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## 7. Dealer Information

|  |
|--|
|  |
|--|

|                |
|----------------|
| Serial Number  |
|                |
| Date Purchased |
|                |

## 8. IMPORTANT HARDWARE UPDATE

Due to FCC specifications and requirements we have had to change our antenna output connectors.

Use the following information to make sure that your antenna cable and Ranch Hand connectors match, or else your antenna will not function in conjunction with your Ranch Hand.

If, for some reason, your connectors do not match, please call Dakota Micro, Inc. or your local distributor to request an upgrade pigtail.

All new Ranch Hands and Antenna cables will be equipped with REVERSE SMA connectors, where previously they were standard SMA connectors.

The way to easily distinguish between old and new connectors is as follows:

### New Connectors:

Ranch Hand: Gold post on Ranch Hand Unit with a SMA connector (pin in center)

Antenna Cable: SMA connector (hole in center)

### Old Connectors:

Ranch Hand: Silver post on Ranch Hand Unit with SMA connector (hole in center)

Antenna Cable: SMA connector (pin in center.)

**This changes do not affect the actual antennas or Antenna Extension cables in any way, only the cables and the Ranch Hand units themselves.**

**Dakota Micro, Inc.**  
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**Model Number: DMAC-RHPAIR  
DMAC-RHTX  
DMAC-RHRX**

## Users Manual

*Read this manual carefully, it contains  
Important use and safety information*



### Contents:

- 1 Components
- 2 External Antennas
- 3 Installation
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- 5 Specifications
- 6 Available Products
- 7 Dealer Information
- 8 Important Hardware Update

1. Components:

**Note: Each Transmitter may only transmit signal from one camera, however you may receive that signal on multiple receivers**

**Front:** For additional video features other than AgCam



**Transmitter (TX)**

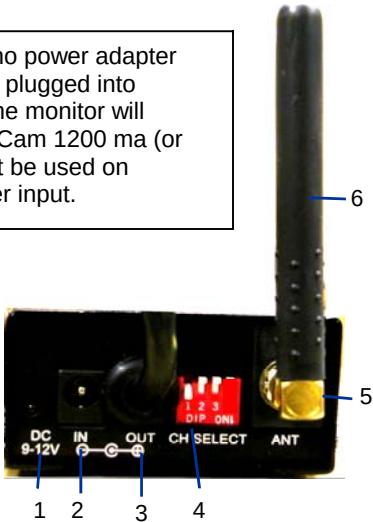
- 1. External audio input
- 2. External video input

**Receiver (RX)**

- 1. External audio output
- 2. External video output

**Rear:**

NOTE: On receiver, no power adapter should be used when plugged into AgCam monitor, as the monitor will supply the power, AgCam 1200 ma (or greater) adapter must be used on AgCam monitor power input.



**Transmitter (TX)**

- 1. Power on indicator LED
- 2. DC power IN (500mA)
- 3. Power out to camera, Video signal in from camera
- 4. AV channel select – toggle down to select channel, set TX and RX to same channel
- 5. Antenna Input (Reverse SMA)
- 6. Antenna

**Receiver (RX)**

- 1. Power on indicator LED
- 2. DC power IN (300mA)
- 3. Power in from monitor, Video signal out to monitor
- 4. AV channel select – toggle down to select channel, set TX and RX to same channel
- 5. Antenna Input (Reverse SMA)
- 6. Antenna

