Sourcefire 3D System

3D Sensor Installation Guide

SOURCEfire
Security for the real world.

Version 4.10.3

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Before You Begin

This guide describes how to install and set up the Sourcefire 3D Sensor.

Depending on which Sourcefire 3D System products you have licensed, a Sourcefire 3D Sensor can include:

- IPS, the intrusion detection and prevention component
- RNA, the Real-time Network Awareness component
- RUA, the Real-time User Awareness component
- any two components, or all three

Each of the components is described in detail in the *Sourcefire 3D System User Guide*. You can install a 3D Sensor with the IPS component as a standalone appliance, but if you want to use RNA or RUA, you must use the 3D Sensor with a Defense Center. Note that some models of the 3D Sensor do not support every combination of components. See Understanding Detection Resources and 3D Sensor Models on page 23 for more information.

Before you install a Sourcefire 3D Sensor, you should consider how your network is configured and how you want to deploy the various components of the Sourcefire 3D System within it.

This chapter describes some of the considerations for deploying a 3D Sensor, including:

- the concept of the detection engine and the modes in which you can deploy detection engines on the 3D Sensor: passive or inline
- your goals in deploying sensors that use RNA to perform network discovery and vulnerability assessment, as well as your goals in deploying sensors that use IPS to detect and prevent attacks on your network assets
- deployment issues, such as which network segments you want to monitor with your 3D Sensors, and why
- how you will physically connect the sensors to your network, taking into account any special network configuration factors, such as firewall placement, VPN deployments
- whether you will use a Sourcefire Defense Center to aggregate and correlate RNA and intrusion events

See the following sections for more information:

- IPS Installation Considerations on page 8
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- Typical 3D Sensor Deployments on page 11
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IPS Installation Considerations

IPS is the intrusion prevention and detection component of the Sourcefire 3D System. Before you install a 3D Sensor with IPS, you should consider how your network is configured and how you want to deploy the various components of the Sourcefire 3D System within it.

Every network architecture is different, and every enterprise has different security needs. This section lists some of the factors you should consider as you formulate your deployment plans and includes a description of how the Sourcefire 3D System can help you meet common network security goals.

Your deployment decisions for 3D Sensors with IPS will be based on a variety of factors. Answering these questions can help you understand the vulnerable areas of your network and clarify your intrusion detection and prevention needs:

- Will you be deploying your 3D Sensor with passive or inline interface sets? Does your 3D Sensor support multiple detection engines with a mix of interface sets, some passive and others inline? See Understanding Detection Engines and Interface Sets on page 22 for more information about detection engines and interface sets and how they influence your sensor deployment.
- How will you connect the 3D Sensors to the network? Hubs? Taps? Spanning ports on switches? See Connecting Sensors to Your Network on page 25 for more information about methods for connecting the sensing interfaces on your sensor to your network.
- Do you want to detect every attack on your network, or do you only want to know about attacks that penetrate your firewall? Do you have specific assets on your network such as financial, accounting, or personnel records, production code, or other sensitive, protected information that require special security policies? See Typical 3D Sensor Deployments on page 11 for more information.
- Do you provide VPN or modem access for remote workers? Do you have remote offices that also require an IPS deployment? Do you employ contractors or other temporary employees? Are they restricted to specific network segments? Do you integrate your network with the networks of other organizations such as customers, suppliers, or business partners? See Other Deployment Options on page 18 for more information.

RNA Installation Considerations

RNA is the Real-time Network Awareness component of the Sourcefire 3D System. Before you install a 3D Sensor with RNA, you should first consider your goals in deploying network discovery and vulnerability assessment sensors. Next, consider deployment issues, such as which network segments you want to monitor with RNA (and why), and how you will physically connect these appliances to your network. Finally, you should take into account any special network configuration factors, such as firewall placement, VPN deployments, and how you will use a Sourcefire Defense Center to aggregate and correlate RNA events.

Monitoring network changes with RNA can help you realize a variety of goals. Clarifying your network discovery and vulnerability assessment goals can guide

your deployment choices. This section examines some general goals that can influence a deployment of 3D Sensors with RNA, such as:

- gaining a more thorough understanding of your current network infrastructure
- learning when network change occurs and how it affects your network's susceptibility to compromise
- using RNA data to refine your intrusion rules and firewall rules

RUA Installation Considerations

RUA is the Real-time User Awareness component of the Sourcefire 3D System. RUA allows your organization to correlate threat, endpoint, and network intelligence with user identity information. 3D Sensors with RUA allow you to identify the source of policy breaches, attacks, or network vulnerabilities. By linking network behavior, traffic, and events directly to individual users, RUA helps to mitigate risk, block users or user activity, and take action to protect others from disruption. These capabilities also significantly improve audit controls and enhance regulatory compliance.

You can deploy RUA in two ways: as a component on a 3D Sensor or as an agent on a Microsoft Active Directory server. The implications of each deployment method are described in "Using Real-time User Awareness" in the *Sourcefire 3D System User Guide*.

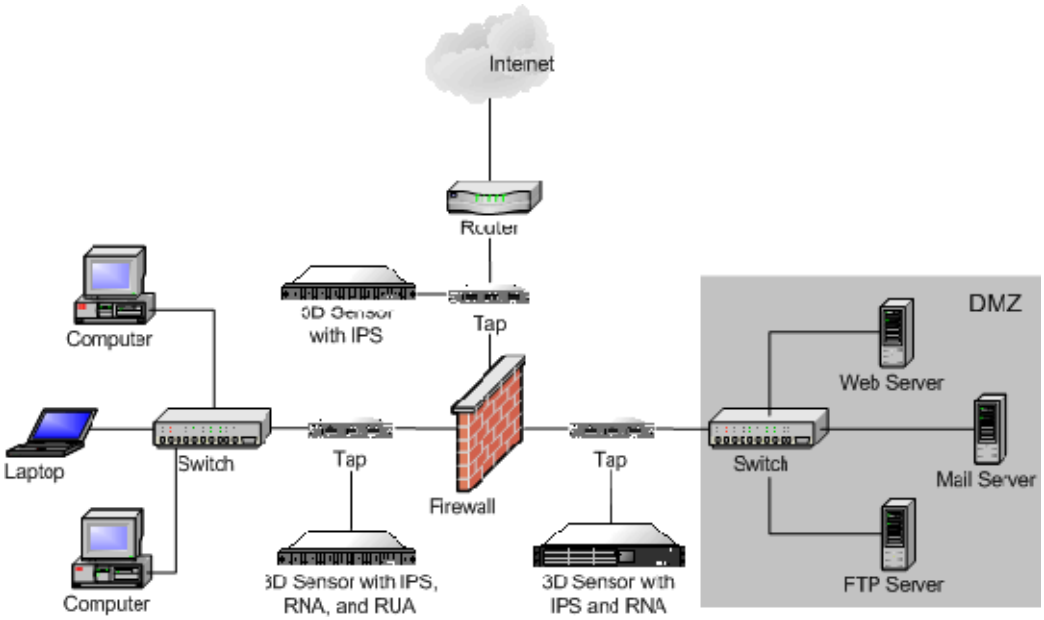
3D Sensors with RUA use detection engines to passively analyze the traffic that travels through your network. An RUA detection engine collects user login events by passively monitoring traffic. Refer to "Setting up Sourcefire 3D Sensors with RUA" in the *Sourcefire 3D System User Guide* for more information.

The Sourcefire RUA Agent on a Microsoft Active Directory (AD) server detects all AD server logins and reports them to the Defense Center as RUA events. Only usernames and IP addresses associated with RUA events are collected in this manner. Information about loading the RUA Agent on a Microsoft Active Directory server is provided in "Installing an RUA Agent on an Active Directory Server" in the *Sourcefire 3D System User Guide*.

Typical 3D Sensor Deployments

In the following simple network architecture diagram, the network has three areas with three different security policies:

- between the border router and the firewall
- in the demilitarized zone, or DMZ
- in the internal, protected network



Deploying your 3D Sensors in each of these locations serves different purposes. Security requirements vary, so the following are typical location recommendations:

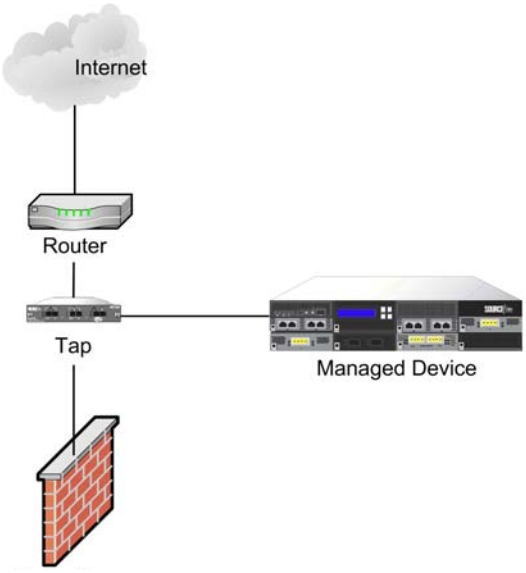
- Placement outside the firewall gives you a clear picture of all the traffic traversing your network via this gateway. This location is appropriate for IPS only. Most enterprises would not need to identify user identities or employ host and vulnerability detection capabilities in this area.
- Placement in the DMZ provides you with useful information about attacks on outward-facing servers. This location is appropriate for IPS and RNA, although some enterprises would want to add the user identification capabilities of RUA here as well.
- Placement on the internal network monitors inbound traffic for firewall misconfiguration and detects attacks that originate from hosts on the internal network. All internal networks are ideal locations for the combined capabilities of IPS, RNA, and RUA.

These three locations indicate where you may want to connect the 3D Sensor's sensing interfaces. Regardless of where you connect the sensing interfaces,

make sure you connect the 3D Sensor's management interface to a secure internal network that is protected from unauthorized access.

Outside the Firewall

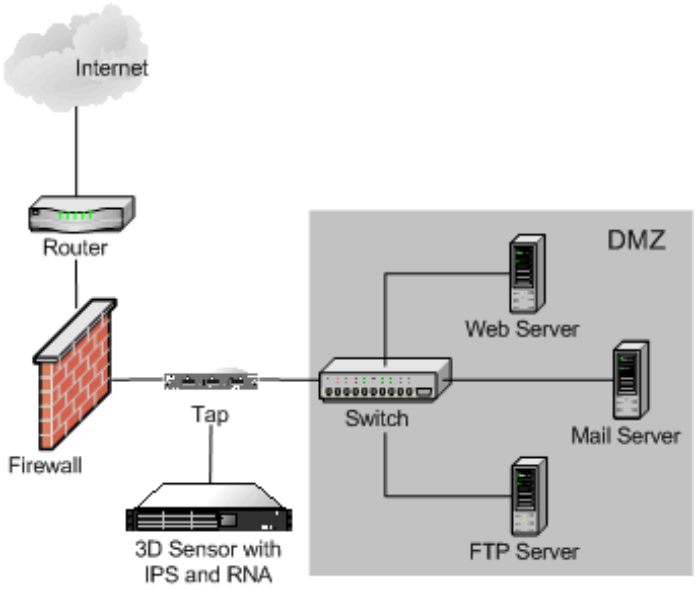
Outside the firewall, the router provides the first line of defense. Although you can configure most routers to block unwanted packets, this is not typically used to secure the network segment between the router and the firewall. Placing the 3D Sensor here can help you detect attacks made against your network as well as attacks from your network to another.



Deploying the 3D Sensor on this segment of your network for a week or two can help you understand what kinds of attacks reach your firewall and where they originate. Although you can readily inspect all traffic traversing your network, considerable resources are required to prioritize, investigate, and respond to events that may be blocked by your firewall. Your enterprise's ability to gain knowledge from this approach depends on the amount of traffic traversing your network and your security analyst resources. Gaining this kind of information can help you tune your firewall rules to be as effective as possible.

In the DMZ

In this simple network architecture, the DMZ contains outward-facing servers (web, FTP, DNS, mail, and so on). The hosts in the DMZ provide services to external users and are at a greater security risk than those inside the firewall.



In this network configuration, the servers in the DMZ also provide services such as mail relay and web proxy to users on the internal network. A 3D Sensor with IPS on this segment can provide useful information about the kinds of attacks on outward facing servers as well as detect attacks directed to the Internet that originate from a compromised server in the DMZ. Adding RNA to the sensor on this segment can help you monitor these exposed servers for changes (for example, a new unknown service suddenly appearing) that could indicate a compromised server in the DMZ.

On the Internal Side of Redundant Firewalls

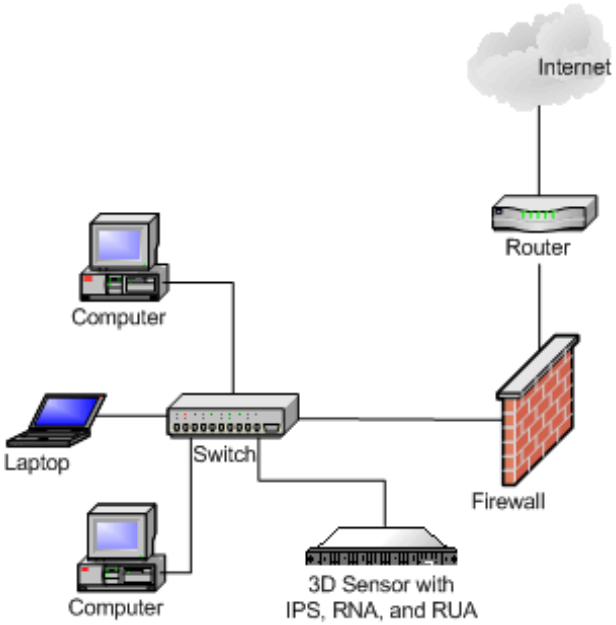
Many network environments implement a redundant data path for Internet connectivity. These secondary links may also require monitoring in situations when the primary, or active, links go offline. Two options are available for ensuring continuous monitoring during a primary link outage:

- A single 3D Sensor can monitor both the active (primary) and passive (secondary) links over multiple inline links passing through the single sensor. Built-in fail-open bypass capabilities ensure that traffic is always moving through the appliance, and any traffic that moves to the secondary link is still monitored by the sensor appliance as if nothing had failed.
- Two 3D Sensor appliances may be placed on the network. One can monitor the active (primary) link and one the passive (secondary) link, with both sensors up and continuously monitoring the specified link. If a condition causes traffic to move from the primary to the secondary link, the 3D Sensor on the secondary link automatically takes over all monitoring responsibilities.

On the Internal Network

Although the sample network includes a firewall configured to provide security to the servers and workstations on the internal network, 3D Sensors on this segment can monitor traffic that is allowed inbound by the firewall by choice or due to firewall misconfiguration. For example, if you have a security policy that prohibits FTP connections to any host on the internal network, you can create a rule on the 3D Sensor that will trigger when it detects traffic directed to port 21 on any IP address in the segment. A 3D Sensor on this segment can also detect attacks that originate from hosts on the internal network. For instance, attaching one 3D Sensor to a mirror or span port on a switch helps you identify attacks from

one computer on the internal network directed against other computers on the internal network if the attack traffic traverses the switch.



Similarly, if a host on your network is compromised from within, RNA can immediately identify both unauthorized changes on hosts. For example, a Microsoft shop can use RNA to identify in real time a rogue Linux or FreeBSD system that mysteriously appears on their network segment. RNA on a switched network segment can monitor all the hosts and services on the segment for changes and vulnerabilities. For example, attaching an 3D Sensor to a mirror or SPAN port on the switch allows you to monitor the entire network segment, as long as all traffic to and from all hosts on the segment traverses the switch.

In either case, by adding RUA to the 3D Sensor, you can immediately identify the user who is logged into the host that is running the rogue operating system or launching the internal attack.

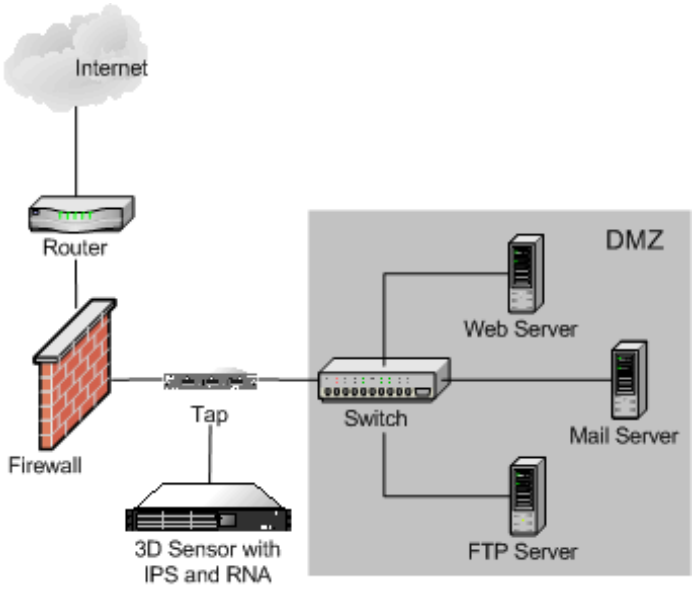
Deploying a Multi-Port 3D Sensor

Selected models of the 3D Sensor offer multiple sensing ports on an adapter card. You can use the multi-port 3D Sensors in either of two ways:

- to recombine the separate connections from a network tap
- to capture and evaluate traffic from different networks

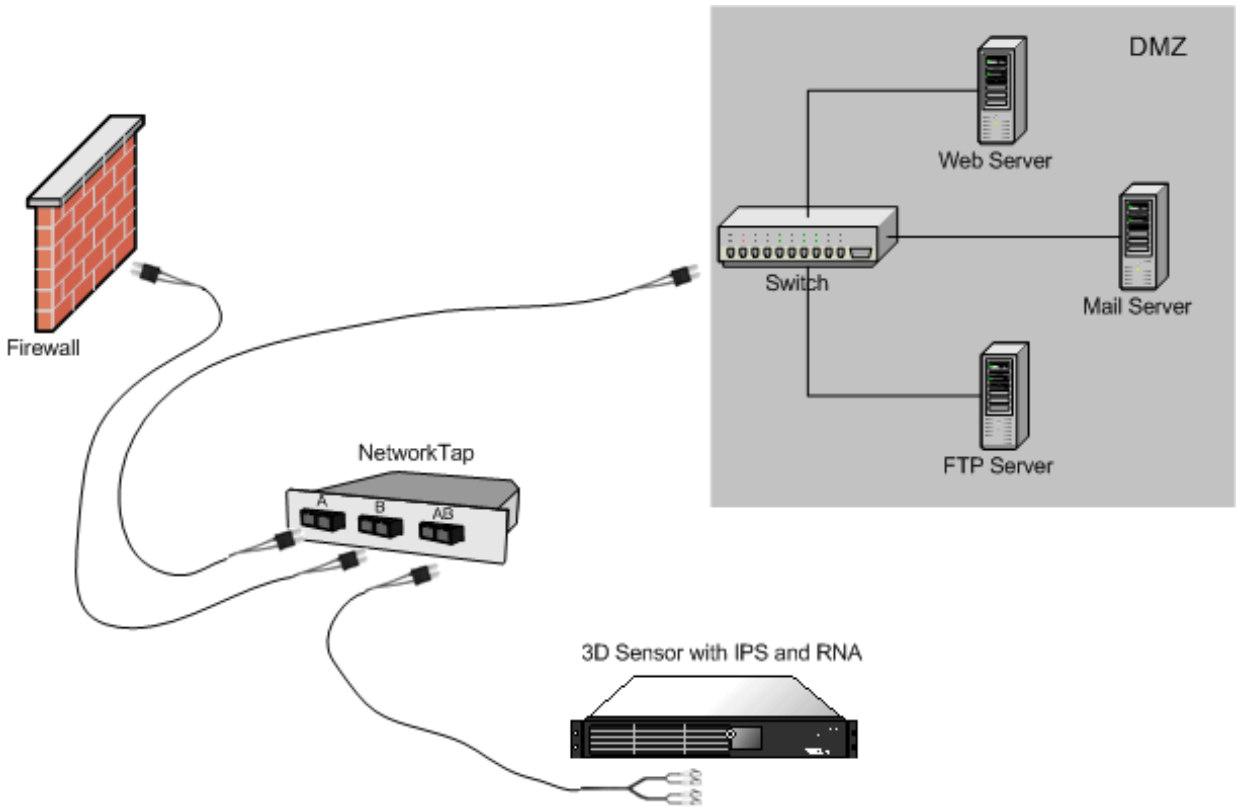
IMPORTANT! Although each port is capable of receiving the full throughput for which the sensor is rated, the total traffic on the 3D Sensor cannot exceed its bandwidth rating without some packet loss.

Deploying a multi-port 3D Sensor with a network tap is a straightforward process. The following diagram shows a network tap installed on a high-traffic network segment.

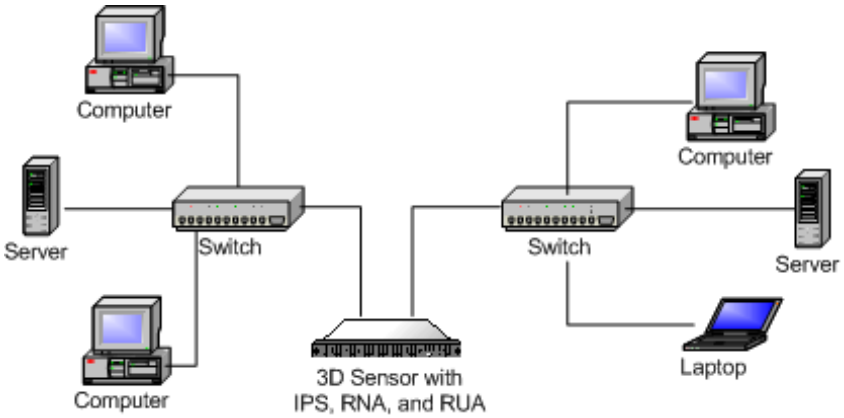


In this scenario, the tap transmits incoming and outgoing traffic through separate ports. When you connect the multi-port adapter card on the 3D Sensor to the tap, the 3D Sensor is able to combine the traffic into a single data stream so that it can be analyzed.

Note that with a gigabit optical tap, as shown in the illustration below, both sets of ports on the 3D Sensor are used by the connectors from the tap.



If your 3D Sensor supports multiple detection engines, you can also create interface sets to capture data from separate networks. The following diagram shows a single sensor with a dual-port adapter and two interface sets connected to two networks.



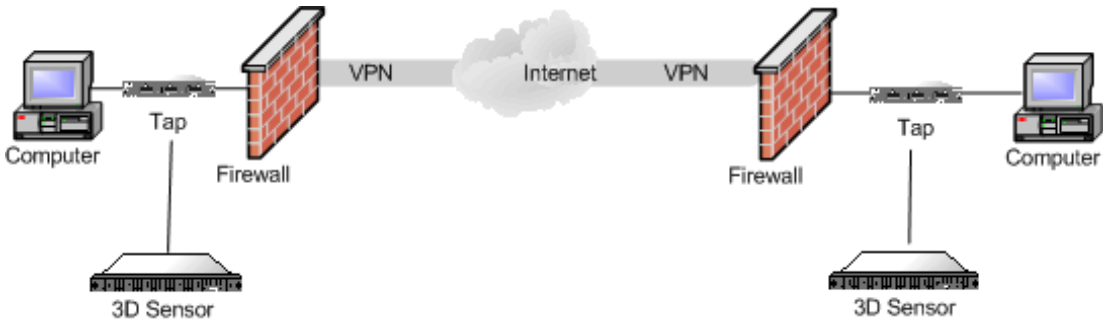
Other Deployment Options

The following sections describe other installation scenarios that may affect your enterprise's deployment of the Sourcefire 3D System:

Integrating with VPNs

Virtual private networks, or VPNs, use IP tunneling techniques to provide the security of a local network to remote users over the Internet. In general, VPN solutions encrypt the data payload in an IP packet. The IP header is unencrypted so that the packet can be transmitted over public networks in much the same way as any other packet. When the packet arrives at its destination network, the payload is decrypted and the packet is directed to the proper host.

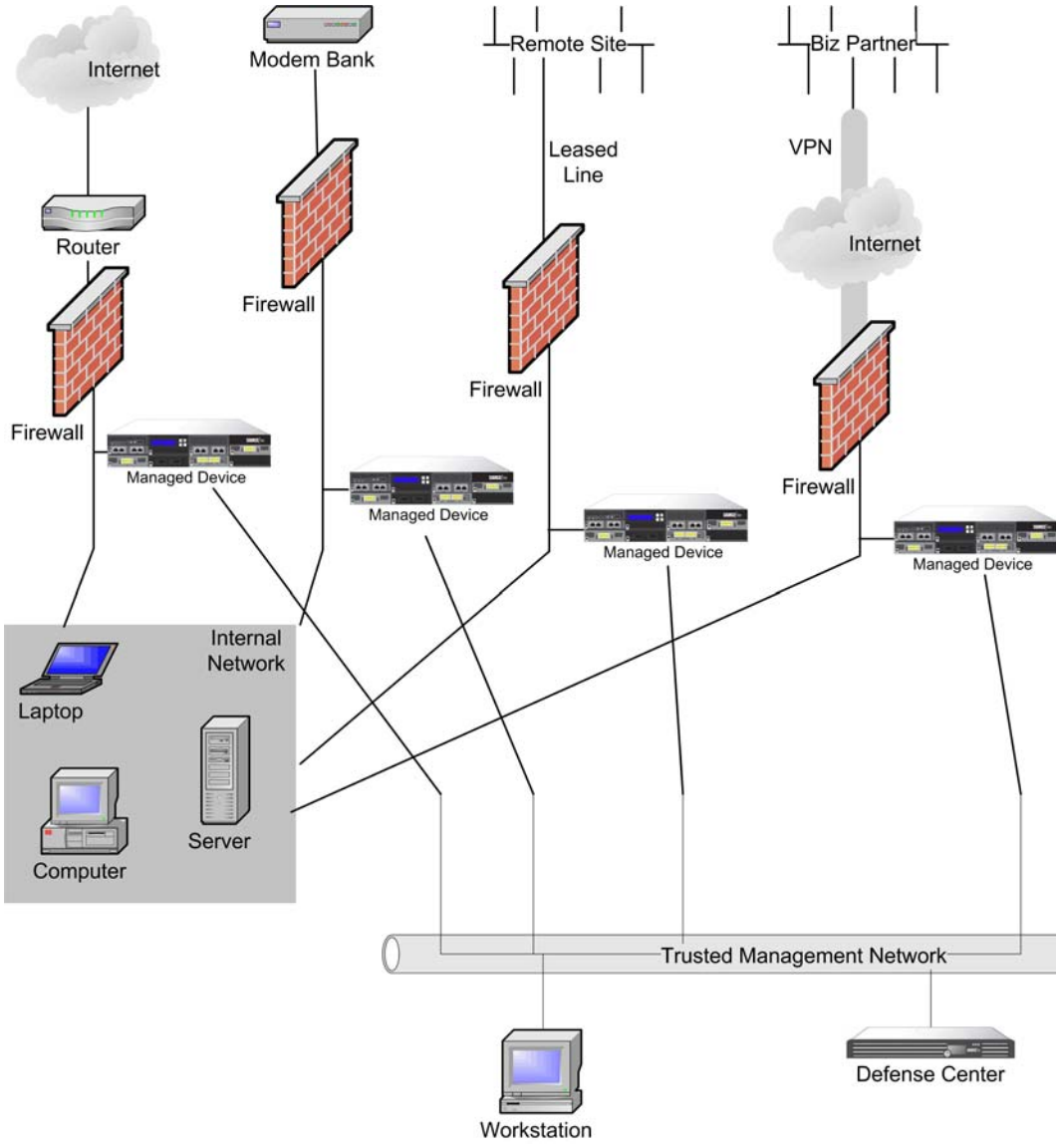
Because network appliances cannot analyze the encrypted payload of a VPN packet, placing 3D Sensors outside the terminating endpoints of the VPN connections ensures that all packet information can be accessed. The following diagram illustrates how 3D Sensors can be deployed in a VPN environment.



Detecting Intrusions on Other Points of Entry

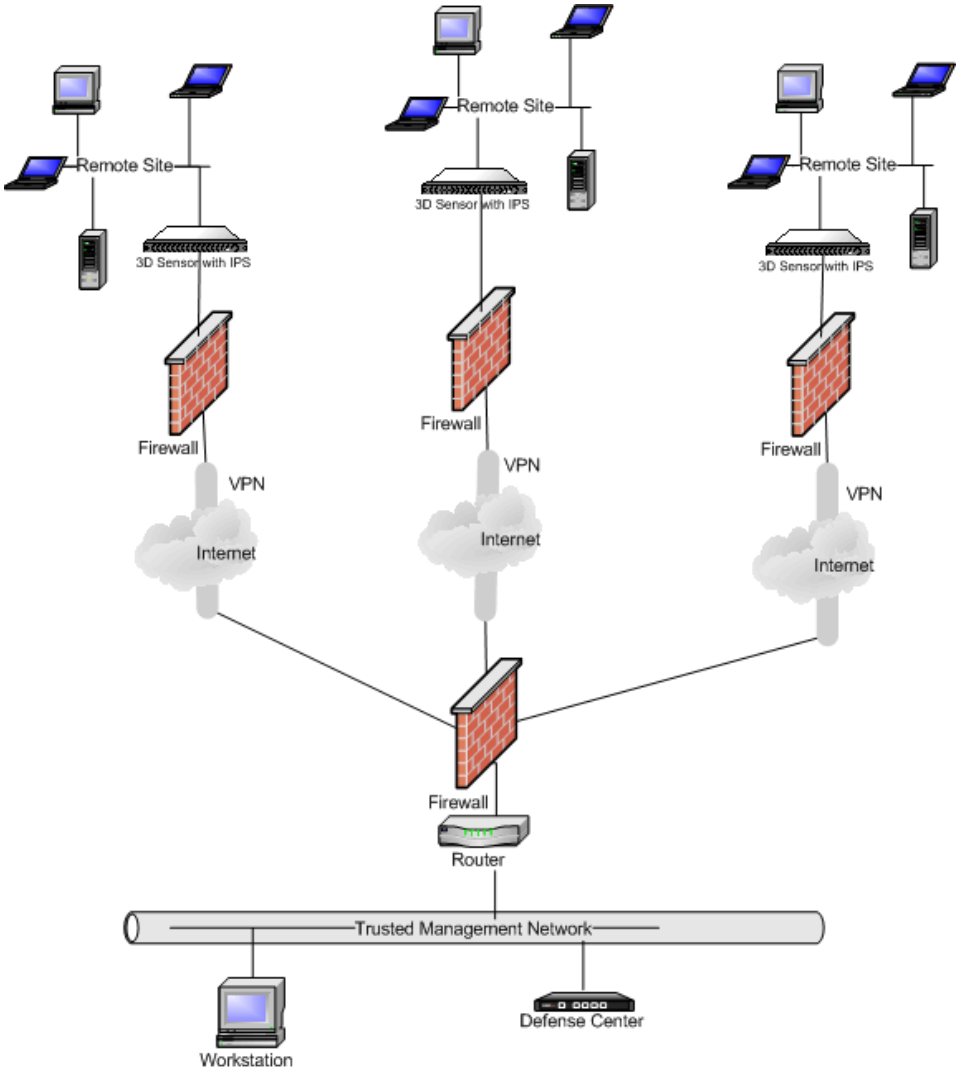
Many networks include more than one access point. Instead of a single border router that connects to the Internet, some enterprises use a combination of the Internet, modem banks, and direct links to business partner networks. In general, you should deploy 3D Sensors near firewalls (either inside the firewall, outside the firewall, or both) and on network segments that are important to the integrity and confidentiality of your business data. The following diagram shows how

3D Sensors can be installed at key locations on a complex network with multiple entry points.



