User Manual

RazerCam™ AHD 7” Monitor, 170° Skid Steer Bracket, and Cable

DM Part Number(s)	Description(s)
DMRZ-SH7C1	This RazerCam™ kit includes one (1) AHD 7" monitor, one (1) AHD 170° camera, one (1) 15' shielded video flex cable, three (3) custom brackets and accessories.

Always read the manual prior to operating this equipment. Also, please follow all safety signs and precautions.

Table of Contents

Included Components

Description	Picture
Dakota Micro® AHD 7” Monitor	
Dakota Micro® AHD 7" and 9" Monitor Wire Harness **PN: DM-MWH**	
Dakota Micro® 7” Skid Steer Monitor U-Bracket and Hardware **PN: DM-H7SBRKT**	
Dakota Micro® 7" Monitor Sun Shade **PN: DM-7SHADE**	
Dakota Micro® AHD 7” and 9” Monitor Remote **PN: DM-HRMT**	
RazerCam™ AHD 170° NTSC Camera **PN: DMRZ-HC**	
RazerCam™ Camera Skid Steer Bracket and Heat Shield **PN: DMRZ-BCBKT**	
Dakota Micro® 2.1 Barrel Male Hardwired Power **PN: DM-HDWRE**	
AgCam®/EnduraCam®/RazerCam™ 15’ Shielded Power Video Flex **PN: DMAC-EC15**	

Standard Features

RazerCam™ Camera

- True HD Resolution (720P)
- 1 Year Warranty
- 16:9 aspect ratio, so the image doesn't need to be "stretched" to match monitors
- Improved color and clarity over standard analog video cameras
- Increased ability to interpret shadowed areas, allowing for a larger viewing area
- Built-in, high-quality CCD camera with high-performance lighting
- Built-in IR lighting
- Waterproof
- Standard camera lens features a 170° Wide Angle horizontal field of view

Monitor

- Features the latest in Analog HD technology
- LED backlit
- View both NTSC and PAL cameras
- Advanced LCD technology allows you to clearly see your image from any angle
- Mirror the view of any of your cameras for use as a backup camera
- 2-year warranty
- 16:9 aspect ratio
- 4 camera inputs
- Event triggers for each camera allow for triggered events to bring your camera to full view (I.E. putting the vehicle in reverse)
- Color, brightness, contrast, and volume controls that allow comprehension for use in different environments.

Cables

- Made in the USA
- Silicone jacketing resists heat, cold, compression, & crimping
- Gold plated, corrosion resistant pins
- Watertight connections
- ¼ twist-lock keeps cables securely locked together
- Our durable power/video extension cables come in 10, 15, 20, 30, 40, 50, 60, 80 foot lengths
- 1 Year Warranty

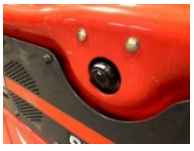
RazerCam™ Installation

- Camera kit installation will vary based upon the model and brand of Skid-Steer you are utilizing
- The RazerCam™ camera system is an independent aftermarket system and installation of this camera may void manufacturer warranty. Check with your manufacturer for details.
- The primary reason for the varying installation is the location of the muffler in the rear compartment, requiring the use of a heat shield during the camera installation process.

Bobcat 650 and Lower Model Skid-Steer

Bobcat 650 and lower models have the style back door illustrated to the right. The rear of this style bobcat is simpler and is identifiable by the lack of fans and no extra exhaust across the top.	
The existing beeper mounts look like the image to the right. Remove the beeper mount from the rear door and then remove the bracket from the beeper. Be sure to keep the bolts as they will all be reused.	
Remove the securing nut from the rear of the wide-angle camera. Place the camera into the camera mounting bracket as shown, and screw securing nut back onto camera, sandwiching the camera bracket between the camera and securing nut. Note that the two screw holes at the top of the bracket are "up," so be sure that the words "RazerCam™" are centered at the top of the bracket	
Place bracket with camera attached, onto the rear door, making sure that the camera is pointed out. DO NOT SCREW ON YOUR NUTS YET; YOU STILL NEED TO PUT YOUR BEEPER BACK ON.	
Reattach the beeper to the original bracket **but rotate the bracket, as shown in the image using the original bolts.**	 
Reattach the beeper to the door using the original nuts. Check the camera and beeper to verify they are not touching in any way. There should be a small space between the camera and the beeper if they are touching in any way check your assembly process.	
When installation is complete, camera should appear like image on right. Camera should be pointed 30 degrees downward and centered in the hole.	

