

USER MANUAL
DEFIANCE 640 PTZ
VEHICLE-MOUNTED THERMAL CAMERA



 **DARK** **30** DT27000

Dark 30 is a provider of advanced imaging technology for the outdoor community. Dedicated to innovation and excellence, Dark 30 delivers cutting-edge solutions designed to meet the diverse needs of professionals across various industries.

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WWW.DARK30.COM

DEFIANCE

VEHICLE-MOUNTED THERMAL CAMERA

The Dark 30 Defiance is an innovative PTZ vehicle-mounted thermal camera for mobile scouting. Eliminate the need for handheld observation and overcome the limitations of thermal-blocking windshield and window glass with this roof-mounted camera, providing a full 360° scan from an elevated vantage point. Mounted atop your vehicle, the Defiance offers a broader, clearer view compared to handheld or gun-mounted scanning. Its versatile mounting options—magnets, suction cups, or direct screws—ensure compatibility with any vehicle, with all hardware included. The 360-degree rotation and integrated directional indicator make it effortless to track and pinpoint targets.

FEATURES

- Variable Speed Remote Control
- Sleep Mode
- Return To Home Function
- High Resolution 640x480 thermal imaging
- Infinite 360° Panning
- Low Latency HDMI compatible Wired Screen
- App Control on the Dark 30 App
- Versatile Mounting Options:
(Permanent bolts, suction cups, or 100lb pull magnets.)
- Water Resistant

ADDITIONAL ACCESSORIES

- 2in Riser
- Base Kit
- Remote
- 10in Screen

TECHNICAL SPECIFICATIONS

Type of sensor	Thermal sensor
Sensor resolution, pixels	640x480
Display type	HDMI or app to external display
Lens diameter, mm	32
Display resolution	Various
Digital video recording	640x480 @60fps
Maximum memory card	4 to 512 (Class10 rec)
Pixel size(μm)	17x17
Spectral range	8 - 14μm
Detector NEDT (30Hz, 300K, F/1) (mK)	<30
WIFI	Yes
Color palettes	5
Lens material	Germanium
Digital zoom	1-8x
Field of View (degrees, Horizontal, Vertical and Diagonal)	20 / 15 / 25
Power Supply	12v DC
Battery type	N/A for unit 2x AAA for Remote

External power supply	Car cigarette power, 12VDC
Ports	1 TF card slot, 2 HDMI ports, 2 DC ports
Water resistance	IP66
Pan angle	Continuous 360
Tilt angle	Straight downward to 45 degrees above horizontal
Detection range (yd/m)	1,258 / 1150
Body material	aluminum
Operating temperature range	-4°F to 122°F
Dimensions in/mm	6.65 / 169 x 7.68 / 195 x 7.8 / 198
Weight oz/g	111 / 3150
Prop 65 / ROHS / CE / WEE, HDMI, FCC	Yes - TBD specific / Yes / Yes / Yes
Digital zoom	1-8x
Field of View (degrees, Horizontal)	20
Field of View (degrees, Vertical)	15
Field of View (degrees, Diagonal)	25



DIAGRAM:

- A. Camera
- B. Screen
- C. HDMI Cable
- D. Camera Power Cable
(Longer 12v with Barrel Connector)
- E. Display Power Cable
(Shorter 12v with Barrel Connector)
- F. Remote
- G. Magnetic Feet
- H. Suction Cup Feet
- I. 4 M8 with 40mm length direct mounting bolts
- J. 4 Direct Mounting Nuts
- K. Nut Driver
- L. Display Suction Cup Mount
- M. Display Bar Clamp Mount
- N. 1/4-20 Coupler
- O. Adjustable Arm for Mounts
- P. Base Cover
- Q. Power Splitter
- R. Camera Base
- S. 12v Power Port
- T. HDMI Port
- U. Camera Lock Ring
- V. TF Camera slot
- W. AAA Batteries



UNBOXING

Start by removing the camera (A), display screen (B), HDMI cable (C), both power cables (D, E), remote (F), and the mounting option of your choice (bolt [I], magnetic feet [G], or suction cup feet [H]) inside.