Deploying in Multi-Site Environments

Many organizations want to extend intrusion detection across a geographically disparate enterprise and then analyze all the IPS data from one location. The Sourcefire 3D System supports this by offering the Defense Center, which aggregates and correlates events from 3D Sensors deployed throughout the organization's many locations. Unlike deploying multiple 3D Sensors and Defense Centers in the same geographic location on the same network, when deploying 3D Sensors in disparate geographic locations, you must take precautions to ensure the security of the 3D Sensors and the data stream. To secure the data, you must isolate the 3D Sensors and Defense Center from unprotected networks. You can do this by transmitting the data stream from the 3D Sensors over a VPN or with some other secure tunneling protocol as shown in the following diagram.



Integrating 3D Sensors with RNA within Complex Networks

You can deploy 3D Sensors with RNA in more complex network topologies than a simple multi-sector network. This section describes the issues surrounding network discovery and vulnerability analysis when deploying RNA in environments where proxy servers, NAT devices, and VPNs exist, in addition to information about using the Sourcefire Defense Center to manage multiple 3D Sensors and the deployment and management of 3D Sensors in a multi-site environment.

Integrating with Proxy Servers and NAT

Network address translation (NAT) devices or software may be employed across a firewall, effectively hiding the IP addresses of internal hosts behind a firewall. If 3D Sensors with RNA are placed between these devices or software and the hosts being monitored, RNA may incorrectly identify the hosts behind the proxy or NAT device. In this case, Sourcefire recommends that you position 3D Sensors with RNA inside the network segment protected by the proxy or NAT device to ensure that hosts are correctly detected.

Integrating with Load Balancing Methods

In some network environments, "server farm" configurations are used to perform network load balancing for services such as web hosting, FTP storage sites, and so on. In load balancing environments, IP addresses are shared between two or more hosts with unique operating systems. In this case, RNA detects the operating system changes and cannot deliver a static operating system identification with a high confidence value. Depending on the number of different operating systems on the affected hosts, RNA may generate a large number of operating system change events or present a static operating system identification with a lower confidence value.

Other RNA Detection Considerations

If an alteration has been made to the TCP/IP stack of the host being identified, RNA may not be able to accurately identify the host operating system. In some cases, this is done to improve performance. For instance, administrators of Windows hosts running the Internet Information Services (IIS) Web Server are encouraged to increase the TCP window size to allow larger amounts of data to be received, thereby improving performance. In other instances, TCP/IP stack alteration may be used to obfuscate the true operating system to preclude accurate identification and avoid targeted attacks. The likely scenario that this intends to address is where an attacker conducts a reconnaissance scan of a network to identify hosts with a given operating system followed by a targeted attack of those hosts with an exploit specific to that operating system.

Understanding Detection Engines and Interface Sets

A detection engine is the mechanism on a 3D Sensor that is responsible for analyzing the traffic on the network segment where the sensor is connected. Depending on which components are licensed on the sensor, 3D Sensors can support three types of detection engines: IPS, RNA, and RUA.

A detection engine has two main components:

- an interface set, which can include one or more sensing interfaces
- a detection resource, which is a portion of the sensor's computing resources

3D Sensor models have at least three detection resources available and can support at least three detection engines: one for IPS, one for RNA, and the third for RUA.

An interface set refers to a grouping of one or more sensing interfaces on a sensor; a sensing interface can belong to only one interface set at a time. The Sourcefire 3D System supports three types of interface sets, but the interface options available to you depend on the type of sensor and the capabilities of its sensing interfaces.

Interface Set Types

Type	Description
Passive	Use a passive interface set if you deployed the sensor out of band from the flow of network traffic.
Inline	Use an inline interface set if you deployed the sensor inline on your network and the sensing interfaces do **not** support automatic fail-open capabilities. Note that you can use any two of the non-fail-open interfaces on the sensor's network interface cards as part of an inline interface set.
Inline with Fail Open	Use an inline with fail-open interface set if you deployed the sensor inline on your network and the sensing interfaces **do** support automatic fail-open capabilities. Note that you must use paired fail-open interfaces on the sensor's network interface cards for an inline with fail-open interface set.

The typical scenario for deploying 3D Sensors across your network infrastructure calls for installing a different sensor in each location where you want to enforce a security policy. In other words, you may want to install one 3D Sensor in the DMZ and others on each internal network segment. If you have a network segment with hosts that are likely to be targets of specialized attacks (for example, a web host farm), you would deploy another 3D Sensor there.

Multiple IPS detection engines on a single 3D Sensor can provide you with more flexibility in deploying 3D Sensors throughout your network. A detection engine is

like a virtual sensor within a sensor. When you create a detection engine on a 3D Sensor, you specify which of the sensor's sensing interfaces it uses and what portion of the sensor's detection resources it can use. You can then create and apply an intrusion policy that is tuned especially for the network attacks that are likely to be seen on the segment of the network that the detection engine monitors. See the "Using Detection Engines and Interface Sets" chapter in the *Sourcefire 3D System User Guide* for more information about creating and using detection engines.

Understanding Detection Resources and 3D Sensor Models

3D Sensor with IPS can use multiple detection resources per detection engine, which allows you to use more computing resources when network traffic is high. For example, if you plan to use the 3D3500 sensor in inline mode, you could assign two detection resources to your detection engine to allow processing of more events per second. As a best practice, use one detection resource per application per core on your appliance. Different sensor models have different numbers of detection resources as shown in the Detection Resources by Model table on page 23:

- The **Optimal** column indicates the per sensor total number of detection resources you should use if you want to maximize the performance of the sensor. It also indicates the maximum number of detection resources you can assign a single detection engine.
- The **Maximum** column indicates the total number of detection resources available on the sensor.
- The **Combination Restrictions** column indicates the permitted combinations of detection resources that you can allocate to detection engines on the same sensor; 3D Sensors can run combinations of IPS, RNA, and RUA.

Note that for some sensor models, the availability of detection resources depends on the amount of RAM on the sensor, which you can determine using the **Memory Usage** field on the Statistics page (**Operations > Monitoring > Statistics**).

Detection Resources by Model

Model	Optimal per Sensor	Maximum per Sensor	Combination Restrictions
3D500	1	2	Maximum of one IPS and either one RNA or one RUA
3D1000 (512MB RAM)	1	2	Maximum of one IPS and either one RNA or one RUA
3D1000 (1GB RAM)	1	2	No restrictions

Detection Resources by Model (Continued)

Model	Optimal per Sensor	Maximum per Sensor	Combination Restrictions
3D2000	1	2	No restrictions
3D2100	2	3	No restrictions
3D2500	2	4	No restrictions
3D3000	2	4	No restrictions
3D3500	2	6	No restrictions
3D4500	4	8	No restrictions
3D6500	8	12	No restrictions
3D7010	Auto	6	No restrictions
3D7020	Auto	6	No restrictions
3D7030	Auto	6	No restrictions
3D7110	Auto	6	No restrictions
3D7120	Auto	6	No restrictions
3D8120	Auto	16	No restrictions
3D8130	Auto	22	No restrictions
3D8140	Auto	22	No restrictions
3D8250	Auto	22	No restrictions
3D9900	7	12	No restrictions

Note that disabling hyperthreading on 3D7010/7020/7030 and 8000 Series sensors reduces the maximum number of detection engines you can create. If you disable hyperthreading after creating more than the allowable number of detection engines for a sensor with disabled hyperthreading, you are prohibited from creating additional detection engines. For information on hyperthreading, see "Command Line Reference" in the *Sourcefire 3D System User Guide*.

Comparing Inline and Passive Interface Sets

An interface set is comprised of one or more sensing interfaces on the 3D Sensor. Each detection engine is assigned to an interface set and uses those interfaces to monitor the traffic on specific network segments. Interface sets can be one of the following types:

- passive
- inline
- inline with fail open

If you create an IPS detection engine that uses either type of the inline interface set, you can deploy your detection engine inline. This allows you to take advantage of drop rules that prevent suspicious traffic from reaching a potentially vulnerable host. You can also use replace rules that substitute malicious content with a benign alternative. You can also create RNA and RUA detection engines for inline or inline with fail open interface sets.

A detection engine that uses an inline with fail open interface set has the same properties as an inline interface set with one exception. You can only use an inline with fail open interface set with fail-open network interface cards (NICs). If a 3D Sensor with a fail-open card should fail for some reason (power failure, hard drive failure, and so on), traffic is not blocked by the sensor and your network continues to function.

On the 3D9900 model of the 3D Sensor, you can also take advantage of a feature called tap mode. Tap mode allows you to use interface sets to passively monitor traffic when your sensor is deployed inline on your network.

Connecting Sensors to Your Network

There are several ways to connect 3D Sensors to your network. The following sections outline the supported connection methods:

- Using a Hub on page 26
- Using a Span Port on page 26
- Using a Network Tap on page 26

Additionally, Issues for Copper Cabling in Inline Deployments on page 27 explains some of the guidelines for using straight-through or crossover cables in your deployment and Special Case: Connecting 8000 Series Devices on page 29 describes how to configure stable network links for Series 3 devices.

Using a Hub

An Ethernet hub is an inexpensive way to ensure that the detection engine on a 3D Sensor can see all the traffic on a network segment. Most hubs of this type take the IP traffic meant for any of the hosts on the segment and broadcast it to all the devices connected to the hub. Connect the interface set to the hub to monitor all incoming and outgoing traffic on the segment. Using a hub does not guarantee that the detection engine sees every packet on a higher volume network because of the potential of packet collision. For a simple network with low traffic, this is not likely to be a problem. In a high-traffic network, a different option may provide better results. Note that if the hub fails or loses power, the network connection is broken. In a simple network, the network would be down.

IMPORTANT! Some devices are marketed as hubs but actually function as switches and do not broadcast each packet to every port. If you attach your 3D Sensor to a hub, but do not see all the traffic, you may need to purchase a different hub or use a switch with a Span port.

Using a Span Port

Many network switches include a span port that mirrors traffic from one or more ports. By connecting an interface set to the span port, you can monitor the combined traffic from all ports, generally both incoming and outgoing. If you already have a switch that includes this feature on your network, in the proper location, then you can deploy the detection on multiple segments with little extra equipment cost beyond the cost of the 3D Sensor. In high-traffic networks, this solution has its limitations. If the span port can handle 200 Mbps and each of three mirrored ports can handle up to 100 Mbps, then the span port is likely to become oversubscribed and drop packets, lowering the effectiveness of the 3D Sensor.

Using a Network Tap

Network taps allow you to passively monitor traffic without interrupting the network flow or changing the network topology. Taps are readily available for different bandwidths and allow you to analyze both incoming and outgoing packets on a network segment. Unfortunately, you can monitor only a single network segment with most taps, so they are not a good solution if you want to monitor, for example, the traffic on two out of the eight ports on a switch. Instead, you would have to install the tap between the router and the switch and access the full IP stream to the switch.

By design, network taps divide incoming and outgoing traffic into two different streams over two different cables. 3D Sensors offer multi-port options that recombine the two sides of the conversation so that the entire traffic stream is evaluated by the decoders, the preprocessors, and the detection engine.

Issues for Copper Cabling in Inline Deployments

If you are deploying your sensor inline on your network, and you are taking advantage of your sensor's fail open capabilities to maintain network connectivity even if the sensor goes down, there are a few important points to keep in mind.

If you are deploying a sensor with fiber fail-open interfaces, there are no special cabling issues beyond ensuring that the connections are securely fastened and the cables are not kinked. However, if you are deploying sensors with copper rather than fiber network interfaces, then you must be aware of the sensor model that you are using, because different sensor models use different network cards.

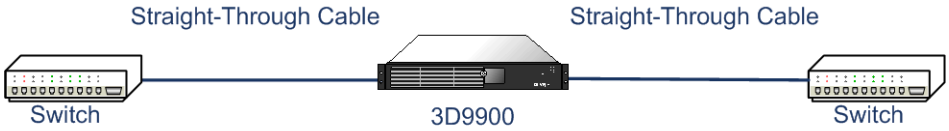
The network interface cards (NICs) in the sensor support a feature called Auto-Medium Dependent Interface Crossover (Auto-MDI-X), which allows network interfaces to configure automatically whether you are using a straight-through or crossover Ethernet cable to connect to another network device. However, the network cards in the sensor can act in a different manner when the sensor loses power and the NICs fail open. Some of the cards will fail open as a straight-through connection, others as crossover. This has implications for you as you choose cables to connect a sensor to each endpoint. The Sensor Models and Fail Open Characteristics table lists the various sensor models and whether they fail open as crossover or straight-through devices.

Sensor Models and Fail Open Characteristics

Model	Fails open as...
3D500	straight-through
3D1000	straight-through
3D2000	straight-through
3D2100	straight-through
3D2500	straight-through
3D3500	straight-through
3D4500	straight-through
3D6500	crossover
3D9900	crossover
7000 Series	crossover
8000 Series	crossover

For sensor models that fail open as straight-through, wire the device as you would for normal operation without a sensor deployed. The link should work with power to the sensor removed. In most cases you should use one crossover cable and one straight-through cable to connect the sensor to the two endpoints.

For sensor models that fail open as crossover, wire the device as would normally be done with the 3D Sensor live on the network. In most cases you should use two straight-through cables to connect the sensor to the two endpoints.



The following table indicates where you should use crossover or straight-through cables in your hardware bypass configurations.

Valid Configurations for Hardware Bypass

Endpoint 1	Cable	Sensor	Cable	Endpoint 2
MDIX	=	=	=	MDI
MDI	X	=	=	MDI
MDI	=	=	X	MDI
MDI	=	=	=	MDIX
MDIX	=	X	=	MDIX
MDI	=	X	=	MDI
MDI	X	X	X	MDI
MDIX	X	X	=	MDI
= indicates a straight-through cable or sensor bypass connection				
X indicates a crossover cable or sensor bypass connection				

Note that every network environment is likely to be unique, with endpoints that have different combinations of support for Auto-MDI-X. The easiest way to confirm that you are installing your sensor with the correct cabling is to begin by connecting the sensor to its two endpoints using one of the cabling scenarios shown in the illustration, but with the sensor powered down. Ensure that the two endpoints can communicate. If they cannot communicate, then one of the cables is the incorrect type. Switch one (and only one) of the cables to the other type, either straight-through or crossover.

After the two endpoints can successfully communicate with the inline sensor powered down, power up the sensor. The Auto-MDI-X feature ensures that the two endpoints will continue to communicate. Note that if you have to replace an inline sensor, you should repeat the process of ensuring that the endpoints can communicate with the new sensor powered down to protect against the case where the original sensor and its replacement have different fail-open characteristics.

The Auto-MDI-X setting functions correctly only if you allow the network interfaces to auto-negotiate. If your network environment requires that you turn off the Auto Negotiate option on the Network Interface page, then you must specify the correct MDI/MDIX option for your inline network interfaces. See "Editing Network Interface Configurations" in the *Sourcefire 3D System User Guide* for more information.

Special Case: Connecting 8000 Series Devices

8000 Series managed devices do not support half duplex network links; they also do not support differences in speed or duplex configurations at opposite ends of a connection. To ensure a stable network link, you must either auto-negotiate on both sides of the connection, or set both sides to the same static speed.

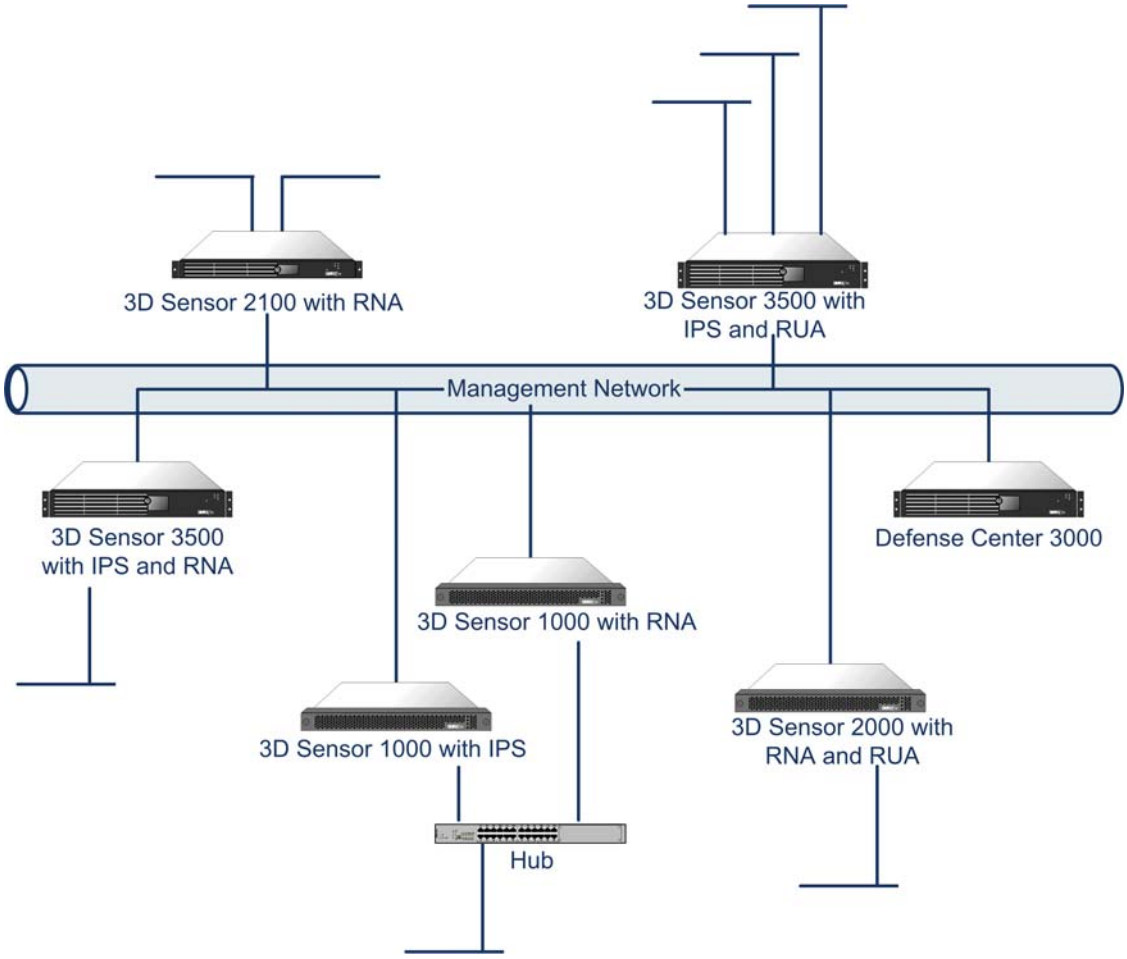
Using a Sourcefire Defense Center

You must manage 7000 Series and 8000 Series 3D Sensors with a Sourcefire Defense Center. The Defense Center aggregates and correlates events generated by multiple 3D Sensors on different segments of your network. You can also use the Defense Center to manage, change, and standardize the intrusion policies on 3D Sensors.

In addition to running Series 2 3D Sensors with IPS as standalone appliances, you can manage 3D Sensors with the Sourcefire Defense Center. The Defense Center aggregates and correlates events generated by multiple 3D Sensors on different segments of your network. You can also use the Defense Center to manage, change, and standardize the intrusion policies on 3D Sensors.

To safeguard the Defense Center, it **must** be installed on a protected internal network. Although the Defense Center is configured to have only the necessary services and ports available, you **must** make sure that attacks cannot reach it from outside the firewall.

If the 3D Sensor and the Defense Center reside on the same network, you can connect the management interface on the 3D Sensor to the same protected internal network as the Defense Center. This allows you to securely control the sensor from the Defense Center and aggregate the event data generated on the 3D Sensor's network segment. By using the Defense Center's filtering capabilities, you can analyze and correlate data from attacks across your network to evaluate how well your security policies are being implemented.



Communication Ports

The Sourcefire 3D System uses ports 443 and 8305 to communicate internally and externally between the Defense Center and sensors. Open other ports to enable optional functionality within your deployment.

Communication Ports

Ports	Description	Protocol	Direction	Open the port to...
22	ssh/ssl	TCP	Bidirectional	allow a secure remote connection to the appliance. SSH version 2 is supported for command-line connections; TLS version 1 and SSL version 3 are supported for HTTPS connections.
25	smtp	TCP	Outbound	send email notices and alerts from the appliance.
53	dns	TCP	Outbound	use DNS.
67, 68	dhcp	UDP	Outbound	use DHCP. Default is disabled.
80	http	TCP	Outbound	allow the RSS Feed dashboard widget to connect to a remote web server; use for auto-update.
162	snmp	UDP	Bidirectional	provide access if you enabled SNMP polling (inbound) and SNMP traps (outbound).
389, 636	ldap	TCP	Outbound	use RUA and for authentication.
443	https	TCP	Inbound Bidirectional	access the appliance. **Required**. Add outbound access to allow appliances to download software updates.
514	syslog	UDP	Outbound	use for remote syslog server.
623	SOL/LOM	UDP	Bidirectional	allow a Serial Over LAN connection to use Lights Out Management.
1500, 2000	database access	TCP	Inbound	access the Defense Center or Master Defense Center if external database access is enabled.

Communication Ports (Continued)

Ports	Description	Protocol	Direction	Open the port to...
1812, 1813	RADIUS	UDP	Outbound	use RADIUS. Open both ports to ensure that RADIUS functions correctly. Ports 1812 and 1813 are the default, but you can configure RADIUS to user other ports instead. For more information, see the *Sourcefire 3D System User Guide*.
3306	RUA Agent	TCP	Inbound	allow communication between the Defense Center and RUA Agents.
8301	Intrusion Agent	TCP	Bidirectional	allow communication between the Defense Center and Intrusion Agents.
8302	eStreamer	TCP	Bidirectional	use for an eStreamer client.
8305	sensor management	TCP	Bidirectional	communicate between the Defense Center and 3D Sensors. **Required**.
8307	Host Input Client API	TCP	Bidirectional	communicate with the Defense Center during client/server authentication.
18183	OPSEC SAM	TCP	Outbound	use OPSEC for remediations.

Chapter 2
Installing a 3D Sensor

Depending on what you have licensed and which sensor model you are using, the Sourcefire 3D Sensor can host the RNA component, the IPS component, the RUA component, or any combination of the three. The IPS component requires that you install a license on the sensor itself during the initial setup process. The RNA and RUA components require that you manage the sensor with a Defense Center and that you install an RNA host or RUA user license on the Defense Center.

TIP! You can also install an RUA Agent on a Microsoft Active Directory server to take advantage of RUA features. The RUA Agent installation process is explained in the *Sourcefire 3D System User Guide*.

You can install the 3D Sensor as part of a larger Sourcefire 3D System deployment or, if you are licensing the IPS component, as a standalone network monitoring appliance. You can also manage multiple 3D Sensors using the Defense Center, which allows for data correlation and display for IPS, RUA, and RNA.

See the following sections for more information about installing a 3D Sensor:

- Redirecting Console Output on page 75
- Testing an Inline Fail-Open Interface Installation on page 76
- Checking for Updates on page 78

Included Items

The following is a list of components that ship with Sourcefire appliances. As you unpack the system and the associated accessories, check that your package contents are complete as follows:

- one Sourcefire 3D Sensor
- power cord (two power cords are included with appliances that include redundant power supplies)
- two Category 5e Ethernet straight-through cables
- one rack-mounting kit (not applicable to the 3D500; available separately for the 3D7010/7020/7030)

IMPORTANT! Remove all factory packaging from delivered appliances and cables before installation. Do **not** cover the vents or enclose the appliance; there must be ample clearance on all sides of the chassis. Restricting the airflow may cause the appliance to overheat.

Security Considerations

Sourcefire 3D System appliances are hardened to ensure secure operation. In accordance with security best practices, before you install your appliance, Sourcefire recommends that you consider the following:

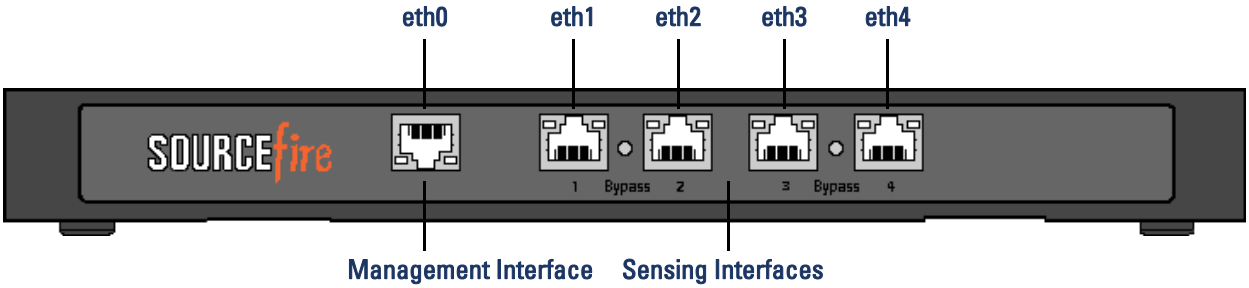
- Locate your Sourcefire 3D System appliance in a lockable rack within a secure location that prevents access by unauthorized personnel. If you are installing a desktop model, make sure you place it within a secure location that prevents access by unauthorized personnel.
- Allow only trained and qualified personnel to install, replace, administer, or service the Sourcefire appliance.
- Always connect the management interface to a secure internal management network that is protected from unauthorized access.
- Identify the specific workstation IP addresses that can be allowed to access appliances. Restrict access to the appliance to only those specific hosts, using the Access List within the appliance's System Policy. For more information, see the *Sourcefire 3D System User Guide*.

Identifying the Management and Sensing Interfaces

The Sourcefire 3D Sensor is delivered on different hardware appliances. Make sure you refer to the correct illustration for your appliance as you follow the installation procedure:

Sourcefire 3D Sensor 500/1000/2000

The 3D500, 3D1000, and 3D2000 models are Series 2 sensors, available on the desktop appliance. The following illustration indicates the locations of the management and sensing interfaces.

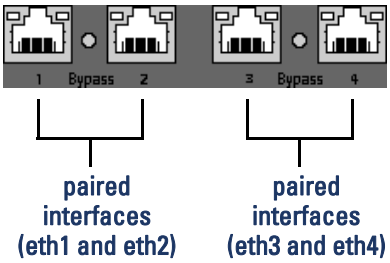


You can use the sensing interfaces to passively sense up to four separate network segments.

You also can use paired interfaces in inline or inline with fail-open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system. The 3D500 can monitor one network when deployed inline, while the 3D1000 and 3D2000 can monitor two networks inline.

If you want to take advantage of the sensor's automatic fail-open capability, you must connect either the two interfaces on the left or the two interfaces on the right to a network segment. This allows traffic to flow even if the sensor fails or

loses power. You must also use the web interface to configure the interface set as inline with fail open.



If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces on the sensor as an inline pair.

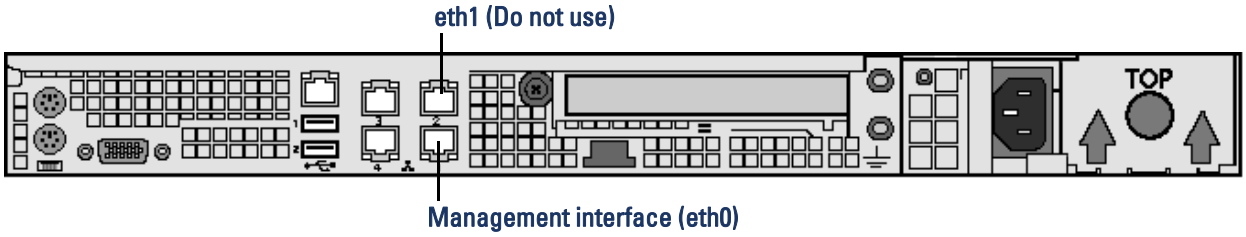
IMPORTANT! By default, the initial setup process supports one inline fail-open interface pair for `eth1` and `eth2`. For the 3D1000 or 3D2000, the pairs are in single interface sets by default: eth1:eth2, and eth3:eth4. For more information, see "Using Detection Engines and Interface Sets" in the *Sourcefire 3D System User Guide*.

Sourcefire 3D Sensor 2100/2500/3500/4500

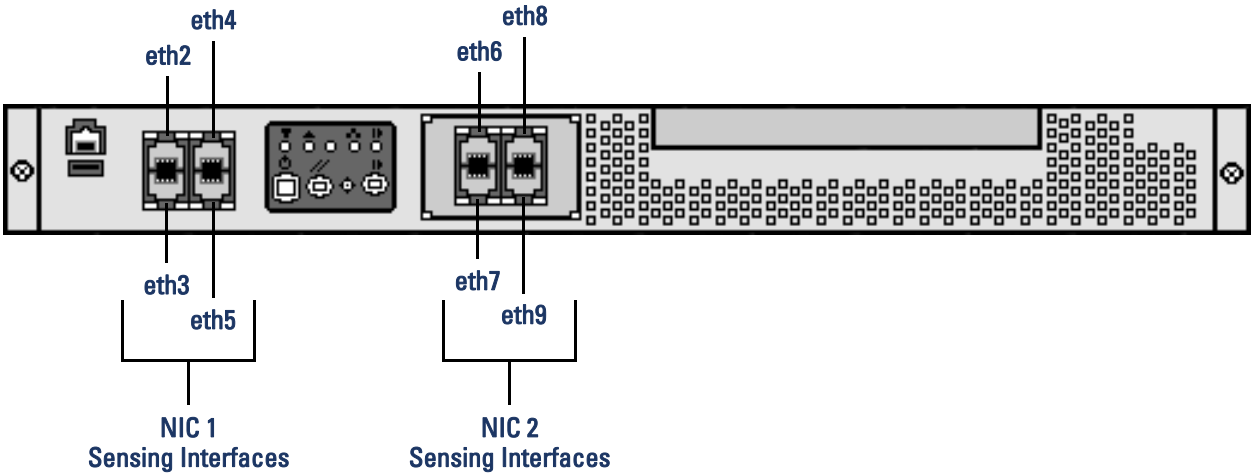
The 3D2100, 3D2500, 3D3500, and 3D4500 models are Series 2 3D Sensors, and are available on a 1U appliance.

The following illustration of the 3D3500/4500 indicates the location of the management interface, which is on the rear of the chassis of these Sourcefire appliances.

Note that the 3D2100 and 3D2500 sensors do not have a redundant power supply. Otherwise, the rear of the Sourcefire appliance chassis are identical.



The following illustration indicates the locations of the sensing interfaces, which are on the front of the chassis.



