

## Users Manual

### Dakota Micro, Inc. 9" AHD Quad Monitor Pre-Installed into AGCO Combines

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*\*Kit shown without all components included in double camera kit*

# MORE

**Reliable**

**Profitable**

**Capable**

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**I. STANDARD FEATURES****A. Cameras**

- True HD Resolution (720P)
- Made in the USA with US and Global Components
- 3 Year Warranty
- 3 way programmability – Video System (NTSC or PAL), Video Output Type (AHD or Analog) and Mirroring
- 16:9 aspect ratio so 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
- IP69 Anodized Aluminum camera body - Waterproof, shockproof, and suitable for nearly any use.
- Built-in, high quality CCD camera with high performance IR's
- IR has effective range of 75'+ in complete darkness, resists blooming and back reflection
- Our exclusive camera body lens darkens in bright conditions and becomes completely transparent under low light conditions. This lens is also transparent of infrared light, allowing the LED's to penetrate even when it is darkened
- Solid billeted aluminum camera body featured Dakota Micro's proprietary triple o-ring seal making the 100% waterproof even under direct high pressure spray and underwater use
- Triple hardened glass lens resists scratching, scuffing and static buildup
- Anodized camera body resists corrosion even in the harshest environments
- Standard camera lens features a 92° horizontal field of view.
- Optional lenses available for a narrower viewing angle, giving the option to view subjects further away. Optional cameras can view the following Field of View: 46°, 21°, and 15°.
- Removable/replaceable camera tail for easy replacement

**B. Monitors**

- Feature the latest in Analog HD technology
- View 1, 2, 3 or 4 cameras at the same time
- LED backlit
- Compatible with NTSC or 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
- Available in 7in or 9in size
- Event triggers for each camera allow for triggered events to bring your camera to full view (IE: putting the vehicle in reverse)
- Color, brightness, contrast and volume controls that allow compensation for use in different environments
- Remote control, sun shield, and metal U-bracket monitor stand included

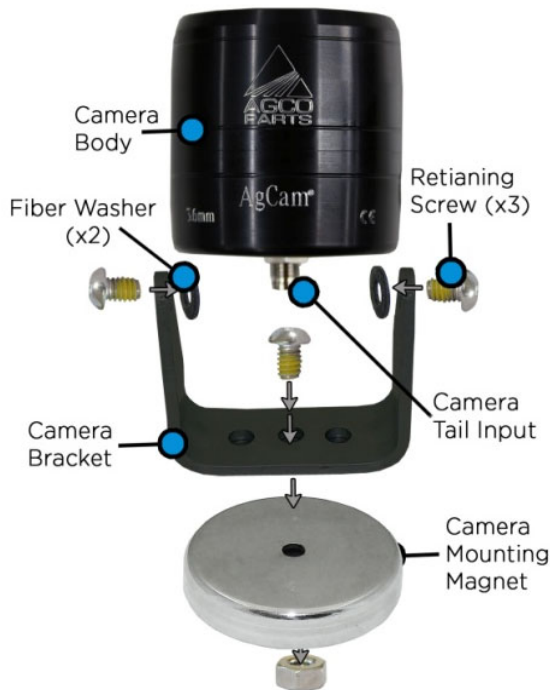
**C. Cables**

- 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 10ft, 20ft, 30ft, 40ft, 50ft, 60ft & 80ft lengths and feature sturdy, watertight connectors

**IMPORTANT INFORMATION REGARDING ANALOG AND AHD EQUIPMENT**

- After the introduction of the complete line of AHD Monitors, Dakota Micro will no longer offer Analog monitors.
- Utilizing the pre-installed AgCam monitor, customer **cannot** “mix and match” analog and AHD cameras.

**II. PARTS OF AN AGCAM (Part Number: AG-LCP)**



**III. CAMERA MOUNTING**

After camera is securely mounted, plug the camera pigtail into rear of AgCam® / EnduraCam camera. You can now plug the remaining end of the pigtail into your power/video extension cable. Make sure the extension cables are securely attached and locked (¼ turn will lock the cables together).

