



Item# 4700018
MODEL# ML-31001

CrimeTech

USER GUIDE

EYESIGHT PACKAGE 1S CRIME CAMERA ASSEMBLY KIT

Questions, problems, missing parts? Call CRIMETECH Customer Service
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THANK YOU

We appreciate the trust and confidence you have placed in 21 Degrees Consulting, LLC and subdivision, CrimeTech through the purchase of this assembly kit. We strive to provide quality products designed to enhance your security needs. Thank you for choosing CrimeTech a subdivision of 21 Degrees Consulting, LLC!

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Pre-Installation

PLANNING INSTALLATION

Before beginning installation of this product, make sure all parts are present. Compare parts with package contents list and hardware contents list. If any part is missing or damaged, do no attempt to assemble the product.

TOOLS REQUIRED (NOT INCLUDED)

Marking pencil, screwdriver (Philips and flathead), drill and bits, doubled-sided tape, voltage meter, clear adhesive sealant, riveter tool and bit, threaded rivets



KIT CONTENTS

Part	Description	Quantity
A	Pi 4 Model B 4G	1
B	64Gb Extreme microSDXC UHS-I Memory Card with Adapter	1
C	Aluminum Electronic Enclosure Project Box	1
D	AC-DC Converter	1
E	12V-5V Converter	1
F	2TB Portable External Hard Drive USB 3.0	1
G	4TB Portable External Hard Drive USB 3.0	1
H	Pi 4 Aluminum Case with Dual Intelligent Temperature Control Fan	1
I	POE Switch	1
J	USB 3.0 4-Port Hub with Power Adapter	1
K	USB to Ethernet Adapter	1
L	DC Plug	1
M	Outdoor Bullet POE IP Camera	3



A: Pi



B: MicroSD



C: Enclosure



D: AC/DC (A)



D: AC/DC (B)



E: 12V-5V Converter



F: 2TB Hard Drive



G: 4TB Hard Drive



H: Pi Enclosure



I: PoE Switch



J: 4-Port USB Hub



K: USB - Ethernet Adapter



L: AC Plu



M: IP Camera

Installation

1 Pi Wi-Fi Headless Configuration

- Open your favorite text editor on your computer
- Enable SSH automatically by creating a blank text file without the “.txt” extension
- Name newly created file “SSH”
- Create a second text file and name it “wpa_supplicant.conf”
- Add the following lines to “wpa_supplicant.conf”:

```
country=US
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1
network={
    ssid="YOURSSID"
    scan_ssid=1
    psk="YOURPASSWORD"
    key_mgmt=WPA-PSK
}
```

- Replace variables with your SSID and password. Change the country value if needed.
- Save the file on a location you can find easily the next time you create a new SD card.

2 Installing Raspbian

- Download the 64-bit version of Raspbian Lite:
 - https://downloads.raspberrypi.org/rasppios_arm64/images/rasppios_arm64-2020-05-28/2020-05-27-raspios-buster-arm64.zip
- Create a Raspbian SD card (B) using the following link:
 - [Create a Raspbian SD card for your Raspberry Pi on Windows \(howtoraspberrypi.com\)](#)
- Once the SD card (B) has successfully been written, remove the SD card (B) from the computer and re-insert it again. This allows Windows to mount the SD card
- Copy over your edited “wpa_supplicant.conf” and “SSH” files that were created in step 1 into the root of the SD card (B)
- Insert the SD card into the Pi
- Plug the Pi (A) in.
 - If you are doing this headless (without a keyboard and monitor):
 - Go to your router and find the IP address of the Pi.
 - If you are not doing this headless:
 - The Pi (A) should be logged in and ready to go. If it requires a login:
 - Username: pi
 - Password: raspberry

