

PRELIMINARY OPERATION MANUAL



V-NET 3 Interactive Training System for CBT Facilities



PRODUCT OVERVIEW

CAPABILITIES

V-Net™ 3 is INLINE's third-generation interactive training system for computer based training labs. The V-Net system gives instructors the power to monitor and control any computer in the facility. V-Net promotes faster learning through enhanced instructor / trainee interaction. The instructor can easily monitor the progress of the entire class, identifying common problems and providing timely assistance to individuals or additional instruction for the class.

Share High Resolution Video - V-Net can route video from any workstation to any other workstation. Any of the following signal routing combinations are possible:

- ◆ Instructor viewing the video from any trainee workstation.
- ◆ Instructor scanning through the class, viewing each student in succession.
- ◆ Instructor's video signal shown to one trainee, selected trainees, or all trainees.
- ◆ Any trainee's video image routed to another trainee, a group or trainees, all trainee monitors.
- ◆ Any workstation image shown on a large screen data projector.
- ◆ Instructor blanking an individual trainee monitor, selected trainee monitors or all trainee monitors for immediate attention.
- ◆ All workstations in local (normal) mode, viewing their own local image.

Connect Regular Video Sources - Composite video or S-Video signals from VCRs, laser disc players, document cameras, media retrieval systems, or distance learning codecs can be routed to any monitor in the class using an optional **IN1224** or **IN1424** scan doubler. The scan doubler decodes and converts NTSC, PAL or SECAM video signals to a high resolution format which is compatible with most workstation monitors and other data displays. The scan doubled video signal can then be routed on the V-Net system and shown as full screen, full motion video on trainee monitors or displayed on a large screen data projector.

Distance Learning Applications - Trainees in remote classrooms can benefit by viewing the work in your local CBT facility. V-Net can be used to select high resolution video signals from the instructor's computer or a student computer and route the desired signal to a scan converter such as the **IN1776**. The scan converter encodes the video to composite video or S-Video so it can then be recorded on videotape or connected to a teleconferencing codec for viewing in a remote classroom.

Optional Keyboard and Mouse Control - The instructor can control any workstation connected to the system using remote keyboard and mouse control. If the instructor has set up a work group, students may use remote keyboard and mouse control to work together on a single computer. All students see the video from that computer and trade keyboard and mouse control back and forth using the VN320 Deluxe Student Button.

Keyboard / Mouse Lockout - Any time trainees are not viewing the local video image from their own computer their keyboard and mouse are automatically disabled, preventing them from making accidental changes.

Optional Intercom - The instructor can make announcements to one trainee, selected trainees, or all trainees. In announce mode the instructor's voice is heard over the trainee headsets but their microphones are not active (one way communication). In intercom mode (two-way communication) the instructor can talk and listen to a selected trainee. The instructor may also set up a work group, allowing students to talk among themselves over the intercom.

SYSTEM COMPONENTS

VN100 Node

A **VN100** node is placed at every workstation, video source, and output device in the facility and cables are connected from one node to the next. The **VN100** Node has input / output ports for video, keyboard, mouse, audio (optional) and control signals. The **VN100** node offers video bandwidth in excess of 200 MHz, ensuring compatibility with analog video signals at resolutions up to 1600 x 1200. The **VN100** normally contains a **VN210** keyboard / mouse module (may be deleted for systems not requiring keyboard and mouse control). The **VN210** connects directly to PC compatible computers with 9-pin serial mouse and large DIN keyboard connectors. Call **INLINE** for the current models to support other types of connectors and other computing platforms.



VN300 Master Control Unit

The VN300 provides control and status indication for all system functions and setup menus for advanced options. You will notice that icons and text are provided for most control buttons. The icons are prominent and placed directly on each button. The text placed below each button is small with low contrast lettering. The low contrast text is intentional. If you don't know what an icon means you can read the text. However, once you are familiar with the icon functions the text will tend to blend into the background, reducing clutter and providing a cleaner user interface. The main areas of the control panel are the LCD Status Display, Function Buttons, Node Selection Buttons, Control Buttons, and Menu / Help buttons.



Function Buttons - Located under the **VN300** LCD display window are 4 large buttons which have been factory programmed with the most common system functions. The one-touch function buttons greatly simplify system operations since you can engage the most important functions by touching a single function key:

- F1 - Send instructor video to all trainees.
- F2 - Blank all trainee monitors.
- F3 - Set all monitors back to local (trainees viewing their own computer's image).
- F4 - Scan sequentially through all trainees.