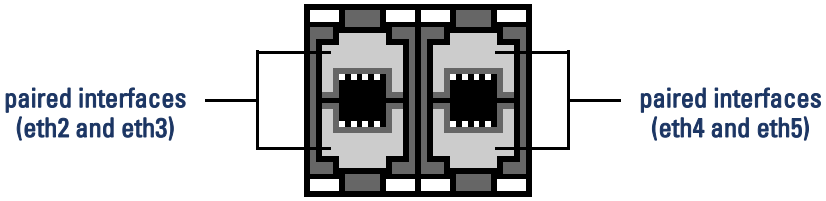
The Sourcefire appliance can be delivered with two different network interface cards (NICs), depending on the model:

- NIC 1: a quad-port copper bypass NIC, which contains four 10/100/1000 copper Ethernet interfaces.
- NIC 2: either a quad-port fiber bypass NIC, which contains four gigabit fiber interfaces, or a duplicate of NIC 1 (quad-port copper bypass).

The 3D2100 sensor contains only NIC 1. The 3D2500, 3D3500, and 3D4500 sensor models contain both NIC 1 and NIC 2, in either the quad-port copper or the quad-port fiber configuration. Note that the fiber NIC accepts LC-type (Local Connector) optical transceivers.

You can use each NIC to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to four networks, depending on the sensor model.

If you want to take advantage of a NIC's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right (top and bottom on the same NIC) as paired interfaces to a network segment. The fail-open mode allows traffic to flow even if the sensor fails or loses power. You must use the sensor's or the Defense Center's web interface to configure the interface set as inline with fail open. The web interface ensures the correct pairing.

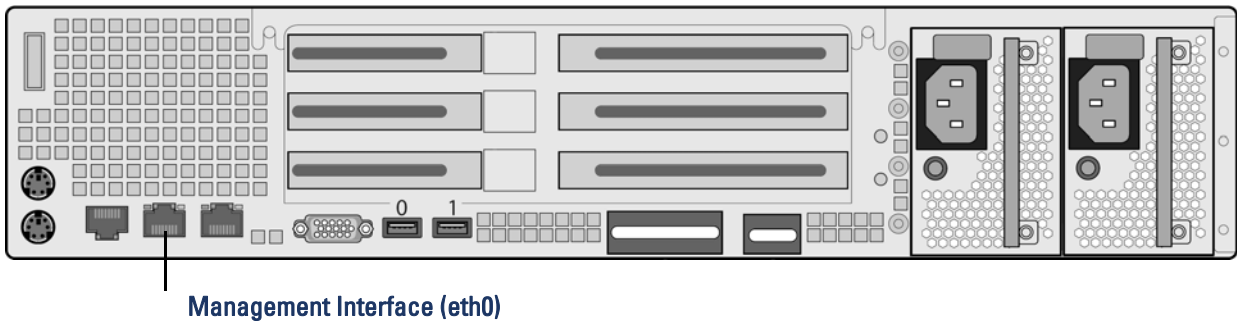


If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces on the same NIC as an inline pair.

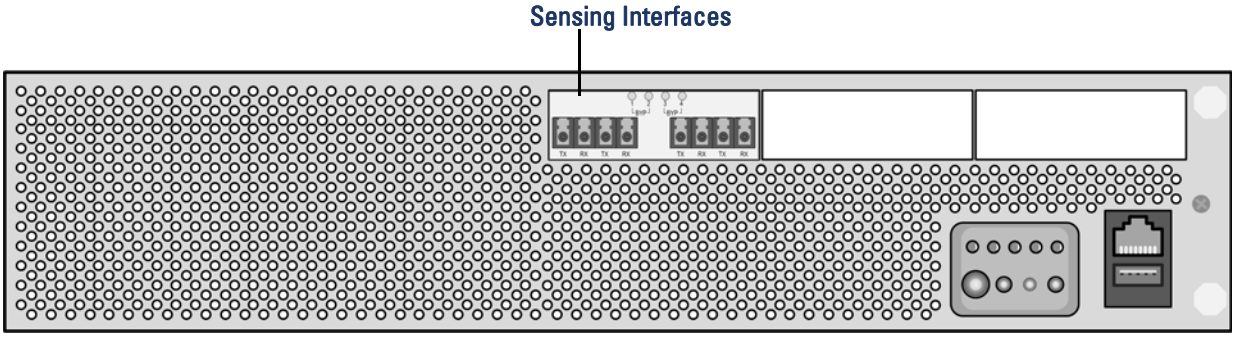
IMPORTANT! By default, the initial setup process supports one inline fail-open interface pair for `eth2` and `eth3` on the 3D2100. On the 3D2500, 3D3500, and 3D4500, the initial setup process supports two inline fail-open interface pairs, one for `eth2` and `eth3` and another for `eth6` and `eth7`. If you want to use additional inline fail-open pairs, see "Using Detection Engines and Interface Sets" in the *Sourcefire 3D System User Guide*.

Sourcefire 3D Sensor 6500

The 3D6500 model is a Series 2 3D Sensor, and is available as a 2U appliance. The following illustration of the 3D6500 indicates the location of the management interface, which is on the rear of the chassis.



The following illustration indicates the location of the sensing interfaces, which are on the front of the chassis.

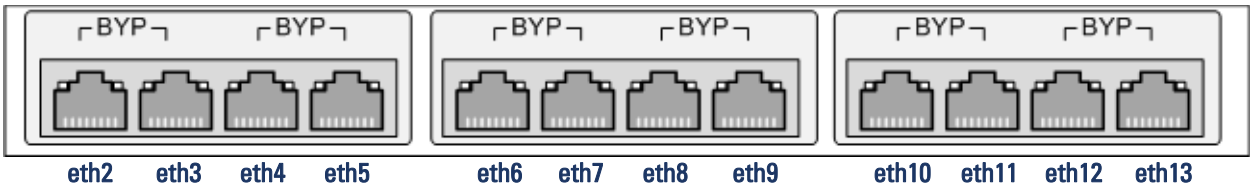


The 3D6500 appliance can be delivered with four different sensing interface configurations:

- twelve 10/100/1000 copper interfaces with bypass capability; see Twelve-Port Copper Configuration on page 39 for more information.
- four 10Gb fiber interfaces with bypass capability; see Quad-Port 10Gb Fiber Configuration on page 40 for more information
- a combination of six 10/100/1000 copper Ethernet interfaces and two 10Gb fiber bypass interfaces; see Dual-Port 10Gb Fiber with Six Copper Interfaces on page 40 for more information
- a combination of six 10/100/1000 copper Ethernet interfaces and four 1Gb fiber bypass interfaces; see Quad-Port 1Gb Fiber with Six Copper Interfaces on page 41 for more information

Twelve-Port Copper Configuration

The 3D6500 sensor 12-port configuration provides for 1Gb copper connections.The following illustration indicates the interface numbering.



You can use these connections to passively monitor up to 12 separate network segments. You also can use paired interfaces in inline or inline with fail-open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to six networks.

If you want to take advantage of a NIC's automatic fail-open capability, you must connect adjacent interfaces (`eth2` with `eth3`, `eth4` with `eth5`, and so on) to a network segment. The fail-open mode allows traffic to flow even if the sensor fails or loses power. You must use the sensor's or the Defense Center's web interface to configure the interface set as inline with fail open. The web interface ensures the correct pairing.

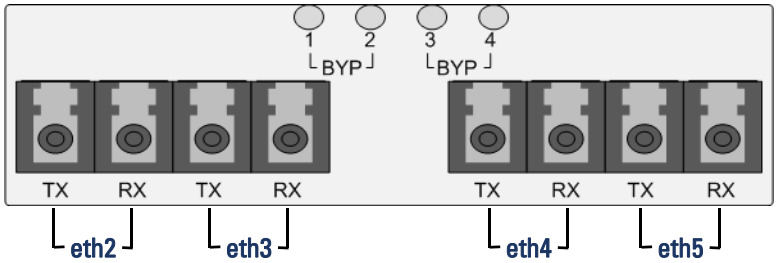
If you configure the interfaces as inline without using the fail-open capability, you can use any two sensing interfaces (even nonconsecutive interfaces) as an inline pair.

By default, the initial setup process supports six inline fail-open interface pairs. If you want to use passive or other configurations, see Using Detection Engines and Interface Sets in the *Sourcefire 3D System User Guide*.

IMPORTANT! When using NetOptics copper taps with 3D6500 sensor 1Gb copper interfaces, you must keep the cable length between the tap and sensor to no more than 25 feet.

Quad-Port 10Gb Fiber Configuration

The 3D6500 sensor can be shipped with a quad-port 10Gb fiber bypass configuration. It uses LC-type (Local Connector) optical transceivers. Note that these are SR interfaces. The following illustration indicates the interface numbering.



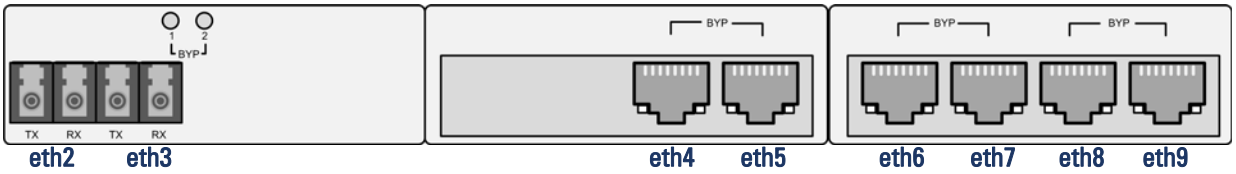
You can use this configuration to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. This allows traffic to flow even if the sensor fails or loses power. You must also use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces as an inline pair.

Dual-Port 10Gb Fiber with Six Copper Interfaces

The 3D6500 sensor can be shipped with dual 10Gb fiber interfaces and six 1Gb copper interfaces. The fiber portion of the configuration uses LC-type (Local Connector) optical transceivers. Note that these are SR interfaces. The following illustration indicates the interface numbering.



You can use the copper interfaces to passively monitor up to six separate network segments. You can also use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to three networks.

IMPORTANT! When using NetOptics copper taps with 3D6500 sensor 1Gb copper interfaces, you must keep the cable length between the tap and sensor to no more than 25 feet.

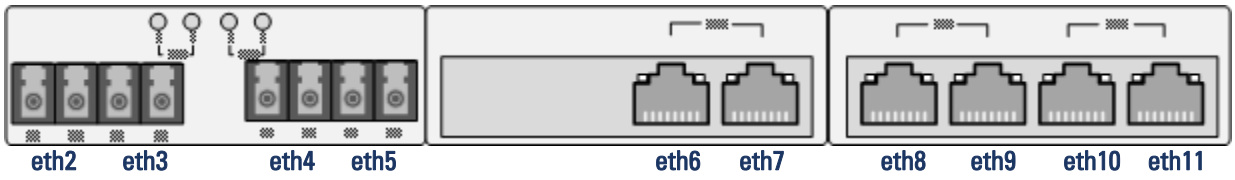
If you want to take advantage of the automatic fail-open capability, you must connect interfaces `eth2` and `eth3`, `eth4` and `eth5`, `eth6` and `eth7`, or `eth8` and `eth9` as paired interfaces to a network segment. This allows traffic to flow even if the sensor fails or loses power. You must also use the web interface to configure the interface set as inline with fail open.

WARNING! You must use two of the same type of interfaces as a pair. You cannot pair a fiber with a copper interface.

If you are configuring the interfaces as inline without the fail-open capability, you can use any two interfaces of the same type.

Quad-Port 1Gb Fiber with Six Copper Interfaces

This 3D6500 configuration combines the four 1Gb fiber interfaces and six 1Gb copper interfaces. The fiber portion of the configuration uses LC-type (Local Connector) optical transceivers. Note that these are SR interfaces. The following illustration indicates the interface numbering.



You can use the copper interfaces to passively monitor up to six separate network segments. You can also connect paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to three networks.

IMPORTANT! When using NetOptics copper taps with 3D6500 sensor 1Gb copper interfaces, you must keep the cable length between the tap and sensor to no more than 25 feet.

If you want to take advantage of the automatic fail-open capability, you must connect interfaces `eth2` and `eth3`, `eth4` and `eth5`, `eth6` and `eth7`, `eth8` and `eth9`,

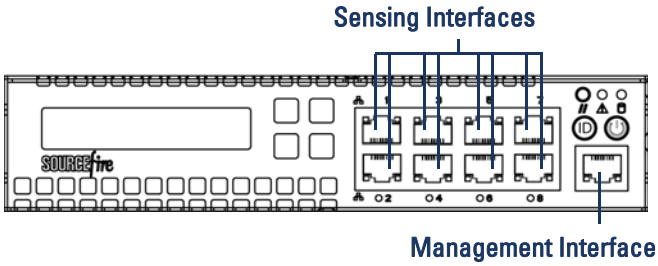
or `eth10` and `eth11` as paired interfaces to a network segment. This allows traffic to flow even if the sensor fails or loses power. You must also use the web interface to configure the interface set as inline with fail open.

WARNING! You must use two of the same type of interfaces as a pair. You cannot pair a fiber with a copper interface.

If you are configuring the interfaces as inline without the fail-open capability, you can use any two interfaces of the same type.

Sourcefire 3D Sensor 7010/7020/7030

The 3D7010, 3D7020, and 3D7030 3D Sensors are 1U appliances that are one-half the width of the chassis tray, and are delivered with eight copper port sensing interfaces, each with bypass capability. The following illustration of the front of the chassis indicates the location of the management interface.



The eight 1000BASE-T copper port bypass sensing interfaces are also on the front of the chassis.

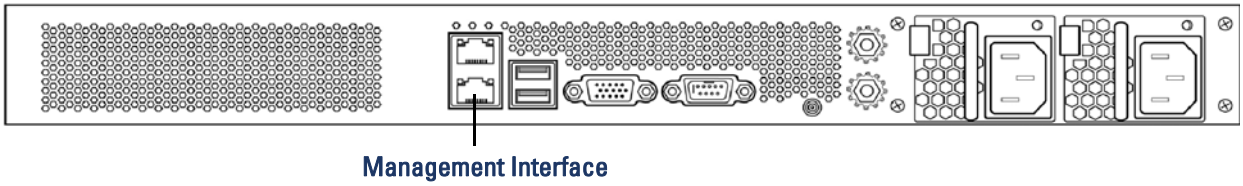
You can use these connections to passively monitor up to eight separate network segments. You also can use paired interfaces in inline or inline with fail-open mode to deploy the 3D Sensor as an intrusion prevention system on up to four networks.

If you want to take advantage of the sensor's automatic fail-open capability, you must connect two interfaces vertically (interfaces 1 and 2, 3 and 4, 5 and 6, or 7 and 8) to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

Sourcefire 3D Sensor 7110/7120

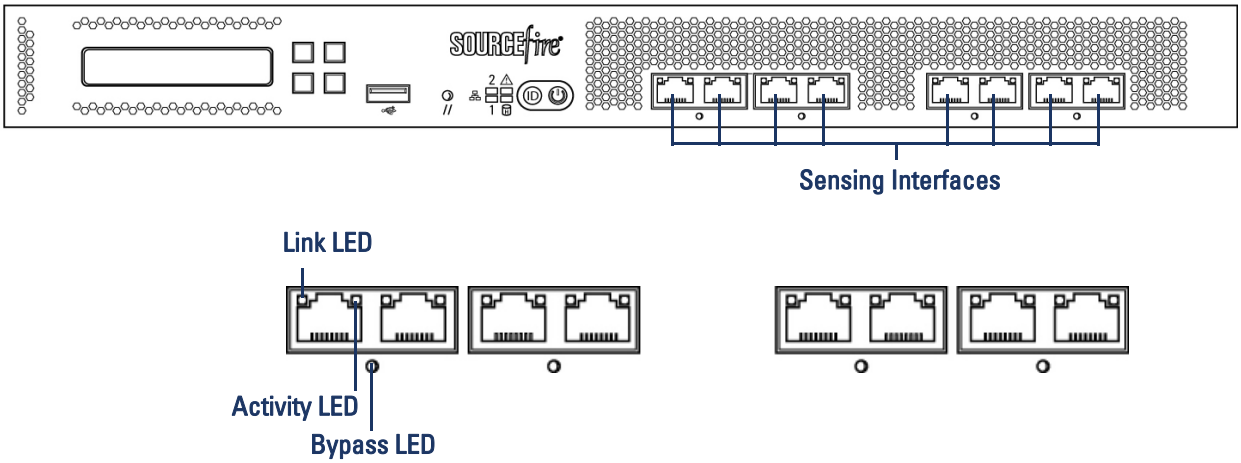
The 3D7110 and 3D7120 3D Sensors are 1U appliances, and are delivered with dual quad-port copper or eight-port fiber sensing interfaces, each with bypass

capability. The following illustration of the rear of the chassis indicates the location of the management interface. The rear is identical for copper and fiber chassis.



Dual Quad-Port 1000BASE-T Copper Bypass Sensing Interfaces

The following illustration indicates the location of the copper sensing interfaces, which are on the front of the chassis.

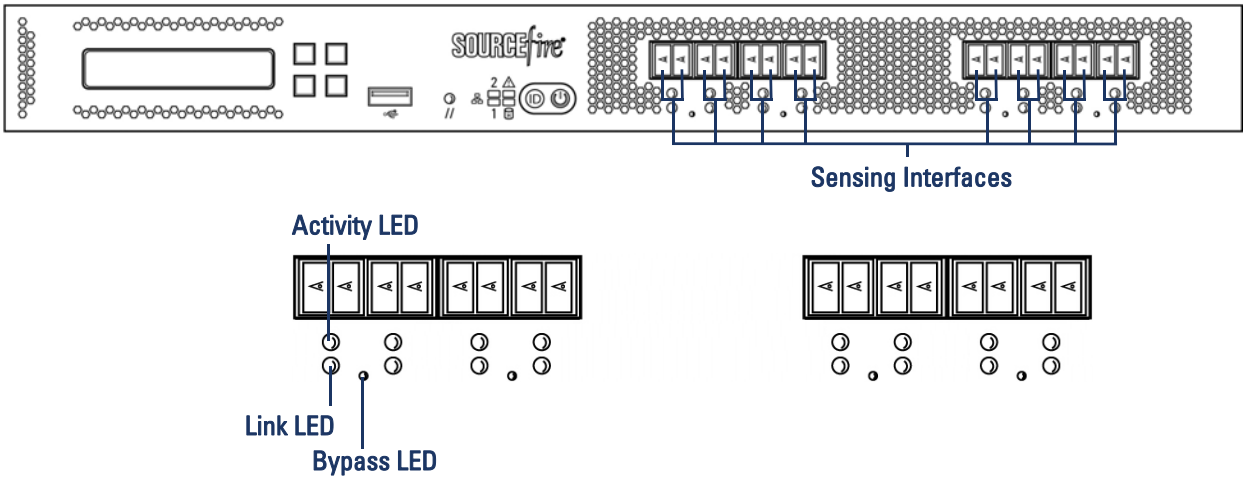


You can use these connections to passively monitor up to eight separate network segments. You also can use paired interfaces in inline or inline with fail-open mode to deploy the 3D Sensor as an intrusion prevention system on up to four networks.

If you want to take advantage of the sensor's automatic fail-open capability, you must connect either the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

Eight-Port 1000BASE-SX Fiber Bypass Interfaces

The following illustration indicates the location of the fiber sensing interfaces, which are on the front of the chassis.



The eight-port 1000BASE-SX fiber bypass configuration uses LC-type (Local Connector) optical transceivers.

You can use this configuration to passively monitor up to eight separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to four separate networks.

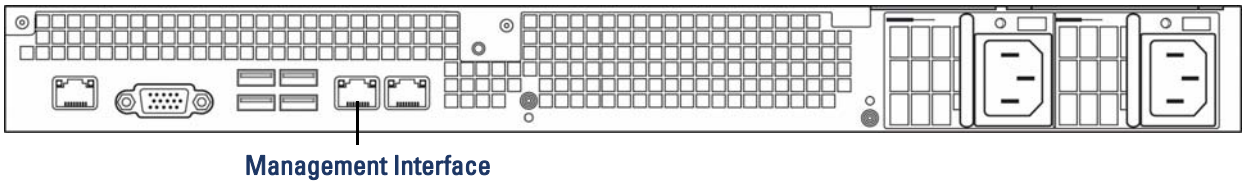
TIP! For best performance, use the interface sets consecutively. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

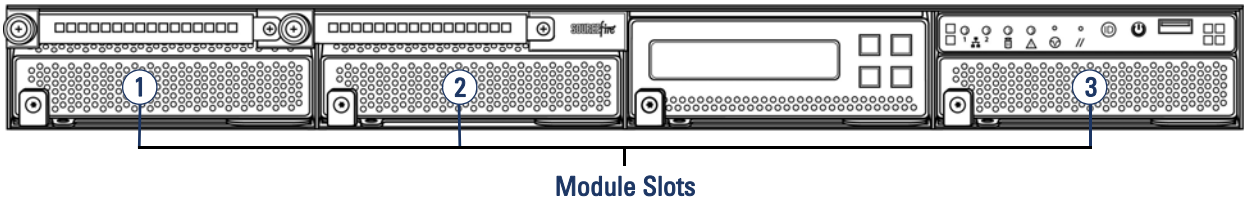
Sourcefire 3D Sensor 8120/8130/8140

The 3D8120, 3D8130, and 3D8140 3D Sensors are 1U appliances. This sensor can be shipped fully assembled, or you can install the sensing interface modules into the chassis. Assemble your sensor before installing the Sourcefire 3D System. See the assembly instructions shipped with your modules.

The following illustration of the rear of the chassis indicates the location of the management interface.



The following illustration indicates the location of the sensing interfaces, which are on the front of the chassis.

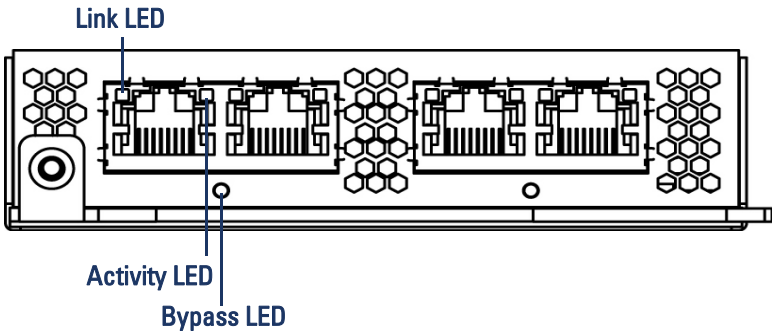


Modules

The 3D8120, 3D8130, and 3D8140 sensors can be delivered with the following modules:

- a quad-port 1000BASE-T copper interface with bypass capability. See Dual Quad-Port 1000BASE-T Copper Bypass Sensing Interfaces on page 43.
- a dual-port 10GBASE (MMSR or SMLR) fiber interface with bypass capability. See Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod on page 46 for more information.
- a quad-port 1000BASE-SX fiber interface with bypass capability. See Quad-Port 1000BASE-SX Fiber Bypass NetMod on page 47 for more information.
- a stacking module used to stack two identical 3D8140 sensors to increase detection resources. The stacking module is not available on the 3D8120/8130 sensors. See Stacking Module on page 48.

Quad-Port 1000BASE-T Copper Bypass NetMod

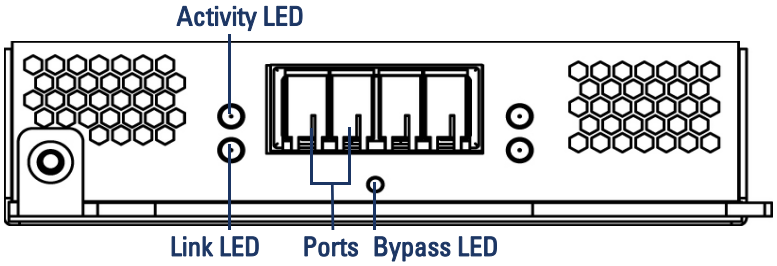


You can use these connections to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail-open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to two separate networks.

If you want to take advantage of the sensor's automatic fail-open capability, you must connect either the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two sensing interfaces (even nonconsecutive interfaces) as an inline pair.

Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod



The dual-port 10GBASE fiber bypass configuration uses LC-type (Local Connector) optical transceivers. Note that these can be either MMSR or SMLR interfaces.

You can use this configuration to passively monitor up to two separate network segments. You also can use paired interfaces in inline or inline with fail open

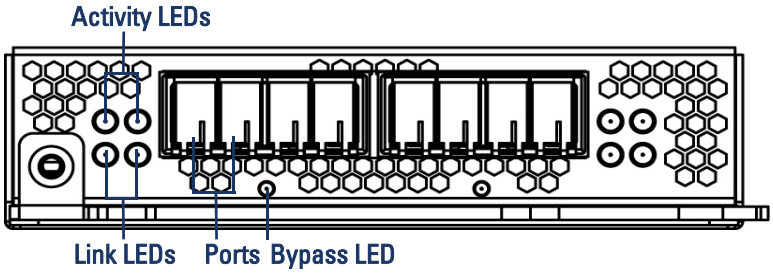
mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on a single network.

TIP! For best performance, use the interface sets consecutively. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces as an inline pair.

Quad-Port 1000BASE-SX Fiber Bypass NetMod



The quad-port 1000BASE-SX fiber bypass configuration uses LC-type (Local Connector) optical transceivers.

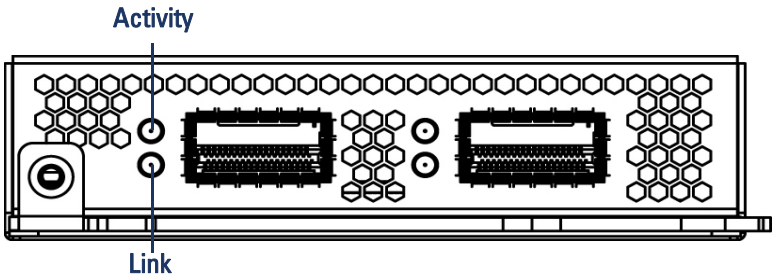
You can use this configuration to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to two separate networks.

TIP! For best performance, use the interface sets consecutively. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces as an inline pair.

Stacking Module



You can increase the amount of traffic inspected on a network segment by connecting two 3D8140 sensors in a *stacked sensor* configuration to combine their resources into a single, shared configuration.

One sensor is designated as *primary* and the other is *secondary*. Connect the primary sensor to the network segment you want to analyze in the same way you would configure a single 3D8140 sensor (either passive, inline, or inline with fail-open). Connect a secondary sensor to the primary sensor using one 8000 Series cable. Use a Defense Center to establish the stacked relationship between the sensors and manage their joint resources. For more information on establishing the stacked configuration, see Using 3D Sensors in a Stacked Configuration on page 55. For more information on managing the stacked configuration, see "Managing a Stacked Pair" in the *Sourcefire 3D System User Guide*.

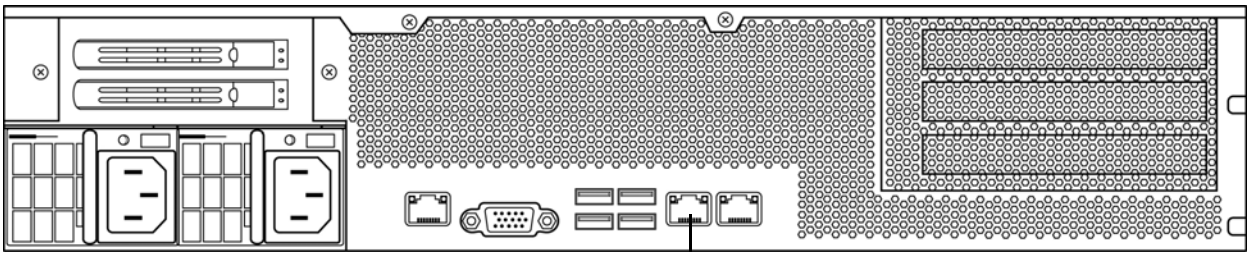
Sourcefire 3D Sensor 8250/8260/8270/8290

The 3D8250/8260/8270/8290 3D Sensor is a 2U, 4U, 6U, or 8U appliance, as follows:

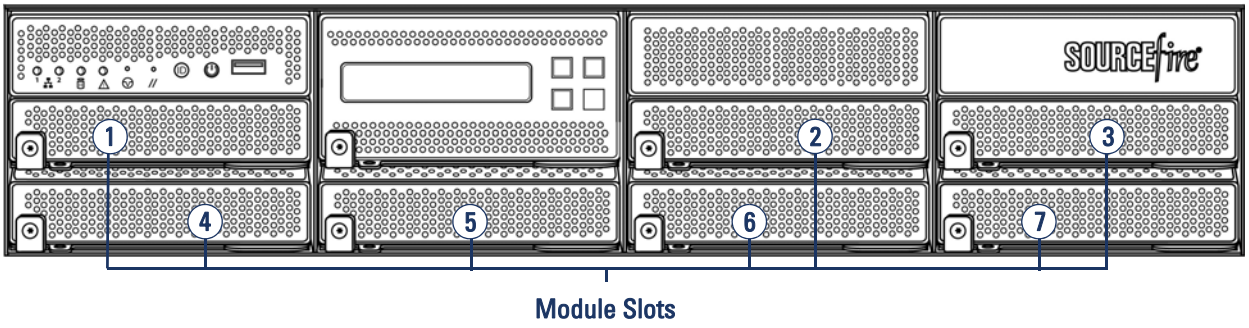
- a 2U 3D8250 (a 10G-capable sensor)
- a 4U 3D8260 (a 10G-capable primary sensor and a secondary sensor)
- a 6U 3D8270 (a 40G-capable primary sensor and two secondary sensors)
- a 8U 3D8290 (a 40G-capable primary sensor and three secondary sensors)

The sensor can be shipped fully assembled, or you can install the sensing interface modules into the chassis. For the 3D8260/8270/8290, sensing interface modules are installed in the primary sensor only. The 40G sensing interface module must be installed in 40G-capable sensors only. Assemble your sensor before installing the Sourcefire 3D System. See the assembly instructions

shipped with your modules.The following illustration of the rear view of the 3D8250 and 3D8260 chassis indicates the location of the management interface.



The following illustration of the front view of the chassis indicates the location of the sensing interfaces.

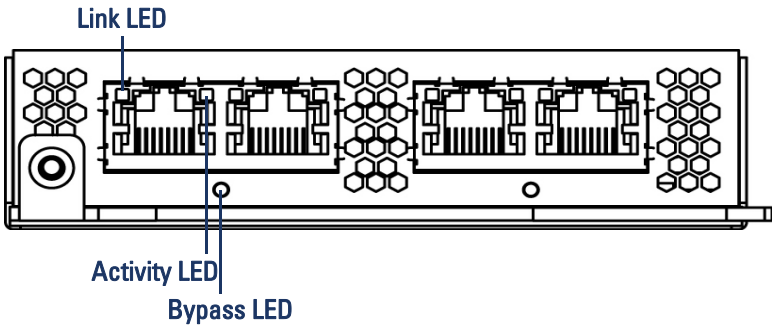


Modules

The 3D8250 sensor can be delivered with the following modules:

- a quad-port 1000BASE-T copper interface with bypass capability. See Dual Quad-Port 1000BASE-T Copper Bypass Sensing Interfaces on page 43.
- a dual-port 10GBASE (MMSR or SMLR) fiber interface with bypass capability. See Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod on page 46 for more information.
- a quad-port 1000BASE-SX fiber interface with bypass capability. See Quad-Port 1000BASE-SX Fiber Bypass NetMod on page 47 for more information.
- a dual-port 40GBASE-SR4 fiber interface with bypass capability. See Dual-Port 40GBASE-SR4 Fiber Bypass NetMod on page 52 for more information.
- a stacking module used to stack up four identical 3D8250 sensors to increase detection resources. See Stacking Module on page 48.

