



VK-1 Remote Keyboard User Manual

Products covered by this manual:

Product	Keyboard Capability
VK-1	Up to 8 VDM Recorders, each with 16 Cameras and 2 Monitors

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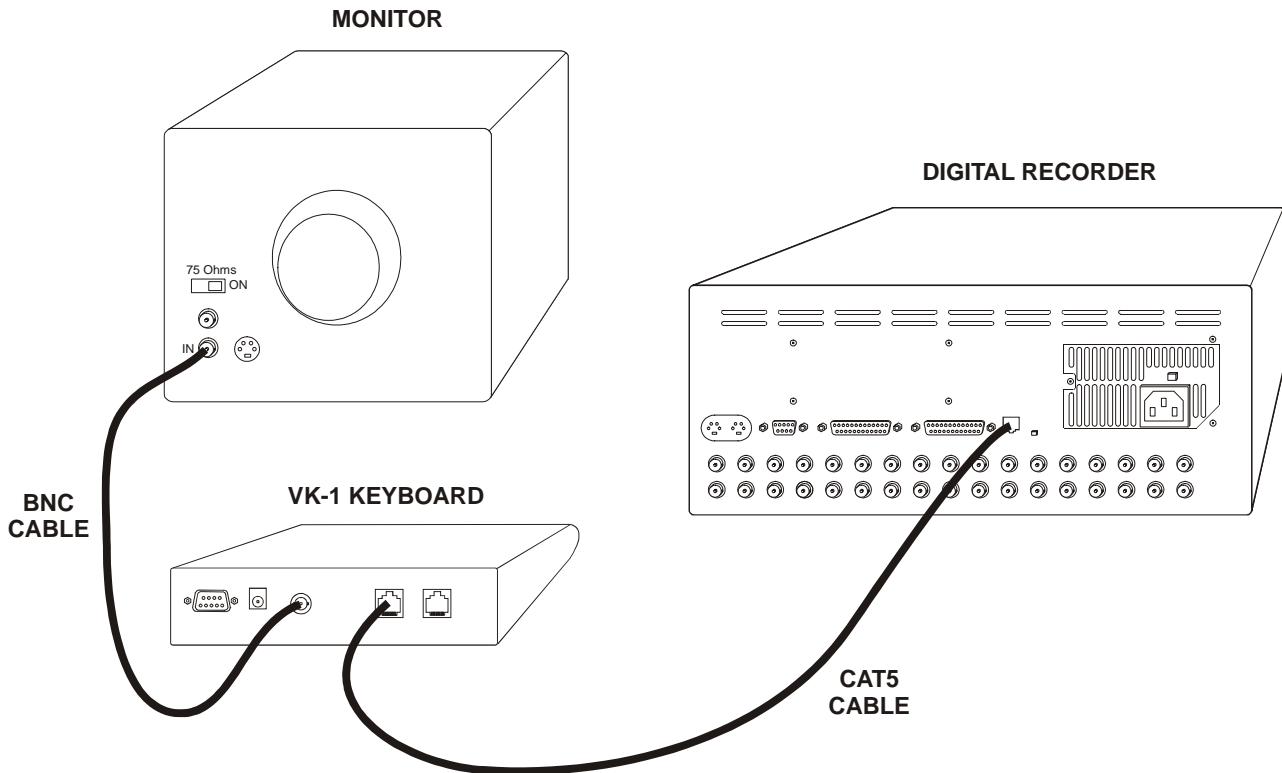
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1 Controlling a VDM Digital Recorder

1.1 Full Remote Control and Display of Main Monitor

Full remote control of a VDM and display of the main monitor may be achieved by connecting up a VK-1 Keyboard and composite video monitor as shown below.



Note that the control from the Keyboard to the Digital Recorder uses one twisted pair, the video from the Digital Recorder to the Keyboard uses another pair, and the 12V DC power from the Digital Recorder to the Keyboard uses another pair.

The above configuration is satisfactory for cable runs up to 200 metres. Above this distance, the video quality will degrade and it is recommended that a coax video cable be run directly to the monitor. Additionally, the 12V power supply provided should be plugged into the VK-1 as voltage loss along the twisted pair cable may be too great. With this alternative connection configuration, only one twisted pair core is actually used, and cable runs up to 1000m are possible.