Configuration Memories - The function buttons can also be used to store or recall custom system configurations. Configuration memories store all functions including the condition of each node (local, drive, receive, blank) and other parameters stored in advanced menu settings. 8 memories are available, providing flexibility to accommodate different instructors and changing class size.

Node Selection Buttons allow the instructor to easily select an individual trainee, a range of trainees, or all trainees with a minimum number of keystrokes.

VN310 Student Button



The optional **VN310** Student Button connects to the CONTROL port on student nodes. This dual function button lets trainees request assistance from the instructor and also lets them select which signal they wish to view on their computer monitor.

Request Attention: Press and hold the student button for three seconds. The student button led will light. A light will also flash on the VN300 master control to indicate that a student is requesting attention and the node numbers of any student(s) currently requesting attention are shown with a ? symbol. The request for attention can be turned off by pressing and holding the button again for three seconds.

Select Local Video / Bus Video: The instructor first places a video image on the V-Net bus, usually the instructor's screen or the screen of another trainee. Each time the trainee presses the **VN310** student button their monitor will toggle between their own local image and the video image on the V-Net bus (if instructor has enabled the View Bus option for that trainee).

VN320 Deluxe Student Button



The first two buttons on the VN320 send a request for attention and toggle between local video / bus video. The third button allows students to engage remote keyboard/mouse control for collaborative learning sessions where several students work together on one computer. Once the instructor has set up a work group, all students within the work group can view the image of the shared computer and then use the VN320 to engage or release keyboard / mouse control for the shared computer. The VN320 also has an intercom microphone switch and intercom volume control.

VN330 Intercom Headset



The **VN330** intercom headsets connect to the **VN300** controller and **VN320** deluxe student button to facilitate communication throughout the facility. The instructor can make announcements to the class or engage in conversations with selected trainees. The optional intercom function can be particularly beneficial to the training environment since trainees can ask questions and receive assistance from the instructor without disturbing the entire class. The intercom also lets trainees in various locations throughout the facility work together on a project (requires instructor permission).

Second Line:

The second line is used for intercom information:

- Nothing indicates the intercom is off.
- D Node is Driving the Audio bus (teacher making an announcement)
- G Node is part of the Workgroup
- I Node is on the intercom
- R Node is Receiving the Audio bus (microphone is disabled)

Button Definitions:

- Local:** Selected node(s) is returned to its local state. The video and keyboard/mouse are local. The LCD displays an L for the node.
- Drive:** The selected node drives the video bus. The LCD displays a D for the node.
- Receive:** The selected node(s) receives the video bus. The keyboard/mouse is disabled. The LCD displays an R for the node.
- Blank:** The selected node(s) has its video blanked. The keyboard/mouse is disabled. The LCD displays a B for the node.
- Preview:** The selected node is set to drive the video bus and the instructor node is set to receive the video bus. The keyboard & mouse of the Drive node are unaffected.
- Scan:** The instructor sequentially receives the video image of the selected nodes (the nodes are scanned.) The time interval of the scan is selectable from 1 to 99 seconds. Normally the instructor node would be the only node to receive the video bus image during scan, however, additional nodes can be set to Receive the scanned image by accessing the Set Scan Receive nodes menu. For instance, multiple supervisor nodes or a video projector node might be set to receive the scan nodes for call monitoring facilities, a network monitoring facility or command and control installation. The keyboard & mouse of the nodes set to receive are disabled.
- The PAUSE function key will pause the scanning. The node currently driving will remain driving, and the node(s) receiving will remain receiving. The CONTINUE function key will continue the scanning by stepping to the next scan node and proceeding with the scan.
- The TUTOR NODE function key will exit the scan mode but leave the node driving in Drive and the node(s) receiving in Receive. This way, the instructor can “tutor” the student.
- The EXIT function key exits the scan mode and sets all nodes to the Local mode.
- Keyboard/ Mouse:** This function allows one computer’s keyboard and mouse to control another computer. If the system is currently configured with a video Driver and a single Receiver, the Receiving node will automatically take control of the Driving node's keyboard and mouse. If no node is currently driving the bus or multiple nodes are receiving then user must select the master and slave nodes. The video automatically follows the keyboard control selection.

Total Link: This key engages the following: View student's computer, take keyboard and mouse control of that computer and engage intercom with that student.