**A. Temporary Mounting**

- For temporary mounting, it is recommended that you use the supplied 65# pull magnet. If using magnetic mount, fasten camera cable with a zip tie or other style fastener. This will act as a “safety wire” in the event your camera is knocked loose for some reason. When selecting a location, make sure that the equipment surface is clean of all foreign material and as flat as possible to ensure that the magnetic camera base will have good contact and not vibrate off. The thicker the metal base, the more securely your magnet will hold.

**B. Permanent Mounting**

- For permanent mounting, it is recommended that you remove the magnet and attach the camera bracket to any solid surface with two (2) screws.

**C. Suggestions for Camera Mounting**

- When determining the location for the camera, it is always best to use a solid surface to minimize vibration.
- **Important-** Ladders are not good mounting choices due to lack of stability.
- If you will be using your AgCam® for assisting in visibility for towing, you will want to position the camera so you can see the desired area and a portion of the vehicle/trailer in tow; this will give you some reference to distance.

**IV. CAMERA WARNINGS****A. NEVER RELY ON YOUR AGCAM® AS A SAFETY FEATURE.**

It is up to your discretion to keep your road travel and other operations safe. Your AgCam® / EnduraCam® will provide you with information only based on what it sees. Operation of machinery safety guidelines still apply.

**V. CABLE ROUTING TIPS & WARNINGS**

*There are two (2) lengths of cable that come standard with our AgCam® / EnduraCam® camera kits: One (1) 20' and one (1) 60'. If you would like to purchase different, or additional, cable lengths, please contact your local AgCam® dealer.*

- A.** Cable routing is important; where you choose to run the cables should not interfere with the normal operation of the machine or any safety equipment.
- B.** *ALWAYS* be aware of any “pinch points” or other potential hazards to the cable(s).
- C.** Secure all cables to vehicle/equipment using cable clips, zip ties or other style fasteners.
- D.** If you intend to use your AgCam® for short length PTO operated implement, avoid excess cable lengths, if possible. When you decide on a location, you should fix the camera to a permanent bracket using ¼ inch bolts, and attach any loose cable securely so there is no chance of entanglement in the PTO or other moving parts.
- E.** If you use your AgCam® / EnduraCam® to monitor a combine hopper or other combine operations, take care to remember that combines have many moving parts. Use extreme care when routing cables, and it is strongly recommended that you use bolts to secure the camera. While it would be sufficient to use the magnetic base for monitoring purposes during road travel, it is advised to secure the camera with bolts during operation of the combine.

**VI. REMOTE & MONITOR OPERATION**

**A. Quad Monitor Operations**



1	Headphone Jack	Output for audio (disabled)
2	N/A	Not functional
3	N/A	Not functional
4	N/A	Not functional
5	- Key	To decrease parameter/Up/Down
6	+ Key	To increase parameter/Up/Down
7	MENU	Enables / Disables Menu
8	AV Key	Will show cameras 1/2/3/4 each time pressed/ In MENU acts as ENTER key & Down arrow
9	POWER	Turns monitor ON/OFF.

**NOTE:** Turn the monitor on only after it has been securely mounted, supplied with power, and the cameras are connected

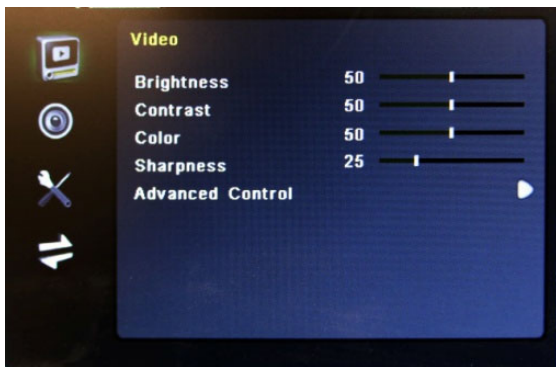
**B Remote Operations**

	POWER ON (give it a few seconds) / OFF
	Switches between video channels
	Displays Menu
	Navigation Arrows
	Navigation Arrows
	Navigation Arrows
	Navigation Arrows
	Brings Channel 1/Camera 1 Full screen
	Brings Channel 2/Camera 2 Full screen
	Brings Channel 3/Camera 3 Full screen
	Brings Channel 4/Camera 4 Full screen