ASSEMBLING THE BASE:

Attach your preferred mounting option (G, H, or I) to the base of the camera (A). Insert the four feet/mounting bolts into the base from below and secure them with nuts (J) on top. Use the included nut driver (K) to tighten the bolts.

When using the suction cups, clean the surface they will be attached to and ensure it is smooth and does not have any holes, or the suction cups may not work properly. The suction cups can be cleaned with soap and warm water to remove any dirt or debris that may have adhered to the sticky side. DO NOT attach these to damaged painted surfaces, as they may remove the paint.

MOUNTING WITH MAGNETIC FEET

1. Remove all Magnetic Feet and mounting nuts from the case.
2. Align the Magnetic Feet so that the bolt goes through one of the mounting holes on the base.
3. Place a nut on top of the bolt and use the Nut Driver (K) to tighten the nut onto the Foot.
4. Repeat for the remaining 3 feet.
5. Clean the vehicle roof of any debris.
6. Place the camera with its feet flat on top of the roof.
7. Attach the camera's HDMI and Power Cables as described in the "Connecting the Cables" section.



MOUNTING WITH SUCTION CUP FEET

1. Remove all suction cup feet and mounting nuts from the case.
2. Align the suction cup feet so that the bolt goes through one of the mounting holes on the base.
3. Place a nut on top of the bolt and use Nut Driver (K) to tighten the nut onto the foot.
4. Repeat steps 2 and 3 for the remaining 3 feet.
5. Clean the vehicle roof of any debris.
6. Place the camera with its feet flat on the roof. Make sure the levers on the feet are in the up and released position.
7. Once all feet are flat on the roof, pull the tab down on the foot to secure it.
8. Attach the cameras HDMI and Power Cables as described in the “Connecting the Cables” section.

MOUNTING WITH BOLTS

1. Remove all mounting bolts and nuts from the case.
2. Align the bolts so that they go through the mounting holes on the base as well as the mounting holes in whatever you are mounting to (consult an expert if doing any modification to your vehicle).
3. Place a nut on top of the bolt and use the Nut Driver (K) to tighten the nut onto the foot.
4. Repeat steps 2 and 3 for the remaining 3 feet.
5. Attach the camera's HDMI and Power Cables as described in the "Connecting the Cables" section.

REMOVING THE CAMERA FROM THE BASE (OPTIONAL):

The camera can be removed from the base by twisting the lock ring counterclockwise until it is free and lifting the camera away from the base. The camera may require some force to remove due to the water sealing rings. To reattach, make sure the arrows on the bottom of the camera and base are aligned and slide the camera straight down until it is fully seated. Twist the locking ring counterclockwise until it clicks past the first thread and then turn it clockwise until fully seated. If you would like some additional security the locking screw If you would like some additional security, the locking screw can be tightened.



POSITIONING THE CAMERA:

Identify the front of the camera. If this is your first time using the camera, the lens should already be facing towards the front. Otherwise, the HDMI port (T) should be on the camera's left (The front is also indicated on the surfaces inside the base and on the bottom of the camera if you remove it from the base). Place it on top of the vehicle or at your desired location.





CONNECTING THE CABLES:

Connect the camera power cable, the longer of the 12v barrel connector cables (D) to the 12v Power Port (S), then connect the HDMI cable (C) to the side HDMI port (T) using the connector with the two screws. Be sure these are fully screwed into the base to guarantee consistent connectivity. Route these cables into the vehicle to the location where the display will be placed. Secure the cables using cable ties or other attachments to prevent them from being pulled out or disconnected. If you are permanently mounting the camera base, consider using the bottom ports and routing the cables through a sealed hole in the vehicle (sealing materials not included).

SETTING UP THE DISPLAY:

Connect the corresponding ports on the back of the camera.



MOUNTING THE DISPLAY:

Attach your preferred mounting hardware to the display. You will find both a bar clamp (M) and a suction cup mount (L) included for your convenience. The display also has a 1/4-20 threaded adapter on the back, allowing you to use other standard mounting hardware.

POWERING ON:

Plug both power cables into the vehicle's 12-volt power port. You will find a 12v power splitter(Q) for situations where you may only have one 12v port. If your vehicle does not have a 12-volt power port, you may need an adapter or a different power source. The unit should power on and automatically calibrate its home position. Please note that the display may take a few seconds to show an image from the camera.