Workgroup: A Workgroup consists of a node that is Driving the video and one or more nodes receiving the video. All nodes in the workgroup have intercom and can take turns having keyboard/mouse control. The node that is Driving retains control over his keyboard and the Keyboard LED on his controller is on. By pressing the Keyboard button, the node relinquishes his control to allow another node to control it by pressing their Keyboard button. The LED lights on the student controller to indicate who in the workgroup is controlling the keyboard.

The instructor may be one of the nodes in the workgroup. Therefore, the software must have a way to allow the instructor to take control and relinquish the keyboard/mouse control.

All nodes not in the Workgroup can be controlled as usual (of course they cannot be set to Drive as only one node can Drive).

Intercom: The selected nodes will be able to speak to each other. If only one node is selected, it is understood that the selected node will talk to the instructor's node. The LCD displays an I on the intercom line.

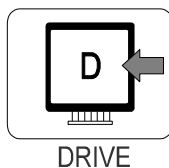
To add or delete nodes from the intercom, select those nodes and then press the appropriate function key. To change the display to show the Recall function keys, press *Next Page*.

Announcement: The selected node(s) is set to hear the instructor only.

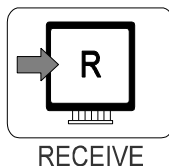
Example:

Requirement: Display the Instructor's image to student numbers 2 and 3

Solution: Set the Instructor's node to Drive the video bus and node numbers 2 and 3 to Receive it.



Press the **DRIVE** button. The LCD screen will change and prompt you to enter the a node number. Enter the number of the Instructor's node followed by **ENTER** (Function Key 4.) As an alternate, you could press the **INSTRUCTOR** button.



Press the **RECEIVE** button. The LCD screen will change and prompt you to enter a node number. Press the 2 button to enter the number 2. Press the **NEXT** button (Function Key 3) to allow you to enter another node number. Press the 3 button followed by **ENTER**.

INSTALLATION

With all of the power of the V-NET system, it is amazing how simple it is to connect. The nodes are pre-programmed with a Node number at the factory and a label identifies the node number. Place the nodes in the location you would like them and start at the power supply. Connect the first node to the power supply and each node connects to the next node with control bus and video cables. The computer and peripherals plug into each node. Add the controller and optional student buttons and that's it! If this sounds a little too easy, the following gives a little more detail:

Control Bus:

The most reliable way to install a V-NET system is to start at the VN400 power supply and then connect Nodes until the system is complete. This is the recommended procedure as the genders on the Nodes and Control bus cable are set so that the system only connects one way. **DO NOT** pull any cable through conduit until you are sure that you have the genders in the proper direction.

Video Bus:

The video bus needs to be terminated at the first and last nodes. Terminate the RED, GREEN and BLUE I/O ports with VN580 75 Ohm termination plugs. Connect the RED, GREEN and BLUE I/O ports of all nodes as shown in Diagram 2.

Cable selection is critical to the overall bandwidth performance of the V-NET system, especially in systems using over 100 feet of Video Bus cable and when working at very high resolutions. A high resolution coaxial type cable such as the IN7000P-3, IN7000-3, IN7100-3 and IN7200-3 is necessary to maintain video signal integrity throughout the system. System performance can also be maximized by placing the teacher's node in the middle of the system.

Connecting to the Node:

When the Power Supply, Nodes, Control Bus cables and Video Bus cables have all been assembled, complete the installation by connecting the computers and other input/output devices to the nodes. The following acts as a guideline (see Diagram 3):

1. Turn off all equipment (computer, monitor, V-NET, projector, scan doubler, etc.)
2. Connect the video output of the computer to the node's **VIDEO IN** port.
3. Connect the monitor to the node's **VIDEO OUT** port. Any unused **VIDEO OUT** port must be terminated with an **IN9031** termination plug.
4. Connect the Keyboard and mouse ports on the computer to the node's **TO COMPUTER PORT KEYBOARD** and **MOUSE** ports.
5. Connect the Keyboard and mouse to the node's **TO PERIPHERAL DEVICES KEYBOARD** and **MOUSE** ports.
6. Connect the **VN300** Master Control Unit to the Teacher node's **CONTROLLER** port..
7. Connect the optional **VN310** or **VN320** student buttons to the student node's **CONTROLLER** port.
8. Turn on all of the equipment.