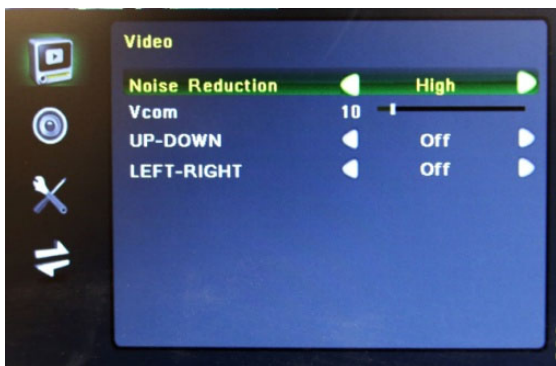
**XII. MONITOR MENU SETTINGS**

1. Press the MENU key on the face of monitor or remote. Use the AV button to toggle between menu sections
2. Use – and + keys on the monitor or the LEFT and RIGHT arrow keys on the remote to move through the icons at the top of the screen.
3. Use the AV key on the monitor (up and down arrows on remote) to select an item under each section. Selected menu items turn green.
4. Use – or + on the monitor (left and right arrows on remote) to change the value of the highlighted item.
5. To exit: Press the MENU button monitor (left or right arrow on remote) multiple times until the menu goes away. Allow monitor to time out (approximately 10 seconds).



**VIDEO**

- BRIGHTNESS:** Adjusts the brightness of the image  
**CONTRAST:** Adjusts the contrast of the image  
**COLOR:** Adjusts the color of the image  
**SHARPNESS:** Adjusts the sharpness of the image  
**ADVANCED CONTROL:** Accesses additional display controls



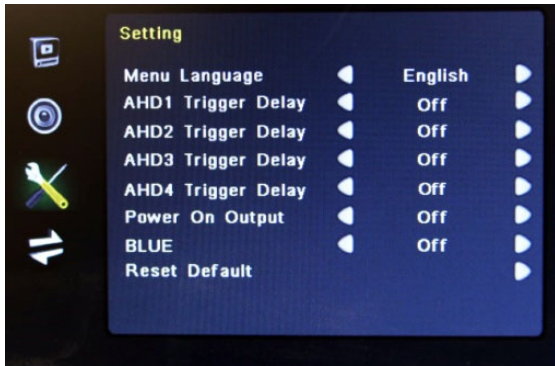
**VIDEO (ADVANCED CONTROL)**

- NOISE REDUCTION:** When utilizing microphone, allows for noise reduction settings  
**Vcom:** Intense brightness setting, not useful in this setting  
**UP-DOWN:** Flips image displayed UP/DOWN  
**LEFT-RIGHT:** \*Flips image displayed LEFT/RIGHT (Mirrored)  
*\*Individual cameras can be mirrored in Picture setup*