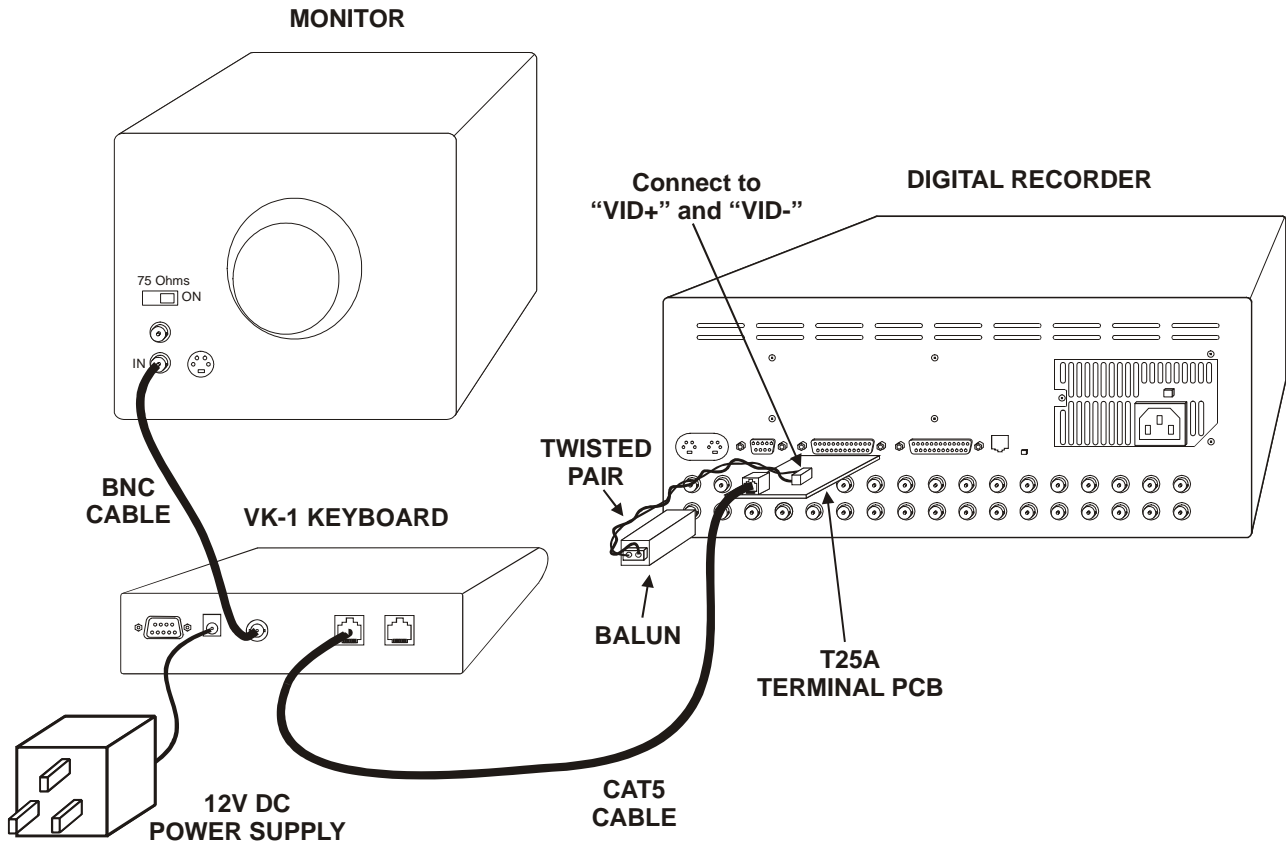
If display of the Spot monitor output is also required, a separate video cable will be needed, running from the Spot monitor output of the VDM Digital Recorder to another monitor.

Note:

CAT5 cables are standard computer network cables that have four twisted pairs and are terminated with RJ45 connectors. Because they are readily available, pre-terminated with connectors and can be patched into existing structured cabling in many buildings, they are very easy to use. However, other high quality twisted pair cables can be used – refer to section 3 to see which pins need to be connected.