Bobcat 770 and Higher Model Skid-Steer

Bobcat 770 and up models have the style back door illustrated to the right. The rear of this style Bobcat is more complex and is identifiable by the additional fans and extra exhaust across the top.	
The beeper on these models use a different mounting bracket that includes a heat shield. Remove the beeper mount from the rear door and then remove the bracket from the beeper. Be sure to keep the bolts as they will be reused. For this installation, we will NOT be reusing the bracket.	
Remove the securing nut from the rear of the wide-angle camera Place the camera into the camera mounting bracket as shown, and screw securing nut back onto the camera, sandwiching the camera bracket between the camera and securing nut. Note that the two screw holes at the top of the bracket are “up” so be sure that the words “RazerCam™” are centered at the top of the bracket.	
Place bracket, with the camera attached, onto rear door, making sure that the camera is pointed out. DO NOT SCREW ON YOUR NUTS YET; YOU STILL NEED TO PUT YOUR BUZZER BACK.	
Mount the beeper, using the original screws, to the Dakota Micro provided heat shield. When complete, your beeper should look like the image on the right.	
Attach the heat shield and beeper assembly to the door (on top of the camera/bracket), using the original nuts. Check the camera and beeper to verify that they are not touching in any way. There should be a small space between the camera and the beeper if they are touching in any way check your assembly process.	
When the installation is complete, the camera should appear like image on right. Camera should be pointed 30 degrees downward and centered in the hole.	

Verify that the rear door can close without any contact between the new brackets and any part of the interior of the engine compartment.	

Monitor Installation & Mounting

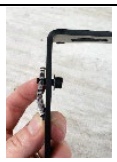
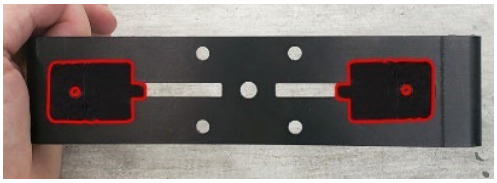
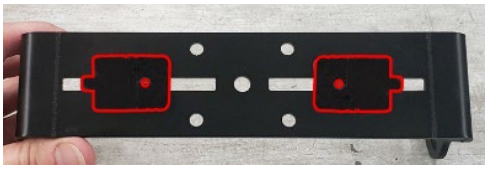
Mounting Precautions

Remove your monitor carefully from packaging and inspect all mounting hardware. Mounting location is the most important part of the monitor installation as it ensures you the maximum visual benefit from your Dakota Micro system. With that said, when installing your monitor, ensure to follow these three (3) precautions:

1. The monitor is out of direct sunlight. This will prolong the life of the unit as well as ensure optimum visibility.
2. The monitor does not obstruct view.
3. The monitor does not interfere with the normal operation of equipment.

Warning: Dakota Micro, Inc. is not responsible for any damage caused to your monitor or yourself due to the improper installation or use of a suction cup monitor mount, whether it be product sold by Dakota Micro or product purchased from another source.

Monitor Installation & Mounting for Skid-Steer with Steel Grid Cage

Locate Steel Grid Cage monitor mounting bracket and ensure that all mounting components are available. Your monitor mounting bracket installation will require: one (1) Monitor Bracket, two (2) Mounting Tabs, two (2) Thumb Screws & Washers, four (4) Wing Bolts, and one (1) Allen Wrench	
Attach Mounting tabs to monitor bracket using thumb screws & washers (Save the wing bolts to attach the monitor to the monitor bracket).	
IMPORTANT NOTE: The included mounting tabs have a “point” (indicated with the arrow on the image to the right) on one side. Some installations will require the “point” of this tab to be attached to the Monitor bracket so that they are pointing “in,” others will require them to point “out.” This will depend on which style of skid-steer you have and which dimension metal grid you have on the ceiling of your skid-steer.	  

Before installation of Monitor bracket, note that it has a “front” and a “back.” The monitor should be mounted so that the fixed hole on the side of the bracket points toward the operator.	
Mounting tab “points” will slip under the metal grid on the roof of your skid-steer. Tighten the bolts to secure the bracket to the metal grid.	
Attach your Dakota Micro monitor to installed bracket utilizing included wing bolts. Attach monitor sunshield if desired.	 

Power

Hardwire Power Adapter

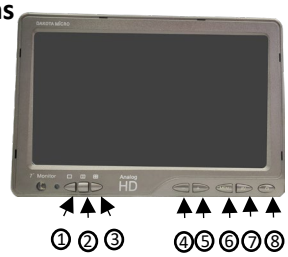
1. Attach the flying leads to a key powered source. (red= power & black= ground)
2. Attach the power input connector on monitor to your included hardwire power adapter.
3. Dakota Micro hardwire power adapters have a maximum circuit capability of 5 amp.

Fuses

1. There is a small in-line glass fuse located on the red power wire. When replacing this fuse, use a MAX 3 AMP glass fuse.
2. There is a small glass fuse located on the inside tip of the 12v portion of the power adapter (PN: DM-12v). When replacing this fuse, use a MAX 4amp glass fuse.