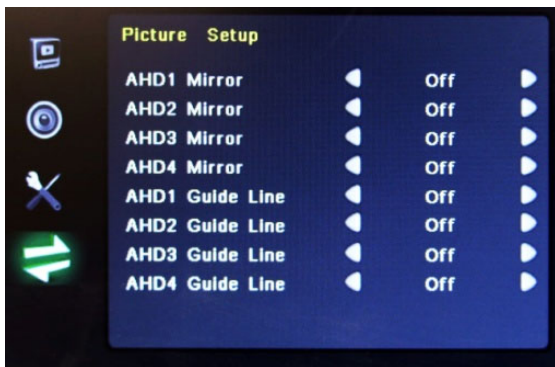
**AUDIO**

- SOUND MODE:** Choices of Music, Speech, Voice & Standard  
**BASS:** Adjusts Bass levels  
**TREBLE:** Adjusts Treble levels  
**AUTO SEQUENCE TIME:** Allows for the adjustment of time spent on each auto rotated camera when in quad mode  
**AHD1 PRIORITY:** Prioritizes Camera 1 during event triggering (if OFF, all cameras will be displayed)  
**AUTO DIM:** Turns Auto Dimming Function ON/OFF



**SETTING**

- MENU LANGUAGE:** Adjusts menu language
- AHD1 TRIGGER DELAY:** Turns ON/OFF Trigger Delay for Camera 1
- AHD2 TRIGGER DELAY:** Turns ON/OFF Trigger Delay for Camera 2
- AHD3 TRIGGER DELAY:** Turns ON/OFF Trigger Delay for Camera 3
- AHD4 TRIGGER DELAY:** Turns ON/OFF Trigger Delay for Camera 4
- BLUE:** Allows for selection of BLUE or BLACK screen when no camera present on video input
- RESET DEFAULTS:** Restores all default settings



**PICTURE SETUP**

- AHD1-4 MIRROR:** Turns ON/OFF individual camera mirror functions
- AHD1-4 GUIDE LINE:** Turns ON/OFF individual camera guide line



**XIII. SPECIFICATIONS**

<b>A. Camera</b>	
Image Sensor	1 / 2.7" CMOS Sony
Programmability	3 Way –Video System (NTSC or PAL), Video Output Type (AHD or CVBS/Analog), Forward or Mirrored Programmable at factory level only
Video System	NTSC (Silver body) / PAL (Black body) – reprogrammable at factory
Resolution	AHD - Set from factory to 1280x720 = 720P Legacy Analog (CVBS) – Set from factory to 480P
Minimum Illumination	0.01 LUX @ F1.2
Environmental Rating	IP69
Camera Board Lens	Standard=92° FOV, Custom= 46°, 21°, and 15° FOV
Electronic Shutter	Auto / 1/25 (1/30) – 1/50,000 sec.
Construction	Anodized 6061 Aluminum Case
Scanning System	Progressive
Operating Temp	-45°F~150°F (-42°C~66°C)
Connector Type	5 pin Conxall/Switchcraft (AgCam/EnduraCam connector)
Back Light Compensation	Auto On/Off
Warranty	3 Years
Connections	Video in (5 pin)/ 12v or AC power IN / Audio In
Camera Front Glass	Triple Hardened auto darkening glass
Power	12v 80mA (10-15 V Min/Max)
Camera Dimensions	2.13in(H)x2.12in(L) (54.1mmx53.8mm)
<b>B. LCD Monitor</b>	
Screen Size	16:9 digital panel
Overall Size	9.25in(L)x 6.1in(H)x1.44in(D) 235mm(L)X155mm(H)X36.5mm(D)
Weight	30.4oz (862g)
Power Input	DC 12v max
Color System	NTSC/PAL auto switch
Operating Temp.	-30°F~130°F (-34°C~+54°C)
Brightness	350cd/m <sup>2</sup>
Resolution (HxV)	1024(H)x600(V)
Contrast	500:1
Viewing Angle	L/R: 70° Up: 50° Down: 70°
Operating Voltage	Min. 12v (Check monitor label for specific voltage range)
Lighting Source	LED Backlit
Environmental Rating	IP50
Video Output Format	Full/Quad/split/ Auto Switch
Video Output Port	RCaX1 Video Out - Analog (CVBS) ONLY
Video Input Port	X4 AHD video input channels
<b>C. Extension Cables</b>	
Connector Type	5 Pin Conxall/Switchcraft
Cable Type	Dual Core 26 AWG, Silicone Jacketed
RoHS Compliant	YES
Shielded	Yes
Strain Relief	Over molded
Watertight Connections	Yes
Operating Temp.	-45°F~150°F (-42°C~66°C)
Max Recommended Pulling Tension	10 lbs