3 Installing Required Software

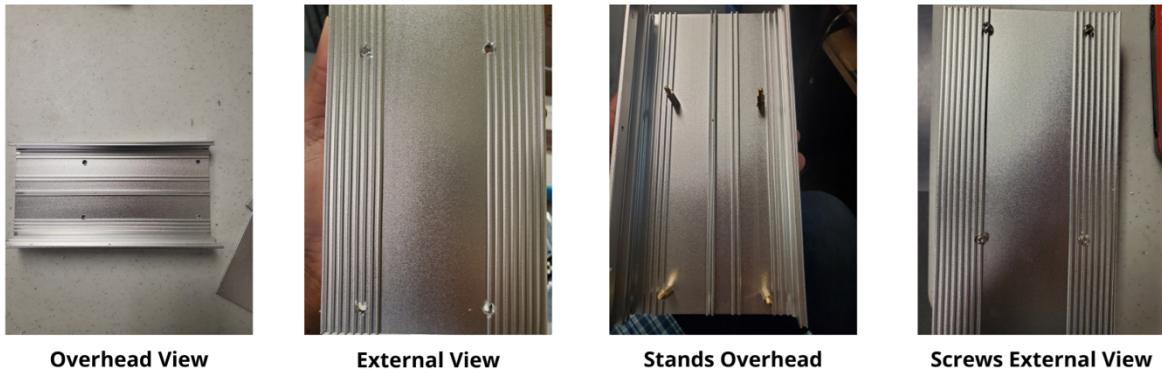
- Once the Pi is running, run the following commands:
 - sudo apt-get update
 - sudo apt-get install ffmpeg
 - sudo curl -sL https://deb.nodesource.com/setup_14.x | sudo bash -
 - wget -qO - https://www.mongodb.org/static/pgp/server-4.2.asc | sudo apt-key add -
 - echo "deb [arch=amd64,arm64] https://repo.mongodb.org/apt/ubuntu bionic/mongodb-org/4.2 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb-org-4.2.list
 - sudo apt-get update
 - sudo apt-get install mongodb-org
 - sudo npm install pm2 -g -y
 - git clone (INSERT GIT URL HERE)
 - cd CrimeCameraNode
 - npm install -y
 - sudo pm2 start npm – start
 - sudo pm2 startup

4 Mounting Converters to Enclosure

- Unpack the Enclosure (C) and the AC/DC Converter (D)
 - If you have Form Factor A:
 - Measure and mark where the 4 holes will be drilled into the side of the Enclosure (C)
 - Drill the holes
 - Insert the stands into the side of the enclosure and secure them with screws
 - Position the AC/DC Converter (D) over the stands and screw it into place
 - If you have Form Factor B:
 - Position the power brick from the PoE Switch (I) along the left edge of the Enclosure (C)
 - Add 3 strips of double-sided tape to the bottom of the AC/DC Converter
 - Align the AC/DC Converter next to the power brick and press it firmly into the base of the Enclosure