|                                                                                                          |             |               |
|----------------------------------------------------------------------------------------------------------|-------------|---------------|
| 5DBI Wireless Antenna                                                                                    | DMAC-WA5    |               |
| 8 DBI Wireless Antenna                                                                                   | DMAC-WA8    |               |
| 8DBI Directional Antenna                                                                                 | DMAC-WA8P   |               |
| 15 DBI Wireless Antenna                                                                                  | DMAC-WA15   |               |
| Lightning Arrestor for use with Ranch Hand antennas                                                      | DMAC-LA     |               |
| 20' Shielded Power/Video Cable                                                                           | DMAC-EC20   | See Kit Photo |
| 60' Shielded Power/Video Cable                                                                           | DMAC-EC60   | See Kit Photo |
| Male End Dust Caps                                                                                       | DMAC-DC     | No Photo      |
| Single Camera TV Adaptor Allows recording to VCR from camera                                             | DMAC-TVA    |               |
| Security System Camera Adaptor Allows AgCam camera to be used with existing systems using BNC connectors | DMAC-SSA    |               |
| 20' Antenna Extension Cable                                                                              | DMAC-AEX20  | No Photo      |
| Standard Monitor Base                                                                                    | DMAC-B      |               |
| Panavise Pedestal Hard Mount                                                                             | DMAC-PVPM   |               |
| Panavise Suction Cup Monitor Base                                                                        | DMAC-PVSM   |               |
| Remote Replacement                                                                                       | DMAC-Remote |               |
| 4-Channel Mobil Digital Video Recorder                                                                   | DMAC-DVR    |               |
| Internet Video Server use with single camera or up to 4 using Quad                                       | DMAC-VS     |               |

## 6. Available Products

| Product                                                                                   | Part Number   | Photo                                                                               |
|-------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|
| 1or 2 Camera 6" monitor w/ built in speaker.                                              | DMAC-6M-C1(2) |    |
| 1 or 2 Camera 7" monitor w/built in TV tuner & speaker                                    | DMAC-7M-C1(2) |    |
| 1 or 2 Camera 9" monitor w/ built in TV tuner & speaker                                   | DMAC-9M-C1(2) | No Photo                                                                            |
| 6" monitor w/base & remote                                                                | DMAC-6M       | See kit photo                                                                       |
| 7" monitor w/ base & remote                                                               | DMAC-7M       | See kit photo                                                                       |
| 9" monitor w/ base & remote                                                               | DMAC-9M       | See kit photo                                                                       |
| Full color Quad (screen splitter)                                                         | DMAC-Q        |    |
| Camera w/ 60' & 20' cables                                                                | DMAC-C1       | See Kit Photo                                                                       |
| Camera w/ Cables - Custom Lens: fill in blank with lens size 2.8, 4.3, 6, 8, 12 or 16     | DMAC-C1____   |    |
| Camera w/out Cables                                                                       | DMAC-RC       |   |
| Camera w/ out cables - Custom Lens: fill in blank with lens size 2.8, 4.3, 6, 8, 12 or 16 | DMAC-RC____   |  |
| Ranch Hand Wireless                                                                       | DMAC-RHPAIR   |  |
| Ranch Hand w/ Waterproof Transmitter and standard receiver                                | DMAC-RHWPPAIR |  |
| Ranch Hand Easy Switch Receiver Wireless receiver with easy switch 4-channel dial.        | DMAC-RHES     |  |
| Ranch Hand Audio Adaptor                                                                  | DMAC-RHA      |  |

## 2. External Antenna:

If the Ranch Hand is to be used in a building with steel sheeting, or if it is to be used in an area where obstructions need to be cleared for line of site signal, you may need to use an external antenna mounted to the outside of the building (do not mount the transmitter or receiver outdoor, it is NOT waterproof) It is recommended to use the antennas available through your Ranch Hand/AgCam dealer. Four antennas are available, 1) magnetic mounted 5dbi omni-antenna, 2) a fixed mount dipole antenna with 8dbi boost, 3) a 15dbi antenna capable of transmitting several miles, depending on line of sight. The use of any antenna other than ones specially tuned to the frequency of the Ranch Hand will likely result in poor performance and may cause damage to the unit. When selecting an antenna it is highly recommended to match the antenna on both transmitter and receiver for best results.