1.2 Remote Control and Display of Spot Monitor Only

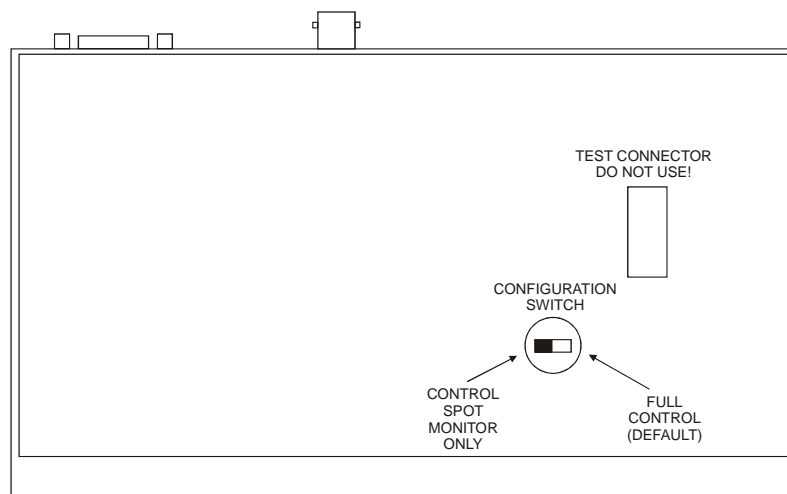
Remote control of a VDM and display of the Spot monitor may be achieved by connecting up a VK-1 Keyboard and composite video monitor as shown below:



In this configuration, with video being transmitter via twisted pair, you will need an adapter PCB (order code: T25A) and a video balun (order code: VX-2)

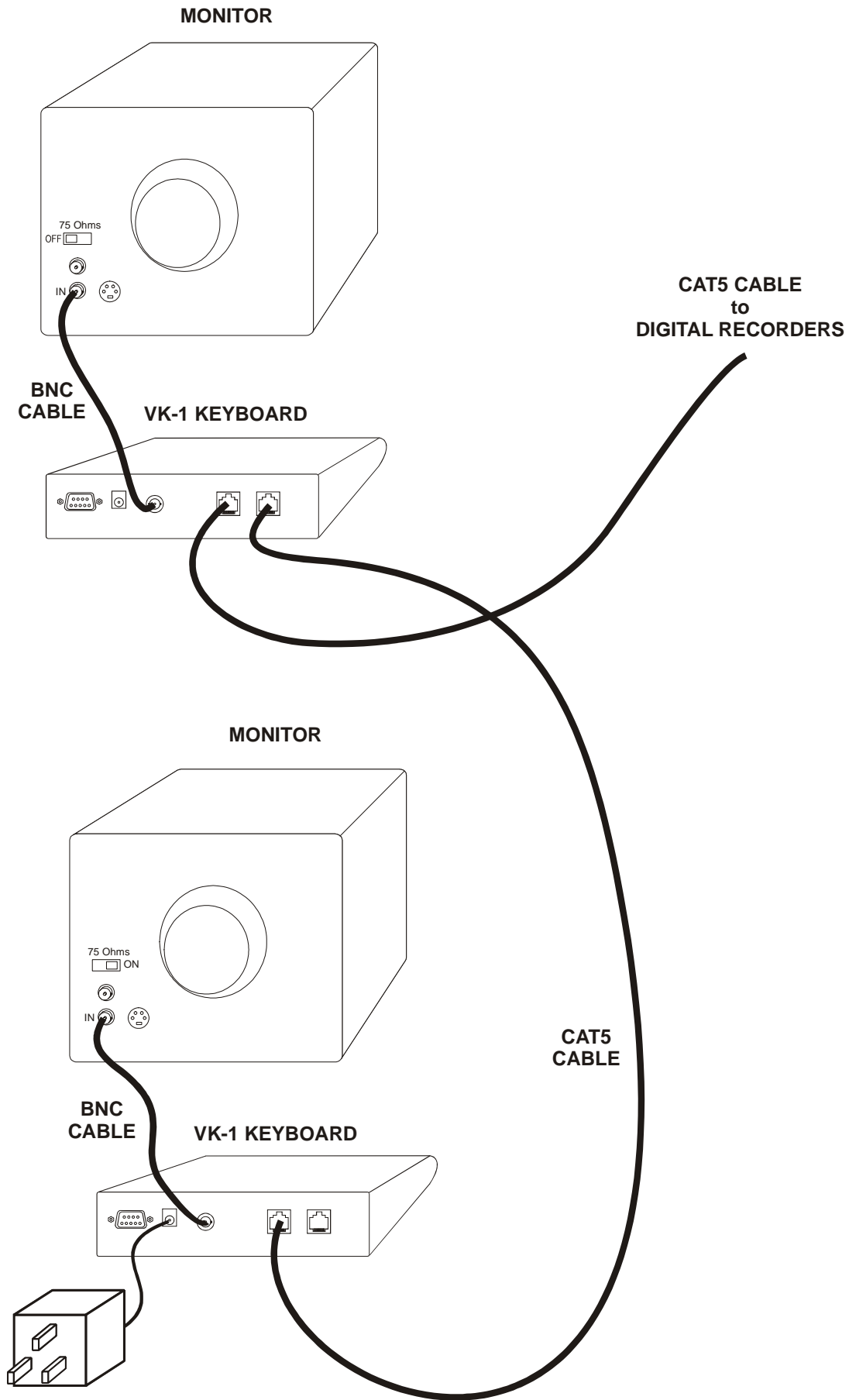
The above configuration is satisfactory for cable runs up to 200 metres. Above this distance, the video quality will degrade and it is recommended that a coax video cable be run directly to the monitor. In this case, only one twisted pair core is actually used (for the data), and cable runs up to 1000m are possible.