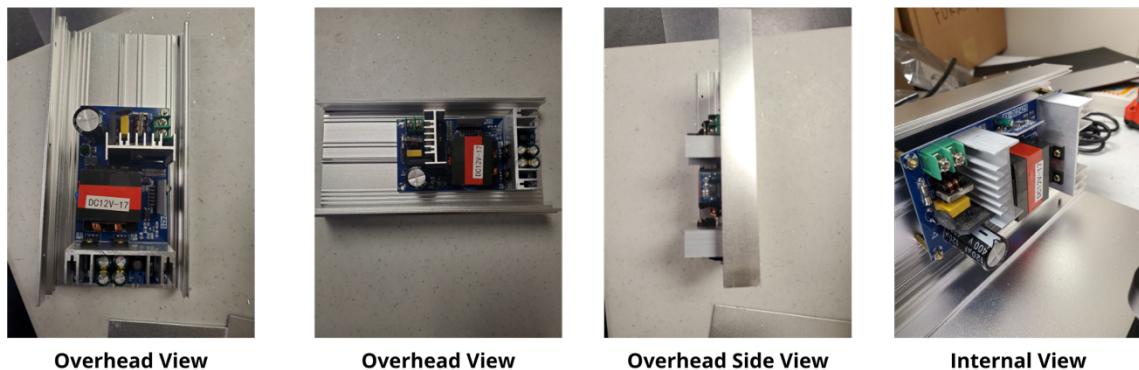
AC/DC Installation

Form Factor (A) Drilled Holes and Installed Stands



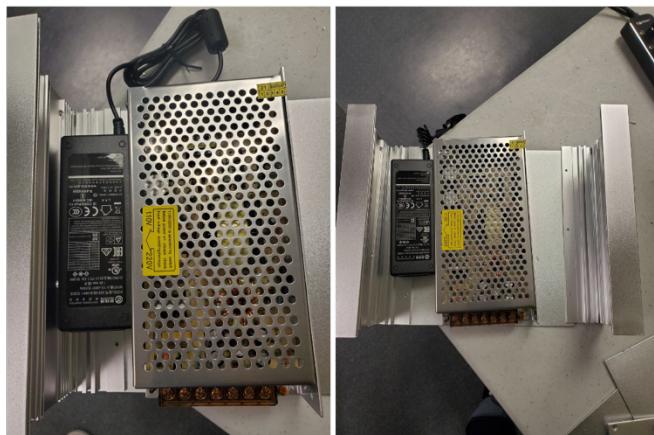
Overhead View External View Stands Overhead Screws External View

Completed Installation for Form Factor (A) AC/DC Converter



Overhead View Overhead View Overhead Side View Internal View

Form Factor (B) Installation



Overhead Views

5 Securing Items to the Enclosure

- Install the Pi (A) into the Pi Enclosure(H)
- Install the SD Card (B) that was created from
- If you have Form Factor A:
 - Use double-sided tape to attach the PoE Switch (I) to the base of the enclosure
 - Use double-sided tape to attach the Pi, 2TB Drive (F), and 4TB Drive (G), in that order with the Pi on top
 - Use double-sided tape to attach the previous items to the top of the PoE Switch
 - Use double-sided tape to attach the power brick to the edge of the full assembly
 - Use double-sided tape to attach the 12V-5V Converter (E) next to the PoE Switch on the base of the enclosure
 - Use double-sided tape to attach the 4-Port USB Hub (J) to the base of the enclosure along the edge of the mounted AC/DC Converter
- If you have Form Factor B:
 - Use double-sided tape to attach the PoE Switch (I) on top of the middle of the AC/DC Converter.
 - Use double-sided tape to attach the 2TB Drive (F) to the 4TB Drive (G)
 - Use double-sided tape to attach the combined drives to the edge of the AC/DC Converter and PoE Switch
 - Use double-sided tape to attach the Pi and 12V-5V Converter (E) to the top of the PoE Switch.
 - Use double-sided tape to attach the 4-Port USB Hub (J) to the side of the combined hard drives
- Insert a small Cat5 cable into ethernet port of the USB-to-Ethernet adapter
- Plug the USB portion into the first USB 3.0 port on the Pi
- Plug the other end of the Cat5 cable into the PoE switch into the “Uplink” slot

Items Secured to Enclosure

Form Factor (A) Securing Items to Enclosure



PoE Switch Installation



12V-5V Converter Installation

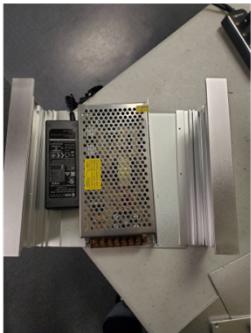


2TB and 4TB HDD Installation



Pi Installation

Form Factor B Securing Items to Enclosure



AC/DC Converter



PoE Switch



Both Hard drives



Hub with Hard Drives

6 Wire the Converters

- Cut some speaker cables the length of the distance from the AC/DC Converter to 12V-5V Converter
- Strip the ends of the speaker cable so that the wire is exposed
- Use a screwdriver to open the sections on both converters where you insert the cable
- Insert the end of the speaker cable that is white to the positive (+) terminal on the AC/DC Converter
- Insert the opposite end of the speaker cable into the positive (+) terminal on the 12V-5V Converter
- Insert the end of the remaining cable into the negative (-) terminal on the AC/DC Converter
- Insert the end of the remaining cable into the negative (-) terminal on the 12V-5V Converter

Form Factor A Speaker Cables to Connect the AC/DC Converter to the 12V-5V Converter



Speaker Cable



Speaker Cables in
12V-5V Converter



Speaker Cables in
AC/DC Converter



Full Installation

Form Factor B Speaker Cables to Connect the AC/DC Converter to the 12V-5V Converter