Quad-Port 1000BASE-T Copper Bypass NetMod



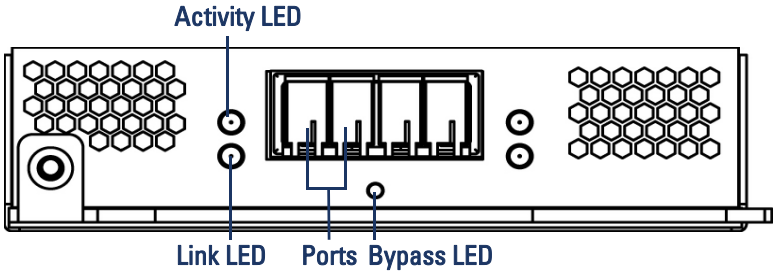
The quad-port 1000BASE-T copper bypass configuration uses Ethernet cables.

You can use these connections to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail-open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to two separate networks.

If you want to take advantage of the sensor's automatic fail-open capability, you must connect either the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two sensing interfaces (even nonconsecutive interfaces) as an inline pair.

Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod



The dual-port 10GBASE fiber bypass configuration uses LC-type (Local Connector) optical transceivers. Note that these can be either MMSR or SMLR interfaces.

You can use this configuration to passively monitor up to two separate network segments. You also can use paired interfaces in inline or inline with fail open

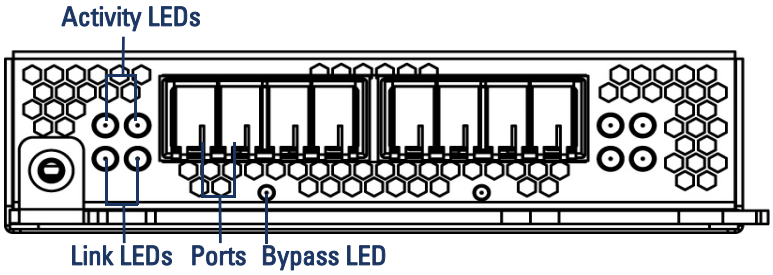
mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on a single network.

TIP! For best performance, use the interface sets consecutively. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces as an inline pair.

Quad-Port 1000BASE-SX Fiber Bypass NetMod



The quad-port 1000BASE-SX fiber bypass configuration uses LC-type (Local Connector) optical transceivers.

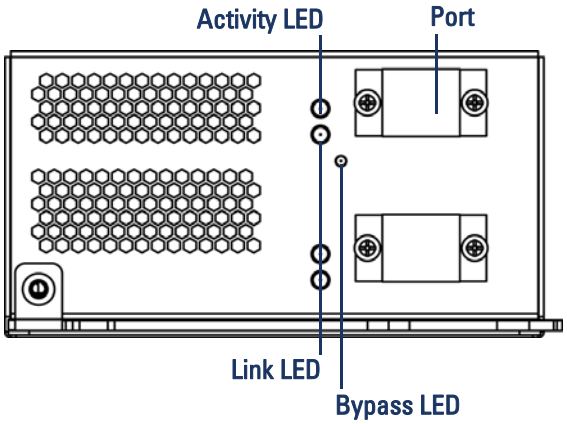
You can use this configuration to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to two separate networks.

TIP! For best performance, use the interface sets consecutively. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

If you configure the interfaces as inline without using the fail-open capability, you can use any two of the interfaces as an inline pair.

Dual-Port 40GBASE-SR4 Fiber Bypass NetMod



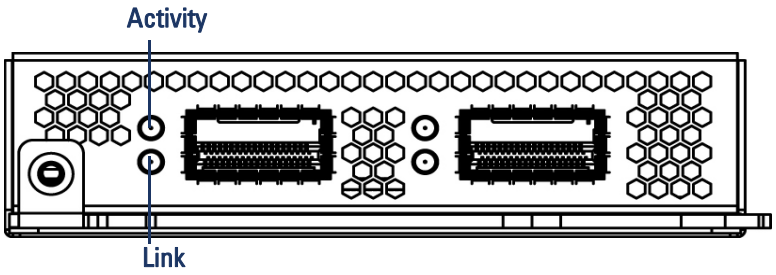
The dual-port 40GBASE-SR4 fiber bypass configuration uses MPO (Multiple-Fiber Push On) connector optical transceivers.

You can use the 40G NetMod only in the 3D8270/8290 or a 40G-capable 3D8250/8260. If you attempt to create a 40G interface on a sensor that is not 40G-capable, the 40G interface screen on its managing Defense Center web interface displays red. A 40G-capable sensor displays `3D 8250-40G` on the LCD Panel

You can use this configuration to passively monitor up to two separate network segments. You also can use the paired interface in inline or inline with fail-open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on one network.

If you want to take advantage of a sensor's automatic fail-open capability, you must use the web interface to configure the interface set as inline with fail-open.

Stacking Module



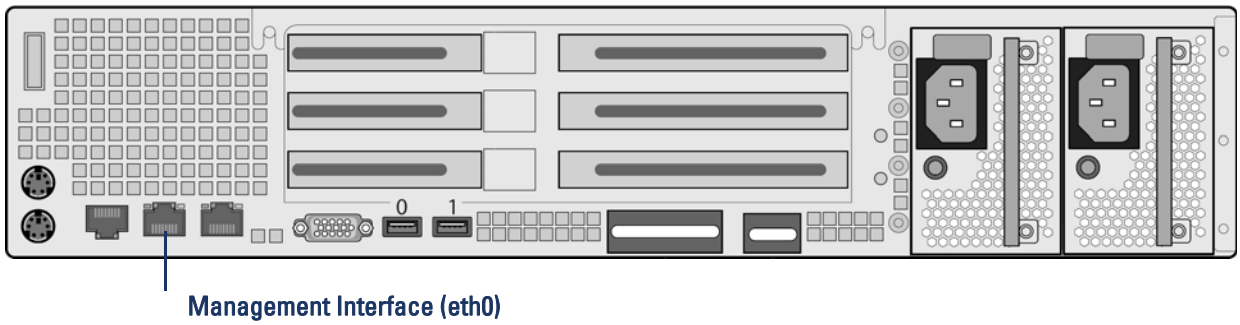
The stacking module uses two 8000 Series cables for each stacking module.

You can increase the amount of traffic inspected on a network segment by connecting up to four 3D8250 sensors in a *stacked sensor* configuration to combine their resources into a single, shared configuration. Note that the 3D8260 contains a 3D8250 primary sensor and a dedicated secondary sensor for stacking.

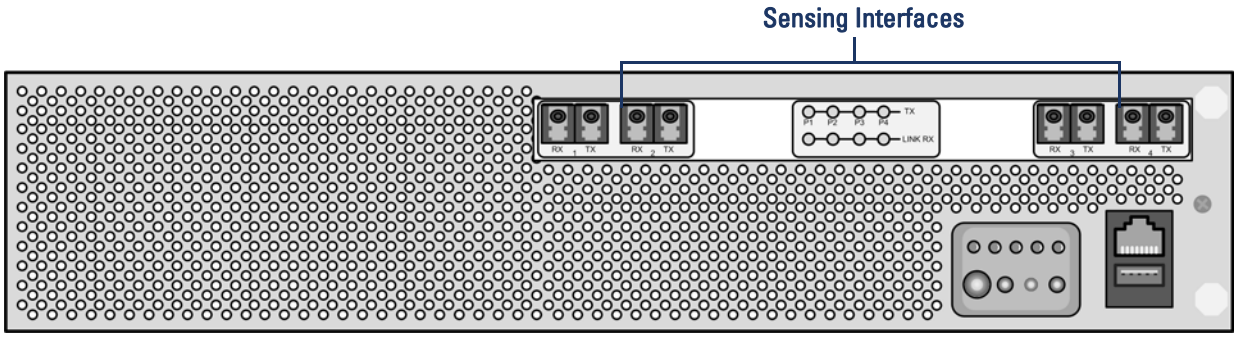
One sensor is designated as *primary* and the others are *secondary*. Connect the primary sensor to the network segment you want to analyze in the same way you would configure a single 3D8250 sensor (either passive, inline, or inline with fail-open). Connect the secondary sensor (another 3D8250 or the dedicated secondary sensor in the 3D8260) to the primary sensor using two 8000 Series cables. Use a Defense Center to establish the stacked relationship between the sensors and manage their joint resources. For more information on establishing the stacked configuration, see Using 3D Sensors in a Stacked Configuration on page 55. For more information on managing the stacked configuration, see "Managing a Stacked Pair" in the *Sourcefire 3D System User Guide*.

Sourcefire 3D Sensor 9900

The 3D9900 3D Sensor is a 2U appliance and is also referred to as a Series 2 sensor. The following illustration indicates the location of the management interface, which is on the rear of the chassis.



The following illustration indicates the location of the sensing interfaces, which are on the front of the chassis.

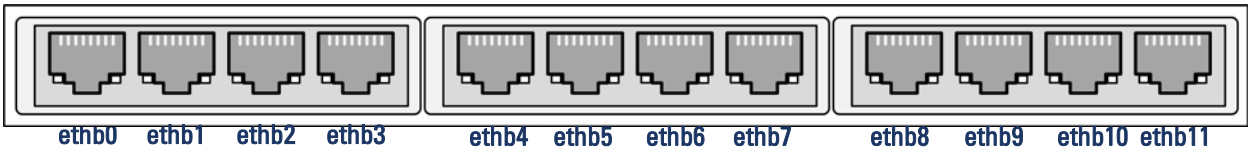


The 3D9900 appliance can be delivered with two different sensing interface configurations:

- Twelve-port configurations for 10/100/1000 copper bypass; see Twelve-Port Copper Configuration on page 54 for more information
- Four-port 10Gb fiber bypass configuration; see Four-Port 10Gb Fiber Configuration on page 54 for more information

Twelve-Port Copper Configuration

The 3D9900 12-port configuration contains 12 1Gb copper interfaces.The following illustration indicates the interface numbering.



You can use these interfaces to passively monitor up to 12 separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to six networks.

TIP! For the best performance, you must use the interfaces consecutively, starting with `eth0`. If you skip any interfaces, you may experience degraded performance.

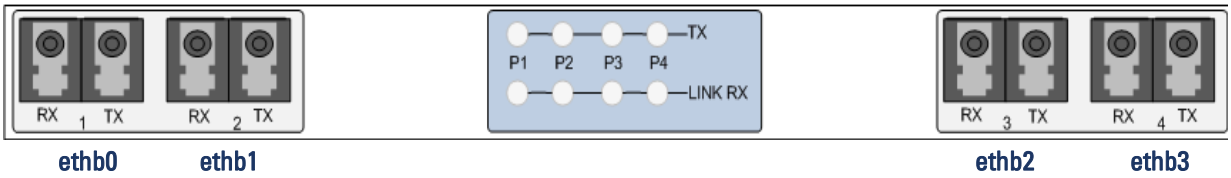
If you want to take advantage of a sensor's automatic fail-open capability, you must connect adjacent interfaces (`eth0` with `eth1`, `eth2` with `eth3`, and so on) to a network segment. This allows traffic to flow even if the sensor fails or loses power. You must also use the web interface to configure the interface set as inline with fail open.

By default, the initial setup process supports six inline fail-open interface pairs. If you want to use passive or other configurations, see "Using Detection Engines and Interface Sets" in the *Sourcefire 3D System User Guide*.

Four-Port 10Gb Fiber Configuration

The 3D9900 sensor also supports a four-port bypass configuration for 10Gb fiber media. It uses uses LC-type (Local Connector) optical transceivers. Note that these are SR interfaces. The following illustration indicates the interface

numbering for the two leftmost interfaces: `ethb0` and `ethb1`. The two interfaces on the right are `ethb2` and `ethb3`.



You can use this configurations to passively monitor up to four separate network segments. You also can use paired interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system on up to four networks.

TIP! For the best performance, you must use the interfaces consecutively, starting with `ethb0`. If you skip any interfaces, you may experience degraded performance.

If you want to take advantage of a sensor's automatic fail-open capability, you must connect the two interfaces on the left or the two interfaces on the right to a network segment. Automatic fail-open capability allows traffic to flow even if the sensor fails or loses power. After you cable the interfaces, you use the web interface to configure the interface set as inline with fail open.

Using 3D Sensors in a Stacked Configuration

Increase the amount of traffic inspected on network segments by combining the resources of identically-configured sensors in a stacked configuration.

Use a Defense Center to establish the relationship between the stacked sensors and manage the resources of the stacked sensors. After the stacked relationship is established, each device inspects traffic separately using a single, shared detection configuration.

You can create the following stacked configurations:

- two fiber-based 3D9900 sensors
- two 3D8140 sensors
- up to four 3D8250 sensors
- a 3D8260 (a 10G-capable primary sensor and a secondary sensor)
- a 3D8270 (a 40G-capable primary sensor and two secondary sensors)
- a 3D8290 (a 40G-capable primary sensor and three secondary sensors)

For the 3D8260 and 3D8270, you can stack additional sensors for a total of four sensors in the stack.

One sensor is designated as the *primary* sensor and is displayed on the web interface with the primary role. All other sensors are *secondary* and are displayed in the web interface with the secondary role. You use the combined detection engines as a single entity except when viewing information from the stacked sensors.

Connect the primary sensor to the network segments you want to analyze in the same way that you would connect a single 3D9900, 3D8140, or 3D8250 sensor (either passive, inline, or inline with fail-open). Connect the secondary sensor to the primary sensor as indicated by the sensor's stack cabling diagram.

After the sensors are physically connected to the network segments and to each other, use a Defense Center to establish the stacked sensor relationship and manage their joint resources. For information on connecting the primary and secondary stacking sensors, see the following sections:

- Connecting 3D9900 Sensors on page 56
- Connecting 3D8140 Sensors on page 58
- Connecting 3D8250/8260/8270/8290 Sensors on page 58
- Using the 8000 Series Stacking Cable on page 62

Use the Defense Center that manages your stacked sensors to create, edit, and list the detection engines of stacked sensors. You cannot manage detection engines or interface sets on the local web interface of a stacked sensors; the Edit page is replaced with an informational page.

If the primary sensor fails, traffic is handled according to the configuration of the primary sensor (either passive, inline, or inline with fail-open). A health alert is generated indicating loss of link.

If the secondary sensor fails, the primary sensor continues to sense traffic, generate alerts, and send traffic to the failed secondary sensor where the traffic is dropped. A health alert is generated indicating loss of link.

For information on establishing and managing stacked sensors, see the following sections:

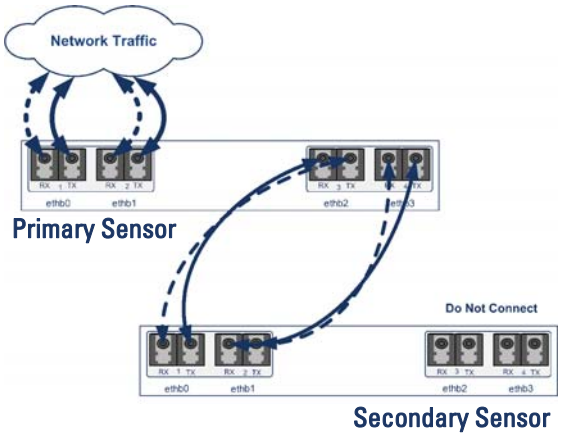
- "Managing Stacked Sensors" in the *Sourcefire 3D System User Guide* explains how to use a Defense Center to establish, manage, and separate stacked sensors.
- "Understanding Detection Engines and Interface Sets" in the *Sourcefire 3D System User Guide* explains how to use the resources on stacked sensors.

Connecting 3D9900 Sensors

You can connect two 3D9900 sensors in a stacked configuration. Use 10G LC fiber cables to create the physical connection between the primary and secondary sensors.

Install the sensors in your rack so that you can easily connect the cables between the stacking modules. Connect the primary sensor to the network segment you

want to analyze in the same way that you would connect a single 3D9900 sensor (either passive, inline, or inline with fail-open). The following graphic shows how to connect the primary and secondary sensors.



Use the Stack Interconnect table as a guide for cabling the interfaces on the primary and secondary sensors.

Stack Interconnect

Primary Sensor Interface	Secondary Sensor Interface
ethb2 RX	ethb0 TX
ethb2 TX	ethb0 RX
ethb3 RX	ethb1 TX
ethb3 TX	ethb1 RX

To connect a 3D9900 secondary sensor:

1. Connect the interfaces on the primary sensor to the interfaces on the secondary sensor as indicated in the graphic and the Stack Interconnect table.
2. Use a Defense Center to establish the stacked sensor relationship and manage their joint resources. See "Managing Stacked Sensors" in the *Sourcefire 3D System User Guide*.

Connecting 3D8140 Sensors

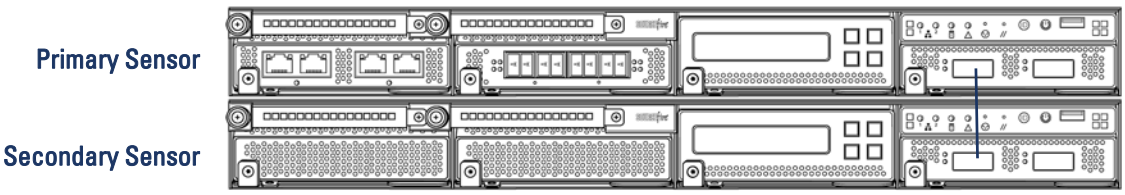
You can connect two 3D8140 sensors in a stacked configuration. Use one 8000 Series stacking cable to create the physical connection between the primary sensor and the secondary sensor. For more information on using the stacking cable, see Using the 8000 Series Stacking Cable on page 62.

Install the sensors in your rack so that you can easily connect the cable between the stacking modules. You can install the secondary sensor above or below the primary sensor.

Connect the primary sensor to the network segments you want to analyze in the same way that you would connect a single 3D8140 sensor (either passive, inline, or inline with fail-open). Connect the secondary sensor directly to the primary sensor.

The following graphic shows a primary sensor and a secondary sensor. In this example, the secondary sensor is installed below the primary sensor.

3D8140 Primary Sensor with One Secondary Sensor



To connect a 3D8140 secondary sensor:

1. Connect the left stacking interface on the primary sensor to the left stacking interface on the secondary sensor.
2. Use a Defense Center to establish the stacked sensor relationship and manage their joint resources. See "Managing Stacked Sensors" in the *Sourcefire 3D System User Guide*.

Connecting 3D8250/8260/8270/8290 Sensors

You can create the following stacked configurations:

- up to four 3D8250 sensors
- a 3D8260 (a 10G-capable primary sensor and a secondary sensor)
- a 3D8270 (a 40G-capable primary sensor and two secondary sensors)
- a 3D8290 (a 40G-capable primary sensor and three secondary sensors)

For the 3D8260 and 3D8270, you can stack additional sensors for a total of four sensors in the stack.

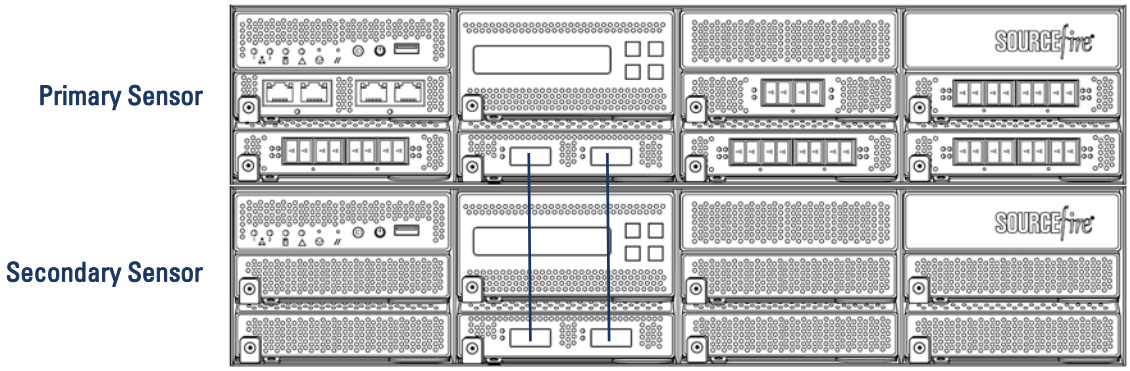
Use two 8000 Series stacking cables for each secondary sensor you want to connect to the primary sensor. Note that sensors do not need to be powered down to attach the cables. For more information on using the stacking cable, see Using the 8000 Series Stacking Cable on page 62.

Install the sensors in your rack so that you can easily connect the cables between the stacking modules. You can install the secondary sensors above or below the primary sensor.

Connect the primary sensor to the network segments you want to analyze in the same way that you would connect a single 3D8250 sensor (either passive, inline, or inline with fail-open). Connect each secondary sensor directly to the primary sensor as required for the number of secondary sensors in the configuration.

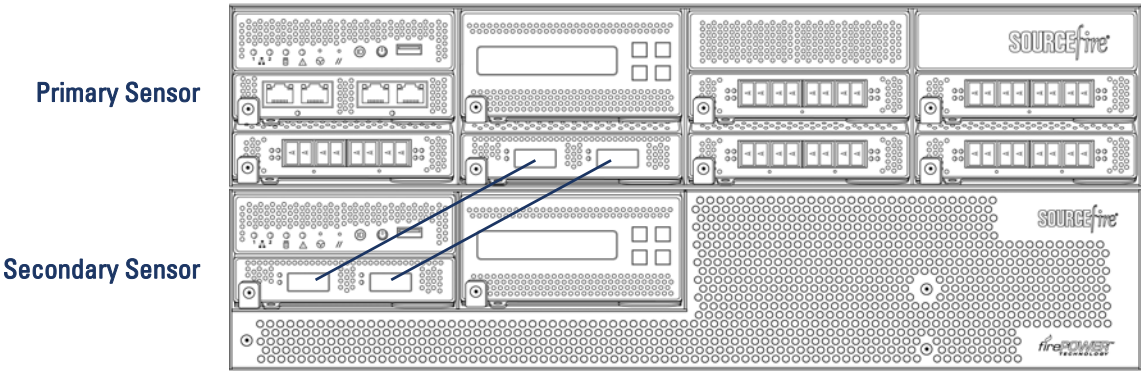
The following example shows a primary sensor with one secondary sensor. In this example, the secondary sensor is installed below the primary sensor.

3D8250 Primary Sensor with One Secondary Sensor



The following example shows a 3D8260 configuration which includes a 3D8250 primary sensor and a dedicated secondary sensor. In this example, the secondary sensor is installed below the primary sensor.

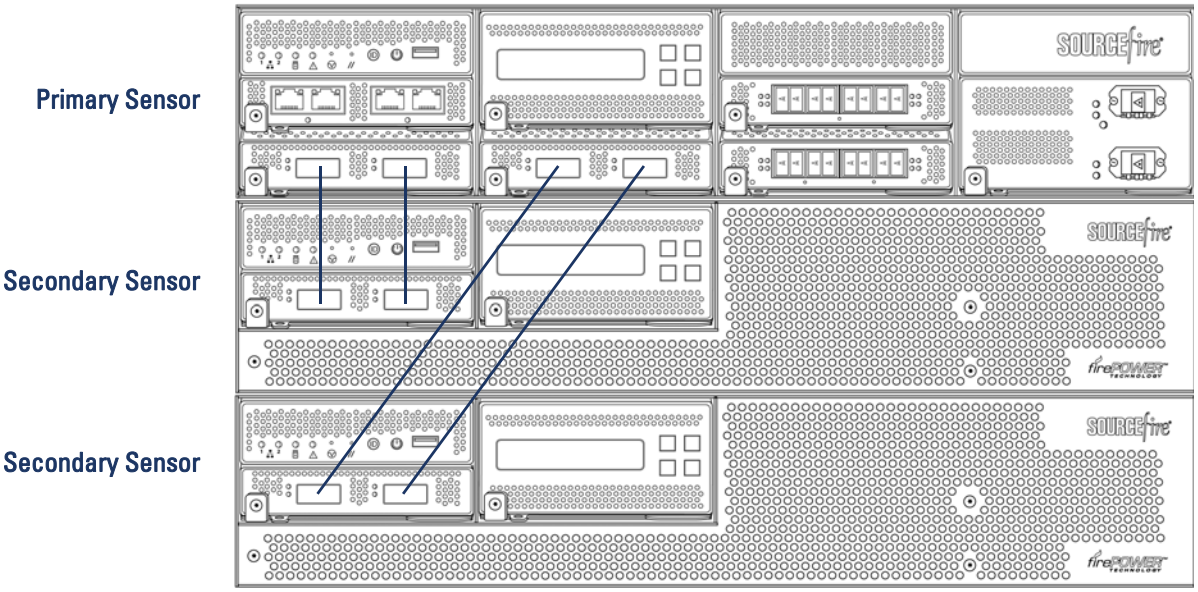
3D8260 - 3D8250 Primary Sensor and Dedicated Secondary Sensor



Use additional stacking modules in the 3D8250 to add more secondary sensors to the configuration.

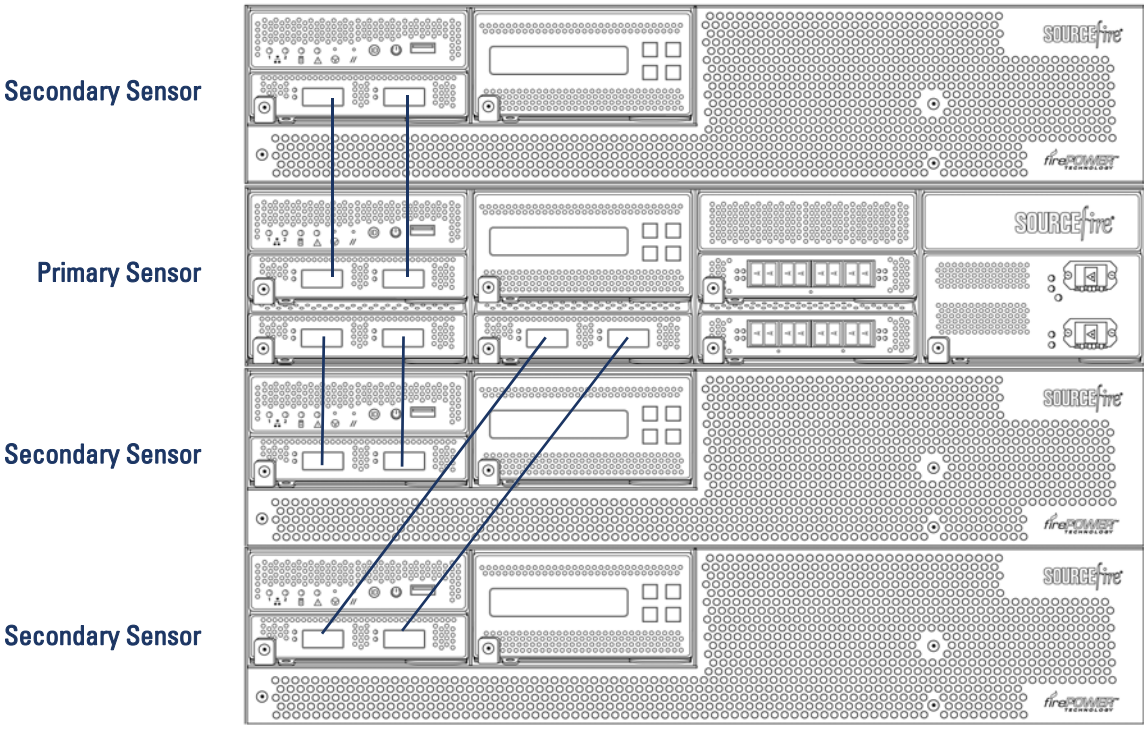
The following example shows a primary sensor with two dedicated secondary sensors. In this example, the primary sensor is installed above the two secondary sensors.

3D8270 - 3D8250 Primary Sensor with Two Secondary Sensors



The following example shows a primary sensor with three dedicated secondary sensors. In this example, one secondary sensor is installed above the primary sensor and two secondary sensors are installed below the primary sensor.

3D8290 - 3D8250 Primary Sensor with Three Secondary Sensors

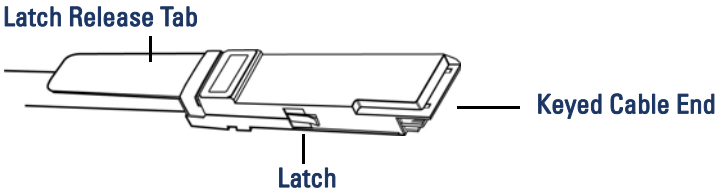


To connect a 3D8250 secondary sensor:

1. Connect the left stacking interface on the primary sensor to the left stacking interface on the secondary sensor.
2. Connect the right stacking interface on the primary sensor to the right stacking interface on the secondary sensor.
3. Repeat steps 1 and 2 for each secondary sensor you want to connect.
4. Use a Defense Center to establish the stacked sensor relationship and manage their joint resources. See "Managing Stacked Sensors" in the *Sourcefire 3D System User Guide*.

Using the 8000 Series Stacking Cable

The 8000 Series stacking cable has identically-keyed ends, each with a latch to secure the cable in the sensor and a latch release tab.



Use 8000 Series stacking cables to create the physical connection between the primary sensor and each secondary sensor as required for each sensor configuration. The 3D8140 requires one cable per connection, and the 3D8250/8260/8270/8290 requires two cables per connection. Sensors do not need to be powered down to insert or remove the stacking cables.

WARNING! Use only the Sourcefire 8000 Series stacking cable when cabling your devices. Using unsupported cables can create unforeseen errors.

Use the Defense Center to manage the stacked sensors after you have physically connected the sensors.

To insert an 8000 Series stacking cable:

- To insert the cable, hold the cable end with release tab facing up and insert the keyed end into the port on the stacking module until you hear the latch click into place.

To remove an 8000 Series stacking cable:

- To remove the cable, pull on the release tab to release the latch, and remove the cable end.

Installing the 3D Sensor in a Rack

The 3D Sensor is delivered on different hardware appliances. Make sure you refer to the correct illustration for your appliance as you follow the installation procedure.

To install the appliance:

1. Mount the appliance in your rack using the mounting kit. Use the instructions supplied with the mounting kit.

   IMPORTANT! You may also use the 3D500, 3D1000, and 3D2000 appliances as desktop devices.

2. Attach the power cord to the appliance and plug it into a power source.

   IMPORTANT! If your appliance has redundant power supplies, attach power cords to both power supplies and plug them in.

   Note that some models of the 3D Sensor automatically boot up when they are provided with power.

3. Use an Ethernet cable to connect the management interface to a protected network segment. The default IP address of the management interface is `192.168.45.45` with a Netmask of `255.255.255.0`.