To make sure the VK-1 keyboard only controls the spot monitor, set the configuration switch on the underside of the unit ON, as shown in this diagram:



1.3 Connecting more than one keyboard

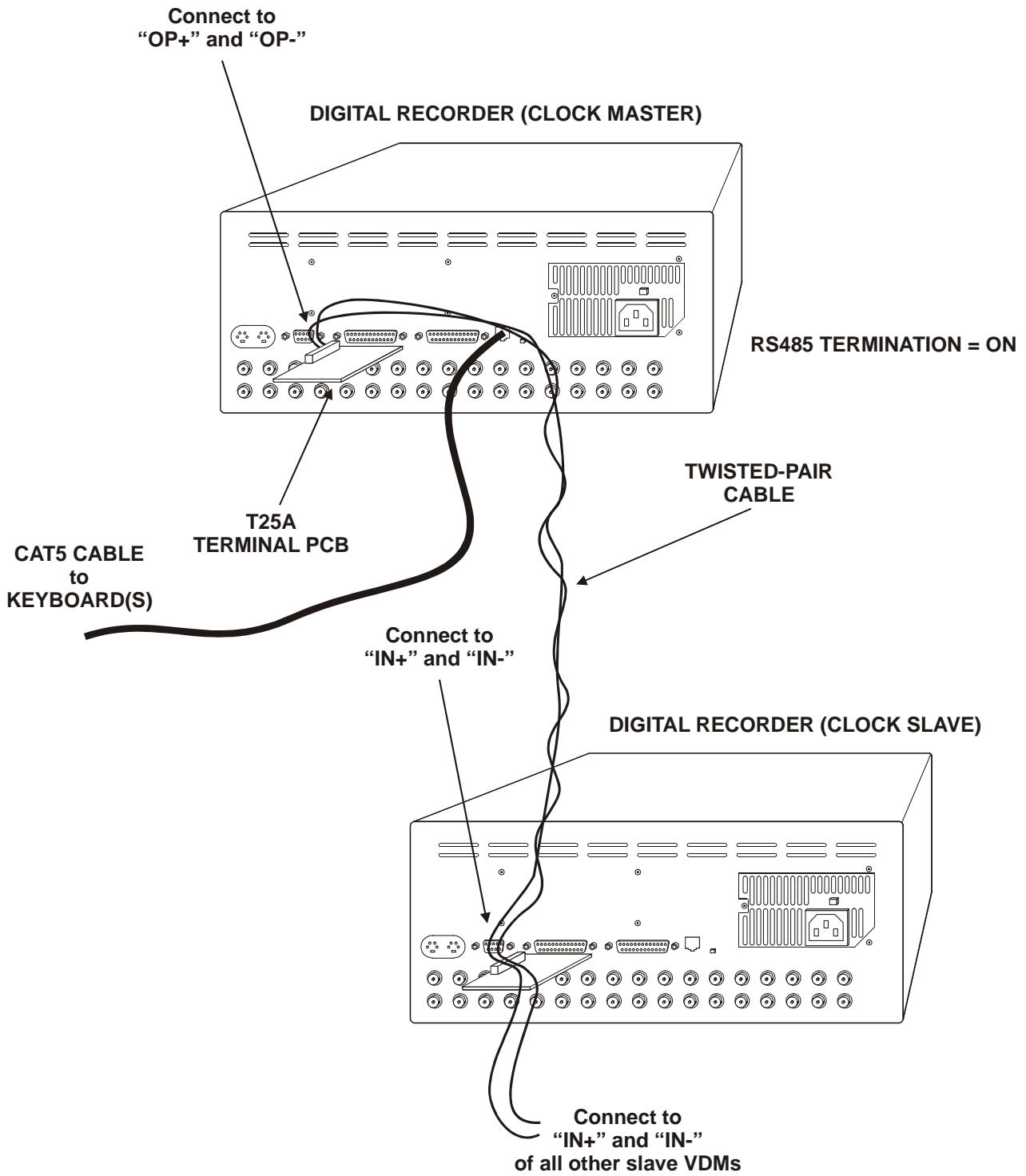
Another keyboard can simply be added by connecting it to the “Loop In” RJ45 connector on the master VK-1 keyboard.