Speaker Cable



Speaker Cables in
AC/DC Converter



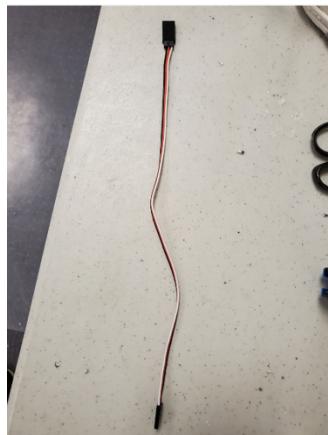
Speaker Cables in
12V-5V Converter

7

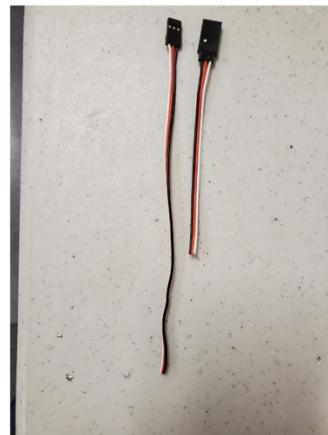
Power the Pi 4 and Temperature Control Fan

- Take some Servo Cables and measure the distance between the 12V-5V Converter and the enclosed Pi 4
- Strip the ends of the servo cables.
- Attach the larger end of the cable to the small extension in the Pi enclosure, making sure that the cable colors are matching
- Attach the smaller end of the servo cable into the enclosure making sure the red cable is on the second pin and the black is on the third pin on the far right (closest to the edge of the Pi).

Servo Cables



Full Servo Cable



Cut Servo Cable

Servo Cables Installation



Form Factor A Servo Cables in Pi



Form Factor A Servo Cables in Converter



Form Factor A Complete Servo Cable Setup



Form Factor B Servo Cable Installation

8 Connecting the External Hard Drives

- Connect the 2TB and 4TB Hard drives into the 4-Port USB Hub
- Connect the USB Hub into the second USB 3.0 Port on the Pi

External Hard Drive Installation



Form Factor A Drives in the Hub



Form Factor A Hub in Pi USB 3.0 Port



Form Factor B Drives in Hub



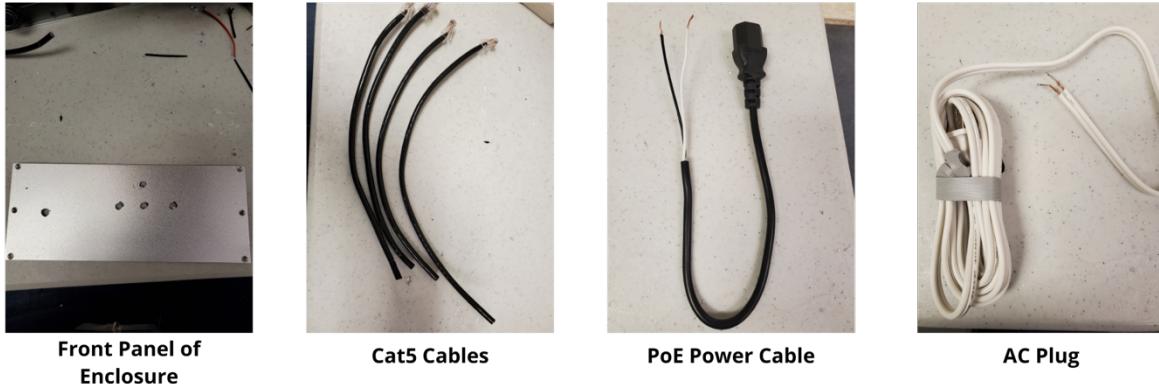
Form Factor B Hub in Pi USB 3.0 Port

9 Power Cable and Ethernet External Access

- Take one of the smooth sides of the Enclosure (C) and measure 5 holes:
 - 1 slightly off the right of the middle screw; this is for your AC Plug
 - 4 more for Ethernet cables:
 - 1 on top near the middle
 - 3 underneath evenly spaced out
- Use the drill and a 5/16th bit and drill the hole near the middle screw
- Use the drill and a 1/4th bit and drill the other 4 holes
- Measure out enough Cat5 cable to make 4 patch cables, 1 slightly longer than the rest
- Crimp one end of all 4 cables
- Strip the end of the AC Plug and run it through the slightly bigger hole
- Pass the ends of the Cat5 cables made in a previous step through the other 4 holes
- Take the power cable for the PoE Switch and strip the ends to expose the green, black, and white cables
- If you have Form Factor A for the AC/DC Converter:
 - Insert the black cable into one of the slots where power enters the converter
 - Insert the white cable into the other slot
 - Insert the AC Plugs alongside the black and white cables
 - Screw the connectors tight
- If you have Form Factor B for the AC/DC Converter:
 - Insert the black cable into the left-most slot (L)
 - Insert the white cable into the next slot (N)
 - Insert the AC Plugs alongside the black and white cables
 - Screw the connectors tight