4. Connect the sensing interfaces to the network segments you want to analyze using either copper or fiber cables, whichever is appropriate.

   In general, if you are using your 3D Sensor for RNA or RUA only, you can use straight-through cables to connect the sensing interfaces to your network.

   If you are using your 3D Sensor for IPS or for IPS plus another component, see Issues for Copper Cabling in Inline Deployments on page 27 for information about deciding when to use straight-through or crossover cables to connect the sensor interfaces to your network.

If you are deploying a sensor with fail-open interfaces, you are taking advantage of your sensor's ability to maintain network connectivity even if the sensor goes down. See Testing an Inline Fail-Open Interface Installation on page 76 for more information on installation and latency testing.

- Fiber Adapter Card: For 3D Sensors with a fiber adapter card, connect the LC connectors on the optional multimode fiber cable to two ports on the adapter card in any order. Connect the SC plug to the network segment you want to analyze.
- Fiber Tap: If you are deploying the 3D Sensor with an optional fiber optical tap, connect the SC plug on the optional multimode fiber cable to the "analyzer" port on the tap. Connect the tap to the network segment you want to analyze.
- Copper Tap: If you are deploying the 3D Sensor with an optional copper tap, connect the A and B ports on the left of the tap to the network segment you want to analyze. Connect the A and B ports on the right of the tap (the "analyzer" ports) to two copper ports on the adapter card.

For more information about options for deploying the 3D Sensor, see Typical 3D Sensor Deployments on page 11.

5. If your 3D Sensor has a power switch, turn on the sensor and continue with the next section, Configuring the Management Interface on page 64

WARNING! Make sure that no USB devices are plugged into a 3D9900 Sensor prior to powering up the appliance, as that will silently change the BIOS boot order.

Configuring the Management Interface

In this section, you set up the IP address and network settings for the management interface that you will use later to administer the appliance.

For Series 2 and Series 3 appliances, you can use the following options:

- Using the Management Interface on page 65 explains how to connect a host such as a laptop directly to the management interface to configure the interface's settings.
- Using a Monitor and Keyboard on page 66 explains how to connect a monitor and keyboard to the rear of the appliance, and then run a script to help you configure the interface's settings.

IMPORTANT! For the 7000 Series appliances only, you must disable the Spanning Tree protocol on any port intended for use with Serial Over LAN.

For Series 3 appliances only, you can also use the following options:

- Using the LCD Panel on page 68 explains how to use the LCD Panel to configure the management interface for the appliance.
- Using the Command Line Interface on page 71 explains how to use the command line to enter the network configuration, and register the sensor to a Defense Center.

IMPORTANT! Use the command line interface as needed only during the installation configuration.

Using the Management Interface

Use this process on Series 2 and Series 3 sensors.

The appliance is preconfigured with a default IPv4 address. This option is useful if you have a local host (for example a laptop computer) that you can physically connect to the management interface with an Ethernet cable. You can then use a web browser to navigate directly to the appliance and complete the initial setup process.

If you want to configure your management interface with an IPv6 address, you have two options: connect to your management interface with this preconfigured IPv4 address and reconfigure to an IPv6 address, or connect manually by Using a Monitor and Keyboard and configure with an IPv6 address.

To connect directly to the management interface:

1. Power up the appliance but do not log into the appliance.
2. Configure a local host (for example, a laptop computer) with the following network settings:
   - IP address: `192.168.45.2`
   - Netmask: `255.255.255.0`
   - Default Gateway: `192.168.45.1`

   Note that your local host must not be connected to the Internet.
3. Use an Ethernet cable to connect the network interface on the local host to the management interface on the appliance.

   Confirm that the link LED is on for both the network interface on the local host and the management interface on the sensor.

TIP! If the management interface and network interface LEDs are not lit, use a cross-over cable instead of a standard Ethernet cable to connect the two appliances.

4. Use the web browser on the local host to navigate to the appliance's default IP address:

   `https://192.168.45.45/`

   The Login page appears.

   TIP! You may need to add an exception to your trusted sites on your browser before you can access the login page. Follow the instructions on your browser to allow the exception.

5. Log into the web interface using `admin` as the username and `Sourcefire` as the password. Note that the password is case sensitive.

   On the local host, log into the web interface using `admin` as the username and `Sourcefire` as the password. Note that the password is case sensitive.

   The Install page appears. Continue with Performing the Initial Setup on page 72.

Using a Monitor and Keyboard

Use a monitor and keyboard on Series 2 and Series 3 sensors to configure the management interface on the appliance.

The appliance is delivered with monitor and keyboard connectors on the rear of the appliance. This option is useful if your facility has a spare monitor and keyboard or if you routinely use a KVM switch to access your appliances. With this option you must run a script to preset the network settings for the management interface before you begin the initial setup process.

The script will prompt you for the following information about the management interface and your network environment:

- the IP address you want to give to the management interface
- the netmask for the management interface's IP address
- the default gateway for the management interface

To use a monitor and keyboard:

1. Using the supplied Ethernet cable, connect the management interface on the rear of the appliance to a protected management network.
2. Connect a monitor and keyboard to the appliance.

   Connect the monitor to the VGA port and the keyboard to one of the USB ports (or optionally to the PS/2 keyboard connector, if available).

   TIP! If you later want to create a serial connection between the appliance and a computer running terminal emulation software such as Microsoft Windows Hyperterminal or XModem, you must enter `/usr/local/sf/bin/set_console.sh -c ttyS1`, then reboot the appliance. Then, set your emulation software to use 9600 baud, 8 data bits, no parity checking, 1 stop bit, and no flow control. For more information, see Redirecting Console Output on page 75.

3. Log in as `admin`.

   The system requests a password.
4. Enter `Sourcefire` as the password.

   Note that the password is case sensitive.
5. Type `sudo su -` and press Enter. If needed, type the `admin` account password and press Enter to approve the command and display the root prompt.
6. Run the following script:

   ```
   /usr/local/sf/bin/configure-network
   ```

   The following prompt appears:

   ```
   Do you wish to configure IPv4? (y or n)
   ```
7. Type `y` and press Enter to configure the appliance with an IPv4 address.

   The following prompt (appended with the current value) appears:

   ```
   Management IP address?
   ```
8. Enter the IP address you want to assign to the management interface or press Enter to accept the current value. For example:

   ```
   10.2.2.20
   ```

   The following prompt (appended with the current value) appears:

   ```
   Management netmask?
   ```
9. Enter the netmask for the interface's IP address or press Enter to accept the current value. For example:

   ```
   255.255.0.0
   ```

   The following prompt appears:

   ```
   Management default gateway?
   ```

10. Enter the IP address of the gateway for this IP address. For example:

    ```
    10.2.1.1
    ```

    The following prompt appears:

    ```
    Are these settings correct: (y or n)?
    ```

11. You have two options:
    - If the settings are correct, type `y` and press Enter to continue.
    - If the settings are incorrect, type `n` and press Enter. You are prompted to enter the information again.

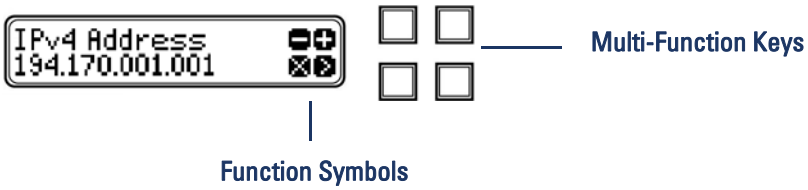
12. After you enter the correct network settings for the management interface, type `exit` and press Enter to log out of `root.`

13. Type `logout` and press Enter to log out of the appliance, and disconnect the monitor and keyboard.

    Continue with Performing the Initial Setup on page 72.

Using the LCD Panel

Use the LCD Panel on Series 3 sensors only to configure the management interface on the appliance.



A symbol and its location on the display correspond to its function and the location of the key used to perform that function. If no symbol is shown, the corresponding key has no function.

The IPv4 address is prepopulated with your IP address. IPv6 displays all zeros. As an example, an initial IPv4 configuration looks something like this:

```
IPv4 Address:      - +
194.170.001.001    X >
```

The first line indicates that you are editing the IPv4 address. The second line displays the IPv4 address you are editing. The two symbols at the end of each row indicate the actions associated with the two keys to the right of each row.

In the example above, you can perform the following actions;

- Use the left key on the first row `(-)` to decrease the digit by one.
- Use the right key on the first row `(+)` to increase the digit by one.
- Use the left key on the second row `(X)` to cancel the action.
- Use the right key on the second row `(>)` move the cursor to the right.

The cursor appears only on the second line, and indicates where on the display you are editing. Note that when the cursor is not located at the first digit, the panel displays a left (<) arrow, and using the corresponding function key moves your cursor to the left.

You can edit standard network setup information for either IPv4 or IPv6. IPv4 is enabled and preconfigured by default.

The Initial Setup/Network Configuration table lists configurable information.

Initial Setup/Network Configuration

IPv4 (default)	IPv6
IP address	IP address
Netmask	Prefix
Subnet Mask	Default Gateway

Note that the displays for editing the Netmask, Prefix, Subnet Mask, and Default Gateway function in the same manner as the IP address display. For more information on using the multi-function keys, see Using the Multi-Function Keys on page 85.

To configure the network:

1. Press any of the multi-function keys to activate the keys on the LCD Panel. The following screen is displayed:

```
Network Config          >
System Status         < >
```

2. Press the right arrow at the end of the `Network Config` line. The following screen is displayed:

```
IPv4                  < >
IPv6                    >
```

3. Press the right arrow to select either IPv4 or IPv6, or press the left arrow to return to the previous screen.

   For IPv4, the following screen is displayed:

```
IPv4 set to DHCP      <
Enable Manual?          >
```

   IPv6 displays a similar screen.

4. Press the right arrow to select `Manual` to enter the network configuration from the LCD Panel. Selecting `DHCP` returns to the previous screen.

   An IP address screen displays all zeros in the IP address The example shows IPv4:

```
IPv4 address:         - +
000.000.000.000       x >
```

5. Use the multi-function keys to move the cursor left or right until you reach the digit in the IP address you want to edit.

   Initially, the cursor is located at the far left of the display and the cancel (X) symbol is displayed instead of the left (<) arrow. As soon as you move the cursor to the right, the cancel (X) symbol changes to a left (<) arrow.

6. Increase or decrease the value of the digit by using the minus and plus keys. Edit each digit as necessary to the end of the IP address. Use leading zeroes as needed. The following example uses the preconfigured IPv4 address.

   ```
   IPv4 address:       - +
   192.168.045.045     < >
   ```

   An IPv6 address does not display fully on the LCD Panel. Scroll right or left as needed until you have entered the entire address, then scroll to the last digit in the address.

7. After you configure the final digit, press the right arrow once more to display the function keys (such as Cancel and Accept on the top row and Return on the bottom row).

   ```
   IPv4 address:       x ✓
   192.168.045.045     <
   ```

8. You have three options:

   - Press (X) to cancel the configuration and return to the previous menu.
   - Press the check mark (✓) to accept and move to the next configuration.
   - Press the left arrow (<) to return to editing the current configuration.

   You must accept the displayed configuration to continue to the next display.

9. On the Netmask display, configure Netmask using the same process you used to configure the IP address. See steps 5 through 8 for more information.

10. On the Subnet Mask display, configure the address of the gateway using the same process you used to configure the IP address. See steps 5 through 8 for more information.

11. After you accept the Subnet Mask display, you are prompted to save the configuration:

    ```
    Save?               x ✓
    ```

    Press the check mark (✓) to accept the networking configuration.

    Continue with Performing the Initial Setup on page 72.

Using the Command Line Interface

Use the command line interface on Series 3 sensors only to configure the management interface on the appliance.

Series 3 sensors must be managed by a Defense Center. A unique alphanumeric registration key is always required. In most cases, to register a sensor to a Defense Center, you must provide the hostname and the IP address along with the registration key. You can register the sensor to a Defense Center using the command line, or you can register the sensor later.

You must connect a monitor and keyboard to the rear of the appliance. At the prompts, you must provide the following for the following information about the management interface and your network environment:

- the IP address you want to give to the management interface
- the netmask for the management interface's IP address
- the default gateway for the management interface

To complete the initial setup using the command line interface:

1. Connect a monitor and keyboard to the appliance using the ports at the rear of the appliance.
2. At the `Sourcefire 3D Login` prompt, enter `admin` followed by `Sourcefire` for the login and password. Note that both login and password are case-sensitive.

   The EULA acceptance screen appears.
3. You must accept the EULA. Read and accept the EULA to continue.
4. Using the prompts on the screen, perform these actions. Options are listed in parenthesis, such as `(y/n)`. Defaults are listed in square brackets, such as `[y]`. If you accept all defaults, the procedure is as follows:
   - change the admin password: `enter new password; confirm new password`
   - configure IPv4: `(y/n): [y]`
   - configure IPv6: `(y/n): [n]`
   - configure IPv4 via DHCP or manually: `(dhcp/manual) [manual]`
   - enter an IPv4 address for the management interface [*XxX.XxX.XxX.XxX*]
   - enter an IPv4 netmask for the management interface [*XxX.XxX.XxX.XxX*]
   - enter an IPv4 default gateway for the management interface [*XxX.XxX.XxX.XXX*]
   - enter a fully qualified hostname for this system [*hostname.com*]

- enter a comma-separated list of DNS servers or 'none'

  [*XxX.XXx.XXx.XXx*, *XxX.XxX.XxX.XxX*]
- enter a comma-separated list of search domains or 'none'

  [*searchdomain.com*]
- Set permission for the LCD Panel to reconfigure the network. Note that allowing the LCD Panel to configure network settings poses a security risk because no authentication is needed, only physical access.

  `Allow LCD Panel to configure network settings? (y/n) [n]: n`

5. To configure the sensor to accept a Defense Center as manager, use the following command:

   `configure manager add [`*`hostname`*` | `*`ip address`*`] [`*`registration key`*`]`

   However, if the sensor and the Defense Center are separated by a NAT device, you must enter a unique NAT ID, along with the registration key.

   `configure manager and DONTRESOLVE [`*`hostname`*` | `*`ip address`*`] [`*`registration key`*`]`

   The registration key is a unique user-generated alpha-numeric key used to register a sensor to a Defense Center. When you complete the sensor registration on the Defense Center's web interface, you must use the same registration key and, if necessary, the same NAT ID when you add this sensor to the Defense Center.
6. Type `logout` and press Enter to log out of the appliance.

   Continue with Performing the Initial Setup on page 72.

Performing the Initial Setup

After you physically install the 3D Sensor and set up the IP address for the management interface, you can log into the 3D Sensor's web interface. When you first log into the 3D Sensor, the Install page appears where you can continue the setup process. After you perform the initial setup, see the *Sourcefire 3D System User Guide* for information about the next steps you need to take.

WARNING! Prepare for the initial setup and complete it promptly after you begin. If the initial setup is interrupted or if a second user logs in while the initial setup is underway, the results can be unpredictable.

To complete the initial setup:

1. From a host with a web browser that can reach the appliance's management interface on the protected management network, navigate to:

   `https://mgt_ip_address/`

   where *`mgt_ip_address`* is the IP address you set up in the previous procedure.

   The appliance's Login page appears.

2. Log into the web interface using `admin` as the username and `Sourcefire` as the password. Note that the password is case sensitive.

3. Under Change Password, in the **New Password** and **Confirm** fields, enter a new password for the admin user account and for the admin password for the shell account. The same password is used for both accounts.

   TIP! The initial change to the admin user password changes the admin password for the shell account. Use the command line interface on the appliance for subsequent changes to the admin password. See the *Sourcefire 3D System User Guide* for more information.

   Sourcefire strongly recommends that you use a password that is at least eight alphanumeric characters of mixed case and includes at least one numeric character. Avoid using words that appear in a dictionary.

4. Under Network Settings, enter the settings that you want to use for the management IP address, including whether you use IPv4 or IPv6 on your management network, the network gateway, and the DNS servers.

   Note that if you used the `configure-network` script before logging into the web interface, the IP address, netmask, and gateway fields are prepopulated with your settings.

5. Under Remote Management, indicate whether you want to manage the 3D Sensor with a Defense Center. Note that Series 3 sensors must be managed by a Defense Center.

   You can use the IP address of the Defense Center or, if you specify a DNS server, its hostname. The registration key is a single-use user-created string that you will also use from within the Defense Center's web interface when you complete the sensor registration process.

   IMPORTANT! If your sensor and Defense Center are separated by a network address translation (NAT) device, you should defer remote management until after you complete the initial setup. See "Using the Defense Center" in the *Sourcefire 3D System User Guide* for more information.

6. Under Time Settings, indicate how you want to set the time. You can set the time manually or via network time protocol (NTP) from an NTP server.

   Note that if you are managing the sensor with a Defense Center and the Defense Center itself is set up as an NTP server, you can specify the Defense Center as the sensor's NTP server. If both your Defense Center and your sensors are running current software, this step is unnecessary as the current software will synchronize automatically.

7. Under Detection Mode, specify how you want to deploy the 3D Sensor. You have two options:

   - If you deployed the sensor as an inline IPS using paired sensing interfaces, select **Inline Mode**.
   - If you deployed the sensor as a passive IDS on your network, select **Passive Mode**.

   WARNING! If you select **Inline Mode** when the sensor is deployed passively, you may cause your network to be bridged, resulting in unexpected network behavior.

8. Under Recurring SEU Imports, select the **Enable Recurring SEU Import** check box to configure automatic SEU imports, and then specify the update frequency. You can queue an immediate update from the Sourcefire Support site by selecting **Update Now**. You can also indicate that intrusion policies should be reapplied after the SEU import process finishes.

9. Under Automatic Backups, select the **Enable Automatic Backups** check box to configure automatic backups, and then specify the frequency.

10. Under License Settings, indicate whether you want to add a sensor license. Note that licenses can be applied at a later time. See "System Settings" in the *Sourcefire 3D System User Guide* for more information.
    - If you are using a Series 2 3D Sensor and you want to use only the RNA or RUA functionality without IPS, you **do not** need to add a license. Licensing for those components is managed through the Defense Center that manages the sensor. Skip to step 11.
    - If you are using a Series 2 3D Sensor and you want to use IPS functionality (either by itself or with RNA or RUA functionality), you **must** add a license to the 3D Sensor. 8000 Series sensors do not require a license.

    To add a license, enter the license key in the license key field, and click **Add/Verify**.

    To obtain a license, click the link to navigate to `https://keyserver.sourcefire.com/`. Follow the on-screen instructions to generate an email containing the license file and paste it into the License field. Note that you will be prompted for the license key and an activation key. The activation key was previously emailed to the contact person identified on your support contract.

    If your current host cannot access the Internet, switch to a host that can and navigate to the keyserver web page.

11. Under End User License Agreement, read the agreement carefully and, if you agree to abide by its provisions, select the check box and click **Apply**.

    Your settings are applied, and the dashboard appears.

TIP! If you used the option to connect through the management port to perform the initial setup, remember to connect the cable to the protected management network.

Redirecting Console Output

By default, Sourcefire appliances direct console messages to the VGA port. The following procedure explains how to change the default console device to the serial port.

The Console Redirection Options table describes the options available per device.

Console Redirection Options

Appliance	VGA Port (Default)	Serial Port Access	LOM
3D500/1000/2000	tty0	ttys0	n/a
3D2100/2500/3500/4500	tty0	n/a	n/a
3D6500	tty0	ttys1	n/a
3D9900	tty0	ttys1	n/a
Series 3 appliances	tty0	ttys0	ttys0

1. Log into the appliance as `admin` and, at the prompt, enter the password for the admin account.
2. Enter the following at the command line:

   `/usr/local/sf/bin/set_console.sh -c` *`console_device`*

   where *`console_device`* can be one of the following values:
   - `tty0` for the VGA port
   - `ttyS0` for serial port 0
   - `ttyS1` for serial port 1
3. Reboot the appliance so that the change takes effect.

Testing an Inline Fail-Open Interface Installation

3D Sensors with fail-open interfaces provide the ability to maintain network connectivity even when the sensor is powered off or inoperative. It is important to ensure that you properly install these sensors and quantify any latency introduced by their installation.

IMPORTANT! Your switch's spanning tree discovery protocol can cause a 30-second traffic delay. Sourcefire recommends that you disable the spanning tree during the following procedure.

The following procedure, applicable only to copper interfaces, describes how to test the installation and ping latency of an inline fail-open interface. You will need to connect to the network to run ping tests and connect to the 3D Sensor console.

To test a sensor with inline fail-open interface installation:

1. Ensure that the interface set type for the appliance is configured for inline fail-open mode.

   See Using Detection Engines and Interface Sets in the *Sourcefire 3D System User Guide* for instructions on configuring an interface for inline fail-open mode.

2. Set all interfaces on the switch, the firewall, and the sensor sensing interfaces to auto-negotiate.

   IMPORTANT! Cisco devices require auto-negotiate when using auto-MDIX on the sensor.

3. Power off the 3D Sensor and disconnect all network cables.

   Reconnect the 3D Sensor and ensure you have the proper network connections. Check cabling instructions for crossover versus straight-through from the sensor to the switches and firewalls, see Issues for Copper Cabling in Inline Deployments on page 27.

4. With the 3D Sensor powered off, ensure that you can ping from the firewall through the sensor to the switch.

   If the ping fails, correct the network cabling.

5. Run a continuous ping until you complete step 8.

   Power the 3D Sensor back on.

6. Connect to the 3D Sensor's management interface, log in, and power off the 3D Sensor at the command line interface by entering the following command:

   ```
   shutdown -h now.
   ```

   As most 3D Sensors power off, they emit an audible click sound. The click is the sound of relays switching and the 3D Sensor going into hardware bypass.

7. Wait 30 seconds.

   Verify that your ping traffic resumes.

8. Power the 3D Sensor back on, and verify that your ping traffic continues to pass.

9. For appliances that support tap mode, you can test and record ping latency results under the following sets of conditions:

   - sensor powered off
   - sensor powered on, policy with no rules applied, inline IPS policy protection mode

- sensor powered on, policy with no rules applied, inline IPS policy protection tap mode
- sensor powered on, policy with tuned rules applied, inline IPS policy protection mode

Ensure that the latency periods are acceptable for your installation. For information on resolving excessive latency problems, see "Configuring Packet Latency Thresholding" and "Understanding Rule Latency Thresholding" in the *Sourcefire 3D System User Guide*.

Checking for Updates

After you complete the initial setup for the Sourcefire 3D System, you should make sure your 3D Sensor has the latest version of the software. You can check the Downloads section of the Sourcefire Support site for the most recent software patches, Vulnerability Database (VDB) updates, and Security Enhancement Updates (SEUs). You can find more information about updating your appliance in the *Sourcefire 3D System User Guide.*

IMPORTANT! Sourcefire recommends that you generate and use your own SSL certificates instead of the default Sourcefire certificates. See "Using Custom HTTPS Server Certificates" in the *Sourcefire 3D System User Guide* for more information.

Chapter 3
Using the LCD Panel

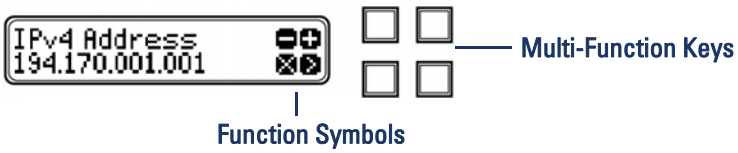
The LCD Panel on the Series 3 3D Sensor displays system information, such as CPU utilization, free memory, and chassis serial number. If an error is detected, the display flashes an alert indicating the type of error, such as hardware alarm, link state propagation, or fail-open status, and continues flashing until the error has been resolved.

For more information, see the following sections:

Understanding the LCD Panel

Use the multi-function keys on the LCD Panel to install and configure the appliance, view error messages, display system status.

LCD Panel



A symbol and its location on the display correspond to its function and the location of the key used to perform that function. If no symbol is shown, the corresponding key has no function. For information on how to use the multi-function keys, see Using the Multi-Function Keys on page 85.

The LCD Panel works in four operational modes, and displays different information, depending on the state of the appliance. For more information on the LCD Panel modes, see Understanding LCD Panel Modes on page 80.

Understanding LCD Panel Modes

The LCD Panel works in four operational modes, and displays different information, depending on the state of the appliance. The LCD Panel Display Modes table describes the various modes of display.

LCD Panel Display Modes

Mode	Function
Initial Setup/ Network Configuration	Performs basic sensor configuration. After configuration, the panel enters a read-only state. See Initial Setup/Network Configuration on page 81.
Idle Display (Default)	Displays CPU utilization, free memory, and the chassis serial number. See Idle Display on page 82.

LCD Panel Display Modes (Continued)

Mode	Function
Error Alert	Alerts when one or more errors or fault conditions are present. This mode persists until the error or fault condition is no longer detected. See Error Alert Mode on page 83.
System Status	Accesses the Main Menu, where you can view link state propagation, fail-open status, resources, chassis serial number, IP address, diagnostics, and current revisions. See System Status on page 83.

Initial Setup/Network Configuration

During the initial setup, you use the multi-function keys on the LCD Panel to set the IP address and other configuration parameters.

A symbol and its location on the display correspond to its function and the location of the key used to perform that function. If no symbol is shown, the corresponding key has no function.

The IPv4 address is prepopulated with your IP address. IPv6 displays all zeros. As an example, an initial IPv4 configuration looks something like this:

```
IPv4 Address:      - +
194.170.001.001    X >
```

The first line indicates that you are editing the IP address. The second line displays the IPv4 address you are editing. The two symbols at the end of each row indicate the actions associated with the two keys to the right of the each row.

In the example above, you can perform the following actions:

- Use the left key on the first row `(-)` to decrease the digit by one.
- Use the right key on the first row `(+)` to increase the digit by one.
- Use the left key on the second row `(X)` to cancel the action.
- Use the right key on the second row `(>)` move the cursor to the right.

The cursor appears only on the second line, and indicates where on the display you are editing. Note that when the cursor is not located at the first digit, the panel displays a left `(<)` arrow, and using the corresponding function key moves your cursor to the left.

You can edit standard network setup information for either IPv4 or IPv6. IPv4 is enabled and preconfigured by default.

The Initial Setup/Network Configuration table lists configurable information.

Initial Setup/Network Configuration

IPv4 (default)	IPv6
IP address	IP address
Netmask	Prefix
Default Gateway	Default Gateway

Note that the displays for editing the Netmask, Prefix, and Gateway function in the same manner as the IP address display. For information on using the LCD Panel during installation, see Using the LCD Panel on page 68.

Idle Display

By default, the LCD Panel displays system information, such as CPU utilization, free memory, and chassis serial number. If an error is detected, the display flashes an alert indicating the type of error, such as hardware alarm, link state propagation, or fail-open status, and continues flashing until the error has been resolved.

Idle Display Mode

The Idle Display mode displays the CPU utilization and free memory available, followed by the chassis serial number, at five-second intervals. A sample of each display might look like this:

```
CPU: 50%
FREE MEM: 1024 MB
```

or

```
Serial Number:
3D99-101089108-BA0Z
```

The sensor enters the Idle Display mode after 60 seconds of inactivity with no detected errors. Note that when editing a network configuration or running a diagnostic, the Idle Display mode is disabled.

Press any key to display the initial menu, then navigate to your required menu. Pressing any key resets the 60 second time limit. Note that if you press a menu key as the LCD Panel enters the Idle Display mode, an unexpected menu can appear on the LCD Panel.

Error Alert

The Error Alert mode is enabled any time one or more errors or fault conditions occur. The Error Alert menu will flash, displaying the process or condition that is in failure state. Scroll through the menu to view failure with multiple components.

Error Alert Mode

The sensor enters the Error Alert mode when one or more errors or fault conditions occurs. If any item is in error state, the standard Idle Display is interrupted and errors are reported.

The Error Alert menu can contain one or more menus from the Error Alerts table.

Error Alerts

Error	Description
Hardware alarm	Alerts on hardware errors.
Link state propagation	Displays the status of paired interfaces.
Fail-open	Displays the status of interface pairs configured in fail-open mode.
Fan Status	Alerts when a fan reaches Red condition.

Press the exit key (as indicated on the display) to exit the Error Alert mode. Note that the display will return to the Error Alert mode for as long as the fault condition is detected.

System Status

Use the multi-function keys to display the following information:

- System Status Menus on page 84 give access to system monitoring menus.
- Information Menus on page 85 display current information about the system.

System Status Mode

Press any key during the Idle Display mode to enter the System Status mode, which provides a selection of menus as described in the System Status Menus table.

System Status Menus

Menu	Description
Resources	Displays the CPU and memory status. This is the same display shown in the Idle Display rotation.

Link State Propagation	Displays a list of any interface pairs currently in use, and the link state status for that pair. The display consists of two lines, where the first line identifies the interface pair, and the second line displays its status (normal or tripped). For example:
	`eth2-eth3:`
	`normal`

Fail Open	Lists the fail-open pairs in use and the status of those pairs, either normal or failed open.
Fan Status	Displays a list and the status of the fans in the appliance.
Diagnostics	Accessible after pressing a specific key sequence. Call Sourcefire Support before using this option.
LCD Brightness	Provides the ability to adjust the brightness of the LCD display by pressing the Increase or Decrease buttons.
LCD Contrast	Provides the ability to adjust the contrast of the LCD display by pressing the Increase or Decrease buttons.

IMPORTANT! Do **not** access the diagnostics menu without the guidance of Sourcefire Support. Accessing the diagnostics menu without specific instructions from Sourcefire Support can damage your system.

The Information menus display current information about the system. See the options on the Information Menus table.

Information Menus

Menu	Description
IP Address	Displays the IP address on the management interface.
Model	Displays the model of the appliance.
Serial Number	Displays the chassis serial number.
Versions	Displays the version number for the following components: • Product version and build • Redboot version • Armstrong version • Confluence version • NFM Version • NFD Version • LBIM Version

Using the Multi-Function Keys

Multi-function keys are used during Initial Setup and Configuration (see Initial Setup/Network Configuration on page 81), and when using the LCD Panel menus.

To access LCD Panel menu:

- Press any key at any time to access the menu.

  If there has been no activity (no keys have been pressed) for one minute, the display returns to the Idle display. Note that during initial configuration, or if error messages are displayed, the display will not return to idle.

  Touch any key to return to Menu Access Mode.

Navigate through the LCD Panel menu using the multi-function keys.

Menu Access Keys

Key	Description
Right arrow	Enter the menu displayed to the left of the arrow.
Left arrow	Exit the current menu and return to previous display.
Up and down arrows	Scroll up and down through the menu list. The up arrow is not displayed if you are at the top of the menu list; the down arrow is not displayed if you are at the bottom of the list.

You can use the keys when one or more symbols are displayed at the end of the text line. The symbol and its location on the display correspond to the function and location of the key used to perform that function. If no symbol is shown, the corresponding key has no function.

TIP! Remember that the function of a symbol, and therefore the key, varies depending upon the LCD Panel mode in which the symbol is used. If you do not get the result you expect, check the mode of the LCD Panel.

The Multi-Function Keys table provides more detail on how the keys can be used.