Start Installation Here

Diagram 2 - V-NET Installation

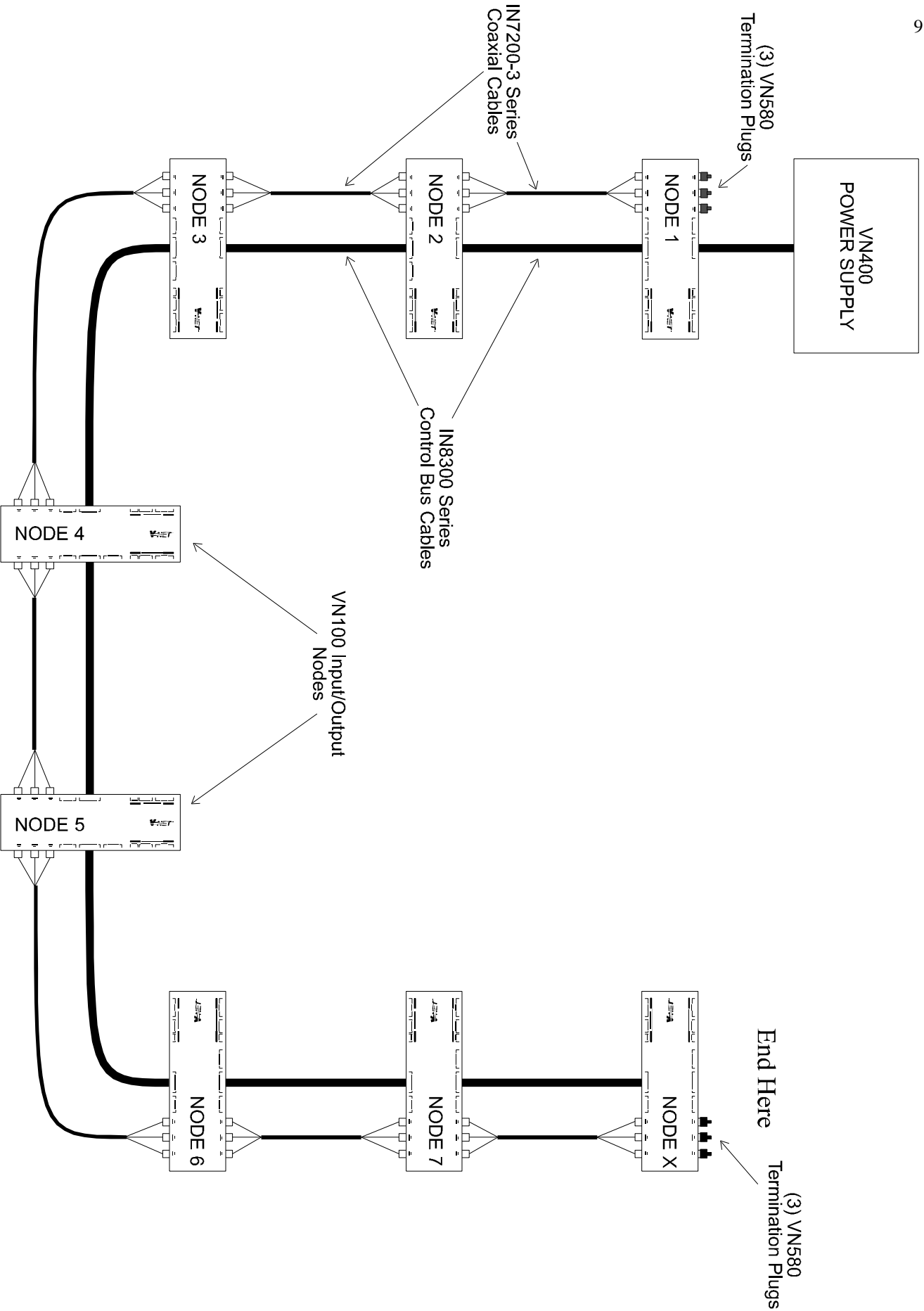
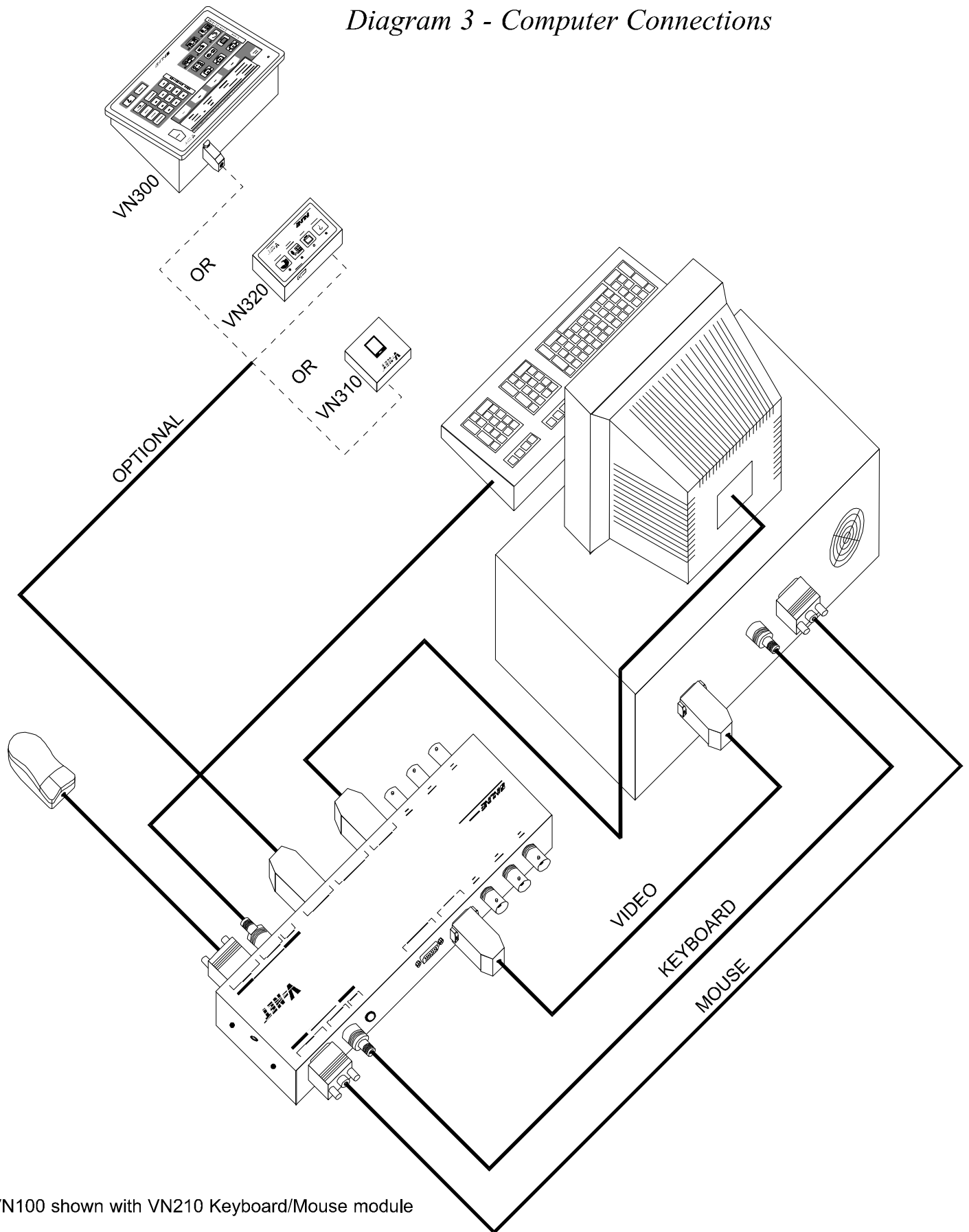


