Dakota Micro, Inc.

Users Manual

AGCO 9in or 7in AHD Monitor
Single or Double AGCO AgCam® OR EnduraCam® Camera Kit

Part Number(s):   Dakota Micro 7in AHD Monitor – AG-H7
Dakota Micro 9in AHD Monitor – AG-H9
AgCam Kit - AG-H7(H9)C1(2)P
EnduraCam Kit – DMEC-H7(H9)C1(2)

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MORE
Capable
Profitable
Reliable

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

See the Dakota Micro, Inc. website for installation training videos at www.dakotamicro.com.

I.

INCLUDED MONITOR KIT COMPONENTS (PER PN: AG-H7/H9 DM-H7/H9)	
Description	**Picture**
Dakota Micro, Inc. 7in or 9in AHD Monitor	
Monitor Wire Harness *PN: AC-MWH*	
Monitor Remote *PN: DM-HMRT* (styles vary by kit & battery is included)	
A/C Power Wall Plug *PN: ACACA2000* (styles vary by kit)	
Monitor U-bracket with 4 Wing Bolts	
Monitor Sun Shield	
12v Cigarette Lighter Power Adaptor *PN: AC-12v* (styles vary by kit)	

INCLUDED CAMERA KIT COMPONENTS (PER PN: AG-CK1P / DMEC-CK1)	
Description	**Picture**
AGCO AgCam®(PAL) /EnduraCam® (NTSC) AHD Camera	
Camera Bracket with Magnetic Base *PN: DMAC-CBM*	
Camera component bag: Allen wrench, (x2) nylon washers, (x2) retaining screws & camera pigtail*	
60ft Power/Video Extension Cable *PN: ACEC60*	
20ft Power/Video Extension Cable *PN: ACEC20*	

Thank you for purchasing our Dakota Micro, Inc. products.

Dakota Micro is the manufacturer of durable, reliable surveillance systems with the innovative ability to be quickly moved from one application to the next.

Training videos are available on the Dakota Micro website at: **www.dakotamicro.com.**

II. **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 lens features a fixed 3.6mm with a 96° horizontal field
- Optional lenses available for a narrower viewing angle, giving the option to view subjects further away, 6mm lens 55°, 12mm lens offers a 26° horizontal field of view, while a 16mm lens offers a 20° field of view
- Removable/replaceable camera tail for easy replacement

B. Monitors
- Feature 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
- 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

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
- 1 Year Warranty

III.   IMPORTANT INFORMATION REGARDING ANALOG AND AHD EQUIPMENT
- Over the course of 2018, all Dakota Micro monitors will be transitioned to AHD (Analog High Definition). Both Legacy (Analog) AgCam and EnduraCam cameras and AHD AgCam and EnduraCam cameras will function perfectly on the new Dakota Micro AHD Monitors.
- After the introduction of the complete line of AHD Monitors, Dakota Micro will no longer offer Analog monitors.
- Utilizing the AG-H9 or AG-H7 monitor, customer can "mix and match" analog and AHD cameras.
- All analog Dakota Micro wireless and Quad (screen splitting) equipment will work with AHD Monitors Utilizing the DM-H9Q monitor, customer **cannot** "mix and match" analog and AHD cameras.
- All analog Dakota Micro wireless and Quad (screen splitting) equipment **will not** work with AHD Monitors. AHD Versions coming soon.

