

Hardware User's Manual

Digital Video Motion Detector DVMD14

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INTRODUCTION

This is a manual for the installation, setup, and configuration of the DVMD14. It contains step-by-step instructions for connecting the DVMD14 in a system. It outlines a variety of set-up features. **Please also refer to the XPORT User Manual to change the IP address and Local Port number for each DVMD14.**

The minimum DVMD14 configuration must contain:

- At least one DVMD14 with ISO type AC power cord
- One CAT5 cable to a hub, router or crossover cable to PC NIC
- ManagerNETxxx.exe, to set up and define masks.
- A Windows based computer with 10/100 Base T NIC card and TCP/IP stack
- A video camera which can be color, black & white, IR, or light-intensified
- A CCTV monitor
- At least two 75 ohm coaxial cables with BNC connectors

Any questions or comments regarding the DVMD14 Hardware User's Manual should be sent to:

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Video Processor

Each channel of the DVMD14 contains a Video Processor. The Video Processor contains an embedded Digital Signal Processor (DSP) that executes our proprietary Digital Video Motion Detector algorithm. The DVMD program, user settings, and masked areas are saved in the onboard flash memory. The module requires +3.3V power and video input. It produces video output with overlay and alarm output.

The user may customize the Video Processor for site specific operating environments by means of a network connection to a HOST PC that is executing the ManagerNETxxx.exe graphical user interface (GUI). The GUI allows the user to modify the settings and mask of the DVMD14. Each version of this software is zipped and posted at www.dvmd.com in the "SUPPORT" tab on the right panel.

The Video Processor processes the incoming video with internal processing including DC restoration (clamping), automatic gain control (AGC), and filtering. It generates an overlay for the time, date, camera number, address, and target outlines and provides a buffered 1Vpp video output into a 75 ohm load.

The Video Processor is packaged in an encapsulated aluminum extrusion with a 20-pin DIN connector. The connector and 4:40 thumbscrews are used to mount the Video Processors to the cold plate inside the DVMD14 2U chassis.

The DVMD14 provides power for the Video Processor in addition to interfacing to the outside world with serial links to PTZs and ALARM relay outputs. The DVMD14 drives Pan Tilt Zoom cameras with an RS422 serial connection.

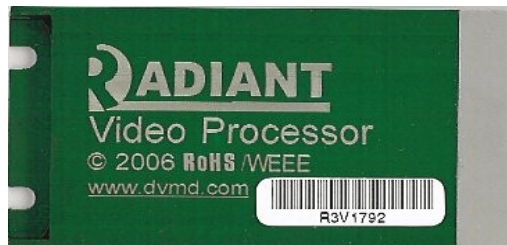


Figure 1 – Video Processor

Environmental

Operating Temperature 0 to 60C.

Storage Temperature -20 to 85C.

Storage Humidity 5 to 95% Relative Humidity, Non-condensing.

MTBF 100,000 hours at full load and 25C Ambient Operating Temperature.

Power Requirements (Both Power Supplies)

Universal AC input, 90 to 264 VAC

Input Current 50 Amps Max Inrush current, 1.2 Amps average current max at any input voltage

Mains Frequency 47 to 63 hertz.

Average Power: 20 Watts (Both Supplies ON)

Connection to HOST PC

Each DVMD14 may be connected to a HOST PC NIC card using a “Reverse CAT5” cable, or to a hub or router with a “Straight-Through CAT5” cable. The PC will run the ManagerNETxxx.exe program, establish a network connection to the DVMD14 and allow changes.

A security system with more than 14 video cameras may use multiple DVMD14s. Each DVMD14 must have a unique IP address. The IP address is set using the XPORT configuration utility provided by Lantronix. See the appendix below for XPORT setup instructions.

DVMD14 OVERVIEW

The Digital Video Motion Detector (DVMD14) weighs 13.5 pounds and measures 3.5"x5"x1.25" and is housed in an extruded aluminum case as shown in Figure 2A and 2B below.



Figure 2A – DVMD14 FRONT PANEL

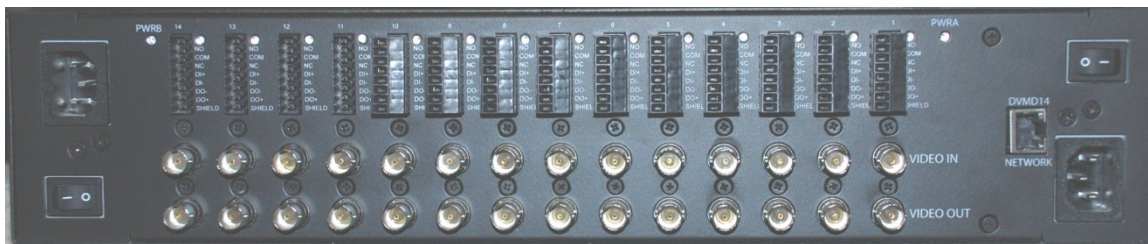


Figure 2B – DVMD14 REAR PANEL

VIDEO CONNECTIONS

The DVMD14 receives video from the camera through the BNC connector labeled VIDEO IN and provides buffered video output (after internal processing, clamping, automatic gain control (AGC), and overlay) through the BNC connector labeled VIDEO OUT. All channels have video bypass relays for backplane versions REV F and above.

