Extron Electronics
INTERFACING, SWITCHING AND CONTROL

VN-Matrix® 250 • Setup Guide

The Extron VN-Matrix (VNM) 250 Series consists of the VNE 250 encoder and the VND 250 decoder. They integrate into VN-Matrix systems to provide real-time transmission of high resolution AV content across standard IP networks. The VNE 250 encodes video or graphics sources at resolutions up to HD or 2K (2048x1080) using the Extron PURE3™ Codec, a unique wavelet-based compression technology. The VND 250 decodes the content back to the original source resolution or a user selected resolution. The VNM 250 Series offers real-time streaming and low latency, making it ideal for remote collaborative and interactive or control applications. It can be deployed in live event streaming and high level conferencing for specialized projects.

IMPORTANT: Refer to www.extron.com for the user manual and installation instructions before connecting the product to the power supply.

NOTE: For full installation, configuration, and operation details, refer to the *VN-Matrix 250 User Guide*, at **www.extron.com**.

Before You Connect to a Network

Before connecting each VN-Matrix to a network, configure the network settings. On an existing network, check with the network administrator for a range of suitable IP addresses.
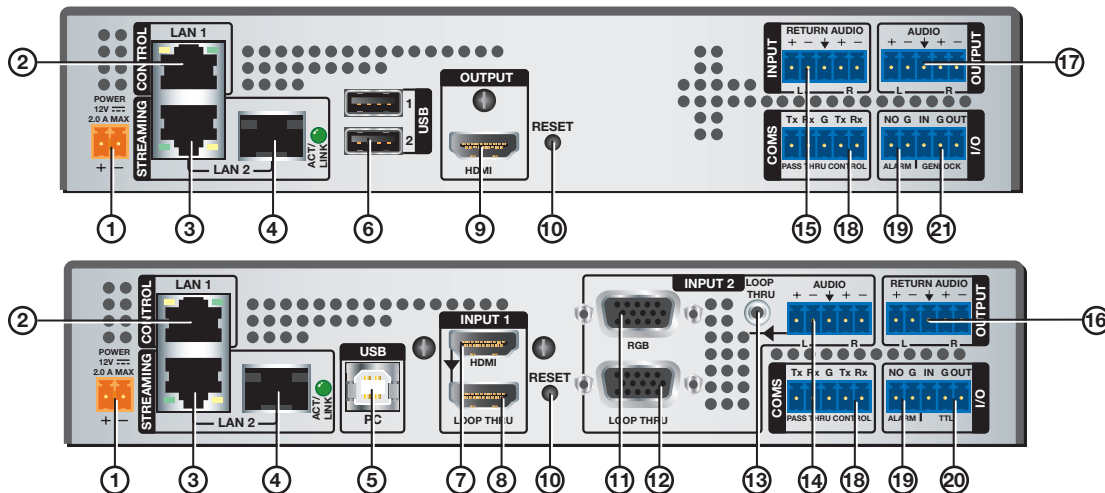
VN-Matrix Controller

One VN-Matrix device in the system must be designated the controller. For large systems (ten or more devices) this must be a VNM Enterprise Controller. For smaller systems (up to ten devices), the controller may be a VNM 250 device (either an encoder or decoder). All system configuration is achieved via a web interface that is served up by the device acting as system controller.

Setup Procedure

Follow the instructions in the Connections and Initial Configuration sections for each individual VN-Matrix device, then follow the Operation section instructions to create a VN-Matrix system. See the *VN-Matrix 250 User Guide* for more detailed information.

Rear Panel Features

The following illustration shows the rear panels of the VND 250 (top) and VNE 250 (bottom):

① DC power connector

② Control network RJ-45 connector

③ Streaming network RJ-45 connector

④ Streaming network SFP connector (optional)

⑤ USB port (VNE 250)

⑥ USB ports (VND 250)

⑦ HDMI input (VNE 250)

⑧ HDMI loop-through (VNE 250)

⑨ HDMI output (VND 250)

⑩ Reset button (recessed)

⑪ Analog video input (VNE 250)

⑫ Analog video loop-through (VNE 250)

⑬ Program audio loop-through (VNE 250)

⑭ Program audio input (VNE 250)

⑮ Return audio input (VND 250)

⑯ Return audio output (VNE 250)

⑰ Program audio output (VND 250)

⑱ RS-232 coms

⑲ Alarm relay

⑳ TTL (VNE 250; not implemented)

㉑ Genlock (VND 250)

Connections

1. Connect a power supply to the VNM 250 devices (rear panel diagrams, ①).

2. Connect the Streaming Network ports (LAN 2) of all the devices to the network (③ or ④).

    > **NOTE:** For normal operation, the Control Network port (LAN 1) (②) is not required.