IV.   PARTS OF AN AGCAM/ENDURACAM CAMERA
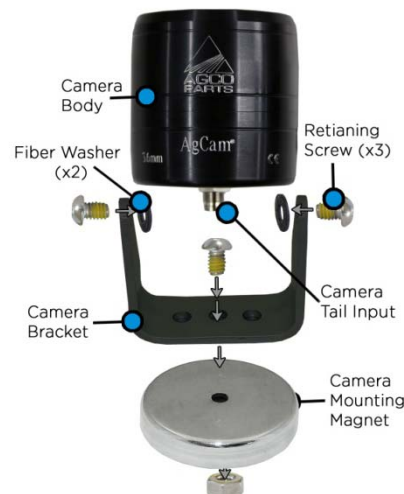
V.   CAMERA MOUNTING

After camera is securely mounted, plug the camera pigtail into rear of the 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
   o   For temporary mounting, it is recommended that you use the supplied 65lb 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
   o   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
   o   When determining the location for the camera, it is always best to use a solid surface to minimize vibration.

   o   ***Important-*** *Ladders are not good mounting choices due to lack of stability.*

VI.   CAMERA WARNINGS

A.   *NEVER RELY ON YOUR AGCAM® /ENDURACAM® 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.

VII.   CABLE ROUTING TIPS & WARNINGS

There are two (2) lengths of cable that come standard with our AgCam® and EnduraCam® *camera kits: One (1) 20ft and one (1) 60ft. If you would like to purchase different, or additional, cable lengths, please contact your local Dakota Micro, Inc. 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 use your AgCam® or EnduraCam® to monitor a piece of equipment with multiple moving parts, be sure to 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.

VIII.   MONITOR INSTALLATION & MOUNTING

A.   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 AgCam®/EnduraCam® 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 damages 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 DM or product purchased from another source.

    B.   Universal Bracket Mounting
        1.   Hold monitor U-bracket in place on monitor.
        2.   Attach bracket with included wing bolts.

    C.   Finalizing Universal Bracket Installation
        1.   With the mount and monitor attached, find and mark the desired position for the monitor.
        2.   Remove the monitor from the mount.
        3.   Attach the monitor to the mount and tighten the wing nuts.
              Use ONLY the nuts included in kit, bolts longer than 10mm will damage your monitor

IX.   INSTALLATION

    A.   Monitor Wire Harness Details

        1.   Input to Monitor

        2.   AV1-4 Event Trigger Wires (Pg. 6)

        3.   Power Input

        4.   RCA-Video Output *(not functional on this model)*

        5.   AV1 - Audio/Video Input

        6.   AV2 - Audio/Video Input

        7.   AV3 - Audio/Video Input

        8.   AV4 - Video Input

X.   POWER
    A.   Supplying Power with 12v Power Adaptor
        1.   Attach the power input connector (3 above) to your included 12v cigarette lighter power adaptor.
        2.   Plug cigarette lighter adaptor into 12v power source.

    B.   Hardwire Power Adaptor
        1.   If you would like to hardwire your power supply, please contact your local Dakota Micro, Inc. dealer for available hardwire power adaptors (PN: *DMAC-HARDWIRE*).
        2.   Dakota Micro hardwire power adaptors have a maximum circuit capability of 5 amp.

    C.   Fuses
        1.   There is a small in-line glass fuse located on the red and black power wire (3 above). When replacing this fuse, use a MAX 2amp glass fuse.
        2.   There is a small glass fuse located on the inside tip of the 12v portion of the power adaptor (PN: DMAC-12v). When replacing this fuse, use a MAX 2amp glass fuse

XI.   EVENT TRIGGER WIRE OPERATIONS

    A.   Event Trigger Wire Color Guide

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

B. **Event Trigger Wires Explained**

Event trigger wires can be attached to any 12v positive event. This will cause the monitor to change to that camera, regardless of the state of the monitor (i.e. ON/OFF or channel selection). The most recent event will be the primary display. So, if two (2) video channels (AV1 & AV2) are attached to an event output, the event that happens last will change the monitor to its respective camera view.

The wires can be attached to any positive output 10.5v to 16.9v switch or supply to cause the monitor to automatically switch the unit to its respective channel camera. *Example:* if you were to attach the AV1 wire to a positive output from an unloading auger on a combine, the monitor would switch from channel 2, 3, or 4 to channel 1 when the auger is extended. The event circuit should be neutral in its normal state and change to HIGH (+12v) when the event is considered to be active.

