BIOS or OS. Data can be hidden behind an HPA or DCO. CRU forensic devices can alert you if there is an HPA or DCO so that you are aware of it and can take the necessary steps to retrieve the hidden data.

6.2 WHY IS IT NECESSARY TO UPDATE THE FIRMWARE OF MY CRU FORENSIC DEVICE?

Firmware relates to the programs and data that control electronic products. Firmware is enhanced over time, usually to add new features or increase compatibility. Updating firmware can improve the functionality and dependability of your product. If your CRU forensic device is using outdated firmware, CRU's Configurator application can recognize this and implement up-to-date firmware on your device. See Section 4 of this manual for more information.

6.3 MY FORENSIC LABDOCK WORKS GREAT WITH SATA DRIVES BUT I AM HAVING COMPATIBILITY ISSUES WITH IDE/PATA DRIVES. WHAT SHOULD I DO?

First, check to make sure the SATA data/power connector is unplugged from the SATA output port. IDE/PATA drives cannot be recognized if a SATA connection is made with the SATA output. Next, check to make sure the 4-pin legacy Molex power cable is plugged into the IDE/PATA drive. If the power and host connection are securely attached to the drive, then the IDE cable may be faulty. Contact Technical Support for further instructions.

6.4 HOW SHOULD I SET MY IDE/PATA HARD DRIVE JUMPER SETTINGS?

Try the "Master" configuration on your hard drive first. Some hard drives have two different "Master" settings one for when there is a secondary "slave" drive present and one for when there is no slave drive



present. Choose the setting with no slave present. There may be some drives that will not work with either of these settings. The next choice is “Cable Select.” If this does not work, try using no jumpers. If you’re unsure how to change the jumper configuration, check the manual that came with your hard drive or the manufacturer’s website. Some drives also have the information printed on the label.

6.5 CONTACTING TECHNICAL SUPPORT

Still need help? Please contact our Technical Support team through www.cru-inc.com/support. Or call us toll free at (800) 260-9800 or directly at (360) 816-1800.

7 TECHNICAL SPECIFICATIONS

Product Models	Forensic LabDock S5, Forensic LabDock U5
U.S. Patent No.	8,090,904
Interface Types & Speeds	eSATA: up to 6 Gbps IDE/PATA: up to 133 MB/s USB (U5 Model only): up to 480 Mbps SAS (S5 Model only): up to 6 Gbps
Front Data Connectors	One (1) eSATA connector One (1) IDE/PATA connector One (1) USB/SAS combo connector (only USB is active on the U5 model; only SAS is active on the S5 model)
Rear Data Connectors	One (1) write-blocked SATA connector One (1) write-blocked USB connector (U5 model only) One (1) SAS connector (S5 model only) One (1) USB connector for firmware configuration
HPA/DCO Handling	Four modes of operation (selectable using the Forensic Software Utility application): 1. Leave HPA and DCO in place 2. Remove HPA temporarily but ignore DCO 3. Remove HPA permanently but ignore DCO 4. Permanently remove HPA and DCO
Supported Operating Systems	Windows 8.1, 8, 7, and Vista Windows Server 2012, 2008, and 2003 product families Mac OS X 10.4.x or newer Linux distributions that support the connection type used
Compliance	EMI Standard: FCC Part 15 Class A, CE EMC Standard: EN55022, EN55024 CE
Product Weight	1.55 lbs (0.703 kg)
Product Dimensions	6.81in x 5.79in x 1.65in (173mm x 147mm x 42mm)
Technical Support	Your investment in CRU products is backed up by our free technical support for the lifetime of the product. Contact us through our website, www.cru-inc.com/support or call us at 1-800-260-9800 or +1-360-816-1800.

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Product Warranty

CRU warrants this product to be free of significant defects in material and workmanship for a period of two years from the original date of purchase. CRU's warranty is nontransferable and is limited to the original purchaser.

Limitation of Liability

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

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at this own expense.

In the event that you experience Radio Frequency Interference, you should take the following steps to resolve the problem:

- 1) Ensure that the case of your attached drive is grounded.
- 2) Use a data cable with RFI reducing ferrites on each end.
- 3) Use a power supply with an RFI reducing ferrite approximately 5 inches from the DC plug.
- 4) Reorient or relocate the receiving antenna.



Protecting Your Digital Assets™



For more information, visit the CRU web site.

www.cru-inc.com