

CriticalConneX™ Series

V-Line™ System

User Guide



VL1005: 100/1000 Copper V-Line™ System

User Guide

This user guide shows you how to install a V-Line™ TAP into your ethernet network and how to connect one or two sensors.

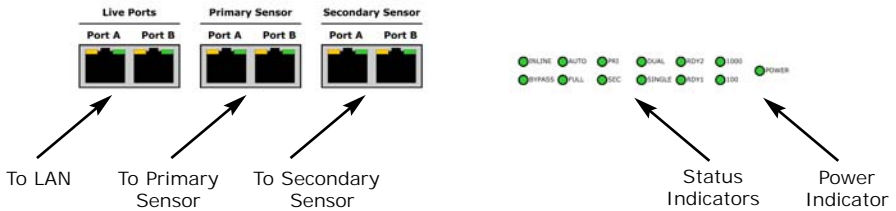
Inspect Package

Remove the V-Line™ TAP and accessories from the shipping box. Make sure you received these items:

- 1 x V-Line™ TAP VL1005
- 2 x Power Cords
- 1 x Console Cable: DB9M to DB9F, 10' Straight Through Cable
- 1 x User Guide

Note: If any items are missing or damaged in shipping please inform Network Critical or your local reseller immediately.

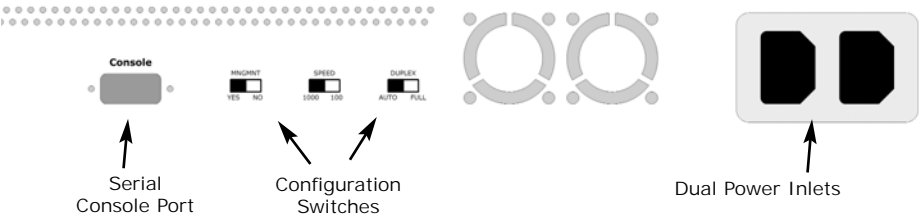
Front Panel



Port Status Indicators



Rear Panel



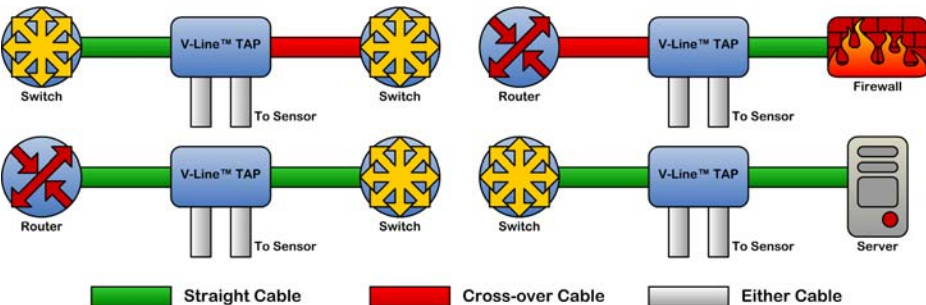
Front Panel Status Indicator Information (Table 1)

LED	Description
INLINE	GREEN - traffic is flowing through the sensor
BYPASS	GREEN - traffic is flowing only through the LIVE ports
AUTO	GREEN - LIVE PORT A and B are set to autonegotiate
FULL	GREEN - LIVE PORT A and B are set to fixed full duplex
PRI	Primary Heartbeats: GREEN - OK, RED - FAIL
SEC	Secondary Heartbeats: GREEN - OK, RED - FAIL
DUAL	GREEN - Dual sensor configuration
SINGLE	GREEN - Single sensor configuration
RDY1	GREEN - V-Line™ TAP is booted and ready for use
RDY2	Future Use
1000/100	GREEN - the network speed at which the V-Line™ TAP is running
POWER	GREEN - Power is applied

Rear Panel Configuration Switch Information (Table 2)

Switch	Description
MNGMNT	Yes Enables use of Console Port; No Disables use of Console Port
SPEED	Set to 1000 mbps or 100 mbps operation to match the live network
DUPLEX	Set to AUTO for Auto-negotiation or FULL for Full-Duplex

Cable Guide



Note: This cable guide is for 100MB operation only and is to ensure that the LAN devices can still communicate even if power to the TAP fails. It is not necessary for 1000MB operation as Auto-MDIX is used. Most equipment vendors follow the above standard MDI or MDIX configurations, however some vendors may not. To ensure proper connectivity, always verify link at the network devices with the TAP power off. If there is no link try changing one of the cables from Straight-thru to Cross-over.