XII. **REMOTE & MONITOR OPERATION**

A. **7" or 9" Monitor Operations – Front (7in shown below)**

1	N/A	Not currently functional
2	N/A	Not currently functional
3	N/A	Not currently functional
4	- Key	To decrease parameter
5	+ Key	To increase parameter
6	MENU	Allows users to access menu. Once in menu, toggles through menu options of Picture, Volume, Function, System & Clock
7	AV Key	Each button press switches between AV1, AV2, AV3, & AV4. Also selects menu options within sub menus
8	Power	Powers Monitor ON and OFF (2 second delay)

B. **Remote Operations**

	POWER ON/OFF

	Allows users to decrease parameter or toggle menu settings ON/OFF

	Allows users to increase parameter or toggle menu settings ON/OFF

VIDEO SELECT	VIDEO SELECT – Manually toggles between cameras, AV1, AV2, AV3 and AV4 and then back to AV1

MODE SELECT	MODE SELECT –Adjusts screen display modes. UP/DOWN (Upside Down), INVERTED/LEFT/RIGHT (Upside Down and Mirrored), LEFT/RIGHT (Mirrored), Normal

MENU	MENU – Allows users to access menu. Once in menu, toggles through menu options of Picture, Volume, Function, System & Clock
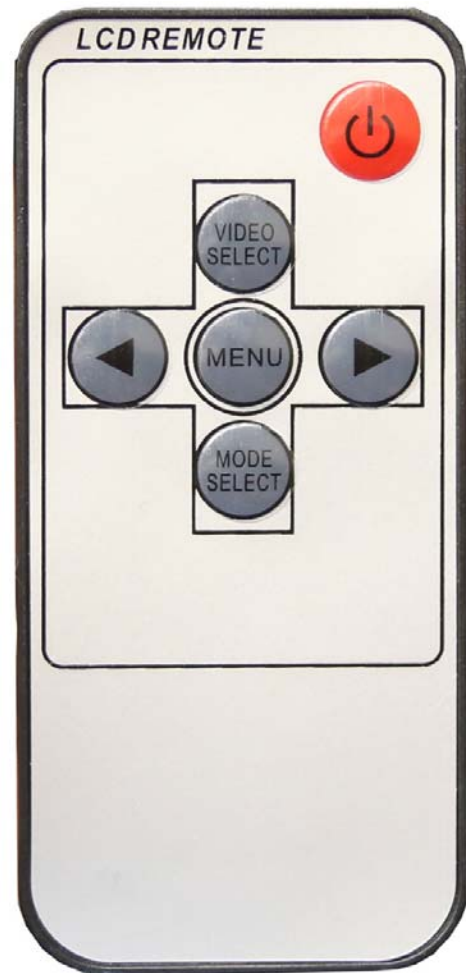
XIII.   MENU SETTINGS

1. Press the MENU key on the monitor or remote to bring up the menu

2. Press the MENU key again to toggle through 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 it.

4. Use the AV key to move up and down through the individual menu selections. Selected menu items turn red.

5. To exit allow monitor to time out (approximately 15 seconds). Long press on menu button will exit the menu faster.

PICTURE

BRIGHTNESS 050
CONTRAST 050
COLOR 050
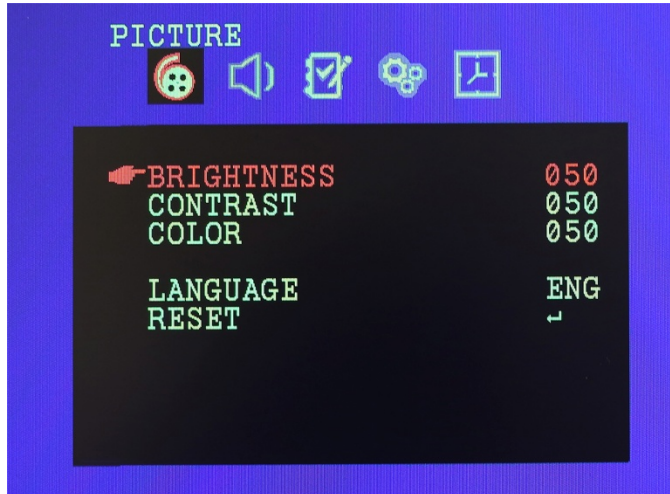
LANGUAGE ENG
RESET ↵