3. Make the video connections:

    a. Connect an HDMI source to the HDMI input port (⑦) or an analog source to the analog input port (⑪) of the VNE 250. Both input types can be connected but only one output as a stream at any one time.

    b. Connect displays to the HDMI loop-through port (⑧) or the analog loop-through port (⑫) of the VNE 250, if required.

    c. Connect a HDMI display to the HDMI output port (⑨) of the VND 250.

4. Make the program audio connections (optional):

    a. Connect the program audio to the five-pole, program audio captive screw input (⑭) of the VNE 250.

    b. Connect an amplifier and speakers to the program audio loop-through TRS connector (⑬) of the VNE 250, if required.

    c. Connect amplifier and speakers to the program audio five-pole captive screw output (⑰) of the VND 250.

5. Make the return audio connections (optional):

    a. Connect the return audio to the to the five-pole, return audio captive screw input (⑮) of the VND 250.

    b. Connect amplifier and speakers to the return audio five-pole captive screw output (⑯) of the VNE 250.

6. Make the pass-through data transfer connections (optional):

    a. For RS-232 pass-through, one VNM 250 device will be the server (connected to a control PC or other control device) and one or more VNM 250 devices will be connected to the equipment that is to be controlled (clients). Either the encoder or the decoder can act as the server. Connect the three **left** pins of the RS-232 Coms port on the server (⑱) to the serial port of a PC (pin 1 = Tx, pin 2 = Rx, and pin 3 = Ground).

    b. Connect the three **left** pins of the RS-232 Coms port on the clients (⑱) to the devices that are to be controlled (pin 1 = Tx, pin 2 = Rx, and pin 3 = Ground).

7. Connections to the remaining ports on the VNM 250 units are optional. Follow the instructions provided in the *VN-Matrix 250 Series User Guide* on **www.extron.com**.

After making the connections described above, you must configure the system. Initial, low-level configuration is described in the next section. More advanced configuration requires system controller GUI control. See the *VNM 250 Series User Guide*.

Initial Configuration

1. Before starting, talk to your network administrator to obtain IP addresses for all units in the system.

2. Make connections for the low-level configuration of the VNM 250 unit. Connect the serial port of a PC to the three **right** pins of the RS-232 Coms port (pin 3 = Ground; pin 4 = Tx; pin 5 = Rx).

    > **NOTE:** This connection is required for low level configuration only but not for normal operation. It does not need to remain in place once the device is configured.

3. Open Extron DataViewer on the PC. In the opening dialog box, ensure the communications settings are:

    - Baud rate = 115200   - Data bits = 8   - Parity = none   - Stop bits = 1   - Flow control = none.

4. When prompted, enter the **login** and **password**. By default both the **login** and **password** are config. The low level configuration menu opens:

```
    Control Network port              Streaming Network port
    ===================               =====================
Ø. Speed/Duplex: auto_1Ø_1ØØ_1ØØØ   1Ø. Speed/Duplex: auto_1Ø_1ØØ_1ØØØ
1. IP Prov mode: static [dhcp]      11. IP Prov mode: static [dhcp]
2. address: 192.168.253.254         12. address: 192.168.254.254
3. netmask: 255.255.255.Ø           13. netmask: 255.255.255.Ø
                                    14. gateway: 192.168.254.1

6. mtu: 15ØØ                        16. mtu: 15ØØ
7. VLAN ID: Ø                       17. VLAN ID: Ø
8. controller ip: 192.168.254.254   18. Controller port: 5432
9. Exit                             19. webserver port: 8Ø

Please select an option:
```

5. Edit the options as required:

   a. At the `Please select an option:` prompt, enter the number of the option you wish to edit and press <Enter>.

   b. Enter the value for the new setting and press <Enter>.