External Access and Power Connections

Ethernet and Power Cables



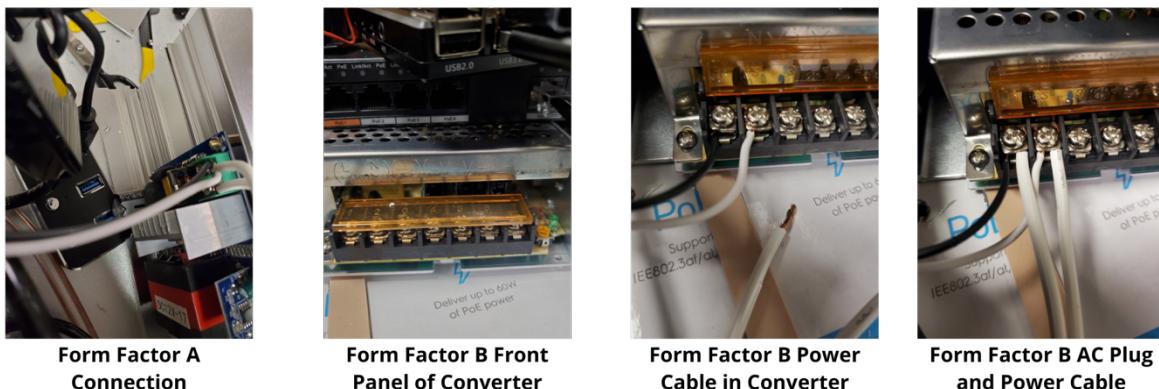
Front Panel of Enclosure

Cat5 Cables

PoE Power Cable

AC Plug

Power Connections



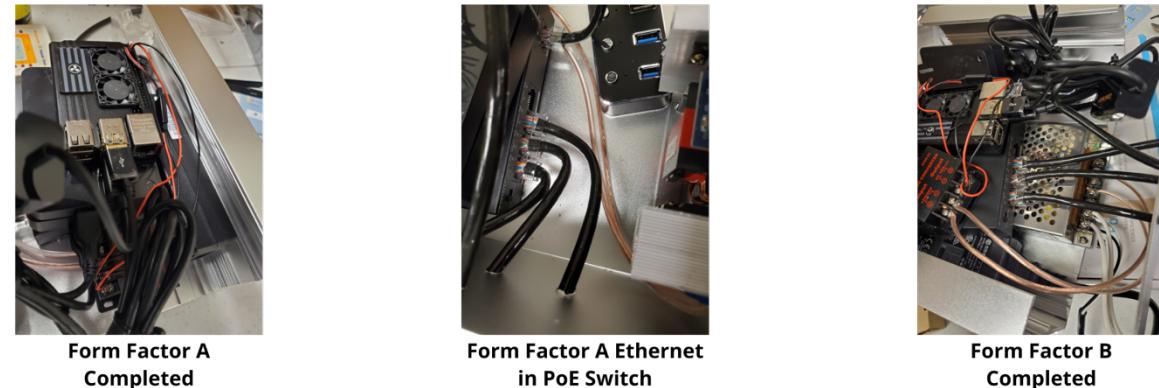
Form Factor A Connection

Form Factor B Front Panel of Converter

Form Factor B Power Cable in Converter

Form Factor B AC Plug and Power Cable

Complete Ethernet Installation



Form Factor A Completed

Form Factor A Ethernet in PoE Switch

Form Factor B Completed

10 Closing the Enclosure

- Once you have plugged in the newly completed node, plug it into an outlet and make sure that it comes on.
- Apply clear silicone sealant on the holes that were drilled into the Enclosure as well as on each bottom and top plates of the Enclosure
- Close the enclosure and secure it with screws