**XIV. WARNINGS**

- When selecting a camera system from Dakota Micro, be sure to utilize the appropriate system for your use. AgCam and EnduraCam cameras are designed for high impact, moisture, vibration and a variety of other rough conditions. OverView cameras and kit components are designed for light use, low vibration and low moisture. OverView equipment is not warranted when used in situations outside of the above mentioned parameters. We always request that customers keep in mind that our less expensive OverView product line is cheaper because it does not feature the reliability and durability of our AgCam and EnduraCam lines. The warranty available on these products reflects that durability.
- To avoid electrical shock and maintain optimal functionality, do not open the enclosures. High voltage may be present and there are no user serviceable parts inside. All warranties will be void should any enclosures be tampered with in any way.
- Do not use any harsh chemical solvents, cleaning agents or corrosive detergent to clean away dirt on the surface of the screen or lens.
- On AgCam and EnduraCam products, the photo-chromic camera lenses have been made impact-resistant and have been drop-ball tested according to Sec. 3.84,21 CRF BUT ARE NOT UNBREAKABLE. Because they have been hardened chemically, they show no stress pattern. Inspect your lenses frequently. Chipped or scratched surfaces will reduce protection. Such lenses should be replaced only by the manufacturer.
- Power to cameras is not interrupted by turning off monitor; 12v power source must be terminated when not in use to avoid battery drain. To avoid this problem be sure when hard wiring a unit, use a 5 amp fused circuit.
- Do not use your Dakota Micro camera system for anything other than legal surveillance and observation uses. Dakota Micro, Inc. is not liable for any illegal or nefarious usage.

**XV. PRODUCT WARRANTY/REPAIR PROCESS**

1. For Technical Support call 1 701-538-4403 OR email techsupport@dakotamicro.com
2. Technician will assist in troubleshooting product malfunction.
3. If product malfunction cannot be remedied and a repair is deemed necessary, Technician will issue a Repair Authorization (RA) number.

**IMPORTANT NOTE:**

*The Technician will note on the RA form if the repair APPEARS to be a warranty or non-warranty issue based on customer description of the issues at hand. No final determination can be made until inspection and testing of the equipment is completed at the factory.*

4. To ensure fast and effective repairs, customer is required to send:
  - Dakota Micro Product that Technician has requested/deemed necessary in the proper diagnosis and repair of malfunction. This may include some or all components of the kit.
  - Original/Copy of purchase receipt.
  - For serialized items ONLY, If a copy of the original purchase receipt cannot be provided, then DAKOTA MICRO will use the product manufacture date.
  - Customer information, including return address & phone number. If the phone number is not included, the customer will be sent a letter requesting the needed information.
  - RA Number provided by Dakota Micro Technical Support
  - Shipping and associated costs to ship product to DM factory to be borne by the customer unless otherwise specified.
5. Customer should mail product to:
 

**Dakota Micro, Inc.**  
**RA # XXXXX**  
**8659 148 ½ Ave. SE**  
**Cayuga, ND 58013**
6. Upon receipt and evaluation of product at Dakota Micro Factory, it will be established if the repair is warranty or non-warranty. If requested, customer will be called and notified of any applicable charges.
7. If the repairs are deemed non-warranty, and require a service/repair fee of any kind, a credit card number will be requested by Order Processing after the repair is completed.
8. If customer is unable to be contacted over the course of 3 weeks regarding required non-warranty repairs, product will be returned, unrepared, to the customer.
9. Any product returned without proper documentation may be returned at customer's expense.
10. Product returned with unconfirmed problems will be assessed a \$60 evaluation fee per unit
11. Return shipping costs will be borne by the party at fault; in other words, if Dakota Micro determines that the defective product was covered under warranty, Dakota Micro pays the shipping charges. If Dakota Micro determines that it was the customers fault, the customer will pay shipping charges. If a particular circumstance cannot be determined than the cost of shipping charges will be decided on a discretionary basis depending on the situation at hand.