   > **NOTES:** For normal operation, the Control Network port is not required. Options **1 - 3** do not need to be configured.

6. Follow the instructions in step 5 to set option 11 to **static** (type `static` and press <Enter>).

7. Follow the instructions in step 5 to assign values to options 8, 12, 13, and 14.

   > **NOTES:**
   > - When entering IP addresses, do not use leading zeroes. For example, `192.168.1Ø.25` is valid but `192.168.Ø1Ø.Ø25` is not.
   > - Option 8 is the IP address of the system controller and must be the same for all devices in the VN-Matrix system.
   > - For a small system, with a VNM 250 device acting as system controller, the Controller IP address (Option 8) must be the same as the Streaming Network IP address (Option 12) of the device that is acting as system controller. In a large system, option 8 must be set to the IP address of the VNM Enterprise Controller

8. When all the options have been edited as required, at the `Please select an option:` prompt, enter 9 and press <Enter>. The second low-level configuration menu screen opens (see the figure to the right).

9. Ensure option 6 is set to `none`. If not, select option **6**, enter `none` and press <Enter>.

10. Enter 9 and press <Enter>. The unit shuts down and reboots.

```
6. DHCPD/SLAAC server enable: none

9. Exit


Please select an option:
```

Operation

After connecting and assigning IP addresses (Initial Configuration) to the individual units, configure each device in the system:

1. Open a PC with access to the VN-Matrix network and in a suitable browser (Google Chrome, Firefox, or Internet Explorer) type the IP address of the system controller in the browser address bar. The login page opens for the Enterprise Controller GUI (Figure 1) or the VNM 250 controller GUI (Figure 2):

2. Enter the **Username** and **Password** and click **Login**.

   By default, for the Enterprise Controller GUI, the **username** is `admin` and there is no password (leave the box empty)

   By default, for the VNM 250 Controller GUI, the **username** and **password** are both `admin`.
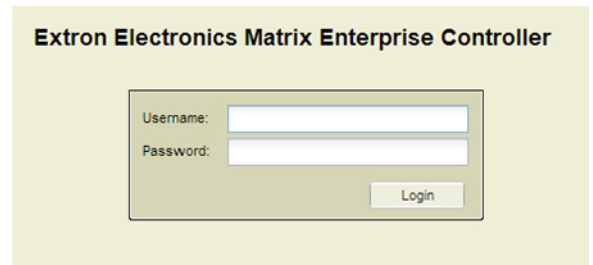
   > **NOTE:** These values may have been reset; check with your network administrator.

Both the control programs open at the corresponding **Device List** page. For complete instructions about using the Enterprise Controller, see the *VN-Matrix Enterprise Controller User Guide*. The VNM 250 GUI **Device List** tab lists all the devices in the system along with the icons used:
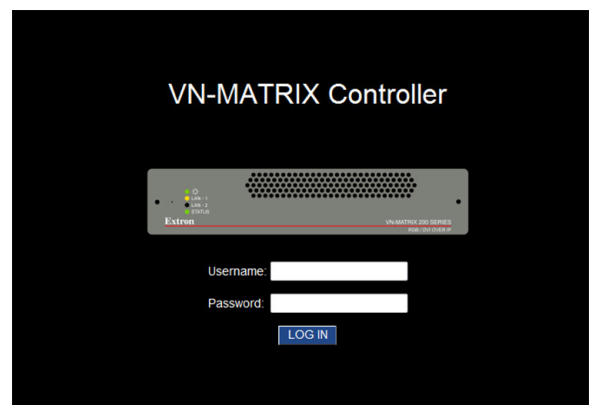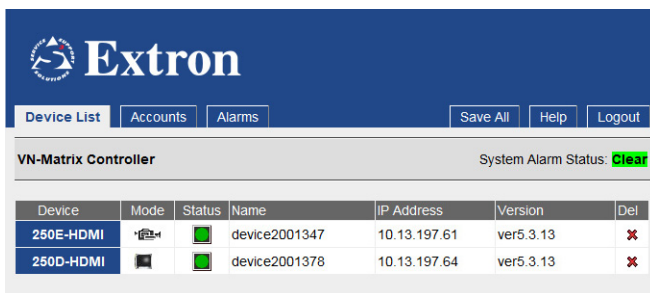
Figure 1: Enterprise Controller Login Screen