USING THE REMOTE:

Press the home button on the remote (F) to wake it up (The red light should blink when it is connecting and become steady once connected). If the remote does not respond, make sure the two AAA batteries are installed correctly. Use the joystick to control the camera's position or the wheel at the top to zoom in or out.



REMOTE CONTROL BUTTONS:

- A. Joystick: Pan <-> Tilt \updownarrow and to navigate the menu
- B. Zoom Wheel: Toggle left to zoom out and toggle right to zoom in
- C. Home Button: Press to center the camera, hold to enter menu, double press to put the unit to sleep.
- D. Photo/Video Button: Press to take a picture, hold to change color palettes.

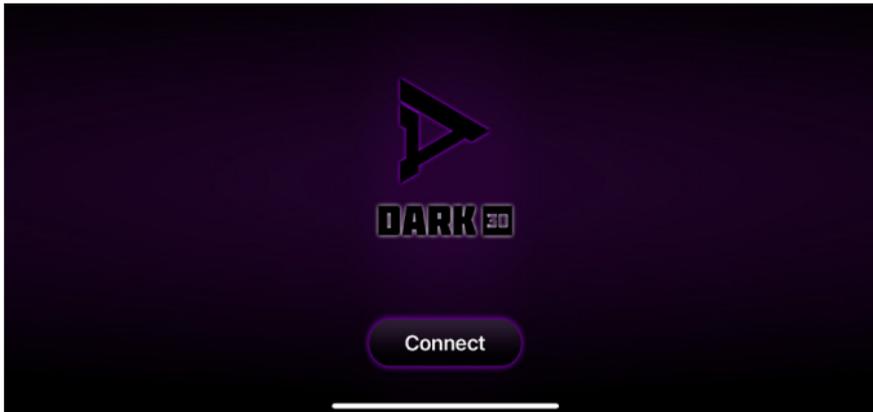


CONNECTING THE CAMERA TO THE APP

On your phone, download the Dark30 App. Once downloaded, connect to the camera's Wi-Fi, which should be DTxxxxx_XXX, where the x's correspond to the camera's model and serial number. The default password if you have not changed it is: 12345678

You may get a pop up asking if you want to stay connected, make sure you select "yes" so that it does not disconnect.

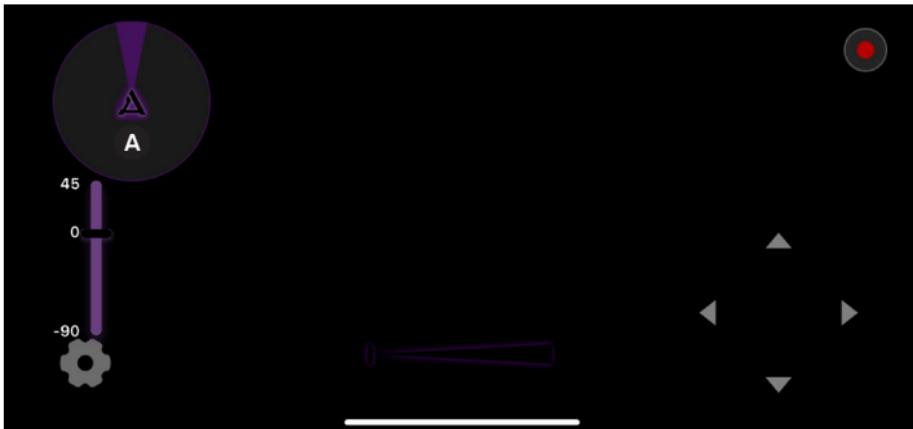
Once connected, open the Dark 30 app. The following screen will appear:



Press connect and the camera should connect to the app. If it does not connect, check to make sure you are still connected to the device's Wi-Fi. If you are connected to the device's Wi-Fi but are unable to manipulate your device, try closing and reopening the app.