Multi-Function Keys

Symbol	Function
^ (up arrow)	Scroll up the list of current menu options. If only the Up arrow is displayed, you are at the bottom of the menu.
v (down arrow)	Scroll down the list of current menu options. If only the Down arrow is displayed, you are at the top of the menu.
< (left arrow)	Return to the previous menu, or move the cursor to the left, or re-enable editing.
> (right arrow)	Enter the menu option displayed on that line, or move the cursor to the right, or scroll through continued text.
x (x mark)	Cancel action.
+ (plus)	Increase the selected digit by one (used in initial setup mode).

Multi-Function Keys (Continued)

Symbol	Function
- (minus)	Decrease the selected digit by one (used in initial setup mode).
✓ (checkmark)	Accept action.

Resetting the Network Configuration

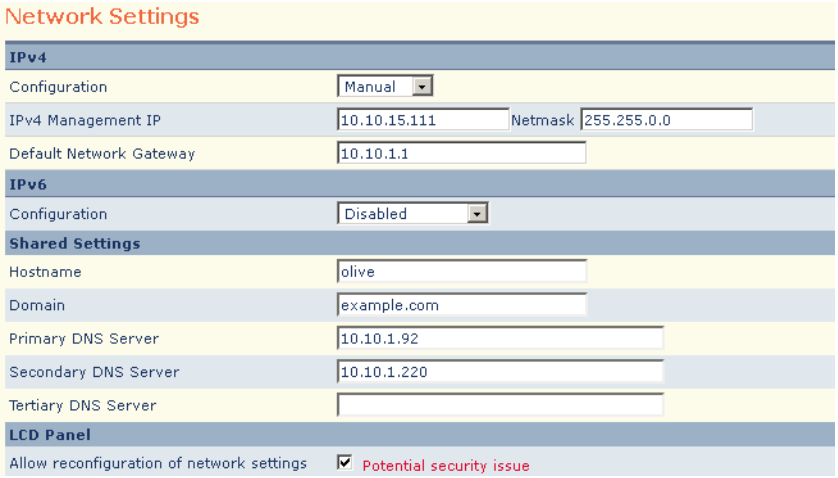
If you want to reconfigure the sensor using the LCD Panel, you must use the user interface to re-enable network configuration from the LCD Panel.

To reset the network settings configuration:

1. Using the user interface, log into the sensor you want to reconfigure.
2. Select **Operations > System Settings**.

   The System Settings page appears.
3. Click **Network**.

   The Network Settings page appears.



4. Under **LCD Panel**, select the **Allow reconfiguration of network settings** check box and click **Save**. Follow the steps in Understanding the LCD Panel on page 80 to reconfigure the networking information.

   After you use the LCD Panel to reconfigure the network settings, the LCD Panel is read-only. Note that allowing reconfiguration using the LCD Panel is a potential security issue because it provides the opportunity for someone to physically access the appliance and change the network configuration.

Adjusting the Brightness and Contrast on the LCD Panel

If you want to adjust the brightness and contrast settings on the LCD Panel, you must use enter the System Status mode and then adjust the settings.

To adjust the LCD Panel's contrast and brightness:

1. In Idle Display mode, press any multi-function key to enter the main menu.

   The main menu appears:

   ```
   Network Config          →
   System Status        ↓  →
   ```

2. Press the right arrow (→) key on the bottom row to access System Status mode.

   The LCD panel displays the following:

   ```
   Resources            ↓  →
   Link State           ↓  →
   ```

3. Scroll through the options by pressing the down arrow (↓) key until the LCD panel displays the LCD Brightness and LCD Contrast options:

   ```
   LCD Brightness       ↓  →
   LCD Contrast         ↓  →
   ```

4. Press the right arrow key in the row next to the LCD display feature (brightness or contrast) you want to adjust.

   The LCD panel displays the following:

   ```
   Increase                →
   Decrease             ↓  →
   ```

5. Press the right arrow key to increase or decrease the display feature you have selected.

   The LCD display changes as you press the keys.

6. Press the down arrow to display the Exit option:

   ```
   Decrease             ↓  →
   Exit                    →
   ```

7. Press the right arrow key in the Exit row to save the setting and return to the main menu.

Chapter 4
Hardware Specifications

The Sourcefire 3D Sensor is delivered on a range of appliances to meet the needs of your organization. The hardware specifications for each of the appliances are described in the following sections.

IMPORTANT! Remove all factory packaging from delivered appliances and cables before installation. Do **not** cover the vents or enclose the appliance; there must be ample clearance on all sides of the chassis. Restricting the airflow may cause the appliance to overheat.

Rack and Cabinet Mounting Options

You can mount Sourcefire sensors in racks and server cabinets. The appliance comes with a rack-mounting kit, but you can purchase other rack and cabinet

mounting kits separately. For information on mounting the appliance in a rack, refer to the instructions delivered with the rack-mounting kit.

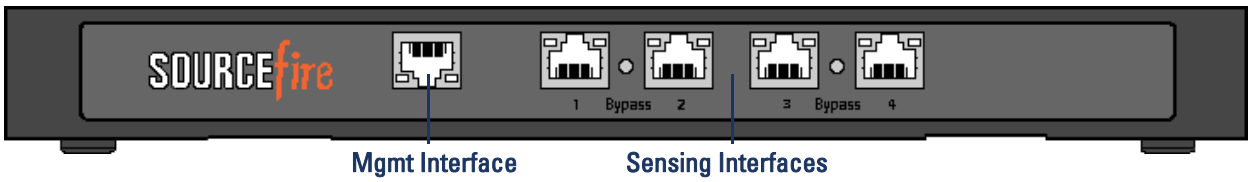
Note that the 3D500/1000/2000 is delivered as a desktop appliance. Optionally, you can purchase a 1U kit to mount the appliance in racks and server cabinets. For information on mounting the appliance in a rack, refer to the instructions delivered with the kit.

Sourcefire 3D Sensor 500/1000/2000 Specifications

The 3D500, 3D1000, and 3D2000 models of the 3D Sensor are delivered as a desktop device. Optionally, you can rack-mount the appliance using a 1U rack-mounting kit. See the following sections for more information about the appliance.

- Chassis Front View on page 90
- Chassis Rear View on page 92
- Physical and Environmental Parameters on page 93

Chassis Front View



The System Components: Front View table describes the features on the front of the appliance.

System Components: Front View

Feature	Description
10/100 Ethernet Management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Gigabit sensing interfaces	Allows you to use four gigabit copper Ethernet bypass interfaces in inline or inline with fail open mode, which allows you to deploy the 3D Sensor as an intrusion prevention system. The 3D500 can monitor one network as an IPS, while the 3D1000 and 3D2000 can monitor two networks as an IPS. If you want to take advantage of the sensor's automatic fail-open capability, you must use either the two interfaces on the left or the two interfaces on the right as paired interfaces bridging a network segment. This allows traffic to flow even if the sensor fails or loses power. You must also use the web interface to configure the interface set as inline with fail open. Otherwise, you can use any two of the interfaces on the sensor as an inline pair.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the LED is on, the link is up; if it is off, there is no link.
Right (Activity)	Indicates activity on the port. A blinking LED indicates activity; if the LED is off, there is no activity.

Bypass Interface LEDs

LED	Description
On	The interface has link and is passing traffic.
Off	The interface is in bypass mode; that is, it has failed open. OR The interface pair is not an inline fail-open interface set.

Chassis Rear View

The System Components: Rear View table describes the features on the rear of the appliance.

System Components: Rear View

Feature	Description
Power supply	Provides power to the appliance through an AC power source.
Serial port	Allows you to establish a direct workstation-to-appliance connection. This gives you direct access to all of the appliance's management services.
VGA port	Allows you to attach a monitor to the appliance, as an alternative to using the serial port to establish a direct workstation-to-appliance connection.
USB ports	Allows you to attach a keyboard to the appliance, as an alternative to using the serial port to establish a direct workstation-to-appliance connection. You also must use a USB port to restore the appliance to its original factory-delivered state, using the thumb drive delivered with the appliance.
Reset button	Allows you to reboot the appliance without disconnecting it from the power supply.

The Serial Port Pin Assignments table describes the signal present on the DB-9 connector.

Serial Port Pin Assignments

Pin	Signal	Description
1	DCD	Carrier Detect
2	RD	Received Data
3	TD	Transmitted Data
4	DTR	Data Terminal Ready

Serial Port Pin Assignments (Continued)

Pin	Signal	Description
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	1U rack-mounted, or desktop device
Dimensions (D x W x H)	6.7 x 11.8 x 1.25 (in inches) 17 x 30 x 3.2 (in centimeters)
Power Adapter - AC Input	1.6 Ampere maximum at 100-240 Volts, 50/60 Hz
Power Adapter - DC Output	5 Ampere maximum at 12 Volts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Non-Operating Temperature	-20°C to +75°C (-4°F to +167°F)
Non-Operating Humidity	5% to 90%, non-condensing at 45°C (113°F)
Acoustic Noise	No noise
System Cooling Requirements	Designed to operate in an air-conditioned environment

Sourcefire 3D Sensor 2100/2500/3500/4500 Specifications

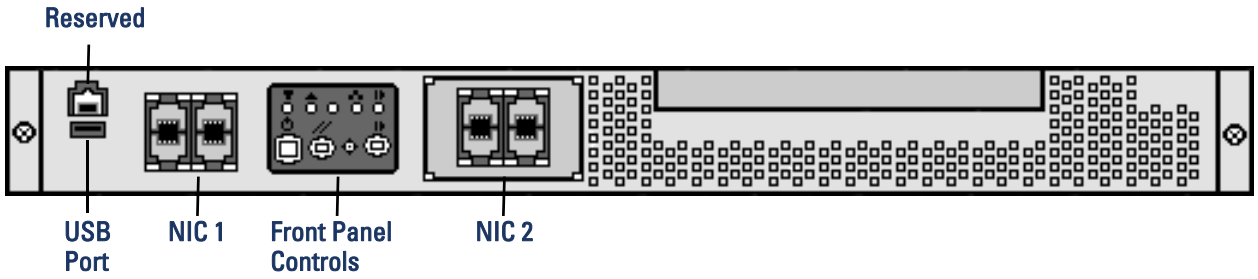
The 3D2100, 3D2500, 3D3500, and 3D4500 models of the 3D Sensor are delivered on a 1U appliance.

The 3D2500, 3D3500 and 3D4500 Sensors can ship with four-port fiber interfaces (with bypass capability). Optical connections are LC (Local Connectors). Supported media is 1000BASE-SX multi-mode optical fiber. Note that the 3D2100, 3D2500, 3D3500, and 3D4500 do not have functional serial ports.

See the following sections for more information about the appliance:

- Chassis Front View on page 94
- Chassis Rear View on page 100
- Physical and Environmental Parameters on page 102

Chassis Front View



The System Components: Front View table describes the features on the front of the appliance.

System Components: Front View

Feature	Description
USB port	Allows you to attach a keyboard to the sensor. You also must use a USB port to restore the sensor to its original factory-delivered state, using the thumb drive delivered with the appliance.
NIC 1: quad-port copper bypass	The NIC 1 slot contains four 10/100/1000 copper Ethernet bypass interfaces in a paired configuration. You can use this NIC to passively monitor up to four separate network segments. You can also use paired interfaces in inline or inline with fail open mode, which allows you to deploy the sensor as an intrusion prevention system. If you want to take advantage of the NIC's automatic fail-open capability, which allows traffic to flow even if the sensor fails or loses power, you must use the two interfaces on the left or the two interfaces on the right (top and bottom, on the same NIC) as paired interfaces bridging a network segment. You cannot use any two interfaces, and for Sourcefire appliances with a second NIC, you cannot use interfaces on different NICs. You must also use the web interface to configure the interface set as inline with fail open. Otherwise, you can use any two of the interfaces on the sensor as an inline pair.

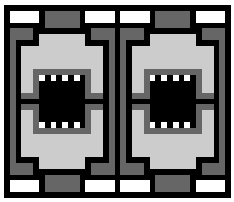
System Components: Front View (Continued)

Feature	Description
NIC 2: no NIC OR quad-port copper bypass OR quad-port fiber bypass	The NIC 2 slot configuration depends on your sensor model: • The 3D2100 has a slot cover in place of a second NIC. • The 3D2500 may have no NIC (slot cover) in the NIC 2 slot, or it may have either a quad-port copper bypass NIC or a quad-port fiber bypass NIC. • The 3D3500 and 3D4500 may have either a quad-port copper bypass NIC or a quad-port fiber NIC in the NIC 2 slot. The quad-port fiber bypass NIC contains four gigabit interfaces in a paired configuration, and accepts LC-type (Local Connector) optical transceivers. You can use this NIC to passively monitor up to four separate network segments. You can also use paired interfaces in inline or inline with fail open mode, which allows you to deploy the sensor as an intrusion prevention system. If you want to take advantage of the NIC's automatic fail-open capability, which allows traffic to flow even if the sensor fails or loses power, you must use the two interfaces on the left or the two interfaces on the right (top and bottom, on the same NIC) as paired interfaces bridging a network segment. You cannot use any two interfaces, and for Sourcefire appliances with a second NIC, you cannot use interfaces on different NICs. You must also use the web interface to configure the interface set as inline with fail open. Otherwise, you can use any two of the interfaces on the sensor as an inline pair.
Front panel controls	Houses five LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel Controls on page 98.

The front of the 3D Sensor includes controls and LED displays for the following:

- Quad-Port Copper Bypass NIC on page 96
- Quad-Port Fiber Bypass NIC on page 97
- Front Panel Controls on page 98

Quad-Port Copper Bypass NIC

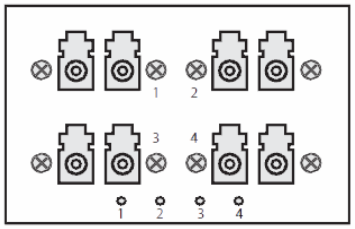


The Quad-Port Copper Bypass NIC LEDs table describes the LEDs associated with the network interfaces on the quad-port copper bypass NIC. Note that the LEDs on NIC1 and NIC2 are reversed.

Quad-Port Copper Bypass NIC LEDs

LED	Description
Activity NIC1: Left NIC2: Right	Indicates traffic activity: • Blinking green means that packets are being sent or received. • Solid green means that there is no traffic. If the activity light is off and the link light is blinking amber, then the inline interface set for this interface is in bypass mode (it has failed open).
Link NIC1: Right NIC2: Left	Indicates link status and the speed of the connection. • An amber light indicates 1Gbps. • A green light indicates 100 Mbps. • No light indicates 10 Mbps or no traffic. If the activity light is off and the link light is blinking amber, then the inline interface set for this interface is in bypass mode (it has failed open).

Quad-Port Fiber Bypass NIC



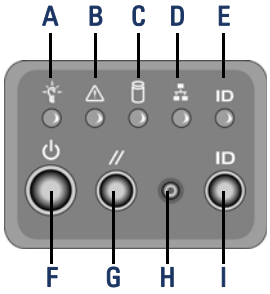
Quad-Port Fiber Bypass NIC LEDs

The quad-port fiber bypass card has four LEDs, each of which corresponds to one of the interfaces. Each interface is labeled with a number (1, 2, 3, and 4, counterclockwise, starting with the top left). Each LED is also labeled with a number so that you can easily tell which LED corresponds to which interface.

The LEDs indicate activity on their corresponding interfaces; a random flash pattern indicates that packets are being sent or received. If, however, an inline interface set is in bypass mode (it has failed open), the pair of LEDs (either 1 and 2, or 3 and 4) corresponding to that interface set flash in a regular, alternating pattern.

Front Panel Controls

The following diagram illustrates the front panel controls and LEDs.



Front Panel Components

A	Power LED	F	Power button
B	System status LED	G	Non-maskable interrupt button
C	Hard drive activity LED	H	Reset button
D	NIC activity LED	I	ID button
E	ID LED		

The front panel of the chassis houses five LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel

Front Panel LEDs

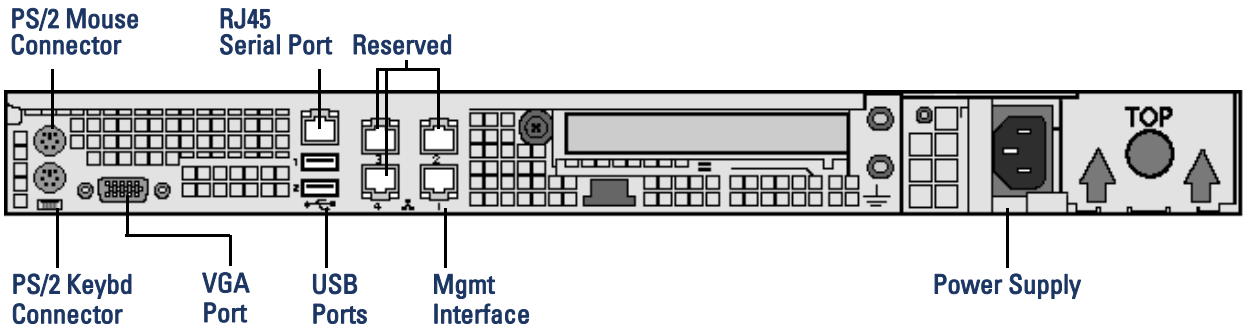
LED	Description
Power	Indicates whether the system has power: • A green light indicates the power is on. • No light indicates the power is off.
System status	Indicates system status: • A solid green light indicates the system is operating normally. • A blinking green light indicates the system is operating in a degraded condition. • An amber light indicates the system is in a critical or non-recoverable condition. • No light indicates the Power On Self Tests (POST) is underway or the system has stopped. **IMPORTANT!** The amber status light takes precedence over the green status light. When the amber LED is on or blinking, the green LED is off. For more information, see the System Status table on page 100.
Hard drive activity	Indicates hard drive activity: • A blinking green light indicates the fixed disk drive is active. • An amber light indicates there is a fixed disk drive fault. • No light indicates no drive activity or the system is powered off.
NIC activity	Indicates activity between the system and the network: • A green light indicates activity. • No light indicates no activity.
System ID	Helps identify a system installed in a high-density rack with other similar systems. • A blue light indicates the ID button is pressed and a blue light appears at the rear of the appliance. • No light indicates the ID button is not pressed.

The System Status table describes the conditions under which the system status LED might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
PS/2 mouse connector PS/2 keyboard connector VGA port USB ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
RJ45 serial port	Allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Power supply	Provides power to the sensor through an AC power source. **IMPORTANT!** The 3D3500 and 3D4500 include redundant AC power sources; the 3D2100 and 3D2500 do not.

The RJ45 to DB-9 Adapter Pin-Out table list the signals on a typical DB-9 serial connector and the corresponding pins on the 3D Sensor RJ45 serial connectors. You can use this table to construct an adapter for serial connections.

RJ45 to DB-9 Adapter Pin-Out

DB-9 Pin	Signal	Description	RJ45 Pin
1	DCD/DSR	Data Carrier Detect/Data Set Ready	7
2	RD	Receive Data	6
3	TD	Transmit Data	3
4	DTR	Data Terminal Ready	2
5	GND	Ground	4 & 5
6		No Connection	
7	RTS	Request To Send	1

RJ45 to DB-9 Adapter Pin-Out (Continued)

DB-9 Pin	Signal	Description	RJ45 Pin
8	CTS	Clear To Send	8
9		No Connection	

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the LED is on, the link is up; if it is off, there is no link.
Right (Activity)	Indicates activity on the port. A blinking LED indicates activity; if the LED is off, there is no activity.

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	1U
Dimensions (D x W x H)	20.0 x 17 x 1.7 (in inches) 50.8 x 43.0 x 4.32 (in centimeters)
Fiber Interfaces	1Gb Multimode Fiber (850nm) Maximum distance 902 feet or 275 meters
Copper Interfaces	quad-port 10/100/1000 copper Ethernet bypass interfaces in a paired configuration
Power Supply	6.3 Ampere maximum at 100-127 Volts, 50/60 Hz 3.2 Ampere maximum at 220-240 Volts, 50/60Hz
Operating Temperature	10°C to 35°C (50°F to 95°F)

Physical and Environmental Parameters (Continued)

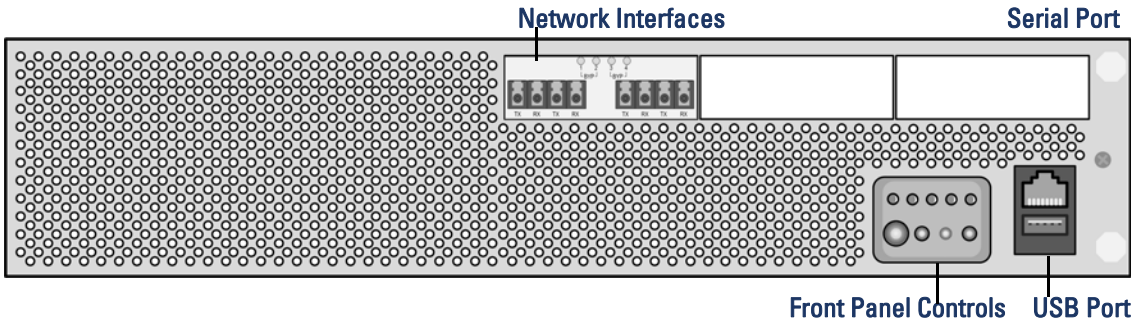
Parameter	Description
Non-Operating Temperature	-40°C to 70°C (-40°F to 158°F)
Operating Humidity	5% to 85%
Non-Operating Humidity	95%, non-condensing at 23°C to 40°C (73°F to 104°F)
Altitude	0 to 900m (2,950 ft.) at 35°C (90°F), temperature decremented by 1°C for each additional 300m (985 ft.)
Acoustic Noise	55 dBA (rack mount) in an idle state at typical office ambient temperature
Operating Shock	No errors with half a sine wave shock of 2G (with 11 millisecond duration)
RoHS	Complies with RoHS Directive 2002/95/EC

Sourcefire 3D Sensor 6500 Specifications

The 3D6500 model of the 3D Sensor is delivered on a 2U appliance. See the following sections for more information about the appliance.

- Chassis Front View on page 103
- Chassis Rear View on page 109
- Physical and Environmental Parameters on page 111

Chassis Front View



The System Components: Front View table describes the features on the front of the appliance.

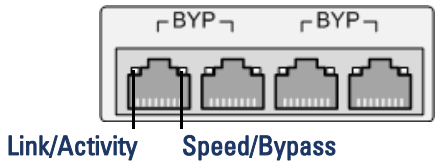
System Components: Front View

Feature	Description
Network Interfaces	Up to three network interface cards can be installed in the 3D Sensor.
Front panel controls	Houses five LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel Controls on page 106.
Front panel RJ45 serial port	The RJ45 serial port allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. **IMPORTANT!** You cannot use the front and rear panel serial ports at the same time.
Front panel USB port	The USB port allows you to attach a keyboard to the sensor. You also must use a USB port to restore the sensor to its original factory-delivered state, using the thumb drive delivered with the appliance.

The front of the 3D Sensor includes controls and LED displays for the following:

- Copper NIC on page 104
- Fiber NIC on page 105
- Front Panel Controls on page 106

Copper NIC



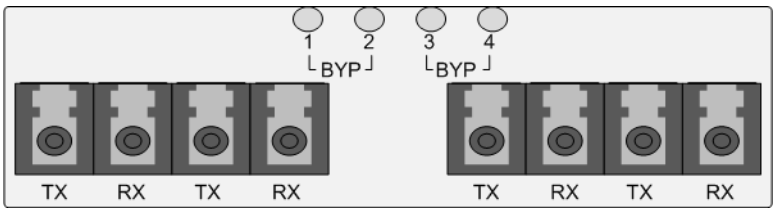
The Copper NIC LEDs table describes the LEDs associated with the network interfaces on the 12-port copper bypass 3D6500 configuration.

IMPORTANT! When using NetOptics copper taps with 3D6500 sensor 1Gb copper interfaces, you must keep the cable length between the tap and sensor to no more than 25 feet.

Copper NIC LEDs

Status	Description
Both LEDs Off	The interface does not have link and is not in bypass mode.
Link/Activity Steady Green	The interface has link but is not passing traffic.
Link/Activity Blinking Green	The interface has link and is passing traffic.
Speed/Bypass Blinking Green	The speed of the traffic on the interface is 10Mb.
Speed/Bypass Steady Green	The speed of the traffic on the interface is 100Mb.
Speed/Bypass Steady Amber	The speed of the traffic on the interface is 1Gb.
Speed/Bypass Blinking Amber	The interface is in bypass mode; that is, it has failed open.

Fiber NIC



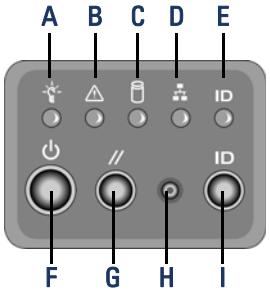
The Fiber NIC LEDs table describes the LEDs associated with the network interfaces on the quad-port fiber bypass NIC 3D6500 configuration.

Fiber NIC LEDs

Status	Description
Off	The interface does not have link and is not in bypass mode.
Steady Green	The interface has link but is not passing traffic.
Blinking Green	The interface has link and is passing traffic.
Blinking Amber	The interface is in bypass mode; that is, it has failed open.

Front Panel Controls

The following diagram illustrates the front panel controls and LEDs.



Front Panel Components

A	Power LED	F	Power button
B	System status LED	G	Reset button
C	Hard drive activity LED	H	Non-maskable interrupt button
D	NIC activity LED	I	ID button
E	ID LED		

The front panel of the chassis houses five LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel.

Front Panel LEDs

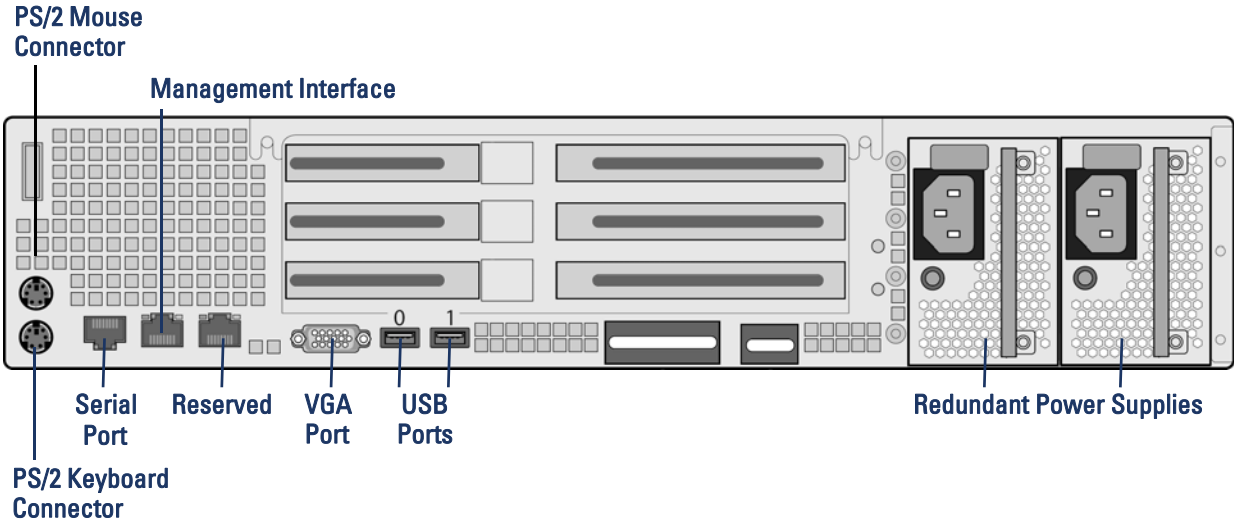
LED	Description
Power	Indicates whether the system has power: • Green indicates that the system has power. • If the LED is off, the system does not have power.
System status	Indicates the system status: • Green indicates the system is operating normally. • Blinking green indicates the system is operating in a degraded condition. • Blinking amber indicates the system is in a non-critical condition. • Amber indicates the system is in a critical or non-recoverable condition. • If the LED is off, the system is starting up or off. **IMPORTANT!** The amber status light takes precedence over the green status light. When the amber LED is on or blinking, the green LED is off. See the System Status table on page 108 for more information.
Hard drive activity	Indicates the hard drive status: • Blinking green indicates the fixed disk drive is active. • Amber indicates a fixed disk drive fault. • If the LED is off, there is no drive activity or the system is powered off.
NIC activity	Indicates whether there is any network activity: • Green indicates there is network activity. • If the LED is off, there is no network activity.
System ID	The blue LED indicates that the ID button is pressed.

The System Status table describes the conditions under which the system status LED might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
PS/2 mouse connector PS/2 keyboard connector VGA port USB ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection. You also must use a USB port to restore the sensor to its original factory-delivered state, using the thumb drive delivered with the appliance.
RJ45 serial port	Allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. See the RJ45 to DB-9 Adapter Pin-Out table on page 111. **IMPORTANT!** You cannot use the front and the rear panel serial ports at the same time.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Redundant power supplies	Provides power to the sensor through an AC power source.

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Activity)	Indicates activity on the port. A blinking LED indicates activity; if the LED is off, there is no activity.
Right (Link)	Indicates whether the link is up. If the LED is on, the link is up; if it is off, there is no link.

The power supply modules are located on the rear of the appliance. The Power Supply LEDs table describes the LEDs associated with the management interface.

Power Supply LEDs

LED	Description
Off	The power supply is not plugged in.
Amber	No power supplied to this module. OR A power supply critical event such as module failure, a blown fuse, or a fan failure; the power supply shuts down.
Blinking Amber	A power supply warning event, such as high temperature or a slow fan; the power supply continues to operate.
Blinking Green	AC input is present; volts on standby, the power supply is switched off.
Green	The power supply is plugged in and on.

The RJ45 to DB-9 Adapter Pin-Out table list the signals on a typical DB-9 serial connector and the corresponding pins on the 3D Sensor RJ45 serial connectors. You can use this table to construct an adapter for serial connections.