Note that the first monitor should be un-terminated (set to high impedance), and the second monitor should be terminated (set to 75 Ohms). The second keyboard will also require a 12V DC power supply (provided).

1.4 Connecting to more than one Digital Recorder

Digital Recorders can be daisy-chained as illustrated in the diagram below. This configuration allows one or more keyboards to control multiple Digital Recorders. It also ensures that the clocks of the Digital Recorders are kept exactly in step (within a second). If the time and date needs adjusting, adjust clock of the "Master". The "Slave" will be updated automatically (every minute).



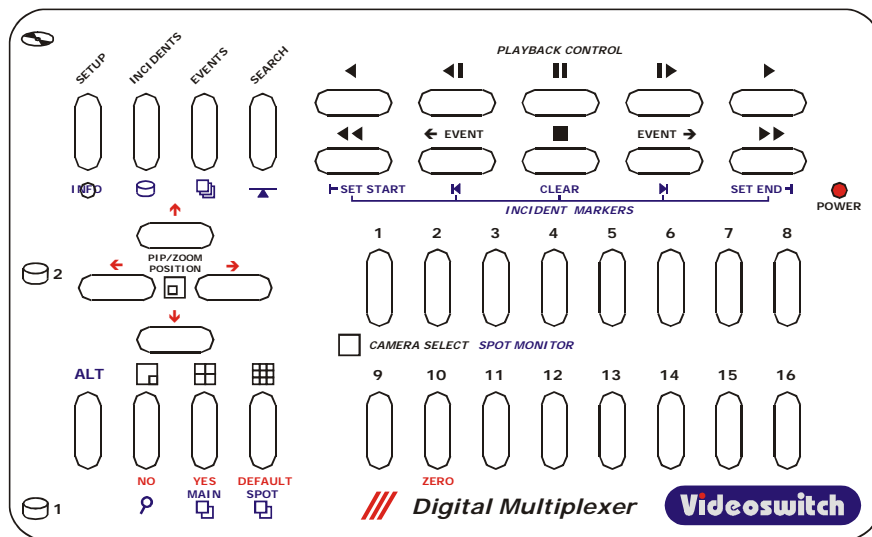
The last slave VDM should have its RS485 termination ON, other slaves should have RS485 termination OFF

Note:

RS485 termination may be switched ON either using the switch on the T25A PCB or using the miniature slide switch on the rear of the VDM. Do not turn both termination switches ON.

2 Front Panel Controls

These keyboards are designed for the control of VDM-4, VDM-9 and VDM-16 Digital Recorders. A single keyboard can control up to such 8 devices, each having up to 16 cameras and two monitors.



2.1 Configuring VDM Digital Recorder


The keyboard port of the VDM Digital recorder must be *enabled* (usually as a clock master) in order to accept command from a keyboard. An Engineer menu option is provided for this purpose. Refer to the VDM manual for details.

2.2 Full Control

The switch on the underside of the unit must be "OFF" in order to enable the VK-1 to have full control of a VDM recorder, subject to password access restrictions (refer to section 2.3 for diagram).


The keys have the same layout and function as the keys build into the VDM recorder itself. Refer to the VDM operating manual for details.

2.3 Spot Monitor Only Control

The keyboard may be configured to provide control of the spot monitor only. The switch on the underside of the unit should be "ON" to select this option (refer to section 2.3 for diagram). In this mode, the only keys that have a function are the cameras keys **1,2,3...16** which directly select camera for display on a spot monitor. The spot monitor auto-sequencing key  is the only other key that has a function in this mode.