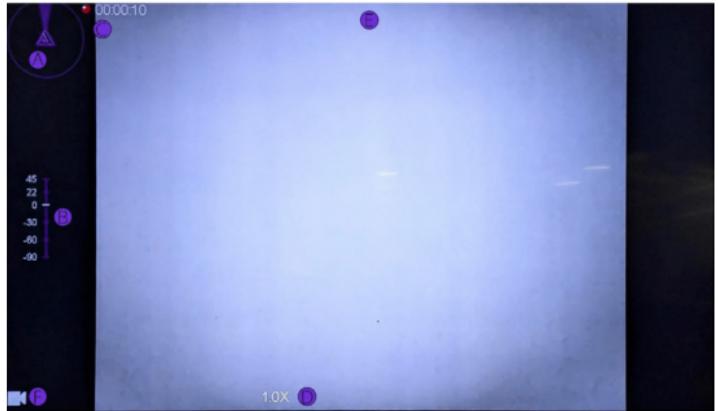
On the app, the menus and controls will be the same, except in touch screen format. To move the camera, push the corresponding buttons for direction, angle, or zoom on screen.

Tap on the camera's directional indicator (A) to quickly jump to specific positions. Fine adjustments can be made with the on-screen controls



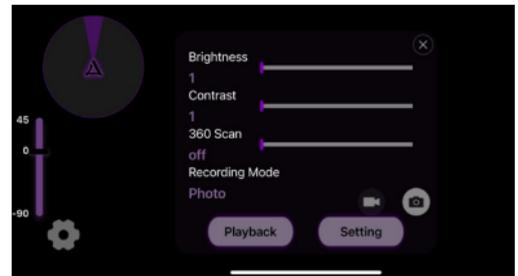
VIEWFINDER:

- A. Camera Directional Indicator
(The arrow points forward, relative to the camera's base, while the colored cone indicates the view direction of the camera)
- B. Tilt Indicator
- C. Recording Indicator and Recording Time:
- D. Current Digital Magnification:
- E. Picture in Picture: (if enabled)
- F. Record Mode:



MENU:

The menu allows you to change some of the settings as well as update the unit. From the top level you can access Brightness, Contrast, 360 Scan, Recording Mode, Playback, and the Settings menu. The Settings menu further allows you to access additional settings for Zoom Step (the increment for each click of zoom adjustment), Pixel Repair, Remote, Wi-Fi, and Firmware Updates.



UPDATING THE CAMERA:

To update the camera's firmware, you will need a computer and a TF card. The firmware files will need to be downloaded from the Dark 30 website and transferred to your camera.

Insert your TF card into your computer or laptop, use an adapter if required. Go to the Dark 30 website (dark30.com) and download the latest firmware update.

Extract the contents of the .zip file into the root folder of your TF card, which should appear as a new drive letter on your computer. Do not copy and paste the .zip file itself into the root folder.

Safely extract your TF card from your computer and place it into the TF card slot of your D30 Defiance.

The unit will display a progress bar and will reboot when it is updated.

TROUBLESHOOTING:

If you encounter any issues during setup or use, refer to this manual or support resources on our website, www.dark30.com. Common issues might include the camera not powering on (check all cable connections and the power source), the remote not responding (check the battery installation), or the display not showing an image (give it a few seconds after powering on, then check the HDMI connection).

WARNINGS:

While suction cup feet offer a versatile mounting option, they can lose grip over time. To prevent accidental detachment, ensure a secure hold by firmly pressing the cups onto a clean, dry, and smooth surface. For optimal performance, avoid using them on rough, textured, or wet surfaces. Regularly check the suction and reapply if necessary.

We do not recommend driving at high speed when the camera is mounted to the top of vehicle using magnetic or suction cup feet. The forces acting on a camera at high speeds can be significant. For the safety of your camera and the well-being of others on the road, we strongly advise against using either the magnet or suction cup feet during highway travel.

Do not use the image from the camera to navigate or drive a vehicle, always keep your eyes on the road.

FCC STATEMENT

1. 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.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

CONTAINS

- Remote FCC ID: 2BGAS-SA-DT21-0003 Remote SKU: DT27000.01
- Camera FCC ID: 2BGAS-DT27000 Camera SKU: DT27000

For the Camera: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

BATTERIES

A warning that batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the light.

- (1) Replacement of a battery with an incorrect type that can defeat a safeguard;
- (2) Disposal of a battery into a fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion;
- (3) Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or leakage of flammable liquid or gas;

(4) A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas



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