RJ45 to DB-9 Adapter Pin-Out

DB-9 Pin	Signal	Description	RJ45 Pin
1	DCD/DSR	Data Carrier Detect/Data Set Ready	7
2	RD	Receive Data	6
3	TD	Transmit Data	3
4	DTR	Data Terminal Ready	2
5	GND	Ground	4 & 5
6		No Connection	
7	RTS	Request To Send	1
8	CTS	Clear To Send	8
9		No Connection	

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	2U
Dimensions (D x W x H)	20.0 x 16.93 x 3.5 (in inches) 50.8 x 43.0 x 8.9 (in centimeters)
Copper NIC	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m
Fiber SX (1Gb) NIC	Quad Fiber Bypass 1000Base-SX with LC connectors Cable and Distance: Multimode Fiber (850nm) at 550m

Physical and Environmental Parameters (Continued)

Parameter	Description
Fiber SR or LR (10Gb) NIC	Quad or dual Fiber Bypass 10GBase with LC connectors Cable and Distance: • LR is Singlemode Fiber (1310nm) at 5000m (Available) • SR is Multimode Fiber (850nm) at 300m (Standard)
Power Supply	Dual 600W redundant power supplies designed for 120/240 VAC sources with up to 20 amperes overcurrent protection. Overall current rating is less than 6 amperes.
Operating Temperature	10°C to 35°C (50°F to 95°F)
Non-Operating Temperature	-40°C to 70°C (-40°F to 158°F)
Operating Humidity	5% to 85%
Non-Operating Humidity	50% to 90%, non-condensing with a maximum wet bulb of 28°C at temperatures from 25°C to 35°C (77°F to 95°F)
Altitude	0 to 1800m (5900 ft.) at 40°C (104°F), temperature decremented by 1°C for each additional 300m (985 ft.)
Acoustic Noise	< 7.0 dBA (rack mount) in an idle state at typical office ambient temperature
Operating Shock	No errors with half a sine wave shock of 2G (with 11 millisecond duration)
RoHS	Complies with RoHS Directive 2002/95/EC

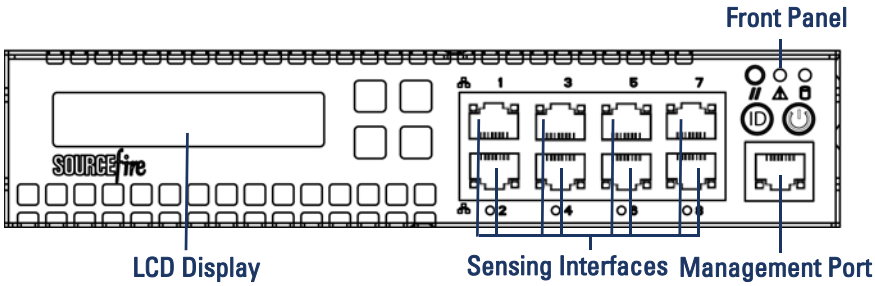
Sourcefire 3D Sensor 7010/7020/7030 Specifications

The 3D7010, 3D7020, and 3D7030 3D Sensors are 1U appliances, and are delivered with eight-port copper sensing interfaces, each with bypass capability.

See the following sections for more information:

- Chassis Front View on page 113
- Chassis Rear View on page 118
- Physical and Environmental Parameters on page 119

Chassis Front View

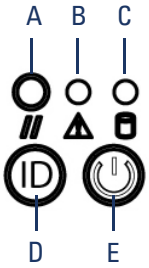


The System Components: Front View table describes the features on the front of the appliance.

System Components: Front View

Feature	Description
LCD display	Operates in multiple modes to configure the sensor, display error messages, and view system status. For more information, see LCD Panel Components on page 116.
Sensing interfaces	Contain the sensing interfaces that connect to the network. For information, see Sensing Interfaces on page 116.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Front panel	Houses LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel on page 114.

Front Panel



Front Panel Components

A	Reset button	**D**	System ID button
B	System status LED	**E**	Power button and LED
C	Hard drive activity LED		

The front panel of the chassis houses LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel.

Front Panel LEDs

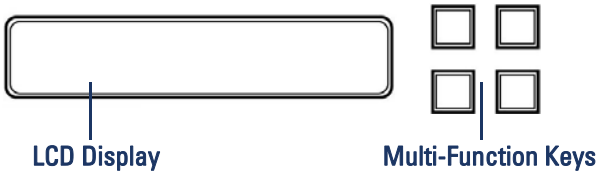
LED	Description
Reset button	Allows you to reboot the appliance without disconnecting it from the power supply.
System status	Indicates the system status: • A green light indicates the system is powered up and operating normally, or powered down and attached to AC power. • An amber light indicates a system fault. See the System Status table on page 115 for more information.
Hard drive activity	Indicates the hard drive status: • A blinking green light indicates the fixed disk drive is active. • If the light is off, there is no drive activity or the system is powered off.
System ID	When pressed, the ID button displays a blue light, and a blue light is visible at the rear of the chassis.
Power button and LED	Indicates whether the appliance has power: • A green light indicates that the appliance has power and the system is on. • No light indicates the system is shut down or does not have power.

The System Status table describes the conditions under which the system status LEDs might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connection first. Shut down the 3D Sensor, disconnect the power cord, reconnect the power cord to reseat it, and then restart the 3D Sensor.

LCD Panel



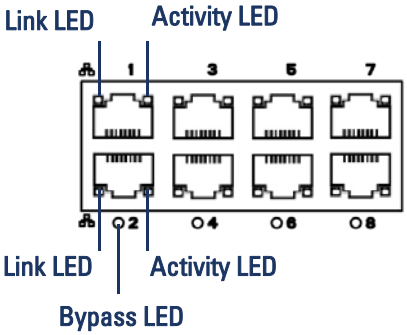
LCD Panel Components

Components	Description
LCD display	Displays two lines of up to 17 alphanumeric characters. The last two characters of each line indicate the actions of the two keys at the end of that line.
Multi-Function keys	Provides a means to navigate through the Menu Access Mode.

Sensing Interfaces

The 3D7010, 3D7020, and 3D7030 appliances are delivered with eight copper interfaces, each with bypass capability.

Eight-Port 1000BASE-T Copper Interfaces



Use the Copper Link/Activity LEDs and Copper Bypass LEDs tables to understand copper LEDs.

Copper Link/Activity LEDs

Status	Description
Both LEDs Off	The interface does not have link.
Link Amber	The speed of the traffic on the interface is 10Mb or 100Mb.
Link Green	The speed of the traffic on the interface is 1Gb.
Activity Blinking Green	The interface has link and is passing traffic.

Copper Bypass LEDs

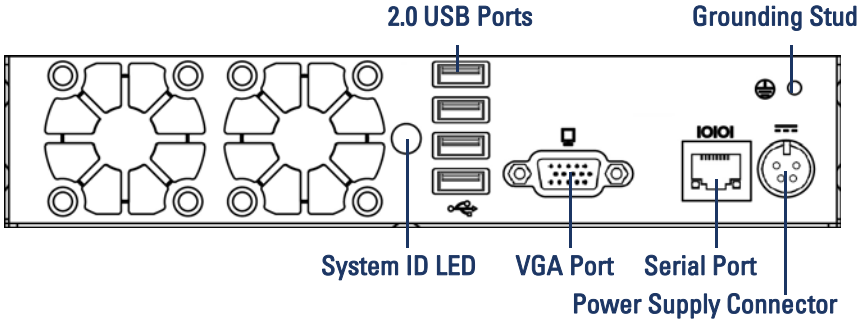
Status	Description
Off	The interface pair is not in bypass mode or has no power.
Steady Green	The interface pair is ready to enter bypass mode.
Steady Amber	The interface pair has been placed in bypass mode and is not inspecting traffic.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

The 10/100/1000 management interface is located on the front of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the light is on, the link is up. If the light is off, there is no link.
Right (Activity)	Indicates activity on the port. If the light is blinking, there is activity. If the light is off, there is no activity.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
System ID LED	Helps identify a system installed in a high-density rack with other similar systems. The blue LED indicates that the ID button is pressed.
2.0 USB ports VGA port Serial port	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
Grounding stud	Allows you to connect the appliance to the common bonding network. See the *Sourcefire 3D7010/7020/7030 Power Supply Requirements* for more information.
12V Power supply connector	Provides a power connection to the sensor through an AC power source.

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	1U, half rack width
Dimensions (D x W x H)	Single chassis: 12.49" x 7.89" x 1.66" (31.74 cm x 20.04 cm x 4.21 cm) 2-Chassis Tray: 25.05" x 17.24" x 1.73" (63.62 cm x 43.8 cm x 4.44 cm)
Chassis Weight Maximum Installed	Chassis: 7 pounds (3.17 kg) Single chassis and power supply in tray: 17.7 pounds (8.03 kg) Double chassis and power supplies in single tray: 24.7 pounds (11.2 kg)
Copper 1000BASE-T	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m
Power Supply	200W AC power supply Voltage: 100VAC to 240VAC nominal (90VAC to 264VAC maximum) Current: 2A maximum over the full range Frequency range: 50/60 Hz nominal (47Hz to 63Hz maximum)
Operating Temperature	0°C to 40°C (32°F to 104°F)
Non-Operating Temperature	-20°C to 70°C (-29°F to 158°F)
Operating Humidity	5% to 95%, noncondensing Operation beyond these limits is not guaranteed and not recommended.
Non-Operating Humidity	0% to 95%, non-condensing Store the unit below 95% non-condensing relative humidity. Acclimate below maximum operating humidity at least 48 hours prior to placing the unit in service.
Altitude	0 ft (sea level) to 5905 ft (0 to 1800m)
Cooling Requirements	682 BTU/hour You must provide sufficient cooling to maintain the appliance within its required operating temperature range. Failure to do this may cause a malfunction or damage to the appliance.

Physical and Environmental Parameters (Continued)

Parameter	Description
Acoustic Noise	53 dBA when idle. 62 dBA at full processor load.
Operating Shock	No errors with half a sine wave shock of 5G(with 11 msec. duration)
Airflow	20 ft^3 (0.57m^3) per minute Airflow through the appliance enters at the front and exits at the rear, with no side ventilation.

Sourcefire 3D Sensor 7110/7120 Specifications

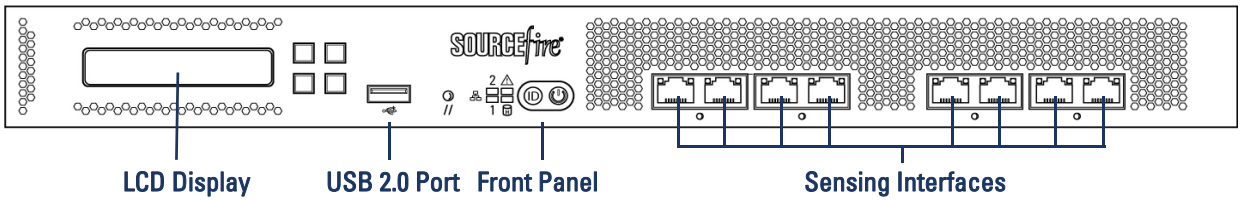
The 3D7110 and 3D7120 3D Sensors are 1U appliances, and are delivered with dual quad-port copper or eight-port fiber sensing interfaces, each with bypass capability.

See the following sections for more information:

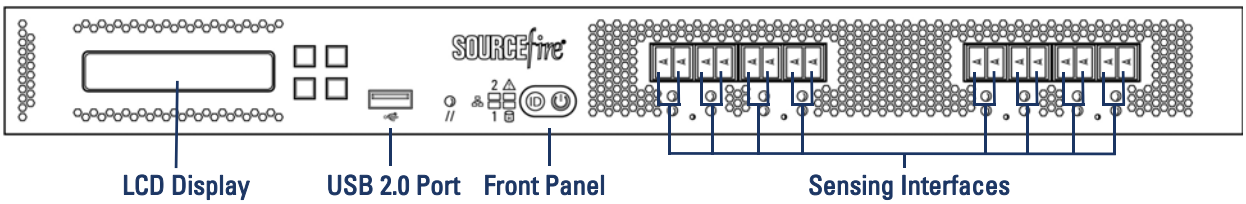
- Chassis Front View on page 120
- Chassis Rear View on page 126
- Physical and Environmental Parameters on page 128

Chassis Front View

Copper Interfaces



Fiber Interfaces

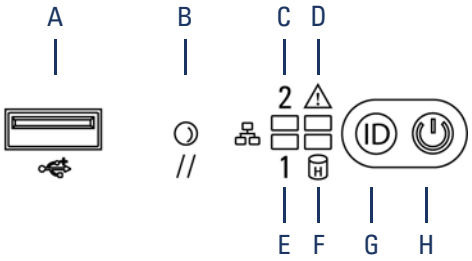


The System Components: Front View table describes the features on the front of the appliance.

System Components: Front View

Feature	Description
LCD display	Operates in multiple modes to configure the sensor, display error messages, and view system status. For more information, see LCD Panel Components on page 124.
Front panel USB 2.0 port	The USB port allows you to attach a keyboard to the sensor.
Front panel	Houses LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel on page 121.
Sensing interfaces	Contain the sensing interfaces that connect to the network. For information, see Sensing Interfaces on page 124.

Front Panel



Front Panel Components

A	USB 2.0 connector	**E**	NIC1 activity LED
B	Reset button	**F**	Hard drive activity LED
C	NIC2 activity LED	**G**	ID button
D	System status LED	**H**	Power button and LED

The front panel of the chassis houses LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel.

Front Panel LEDs

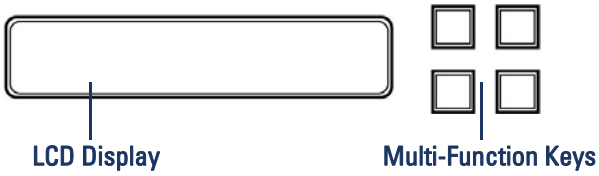
LED	Description
NIC activity (1 and 2)	Indicates whether there is any network activity: • A green light indicates there is network activity. • No light indicates there is no network activity.
System status	Indicates the system status: • No light indicates the system is operating normally, or off. • A red light indicates a system error. See the System Status table on page 123 for more information.
Reset button	Allows you to reboot the appliance without disconnecting it from the power supply.
Hard drive activity	Indicates the hard drive status: • A blinking green light indicates the fixed disk drive is active. • An amber light indicates a fixed disk drive fault. • If the LED is off, there is no drive activity or the system is powered off.
System ID	A blue light is visible at the rear of the chassis when the ID button is pressed.
Power button and LED	Indicates whether the appliance has power: • A green LED indicates that the appliance has power and the system is on. • A blinking green LED indicates that the appliance has power and is shut down. • If the LED is off, the system does not have power.

The System Status table describes the conditions under which the system status LEDs might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

LCD Panel



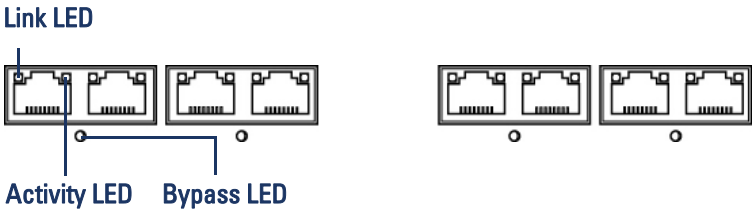
LCD Panel Components

Components	Description
LCD display	Displays two lines of up to 17 alphanumeric characters. The last two characters of each line indicate the actions of the two keys at the end of that line.
Multi-Function keys	Provides a means to navigate through the Menu Access Mode.

Sensing Interfaces

The 3D7110 and 3D7120 devices are delivered with eight-port copper or eight-port fiber interfaces, each with bypass capability.

Four 1000BASE-T Copper Bypass Interfaces



Use the Copper Link/Activity LEDs and Copper Bypass LEDs tables to understand copper LEDs.

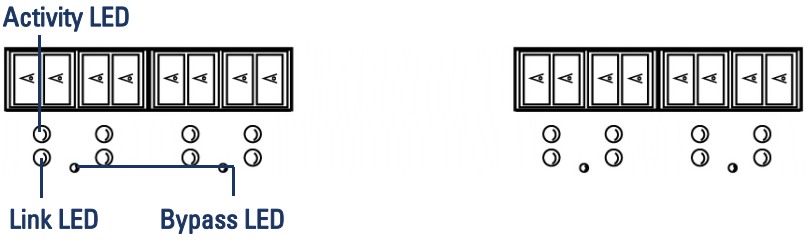
Copper Link/Activity LEDs

Status	Description
Both LEDs Off	The interface does not have link.
Link Amber	The speed of the traffic on the interface is 10Mb or 100Mb.
Link Green	The speed of the traffic on the interface is 1Gb.
Activity Blinking Green	The interface has link and is passing traffic.

Copper Bypass LEDs

Status	Description
Off	The interface pair is not in bypass mode or has no power.
Steady Green	The interface pair is ready to enter bypass mode.
Steady Amber	The interface pair has been placed in bypass mode and is not inspecting traffic.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Eight-Port 1000BASE-SX Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

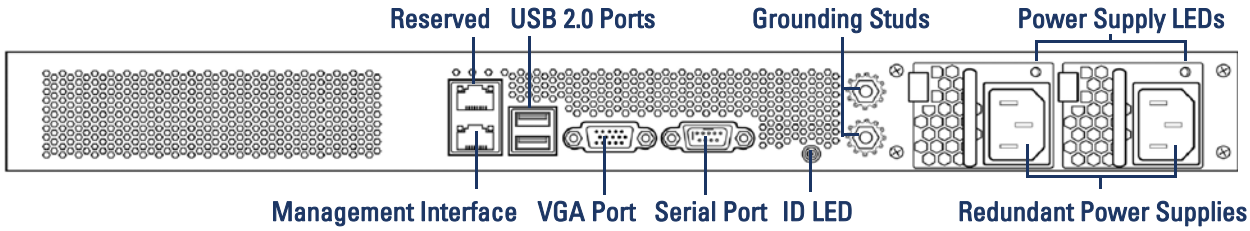
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	For an inline interface: the light is on when the interface has activity. If dark, there is no activity. For a passive interface: the LED is non-functional.
Bottom (Link)	For an inline or passive interface: the light is on when the interface has link. If dark, there is no link.

Fiber Bypass LEDs

Status	Description
Off	The interface pair is not in bypass mode or has no power.
Steady Green	The interface pair is ready to enter bypass mode.
Steady Amber	The interface pair has been placed in bypass mode and is not inspecting traffic.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
VGA port USB ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
System ID LED	Helps identify a system installed in a high-density rack with other similar systems. The blue LED indicates that the ID button is pressed.
Grounding studs	Allows you to connect the appliance to the Common Bonding Network. See power information for the 3D7110/7120 on page 197 for more information.
Redundant power supplies	Provides power to the sensor through an AC power source.
Power supply LEDs	Indicates the status of the power supply. See Power Supply LED on page 128.

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the LED is on, the link is up. If the LED is off, there is no link.
Right (Activity)	Indicates activity on the port. If the LED is blinking, there is activity. If the LED is off, there is no activity.

The power supply modules are located on the rear of the appliance. The Power Supply LED table describes the LED associated with the management interface.

Power Supply LED

LED	Description
Off	The power cord is not plugged in.
Red	No power supplied to this module. OR A power supply critical event such as module failure, a blown fuse, or a fan failure; the power supply shuts down.
Blinking Red	A power supply warning event, such as high temperature or a slow fan; the power supply continues to operate.
Blinking Green	AC input is present; volts on standby, the power supply is switched off.
Green	The power supply is plugged in and on.

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	1U
Dimensions (D x W x H)	21.6 x 19.0 x 1.73 inches (54.9 x 48.3 x 4.4 cm)
Weight Maximum Installed	27.5 pounds (12.5 kg)
Copper 1000BASE-T	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m
Fiber 1000BASE-SX	Fiber Bypass with LC connectors Cable and Distance: SX is Multimode Fiber (850nm) at 550m (Standard)

Physical and Environmental Parameters (Continued)

Parameter	Description
Power Supply	450W dual redundant (1+1) AC power supplies Voltage: 100VAC to 240VAC nominal (85VAC to 264VAC maximum) Current: 8A maximum over the full range, per supply 4A maximum for 187VAC to 264VAC, per supply Frequency range: 47Hz to 63Hz
Operating Temperature	5°C to 40°C (41°F to 104°F)
Non-Operating Temperature	-20°C to 70°C (-29°F to 158°F)
Operating Humidity	5% to 85% noncondensing
Non-Operating Humidity	5% to 90%, non-condensing with a maximum wet bulb of 28°C (82°F) at temperatures from 25°C to 35°C (77°F to 95°F) Store the unit below 95% non-condensing relative humidity. Acclimate below maximum operating humidity at least 48 hours prior to placing the unit in service.
Altitude	0 ft (sea level) to 5905 ft (0 to 1800m)
Cooling Requirements	900 BTU/hour You must provide sufficient cooling to maintain the appliance within its required operating temperature range. Failure to do this may cause a malfunction or damage to the appliance.
Acoustic Noise	64 dBA at full processor load, normal fan operation Meets GR-63-CORE 4.6 Acoustic Noise
Operating Shock	Complies with Bellecore GR-63-CORE standards
Airflow	140 ft^3 (3.9m^3) per minute Airflow through the appliance enters at the front and exits at the rear, with no side ventilation.

Sourcefire 3D Sensor 8120/8130/8140 Specifications

The 3D8120, 3D8130, 3D8140 3D Sensors are 1U appliances. These sensors can be shipped fully assembled, or you can install the network modules (NetMods) that contain the sensing interfaces into the chassis. Assemble your sensor before installing the Sourcefire 3D System. See the assembly instructions shipped with your modules.

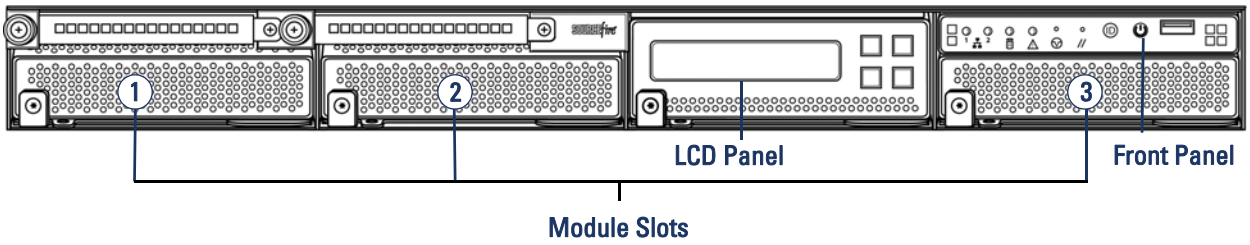
You can stack two 3D8140 sensors using one stacking cable. The 3D8120 and 3D8130 sensors do not support stacking.

Before installing your sensor, be sure to read the power supply documentation shipped with your sensor.

See the following sections for more information:

- Chassis Front View on page 130
- Chassis Rear View on page 138
- Physical and Environmental Parameters on page 140

Chassis Front View

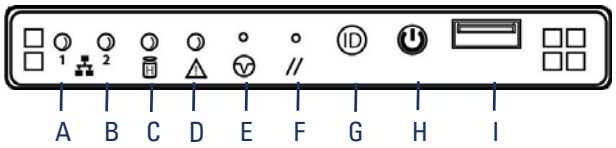


The System Components: Front View table describes the features on the front of the appliance.

System Components: Front View

Feature	Description
Module slots	Contain the NetMods or stacking module. For information on available NetMods, see Modules on page 134C.
LCD Panel	Operates in multiple modes to configure the sensor, display error messages, and view system status. For more information, see LCD Panel Components on page 134.
Front panel controls	Houses LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel Components on page 131.
Front panel USB port	The USB port allows you to attach a keyboard to the sensor.

Front Panel



Front Panel Components

A	NIC activity LED	**F**	Reset button
B	Reserved	**G**	ID button
C	Hard drive activity LED	**H**	Power button and LED
D	System status LED	**I**	USB 2.0 connector
E	Non-maskable interrupt button		

The front panel of the chassis houses LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel

Front Panel LEDs

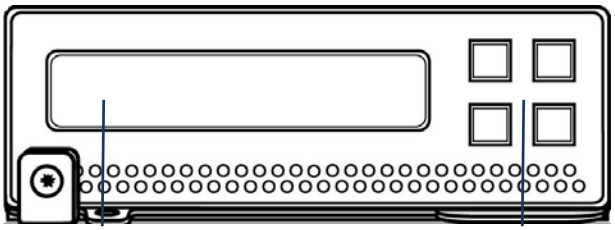
LED	Description
NIC activity	Indicates whether there is any network activity: • Green indicates there is network activity. • If the LED is off, there is no network activity.
Hard drive activity	Indicates the hard drive status: • Blinking green indicates the fixed disk drive is active. • Amber indicates a fixed disk drive fault. • If the LED is off, there is no drive activity or the system is powered off.
System status	Indicates the system status: • Green indicates the system is operating normally. • Blinking green indicates the system is operating in a degraded condition. • Blinking amber indicates the system is in a non-critical condition. • Amber indicates the system is in a critical or non-recoverable condition, or the system is starting up. • If the LED is off, the system is off. **IMPORTANT!** The amber status light takes precedence over the green status light. When the amber LED is on or blinking, the green LED is off. See the System Status table on page 133 for more information.
System ID	Turns on a blue light at the rear of the chassis when pressed.
Power button and LED	Indicates whether the system has power: • Green indicates that the system has power. • If the LED is off, the system does not have power.

The System Status table describes the conditions under which the system status LEDs might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

LCD Panel



LCD Panel Components

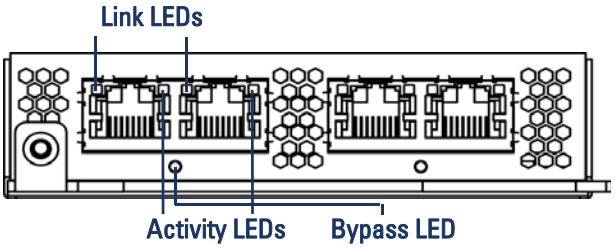
Components	Description
LCD display	Displays two lines of up to 17 alphanumeric characters. The last two characters of each line indicate the actions of the two keys at the end of that line.
Multi-Function keys	Provides a means to navigate through the Menu Access Mode.

Modules

The sensing interfaces for the 3D8120/8130/8140 appliances can be delivered with copper or fiber interfaces in the following modules:

- a quad-port 1000BASE-T copper interface with bypass capability. See Quad-Port 1000BASE-T Copper Bypass NetMod on page 134.
- a dual-port 10GBASE (MMSR or SMLR) fiber interface with bypass capability. See Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod on page 135 for more information.
- a quad-port 1000BASE-SX fiber interface with bypass capability. See Quad-Port 1000BASE-SX Fiber Bypass NetMod on page 136 for more information.
- a stacking module used to stack two identical 3D8140 sensors for more detection resources. See Stacking Module on page 137.

Quad-Port 1000BASE-T Copper Bypass NetMod



Use the Copper Link/Activity LEDs and Copper Bypass LEDs tables to understand copper LEDs.

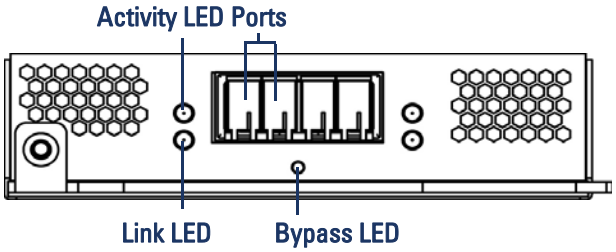
Copper Link/Activity LEDs

Status	Description
Link Amber	The speed of the traffic on the interface is 10Mb or 100Mb.
Link Green	The speed of the traffic on the interface is 1Gb.
Activity Blinking Green	The interface has link and is passing traffic.

Copper Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

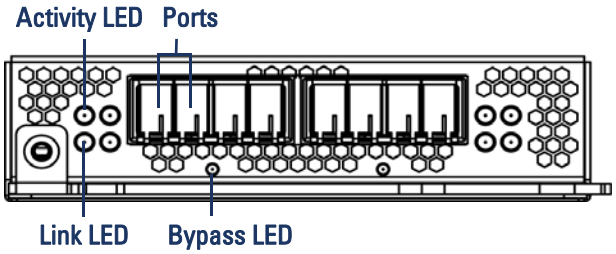
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	For an inline or passive interface: the light flashes when the interface has activity. If dark, there is no activity.
Bottom (Link)	For an inline interface: the light is on when the interface has link. If dark, there is no link. For a passive interface: the light is always on.

Fiber Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Quad-Port 1000BASE-SX Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

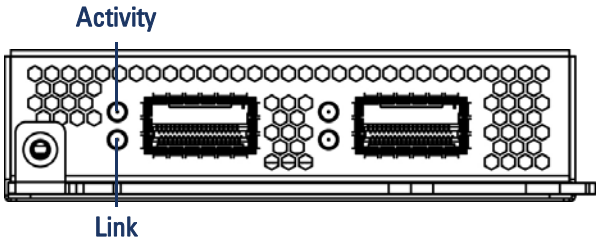
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	For an inline or passive interface: the light flashes when the interface has activity. If dark, there is no activity.
Bottom (Link)	For an inline interface: the light is on when the interface has link. If dark, there is no link. For a passive interface: the light is always on.

Fiber Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Stacking Module

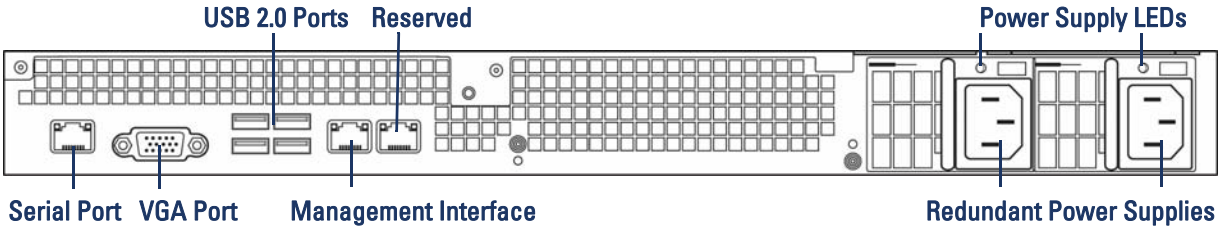


Use the Stacking LEDs table to understand stacking LEDs. Note that the stacking module is available only on the 3D8140 sensor.

Stacking LEDs

Status	Description
Top	Indicates activity on the interface. If dark, there is no activity.
Bottom	Indicates whether the interface has link. If dark, there is no link.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
VGA port USB ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
RJ45 serial port	Allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. See the RJ45 to DB-9 Adapter Pin-Out table on page 140.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Redundant power supplies	Provides power to the sensor through an AC power source.

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the LED is on, the link is up. If the LED is off, there is no link.
Right (Activity)	Indicates activity on the port. If the LED is blinking, there is activity. If the LED is off, there is no activity.

The power supply modules are located on the rear of the appliance. The Power Supply LED table describes the LED associated with the management interface.

Power Supply LED

LED	Description
Off	The power supply is not plugged in.
Amber	No power supplied to this module. OR A power supply critical event such as module failure, a blown fuse, or a fan failure; the power supply shuts down.
Blinking Amber	A power supply warning event, such as high temperature or a slow fan; the power supply continues to operate.
Blinking Green	AC input is present; volts on standby, the power supply is switched off.
Green	The power supply is plugged in and on.

The RJ45 to DB-9 Adapter Pin-Out table list the signals on a typical DB-9 serial connector and the corresponding pins on the 3D Sensor RJ45 serial connectors. You can use this table to construct an adapter for serial connections.