## 3. Installation:

The DM AgCam Ranch Hand Add on is a powerful wireless audio/video transmitter, which will allow you to view areas out of reach of cables. In selecting a location for the transmitter use the following guidelines

- Location within 2500 feet of receiver location (unless using larger antennas.)
- Line of site, meaning that there is no obstruction such as a building or tree belt. Shorter ranges fewer than 300 feet are less critical of "line of site", however steel buildings and steel walls will interfere with the signal. Walls constructed of wood and sheetrock are more transparent to the signal. The ability for the signal to penetrate glass depends upon if the glass is lead lined. **There are several environmental conditions, such as high powered electrical lines, other wireless device signals from cell phone companies, government agencies and radio stations; for example, that may effect the range of transmission, and therefore DM cannot guarantee any specific ranges.**
- Transmitter and receiver must be installed indoor in a dry location, for steel buildings you must use an external antenna available at your AgCam dealer.
- You may use the AgCam cables to mount the camera up to 160 feet from the transmitter, however AgCam cables are not able to carry audio signal, if you require audio you must obtain special cables from your dealer.

**Transmitter:**

When being used with the AgCam Camera, plug the AgCam Camera directly into the din plug (3 on rear of transmitter) and attach the provided power adapter (500MW) (1 on back of transmitter). AgCam extension cables may be used to locate the camera away from the location of the transmitter. Transmitter must have only one input used at a time; either by front RCA or AgCam Camera in rear.

**Receiver:**

When being used with the AgCam Monitor simply plug the din plug into one of the available AgCam Monitor din plug (3 on rear of receiver). Power the Monitor as instructed in the AgCam manual (use only AC adapter supplied with AgCam Monitor).

**Power must be available for the Transmitter and Receiver. Use only provided power supply or damage will occur. DO NOT use the front inputs and the AgCam (Rear) input at the same time, as serious damage will occur to the transmitter, both outputs of the receiver may be used at one time for simultaneous display on AgCam Monitor and TV. Do not allow transmitter or receiver to get wet!**

**4. Emissions Notifications:**

This device has been designed to operate with an antenna having a maximum gain of [x=15] dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is [y=50] ohms.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent is typically radiated power (EIRP) is not more than that required for successful communication.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website [www.hc-sc.gc.ca/rpb/](http://www.hc-sc.gc.ca/rpb/).

**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.

In order to comply with FCC rules for protection against radio frequency exposure, this device must be installed in a manner to provide a minimum separation of 20cm (8") between the antenna and all persons.

Changes or modifications not expressly approved by Dakota Micro could void the user's authority to operate the equipment.

**5. Specifications**

| <b>a. Transmitter</b>                                  |                                                                                 |
|--------------------------------------------------------|---------------------------------------------------------------------------------|
| Frequency                                              | 2.4GHz-2.4835GHz 100mw                                                          |
| Channel                                                | 3 Selectable channels                                                           |
| Video Input Signal                                     | Video-1Vp-p(NTSC/PAL)<br>Audio-1Vp-p(NTSC/PAL)                                  |
| Video Input Impedance                                  | Video-75 ohms<br>Audio-600 ohms<br>(NTSC)/10Kohms(PAL)                          |
| A/V Connections                                        | A/V jack-RCA to RCA line jacks<br>Or - AgCam Camera plug                        |
| Antenna                                                | Dipole Antenna (Detachable:<br>Optional antennas available)                     |
| Operating Voltage                                      | DC 9V-12V/500mA power adaptor                                                   |
| Temp Limit                                             | Not to exceed 120°F                                                             |
| <b>b. Receiver</b>                                     |                                                                                 |
| Frequency                                              | 2.4GHz-2.4835GHz                                                                |
| Channel                                                | 3 Selectable channels                                                           |
| A/V Connections                                        | A/V jack-RCA to RCA line jacks                                                  |
| Antenna                                                | Dipole Antenna (Detachable:<br>Optional antennas available)                     |
| Operating Voltage                                      | DC 9V-12V/300mA power adaptor<br>(use 1200Ma adaptor when used w/AgCam monitor) |
| Calculated RF Exposure at d=20cm (mW/cm <sup>2</sup> ) | 0.71                                                                            |