BRIGHT: Adjusts the brightness of the image.
CONTRAST: Adjusts the contrast of the image.
COLOR: Adjusts the color of the image.

LANG: Select your language (English default)
RESET: Returns settings to default.

VOLUME
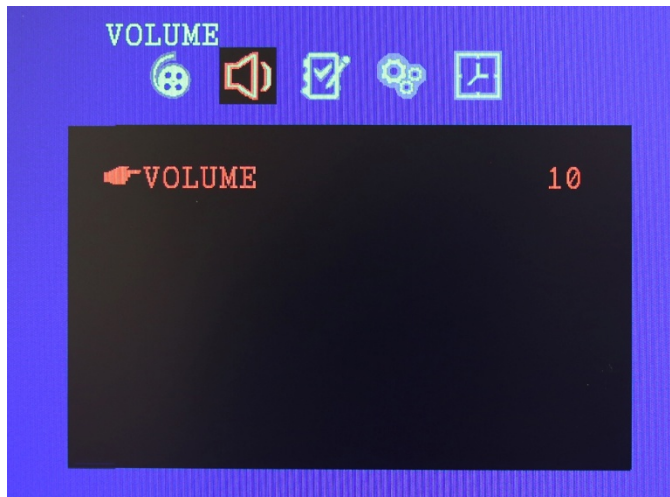
VOLUME 10

VOLUME: Adjusts the volume level.

FUNCTION

ROTATE UD
AUTO DIM ON
V1V2-3S OFF
BLUE SCREEN ON
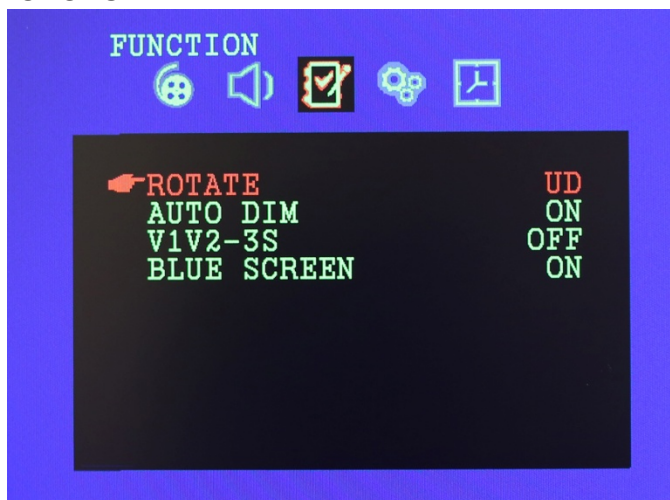
ROTATE: Allows for the adjustment of image Up/Down
AUTO DIM: Allows user to turn auto dim function ON/OFF. When on, auto dim will automatically dim monitor based on lighting conditions.
V1V2-3s: When set to ON cycles through cameras in 5 second intervals.
BLUE SCREEN: Allows users to adjust the color that is displayed when no camera is present. When ON blue will be displayed, when OFF, screen will be black.