**XVI. CONSUMER LIMITED WARRANTY****LIMITED WARRANTY**

Subject to the disclaimer, limitations and other directions stated hereafter, Dakota Micro, Inc. warrants that the Product will be free from defects in material and workmanship for periods as stated hereafter from the date of original purchase. **THIS WARRANTY IS EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS. THE EXCLUSIVE REMEDY OF THE BUYER IS LIMITED TO REPAIR OR REPLACEMENT OF THE PRODUCT. EXCEPT AS STATED IN THIS WARRANTY, DAKOTA MICRO SHALL NOT BE LIABLE FOR ANY LOSS, INCONVENIENCE, OR DAMAGE, INCLUDING DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER RESULTING FROM BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY OF ANY OTHER LEGAL THEORY.** Any oral statements or representations made by anyone which are contrary to or at variance with the terms stated in this **LIMITED WARRANTY** are void.

Dakota Micro will, at its option, either repair the defect or replace the defective Product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for the period of three (3) years for AgCam<sup>®</sup> /EnduraCam<sup>®</sup> and InnoPro<sup>®</sup> cameras; two (2) years for AgCam<sup>®</sup> / EnduraCam<sup>®</sup> monitors, and Wireless components; Twelve Months (12) for all Overview Cameras & Monitors, cables and all other accessories.

The Dakota Micro limited warranty periods outlined above apply throughout the United States and Canada only. A one (1) year maximum limited warranty for all Products applies to all other geographic locations unless otherwise stated in writing by Dakota Micro.

This limited warranty does not apply to any issues connected with appearance that have no relation to the performance of the Product nor to any Product the exterior of which has been damaged or defaced, which has been subjected to improper voltage or other misuse, abnormal service or handling, or which has been altered or modified in design or construction.

In order to enforce the rights under this limited warranty, the purchaser should follow the steps set forth in the complete Dakota Micro "Warranty & Repair Policy" listed on page 11 - section XVI , and provide proof of purchase to Dakota Micro.

Neither the sales personnel of Dakota Micro nor any dealer or any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time periods described herein.

The warranties described herein shall be the sole and exclusive warranties and remedies provided by Dakota Micro. Correction of defects, in the manner and for the period of time described herein, shall constitute complete fulfillment of all liabilities and responsibilities of Dakota Micro to the purchaser with respect to the Product, and shall constitute full satisfaction of all claims. In no event shall Dakota Micro be liable or in any way responsible for any damages or defects in the Product which were caused by repairs or attempted repairs performed by anyone other than Dakota Micro.

Some states do not allow the limitation or exclusion of incidental or consequential damages, so said limitation may not apply to you.

Any action at law, suit in equity, or other judicial proceeding for the enforcement of any right provided for herein or otherwise, or with respect to any claim that a purchaser may have against Dakota Micro shall be instituted only in the Courts of the State of North Dakota, either in the state district court located in Wahpeton, North Dakota or in Federal District Court location in Fargo, North Dakota. Without regard to conflicts of law principles, the laws of the state of North Dakota shall govern the interpretation and enforcement of the terms of this Limited Warranty and all aspects of the relationship between Dakota Micro and the purchaser.

*This warranty gives you specific legal rights and you may also have other rights, which may vary from state to state.*

**XVII. DISCLAIMER**

Dakota Micro Inc. products, specifications, pricing and programs are subject to change without prior notice. Dakota Micro Inc. reserves the right to make design changes at any time without obligation to retroactively install them on previously sold units.

**XVIII. CONTACT US**

8659 148 ½ Ave. SE.

Cayuga, ND 58013

*Management System Registered to ISO 9001*

[www.dakotamicro.com](http://www.dakotamicro.com)