Monitor Operations

Monitor Operations



1	▭	Non-Functional
2	▭▭	Non-Functional
3	▭▭	Non-Functional
4	- Key	To Decrease parameter
5	+ Key	To Increase parameter
6	MENU	Allows users to access the menu. Once in the menu, toggles through menu options
7	AV	Each button press switches between AV1, AV2, AV3, & AV4. Also, selects menu options withing sub menus.
8	Power	Powers Monitor ON and OFF (2 Second delay)

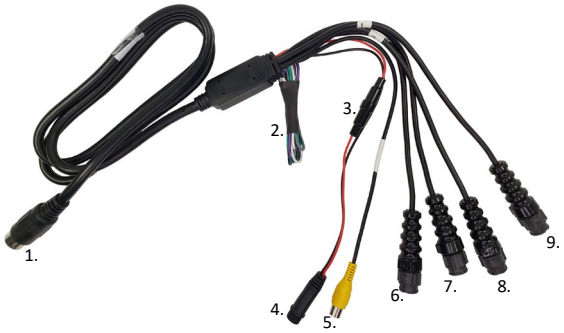
Remote Operations

	POWER ON/OFF
	Decrease parameter or toggle menu settings ON/OFF
	Increase Parameter or toggle menu settings ON/OFF
	VIDEO SELECT- Manually toggles between cameras, AV1, AV2, AV3, AV4, and then back to AV1. Also, moves up within sub menus.
	Changes the view of the screen 16:9 and 4:3 or moves down through the sub menu options.
	MENU- Allows users to access menu. Once in menu, toggles through menu options.

Monitor Wire Harness Details

Harness Components

1. Input to Monitor
2. AV 1-4 Event Trigger Wires
3. Fuse
4. Power Input
5. RCA- Video Output
6. AV1- Audio/Video Input
7. AV2- Video Input
8. AV3- Video Input
9. AV4- Video Input



Event Trigger Wire Color Guide

1. Camera 1- Green
2. Camera 2- Purple
3. Camera 3- Gray
4. Camera 4- White

Event Trigger Wires Explained

Event trigger wires can be attached to any 12v or 24v positive output event switch or supply. The event circuit should be neutral in its normal state and change to HIGH (12v or 24v) when the event is active. This will cause the monitor to automatically switch to that camera, regardless of the state of the monitor (i.e. ON/OFF or different channel selection). Up to 3 cameras can be triggered on and simultaneously displayed at the same time. For example, if you have trigger wires 2 and 4 hooked up to a positive event, a split screen of cameras 2 and 4 will be displayed. You can also set a camera to be a priority so when it is triggered it will override any other image to full screen. See Menu Setting for more details.

Cable Routing & Warnings

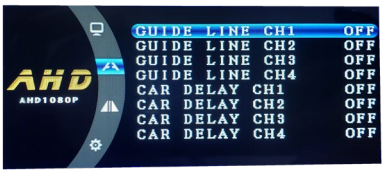
Your Bobcat kit includes one (1) 15’ power video extension cable. If you would like to purchase different or additional cable lengths, please contact your local Dakota Micro, Inc. dealer. There are any number of ways you can route your power/video extension cable from your monitor back to your camera; we will leave that up to the individual users. Cable routing is important; where you choose to run the cables should not interfere with the normal operation of the machine or safety equipment.

- ALWAYS be aware of any “pinch points” or other potential hazards to the cable(s)
- Secure all cables to vehicle/equipment using cable clips, zip ties, or other style fastener.

Menu Settings

1. Press the MENU key on the monitor or remote to bring up the menu.
2. Press the MENU key again to toggle through the menu options.

3. Use the – and + keys on the monitor or the Left and Right arrow keys on the remote to change the value of the highlighted item.
4. Use the AV on the monitor or Video/Mode Select on remote to move up and down through the individual menu selections.
5. To exit, allow monitor to time out (approx. 15 seconds) or exit the menu faster by pressing the menu button to go through all the menu options.

	**Brightness:** Adjusts the brightness of the image. **Contrast:** Adjusts the contrast of the image. **Saturation:** Adjusts the saturation of the image. **Tint:** Adjusts the tint of the image. **Volume:** Adjusts the volume level.
	**Guideline CH1-4:** Allows user to turn ON/OFF guides. Guidelines appear only during triggered events. **Car Delay CH1-4:** Allows user to set duration of triggered camera on individual camera.
	**Rotate:** Allows user to rotate the whole image for all channels. **Mirror CH1-4:** Allows user to choose specific channels they may want to mirror.
	**Language:** Allows user to change the language. **AV1-4 Loop 3s:** Allows user to have images automatically change on a 3 second loop. **No Signal:** Allows user to change the color of the screen when there is no camera signal. **Zoom:** Changes the screen between 16:9 and 4:3 **Auto Dim:** Turns auto dim on/off **Reset:** Factory Reset **VER:** Latest version of the monitor

****All product specifications and warranty details are available at www.dakotamicro.com****