2.4 Addressing more than one VDM Digital Recorder

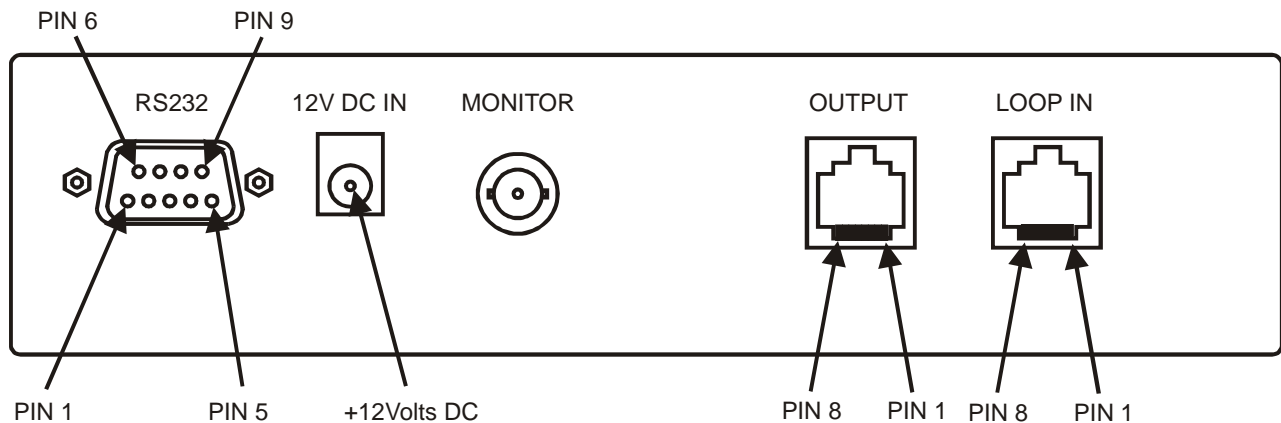
If more than one VDM Digital Recorder is connected to a single keyboard, each one must be configured with a different address (01, 02, 03 etc).

Before a particular VDM Digital Recorder can be controlled by the VK-1, it must first be selected. To do this, simultaneously press the **ALT** key, the  (left arrow) key and one of the camera select keys **1,2,3,4,5,6,7** or **8**.

The VDM recorder which has the address corresponding to the camera key pressed will be selected and ready to be controlled. The address remains until another one is selected or if power has been removed from the keyboard, in which case it will default to address 01.

3 Pin-Outs

3.1 Rear Panel Layout



3.2 Output (RJ45)

Pin	Description
1	RS485 Data A (+) Output
2	RS485 Data B (-) Output
4	+12V Power Input
5	Ground (Screen)
7	Video +
8	Video -

3.3 Loop In (RJ45)

Pin	Description
1	RS485 Data A (+) Input
2	RS485 Data B (-) Input
5	Ground (Screen)

3.4 Monitor

Pin	Description
Inner Pin	Composite Video (PAL)
Chassis	GND

3.5 12V DC Power Input

Pin	Description
Inner Pin	+12V DC (Range: 9V to 15V), 200mA maximum
Outer Sheath	GND

3.6 RS232 (9-Way Female D-Type)

Pin	Signal Name	In/Out	Usage
1	DCD	Output (always active)	
2	RXD	Output	RS232 Output
3	TXD	Input	RS232 Input
4	DTR	Input	Must be active (+12V)
5	GND	Ground	Ground
6	DSR	Output (always active)	
7	RTS	Input	
8	CTS	Output	

The RS232 input may be used instead of the RS485 "Loop-In" where control from a computer is required. The software "VDM Remote" runs on a PC and allows one or more Digital Recorders to be controlled via a mouse and virtual keyboard on the PC. If display is also required on the PC's monitor, a USB-to-video converter may be connected the VK-1's video output BNC (order code: VDM/USB).

4 Specifications

4.1 Power Input

Connector: 2.1mm co-axial power connector (Tip positive, shaft negative)

Voltage: 12V (Range: 9V to 15V DC)

Current: 200mA maximum

4.2 Dimensions

175mm x 125mm x 52mm

4.3 Operating Distances

Control, Video and Self-Power: 200metres

Control Only: 1000metres