SYSTEM
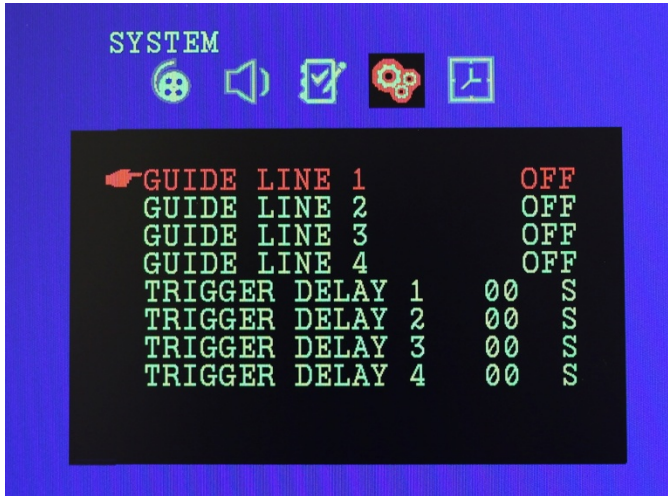
GUIDE LINE 1-4: Allows users to turn ON/OFF guides. Guide lines appear only during triggered event.
TRIGGER DELAY: Allows users to set duration of triggered camera on individual cameras.

CLOCK
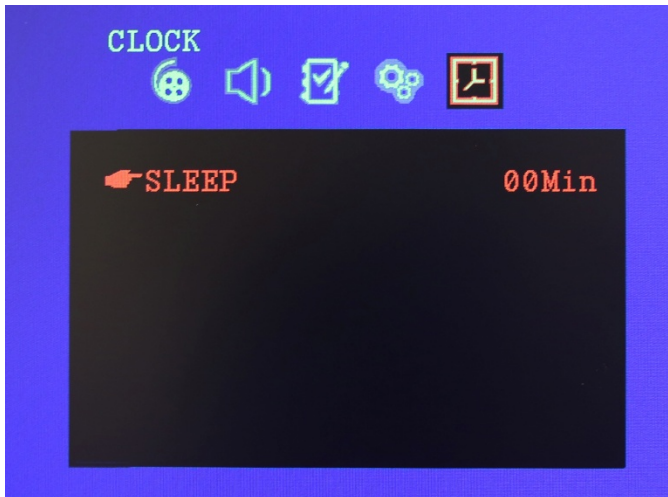
SLEEP: Allows users to set a time frame for the monitor to automatically shut down/go to sleep.

XIV.   **SPECIFICATIONS**

A. Camera	
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	Fixed Board Lens 3.6mm standard. Also available in 6mm, 12mm & 16mm
Horizontal Field of View	AHD (720P) / Analog (480P) 3.6mm = AHD 96° / Analog 92° 6mm = AHD 55° / Analog 53° 12mm = AHD 26° / Analog 24° 16mm = AHD 20° / Analog 19°
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. Monitor	
Screen Size	16:9 Digital Panel
Overall Size	9in - 6.1(H)x9.25(W)x1.44(D)in 154.94(H)x234.95(W)x36.5(D)mm 7in - 4.84(H)x7.04(W)x1.14(D)in 123(H)x179(W)x29(D)mm
Weight	396g avg. (7in); 547g avg. (9in)
Power Input	DC 10–32v
Color System	NTSC/PAL auto switch
Operating Temp.	-30°F~130°F (-34°C~+54°C)
Brightness	350cd/m^2
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 Backlight
Environmental Rating	IP50
Video Output Port	RCAx1 Video Out - Analog (CVBS) ONLY
Video Input Port	X4 AHD video input channels
C. Extension Cables	
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

XV.   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 reflect 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 max 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.

XVI.   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 148th 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, unrepaired, 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.

XVII.   <u>CONSUMER LIMITED WARRANTY</u>

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® /EnduraCam® and InnoPro® cameras; two (2) years for AgCam®/ EnduraCam® 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 XV , 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.

XVIII.   <u>DISCLAIMER</u>

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.

XIX.   <u>CONTACT US</u>

Dakota Micro, Inc.

8659 148th Ave. SE.

Cayuga, ND 58013

Management System Registered to ISO 9001

www.dakotamicro.com