Diagram 3 - Computer Connections



VN100 shown with VN210 Keyboard/Mouse module

Depending on your computer type, adapter cables may be necessary to connect it to the **VN100** Input / Output node.

Many V-NET systems utilize other input/output devices. The most common requirements are to add Video sources such as a VCR or Laser Disc and a large screen projection device.

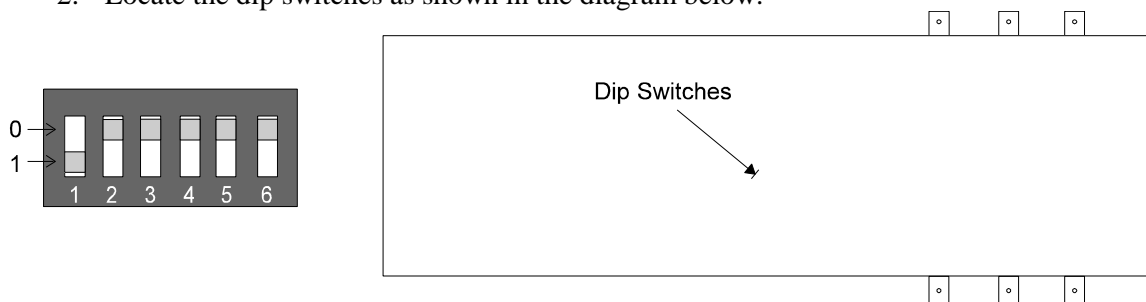
Composite, S-Video and RGBS Video sources - Regular base-band television type video sources such as VCRs, Laser Disc Players, Cameras, Visualizers and Slide to Video converters may be tied into the V-NET system through the use of a decoding or doubling unit. The actual unit used depends on the capabilities of the monitors tied into the V-NET system. For a system using VGA computers and monitors, a scan doubler such as the IN1024, IN1224 or IN1424 may be used. A scan doubler converts a normal video signal into a VGA compatible signal capable of being displayed on virtually any VGA monitor (for NTSC video.) Simply connect the output of a scan doubler to the VIDEO IN of a V-NET node, connect a display device or a termination plug to the VIDEO OUT port, and you now have a video signal on the V-NET system.

Large Screen Data Projector or Monitor - Any image from the V-NET system can be shown on a large screen data projector or monitor by simply hooking the VIDEO OUT port of a node to the display device. Of course, the display device must be compatible with the computer's video parameters (scan rate, sync type, etc.)

Node Number:

Each node in a V-NET system is given a unique Node number. This is necessary to identify the individual nodes for control purposes. Your V-NET system has been pre-configured at the factory and each node has been assigned a number. A label on each node identifies the node number. You should not need to change this number, but the following is provided to allow you to change the node number if necessary:

1. Open the node by removing the two screws on the sides and two screws on the bottom. Lift the top cover off.
2. Locate the dip switches as shown in the diagram below:



3. Set the dip switches for the number you desire. The following table shows the dip switch settings:

Node Address Table

Number	Dip Switch Setting						Number	Dip Switch Setting					
	1	2	3	4	5	6		1	2	3	4	5	6
1	1	0	0	0	0	0	33	1	0	0	0	0	1
2	0	1	0	0	0	0	34	0	1	0	0	0	1
3	1	1	0	0	0	0	35	1	1	0	0	0	1
4	0	0	1	0	0	0	36	0	0	1	0	0	1
5	1	0	1	0	0	0	37	1	0	1	0	0	1
6	0	1	1	0	0	0	38	0	1	1	0	0	1
7	1	1	1	0	0	0	39	1	1	1	0	0	1
8	0	0	0	1	0	0	40	0	0	0	1	0	1
9	1	0	0	1	0	0	41	1	0	0	1	0	1
10	0	1	0	1	0	0	42	0	1	0	1	0	1
11	1	1	0	1	0	0	43	1	1	0	1	0	1
12	0	0	1	1	0	0	44	0	0	1	1	0	1
13	1	0	1	1	0	0	45	1	0	1	1	0	1
14	0	1	1	1	0	0	46	0	1	1	1	0	1
15	1	1	1	1	0	0	47	1	1	1	1	0	1
16	0	0	0	0	1	0	48	0	0	0	0	1	1
17	1	0	0	0	1	0	49	1	0	0	0	1	1
18	0	1	0	0	1	0	50	0	1	0	0	1	1
19	1	1	0	0	1	0	51	1	1	0	0	1	1
20	0	0	1	0	1	0	52	0	0	1	0	1	1
21	1	0	1	0	1	0	53	1	0	1	0	1	1
22	0	1	1	0	1	0	54	0	1	1	0	1	1
23	1	1	1	0	1	0	55	1	1	1	0	1	1
24	0	0	0	1	1	0	56	0	0	0	1	1	1
25	1	0	0	1	1	0	57	1	0	0	1	1	1
26	0	1	0	1	1	0	58	0	1	0	1	1	1
27	1	1	0	1	1	0	59	1	1	0	1	1	1
28	0	0	1	1	1	0	60	0	0	1	1	1	1
29	1	0	1	1	1	0	61	1	0	1	1	1	1
30	0	1	1	1	1	0	62	0	1	1	1	1	1
31	1	1	1	1	1	0	63	1	1	1	1	1	1
32	0	0	0	0	0	1	64	0	0	0	0	0	0

WARRANTY

- ◆ INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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