Get Started

Before you start the installation you must perform the following steps:

1. Determine where you want to tap into your network, whether you will install one or two sensors, and where the sensors are to be located. These locations must have access to an approved power outlet (100 to 240 VAC 50/60 Hz).
2. Refer to the Cable Guide diagram and obtain Category-5 or Category-6 ethernet patch cables of the appropriate lengths and types that you may need for the installation.

If you are connecting only one sensor to the V-Line™ TAP you will need a total of four cables (two for connecting the TAP to the live network and two for connecting the TAP to the sensor). If you are connecting two sensors you will need a total of six cables.

Install the V-Line™ TAP

1. Place the V-Line™ TAP at the location - where you want to tap your network

Important! *Do not power up the V-Line™ TAP now.*

2. Refer to Table 2 and set the switches for SPEED and DUPLEX to match the LAN that is to be monitored.
3. Route two ethernet cables and connect your network devices to the LIVE PORTS A and B on the V-Line™ TAP. It does not matter which side of the LAN is connected to which LIVE PORT.
4. Check the Link/Activity indicators on your network devices' ports to see whether data is flowing through the LIVE PORTS on the V-Line™ TAP with the power disconnected.
5. Plug the power cord into the power supply and into the power inlet on the rear of the unit, and turn the power switch to the ON position.
6. Verify that the tap powers up. The Power indicator on the front of the unit should light and the Link/Activity indicators on the LIVE PORTS should show active links.
7. Set up your sensors and connect two ethernet cables from your sensor's monitoring ports to the SENSOR PORT A and B on the V-Line™ TAP. It does not matter which sensor monitor port is connected to which SENSOR PORT.
8. Check the Link/Activity indicators on your sensors' network ports to see whether data is flowing from the V-Line™ TAP to the sensor ports.

Note: *If the V-Line™ TAP fails to power up or fails to show activity on all SENSOR PORTS make sure that the power source is turned on and all connections and cables are known good.*

Optional Console Port Configuration

Important: The MNGMNT Configuration Switch on the rear of the unit must be set to YES for the console port to work

Before you install the V-Line™ TAP into your network you must configure the device:

1. Plug the power cord into the power supply and into the power inlet on the rear of the unit. This product comes with dual power supplies. Only one power supply is required to support the unit.
2. Connect the console cable to the back of the unit and to your computer (COM1 or COM 2). (DB9 Male to DB9 Female cable)
3. The following configurations are available:
 - a. Live Ports: Choose Gigabit Multi-Mode Fiber or Copper Gigabit for your Network Ports
 - b. Each Copper Gigabit Monitoring Port can be configured to monitor traffic on Live Port A, Live Port B or Combi (Live Port A & B)
4. Launch HyperTerminal from your computer
 - a. In MS Windows click START, Run... then type hypertrm and click OK
 - b. This will bring up a HyperTerminal window
 - c. Type in a name for the Session and click OK
 - d. A new window will open. At the bottom of the window click on CONNECT USING and select the correct COM PORT and click OK
 - e. This will bring up a PORT SETTING window
 - f. Set the following values:
 - i. Bits per Second: 115200
 - ii. Data Bits: 8
 - iii. Parity: NONE
 - iv. Stop Bits: 1
 - v. Flow Control: NONE
 - g. Select OK
 - h. Hit ENTER
 - i. The login screen below will display:

```
=====
Network Critical V-Line System (Version 1.22)
=====
System will come up...
```

Hit any key to login.