Figure 2: VNM 250 Controller GUI Login Screen

Device	Mode	Status	Name	IP Address	Version	Del
250E-HDMI		■	device2001347	10.13.197.61	ver5.3.13	✗
250D-HDMI		■	device2001378	10.13.197.64	ver5.3.13	✗

250E-HDMI Device: Encoder	**250D-HDMI** Device: Decoder	
Mode: Encoder	Mode: Decoder	
Alarm status gray (no contact with controller)	Alarm status green (no alarms)	Alarm status yellow (Warning alarms only)	Alarm status red (Critical alarms)

Correctly configured devices are listed in the device list page (see page 3). If devices are not listed as expected, check that the IP address of the controller is configured (option 8 in Initial Configuration).

3. Click on any unit in the Device List to open the Device tab for that unit. From the Device tab for an encoder, you can configure the input video, audio, and data stream. From the Device tab for a decoder, you can configure the output video. See the *VN-Matrix 250 Series User Guide* for complete information about configuring.

4. Use the GUI to configure other functions:

    - **Text overlay** — allows text to be displayed on the pass-through monitor (VNE 250) or display monitor (VND 250). This helps to identify a specific unit in a complex system.

    - **Return audio** — allows bidirectional communication between a decoder and the associated encoder.

    - **KVM functionality** — allows remote collaboration between different endpoints on the network. A mouse and keyboard connected to a decoder can be used with a PC connected to the associated encoder.

    - **Genlock** — synchronizes the video output of multiple decoders.

    - **RS-232 pass-through control** — allows a PC connected to one VNM 250 unit to control a remote device connected to a second VNM 250 unit.

    - **Alarms** — The alarms and alarm logs tabs allow the user to monitor problems in the system.

Troubleshooting

> **TIP:** When diagnosing problems with an encoder or source, it is recommended that a local monitor be connected to the VNE 250.

The VNM 250 units provide several tools that can help to diagnose any problems with the system:

Front Panel Status Indicators — four LEDs on the front panel indicate the status of the control network, streaming network, the device, and alarms.

Name	Color	Function		
Control	Orange	Indicates the status of the control network port: **Fully lit** or **Flashing intermittently** – control data is being transmitted or received by the port. **Unlit** – no data or no network connection detected.		
Stream	Orange	Indicates the status of the active network port (streaming): **Fully lit** or **Flashing intermittently** – system control or source data is being transmitted or received by the port. **Unlit** – no data or no network connection detected.		
Status	Green	Indicates the status of the VNE 250 or the VND 250.		
		Condition	**Encoder (source)**	**Decoder (display)**
		Unlit	No source input detected.	No source being received.
		Flashing	Source being streamed (for example a stream is provisioned to a decoder).	Source being received.
		Fully lit	Source present but not being streamed (for example, no stream is provisioned to a decoder).	N/A
Alarm	Red	**Fully lit** – indicates that a critical alarm has occurred.		
		Flashing – indicates an over-temperature condition.		

The front panel display provides access to some of the VNM 250 device features. The menu screens default to show status information about the device:

Front Panel Default Menu Screens (Encoder) — the Input summary provides information about the currently connected source. The Connection summary provides information on the current streaming connections. The Controller summary provides information about the status of the connection to the system controller.

Front Panel Main Menu, Input Screens (Encoder) — provide information about the currently connected source, enable or disable loop-through, and set the loop-through monitor power save time out.

Front Panel Default Menu Screens (Decoder) — the Output summary provides information about the current output mode and status. The Connection summary provides information on the current streaming connections. The Controller summary provides information about the status of the connection to the system controller.

Front Panel Main Menu, Output Mode Screens (Decoder) — enables and disables the decoder output mode and sets the output display power save options

Controller Web User Interface, Device List — ensure that the device is listed.

Controller Web User Interface, Alarms and Alarms Logs — monitor the active alarms on the system.

For more information, see the Troubleshooting section of the *VNM 250 Series User Guide* or contact Extron S3 Technical Support.

68-2236-50 Rev. A
10 13