ALARM CONNECTIONS

Three connection points provide connection to a dry contact relay alarm output. The alarm output is labeled Normally Open (NO), Common (COM), and Normally Closed (NC).

Most alarm systems need to use NO and COM because the Alarm input will go open when:

1. There is an alarm.
2. There is a power loss to the DVMD14
3. There is a broken wire from the NO and COM wires to the host

PTZ CONNECTIONS

Four screw terminals provide connection to RS422 type Pan Tilt Zoom (PTZ) cameras. Two wires are for DO+ and DO-, and two wires are for DI+ and DI-. Shield may be used to keep the common mode voltage of the camera and the DVMD14 transceivers within the +12 to -7V range. If Shield is used there will be ground loop currents flowing and care must be taken to insure that the power supply of the camera can float (via isolated transformer) with respect to the DVMD14 ground. DO+, DO- and Shield are used for most cameras, connecting to their DI+, DI- and ground pins respectively. Shield is connected to DC common through a 100 ohm resistor for all ports.

Pluggable Screw Connectors

The pin connections for the Pluggable connectors are shown in Table 1 below.

PIN	FUNCTION	FUNCTION
1	NO	NORMALLY OPEN RELAY CONTACT
2	COM	COMMON RELAY CONTACT
3	NC	NORMALLY CLOSED RELAY CONTACT
4	DI+	RS422 RECEIVE DATA PLUS
5	DI-	RS422 RECEIVE DATA MINUS
6	DO-	RS422 TRANSMIT DATA MINUS
7	DO+	RS422 TRANSMIT DATA PLUS
8	SHEILD	SHIELD FOR RS232

Table 1 – Pluggable Connections and Functions

CONNECTION INSTRUCTIONS

Connecting the DVMD to a camera and computer is simple. The connections should be accomplished in the sequence outlined below.

- **Step One:**
Connect the 120/240 VAC Power Supply by attaching two IEC power cords to an AC outlet.
- **Step Two:**
Connect a 75 ohm Coaxial Cable from the VIDEO OUT BNC connector located on the DVMD14 Rear Panel (See Figure 3B) to the Video In port on a CCTV Monitor.
- **Step Three:**
Connect a second 75 ohm Coaxial Cable from the VIDEO IN BNC connector on the DVMD14 to the Video Out port on a camera.
- **Step Four:**
Connect a CAT5 cable to the XPORT RJ45 interface and to a hub, router or Ethernet switch that is connected to the HOST PC that is running ManagerNETxxx.
- **Step Four:**
Power up both supplies on the DVMD14.
- **Step Five:**
Determine the XPORT IP address. This may be set by the Lantronix XPORT configuration program available from Radiant or Lantronix. Set the IP address to a value that is compatible with the LAN you are using (E.G. 10.0.0.9, or 192.168.1.109). Set the port number as desired. (E.G. 4500)
- **Step Six:**
Run ManagerNETxxx and enter a CAMERA value in the setup menu with the matching IP address and port number from Step 5 above.
- **Step Seven:**

Power up the camera and the CCTV monitor. You should get a video picture with overlay on the monitor. If you do not get a picture on the monitor re-check Steps 1 – 6 above. If you do get a video image on the monitor, proceed with loading the User Interface Software as described in the User Interface – Manager Tools Window paragraph below.

- **Step Eight (Optional PTZ Support)**

Connect a PTZ camera to the desired channel using the RS422 connections. The DVMD14 DO+ and DO- pair should be connected to the DI+ and DI- pair of the PTZ camera.

User Interface – Software

The DVMD14 is configured with a Windows Graphical User Interface that is available as a download from the Radiant website. ManagerNETxxx.zip contains several Windows programs that may be used with the DVMD14. The main program is ManagerNETxxx.exe, which configures the cameras and provides the user interface to the DVMD14. The user MUST use the version of Firmware in the Video Processor that matches the version of ManagerNET. These programs are zipped together to avoid mis-matched versions. The zip file also contains the corresponding documentation for the software. Other programs included in the ZIP file such as MangerNETxxx, Manager, ServerNET, PTZnet, APInet and UpgradePAK are all matched to each release.

Please refer to the DVMD14 Software User's Manual for further information. Download ManagerNETxxx.zip at www.dvmd.com in the "SUPPORT" tab on the right panel.

DVMD14

The DVMD14 replaced the DVMD16 product in 2009. This product has two power supplies to satisfy the redundant power requirements in oil/gas and nuclear industries. To make room in the chassis for the extra supply two of the video channels were removed.

All 14 chassis have video bypass relays on each channel for new products shipped with Revision "F" backplanes and greater. These relays allow the video to pass through the chassis un-altered when the power is "off" on both supplies.

XPORT User Manual

Please also refer to the XPORT User Manual to change the IP address and Local Port number for each DVMD1-X.