Welcome to Network Critical V-Line System

TINI login:

The system default username is `admin` and the password is `criticaltap`. To protect your configuration settings you should change this password using the System Configuration option.

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The Device Configuration option allows you to change various network mode settings such as Media (Copper/Fiber), Speed (100/1000MB) and Duplex (Auto/Fixed Full). You should be careful to select the settings that match your network configuration, but it may be necessary to change the Duplex mode to get the best fit for your installation.

The Device Configuration option also allows you to change some V-Line specific settings, such as the heartbeat configuration and even to design a custom packet to use as the heartbeat by entering hex values for each byte. After entering the hex values the V-Line will automatically compute the correct checksum and append it to your custom packet.

```
=====
HeartBeat Configuration
=====
Current HeartBeats per sec: 16
Current No. of HB to miss : 10
=====

Current Packet:
FF FF FF FF FF FF 00 50 - C2 0F 00 0F 08 06 00 01
08 00 06 04 00 01 00 50 - C2 0F 00 0F 0A 0A 0A 0A
00 00 00 00 00 00 0A 0A - 0A 09 00 00 00 00 00 00
00 00 00 00 00 00 00 00 - 00 00 00 00 E4 FA 6A 77

1. Change HeartBeat Parameters
2. Edit HeartBeat Packet
3. Load New Packet
4. Reset to default Packet

0. Return
```

You can also set the V-Line switching mode, which controls how the V-Line behaves when sensors are connected/disconnected.

```
=====
-- Switching Mode Configuration --
=====

Current Mode : AUTO
-----

1. Auto
2. Auto_Sticky Mode
3. Bypass
4. Primary only
5. Secondary only

0. Return
```

The Primary and Secondary Port control from the console port is provided to help test and maintain the Sensors in redundant installations. Through the simple menu (outlined above), the V-Line™ Devices can be forced into bypass only mode, Primary mode or Secondary mode only. Another mode "Auto_Sticky", keeps the Secondary selected after a Primary to Secondary switch-over even if the Primary resumes proper operation.

1. Auto:
 - a. Models: VL1005/VL1010/LV1015
 - b. In a redundant configuration, V-Line Device will switch between the Primary and Secondary sensors in case of the sensor failing. The V-Line Device will always return to the primary sensor when back on-line.
2. Auto_Sticky mode
 - a. Models: VL1005/VL1010/LV1015
 - b. In a redundant configuration, V-Line Device will switch between the Primary and Secondary sensors in case of the sensor failing. In Auto_Sticky Mode in a sensor fails, then the V-Line device will switch over to the operating sensor and remain in this position.
3. Bypass
 - a. Models: VL1005/VL1010/LV1015
 - b. In Bypass mode the traffic is sent straight-thru on the network.
 - c. In Bypass mode the sensors will see the traffic on the network. This mode may be used for maintain/updates/testing on the sensors connecting to the monitoring ports.
4. Primary only
 - a. Models: VL1005/VL1010/LV1015
 - b. Selects the Primary Sensor.
5. Secondary only
 - a. Models: VL1005/VL1010/LV1015
 - b. Selects the Secondary Sensor

The final configuration setting is Link Failure Propagation (LFP). When LFP is ON the V-Line will constantly monitor the link status of the live network ports, if it detects a failure on either link it will force the other link down too, and both the Speed and Link indicators on the failed port will flash to show which side failed first. This is very useful in redundant or hot-standby installations where complete failure is required to enable the successful switch to the secondary link.

Complete configuring the V-Line System for your requirements.
Refer to Install the V-Line System after the configuration is complete.

Further Information & Support

For more information and technical support on this product please contact us at the following locations:

Web	http://www.criticaltap.com/
UK Phone	+44 (0) 1189 543210
USA Phone	+1 716-833-2422
Email	support@networkcritical.com