RJ45 to DB-9 Adapter Pin-Out

DB-9 Pin	Signal	Description	RJ45 Pin
1	DCD/DSR	Data Carrier Detect/Data Set Ready	7
2	RD	Receive Data	6
3	TD	Transmit Data	3
4	DTR	Data Terminal Ready	2
5	GND	Ground	4 & 5
6		No Connection	
7	RTS	Request To Send	1
8	CTS	Clear To Send	8
9		No Connection	

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	1U
Dimensions (D x W x H)	28.7 x 17.2 x 1.73 inches (72.8 x 43.3 x 4.4 cm)
Weight Maximum Installed	43.5 pounds (19.8 kg)
Copper 1000BASE-T NetMod	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m

Physical and Environmental Parameters (Continued)

Parameter	Description
Fiber 10GBASE MMSR or SMLR NetMod	Dual Fiber Bypass with LC connectors Cable and Distance: LR is Single-Mode at 5000m (available) SR is Multimode Fiber (850nm) at 550m (Standard)
Fiber 1000BASE-SX NetMod	Quad Fiber Bypass 1000BASE-SX with LC connectors Cable and Distance: SX is Multimode Fiber (850nm) at 550m (Standard)
Power Supply	650W dual redundant (1+1) power supplies (AC or DC) AC Voltage: 100VAC to 240 VAC nominal (85VAC to 264 VAC maximum) AC Current: 10A maximum over the full range, per supply 5A maximum for 187VAC to 264VAC, per supply AC Frequency range: 47Hz to 63Hz DC Voltage: -48VDC nominal referenced to RTN -40VDC to -72VDC maximum DC Current: 20A maximum, per supply
Operating Temperature	10°C to 35°C (50°F to 95°F)
Non-Operating Temperature	-20°C to 70°C (-29°F to 158°F)
Operating Humidity	5% to 85% noncondensing
Non-Operating Humidity	5% to 90%, non-condensing Store the unit below 95% non-condensing relative humidity. Acclimate below maximum operating humidity at least 48 hours prior to placing the unit in service.
Altitude	0 ft (sea level) to 6000 ft (0 to 1800m)
Cooling Requirements	1725 BTU/hour You must provide sufficient cooling to maintain the appliance within its required operating temperature range. Failure to do this may cause a malfunction or damage to the appliance.

Physical and Environmental Parameters (Continued)

Parameter	Description
Acoustic Noise	Max normal operating noise is 87.6 dB LWAd (high temp.) Typical normal operating noise is 80 dB LWAd.
Operating Shock	No errors with half a sine wave shock of 2G (with 11 msec. duration)
Airflow	160 ft^3 (4.5m^3) per minute Restriction of the airflow such as blocking the front or rear or enclosing the unit in a cabinet without sufficient clearance may cause the unit to overheat, even if the ambient temperature is in the operating range. Airflow through the appliance enters at the front and exits at the rear. The minimum recommended clearance in the front and rear is 7.9 inches (20cm). This minimum can only be used if you can ensure a supply of low temperature air at the front of the appliance.

Sourcefire 3D Sensor 8250/8260/8270/8290 Specifications

The 3D8250 3D Sensor is a 2U appliance. The sensor can be shipped fully assembled, or you can install the network modules (NetMods) that contain the sensing interfaces into the chassis. Assemble your sensor before installing the Sourcefire 3D System. See the assembly instructions shipped with your modules.

The 3D8260 configuration consists of one 3D8250 sensor and a dedicated secondary sensor. The primary sensor contains the sensing interfaces and a stacking module. The secondary sensor contains a stacking module. The rear view of each appliance is identical.

The 3D8270 configuration consists of one 3D8250 sensor and two dedicated secondary sensors. The primary sensor contains the sensing interfaces and a stacking module. The secondary sensors contains a stacking module. The rear view of each appliance is identical.

The 3D8290 configuration consists of one 3D8250 sensor and three dedicated secondary sensors. The primary sensor contains the sensing interfaces and a stacking module. The secondary sensors contains a stacking module. The rear view of each appliance is identical.

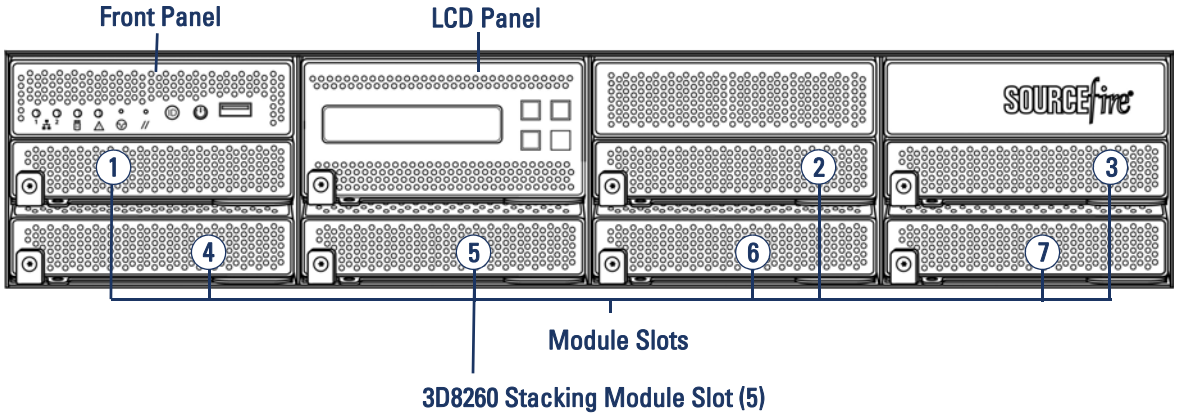
Before installing your sensor, be sure to read the power supply documentation shipped with your sensor.

See the following sections for more information:

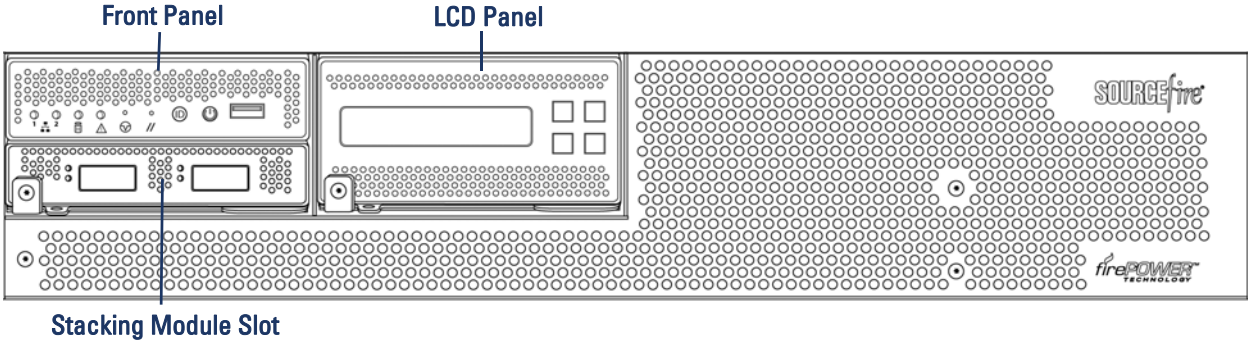
- Chassis Front View on page 143
- Chassis Rear View on page 152
- Physical and Environmental Parameters on page 154

Chassis Front View

3D8250 and 3D8260/8270/8290 Primary Sensor



3D8260/8270/8290 Secondary Sensor



The System Components: Front View table describes the features on the front of the appliance.

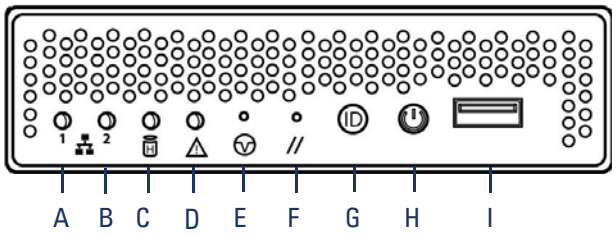
System Components: Front View

Feature	Description
Module slots	Contain the NetMods or stacking module. For information on available NetMods, see Modules on page 134C.
LCD Panel	Operates in multiple modes to configure the sensor, display error messages, and view system status. For more information, see LCD Panel Components on page 147.

System Components: Front View (Continued)

Feature	Description
Front panel controls	Houses LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Management Interface LEDs on page 153.
Front panel USB port	The USB 2.0 port allows you to attach a keyboard to the sensor.

Front Panel



Front Panel Components

A	NIC activity LED	**F**	Reset button
B	Reserved	**G**	ID button
C	Hard drive activity LED	**H**	Power button and LED
D	System status LED	**I**	USB 2.0 connector
E	Non-maskable interrupt button		

The front panel of the chassis houses LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel

Front Panel LEDs

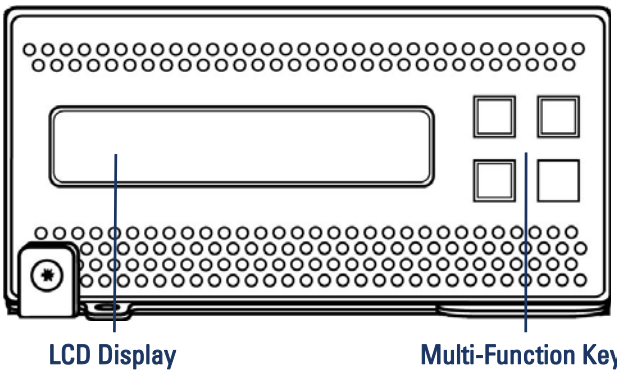
LED	Description
NIC activity	Indicates whether there is any network activity: • Green indicates there is network activity. • If the LED is off, there is no network activity.
Hard drive activity	Indicates the hard drive status: • Blinking green indicates the fixed disk drive is active. • Amber indicates a fixed disk drive fault. • If the LED is off, there is no drive activity or the system is powered off.
System status	Indicates the system status: • Green indicates the system is operating normally. • Blinking green indicates the system is operating in a degraded condition. • Blinking amber indicates the system is in a non-critical condition. • Amber indicates the system is in a critical or non-recoverable condition, or the system is starting up. • If the LED is off, the system is off. **IMPORTANT!** The amber status light takes precedence over the green status light. When the amber LED is on or blinking, the green LED is off. See the System Status table on page 146 for more information.
System ID	Turns on a blue light at the rear of the chassis when pressed.
Power button and LED	Indicates whether the system has power: • Green indicates that the system has power. • If the LED is off, the system does not have power.

The System Status table describes the conditions under which the system status LEDs might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

LCD Panel



LCD Panel Components

Components	Description
LCD display	Displays two lines of up to 17 alphanumeric characters. The last two characters of each line indicate the actions of the two keys at the end of that line.
Multi-Function keys	Provides a means to navigate through the Menu Access Mode.

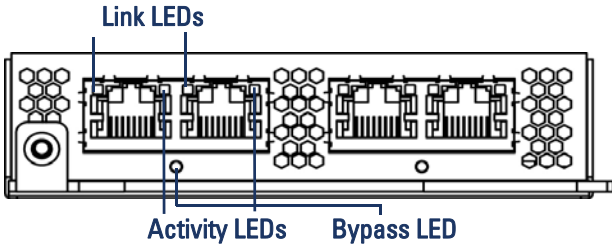
Modules

The sensing interfaces for the 8000 Series appliances can be delivered with copper or fiber interfaces in single-slot modules. The 2U 8000 Series appliance can be delivered with a combination of single-slot and dual-slot modules. Note that a dual-slot module occupies the vertical space of two modules.

The following single-slot modules are available:

- a quad-port 1000BASE-T copper interface with bypass capability. See Quad-Port 1000BASE-T Copper Bypass NetMod on page 148.
- a dual-port 10GBASE (MMSR or SMLR) fiber interface with bypass capability. See Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod on page 148 for more information.
- a quad-port 1000BASE-SX fiber interface with bypass capability. See Quad-Port 1000BASE-SX Fiber Bypass NetMod on page 149 for more information.
- a dual-port 40GBASE-SR4 fiber interface with bypass capability, available only for the 3D8270/8290 or a 40G-capable 3D8250/8260. A 40G-capable sensor displays `3D 8250-40G` on the LCD Panel. See Dual-port 40GBASE-SR4 Fiber Bypass NetMod on page 150 for more information.
- a stacking module used to stack two identical 8000 Series sensors for more detection resources. See Chassis Rear View on page 152.

Quad-Port 1000BASE-T Copper Bypass NetMod



Use the Copper Link/Activity LEDs and Copper Bypass LEDs tables to understand copper LEDs.

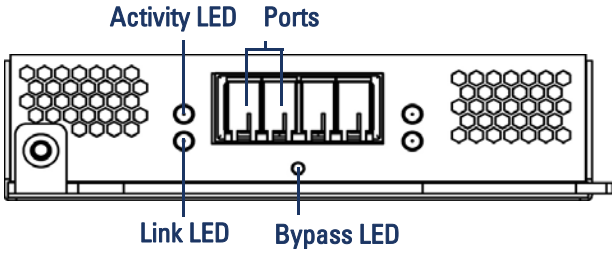
Copper Link/Activity LEDs

Status	Description
Link Amber	The speed of the traffic on the interface is 10Mb or 100Mb.
Link Green	The speed of the traffic on the interface is 1Gb.
Activity Blinking Green	The interface has link and is passing traffic.

Copper Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Dual-Port 10GBASE (MMSR or SMLR) Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

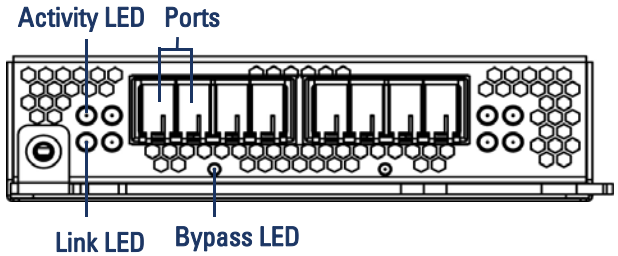
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	For an inline or passive interface: the light flashes when the interface has activity. If dark, there is no activity.
Bottom (Link)	For an inline interface: the light is on when the interface has link. If dark, there is no link. For a passive interface: the light is always on.

Fiber Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Quad-Port 1000BASE-SX Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

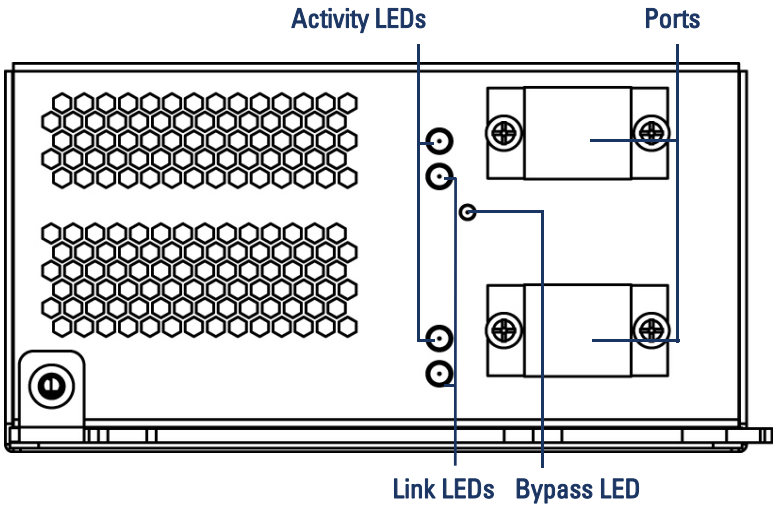
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	For an inline or passive interface: the light flashes when the interface has activity. If dark, there is no activity.
Bottom (Link)	For an inline interface: the light is on when the interface has link. If dark, there is no link. For a passive interface: the light is always on.

Fiber Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Dual-port 40GBASE-SR4 Fiber Bypass NetMod



Use the Fiber Link/Activity LEDs and Fiber Bypass LEDs tables to understand fiber LEDs.

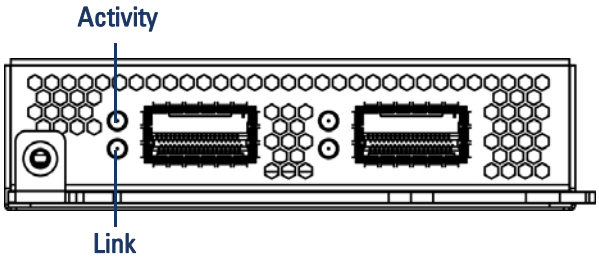
Fiber Link/Activity LEDs

Status	Description
Top (Activity)	The light flashes when the interface has activity. If dark, there is no activity.
Bottom (Link)	The light is on when the interface has link. If dark, there is no link.

Fiber Bypass LEDs

Status	Description
Off	The interface pair does not have link and is not in bypass mode, or has no power.
Steady Green	The interface pair has link and is passing traffic.
Steady Amber	The interface pair has been intentionally brought down.
Blinking Amber	The interface pair is in bypass mode; that is, it has failed open.

Stacking Module

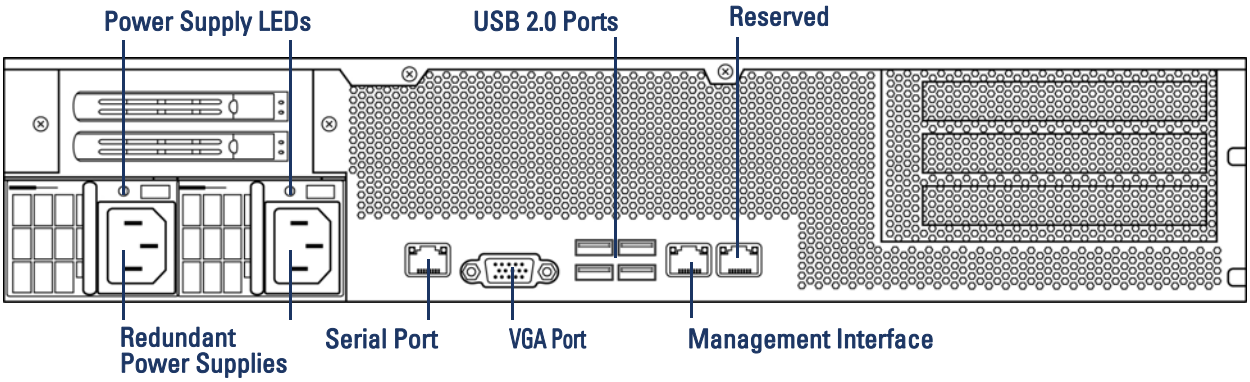


Use the Stacking LEDs table to understand stacking LEDs.

Stacking LEDs

Status	Description
Top (Activity)	Indicates activity on the interface. If dark, there is no activity.
Bottom (Link)	Indicates whether the interface has link. If dark, there is no link.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the 3D8250 and 3D8260 appliances.

System Components: Rear View

Feature	Description
VGA port USB 2.0 ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
RJ45 serial port	Allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. See the RJ45 to DB-9 Adapter Pin-Out table on page 154.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Redundant power supplies	Provides power to the sensor through an AC power source.

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Link)	Indicates whether the link is up. If the LED is on, the link is up. If the LED is off, there is no link.
Right (Activity)	Indicates activity on the port. If the LED is blinking, there is activity. If the LED is off, there is no activity.

The power supply modules are located on the rear of the appliance. The Power Supply LED table describes the LED associated with the management interface.

Power Supply LED

LED	Description
Off	The power supply is not plugged in.
Amber	No power supplied to this module. OR A power supply critical event such as module failure, a blown fuse, or a fan failure; the power supply shuts down.
Blinking Amber	A power supply warning event, such as high temperature or a slow fan; the power supply continues to operate.
Blinking Green	AC input is present; volts on standby, the power supply is switched off.
Green	The power supply is plugged in and on.

The RJ45 to DB-9 Adapter Pin-Out table list the signals on a typical DB-9 serial connector and the corresponding pins on the 3D Sensor RJ45 serial connectors. You can use this table to construct an adapter for serial connections.

RJ45 to DB-9 Adapter Pin-Out

DB-9 Pin	Signal	Description	RJ45 Pin
1	DCD/DSR	Data Carrier Detect/Data Set Ready	7
2	RD	Receive Data	6
3	TD	Transmit Data	3
4	DTR	Data Terminal Ready	2
5	GND	Ground	4 & 5
6		No Connection	
7	RTS	Request To Send	1
8	CTS	Clear To Send	8
9		No Connection	

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	2U/4U/6U/8U
Dimensions (D x W x H) per 2U	29.0 x 17.2 x 3.48 inches (73.5x 43.3 x 88.2 cm)
Weight Maximum Installed per 2U	58 pounds (25.3 kg)
Copper 1000BASE-T NetMod	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m

Physical and Environmental Parameters (Continued)

Parameter	Description
Fiber 10GBASE MMSR or SMLR NetMod	Dual Fiber Bypass with LC connectors Cable and Distance: LR is Single-Mode at 5000m (available) SR is Multimode Fiber (850nm) at 550m (Standard)
Fiber 1000BASE-SX NetMod	Quad Fiber Bypass 1000BASE-SX with LC connectors Cable and Distance: SX is Multimode Fiber (850nm) at 550m (Standard)
Fiber 40GBASE-SR4 NetMod	Dual Fiber Bypass with OTP/MTP connectors Cable and distance: OM3: 100m at 850nm Multimode OM4: 150m at 850nm Multimode
Power Supply per 2U	750W dual redundant (1+1) power supplies (AC or DC) AC Voltage: 100VAC to 240 VAC nominal (85VAC to 264 VAC maximum) AC Current: 10A maximum over the full range, per supply 5A maximum for 187VAC to 264VAC, per supply AC Frequency range: 47Hz to 63Hz DC Voltage: -48VDC nominal referenced to RTN -40VDC to -72VDC maximum DC Current: 20A maximum, per supply
Operating Temperature	10°C to 35°C (50°F to 95°F)
Non-Operating Temperature	-20°C to 70°C (-29°F to 158°F)
Operating Humidity	5% to 85% noncondensing
Non-Operating Humidity	5% to 90%, non-condensing with a maximum wet bulb of 28°C at temperatures from 25°C to 35°C (77°F to 95°F) Store the unit below 95% non-condensing relative humidity. Acclimate below maximum operating humidity at least 48 hours prior to placing the unit in service.
Altitude	0 ft (sea level) to 6000 ft (0 to 1800m)
Cooling Requirements	up to 2225 BTU/hour You must provide sufficient cooling to maintain the appliance within its required operating temperature range. Failure to do this may cause a malfunction or damage to the appliance.

Physical and Environmental Parameters (Continued)

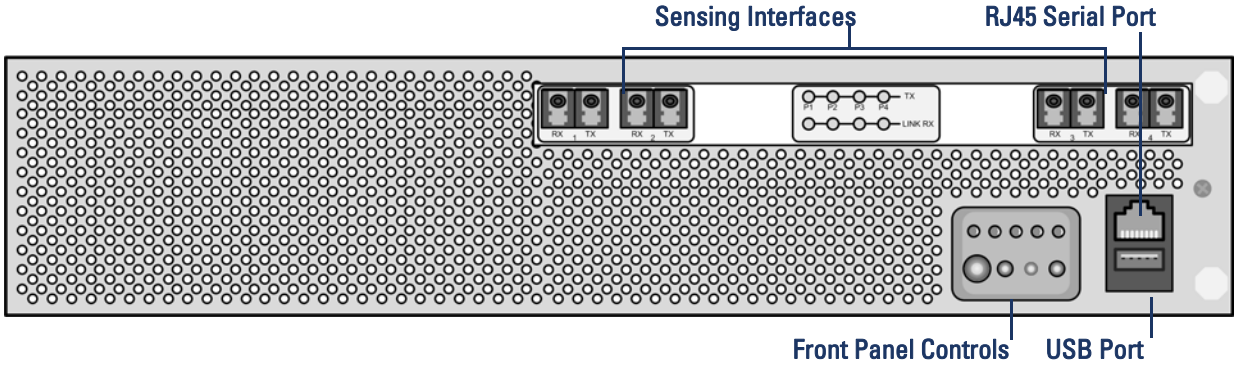
Parameter	Description
Acoustic Noise	72.9 dBa at full processor load, normal fan operation at 27C Meets GR-63-CORE 4.6 Acoustic Noise
Operating Shock	No errors with half a sine wave shock of 2G (with 11 msec. duration)
Airflow	Front to rear, 210 ft^3 (6 m^3) per minute Restriction of the airflow such as blocking the front or rear or enclosing the unit in a cabinet without sufficient clearance may cause the unit to overheat, even if the ambient temperature is in the operating range. Airflow through the appliance enters at the front and exits at the rear. The minimum recommended clearance in the front and rear is 7.9 inches (20cm). This minimum can only be used if you can ensure a supply of low temperature air at the front of the appliance.

Sourcefire 3D Sensor 9900 Specifications

The 3D9900 Sensors are delivered on a 2U appliance. See the following sections for more information about the appliance.

- Chassis Front View on page 156
- Chassis Rear View on page 162
- Physical and Environmental Parameters on page 165

Chassis Front View



The System Components: Front View table describes the features on the front of the appliance.

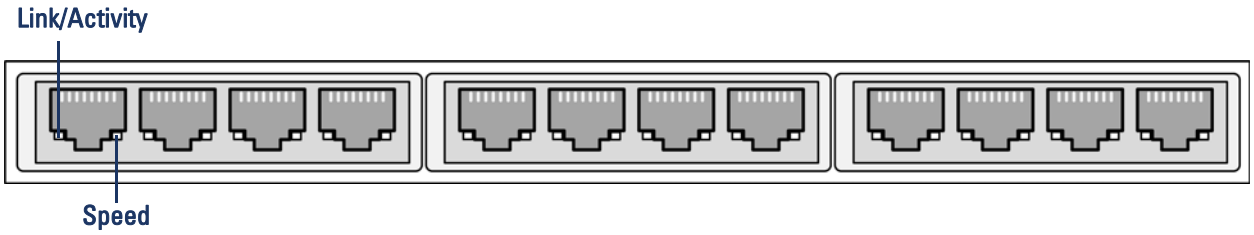
System Components: Front View

Feature	Description
Sensing Interfaces	3D9900 Sensors are available with quad-port 10Gb fiber interfaces or 12 1Gb copper interfaces.
Front panel controls	Houses five LEDs that display the system's operating state, as well as various controls, such as the power button. For more information, see Front Panel Controls on page 159.
Front panel RJ45 serial port	The RJ45 serial port allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. **IMPORTANT!** You cannot use the front and the rear panel serial ports at the same time.
Front panel USB port	The USB port allows you to attach a keyboard to the sensor. For the Beta program only, you also must use a USB port to restore the sensor to its original factory-delivered state, using the thumb drive delivered with the appliance.

The front of the 3D Sensor includes controls and LED displays for the following:

- Copper NIC on page 157
- Fiber NIC on page 158
- Front Panel Controls on page 159

Copper NIC

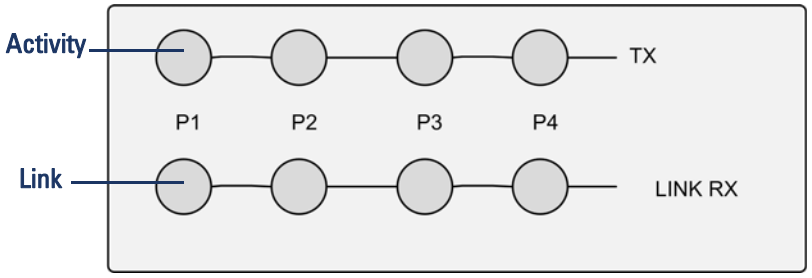


The Copper NIC LEDs table describes the LEDs associated with the network interfaces on the 12-port copper bypass 3D9900 configuration.

Copper NIC LEDs

Status	Description
Left (Activity) blinking amber Right (Link) green	The interface has link and is running at 1Gbps.
Left (Activity) blinking amber Right (Link) off	The interface has link is running at 10/100/1000 Mbps.
Both lights off	The interface is either in bypass mode or the interface does not have link.

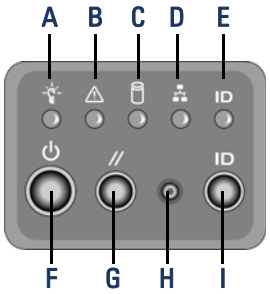
Fiber NIC



The top row of LEDs indicate activity on each interface. The bottom row indicates whether the interface has link. If both LEDs are dark for an interface, it is in bypass mode.

Front Panel Controls

The following diagram illustrates the front panel controls and LEDs.



Front Panel Components

A	Power LED	**F**	Power button
B	System status LED	**G**	Reset button
C	Hard drive activity LED	**H**	Non-maskable interrupt button
D	NIC activity LED	**I**	ID button
E	ID LED		

The front panel of the chassis houses five LEDs, which display the system's operating state. The Front Panel LEDs table describes the LEDs on the front panel.

Front Panel LEDs

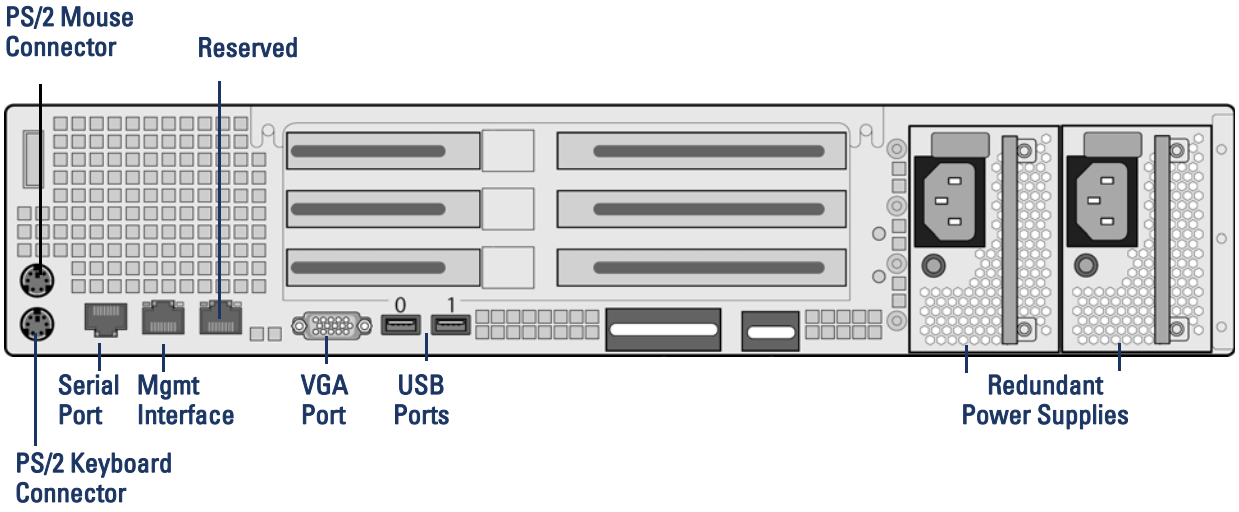
LED	Description
Power	Indicates whether the system has power: • Green indicates that the system has power. • If the LED is off, the system does not have power.
System status	Indicates the system status: • Green indicates the system is operating normally. • Blinking green indicates the system is operating in a degraded condition. • Blinking amber indicates the system is in a non-critical condition. • Amber indicates the system is in a critical or non-recoverable condition. • If the LED is off, the system is starting up or off. **IMPORTANT!** The amber status light takes precedence over the green status light. When the amber LED is on or blinking, the green LED is off. See the System Status table on page 108 for more information.
Hard drive activity	Indicates the hard drive status: • Blinking green indicates the fixed disk drive is active. • Amber indicates a fixed disk drive fault. • If the LED is off, there is no drive activity or the system is powered off.
NIC activity	Indicates whether there is any network activity: • Green indicates there is network activity. • If the LED is off, there is no network activity.
System ID	The blue LED indicates that the ID button is pressed.

The System Status table describes the conditions under which the system status LED might be lit.

System Status

Condition	Description
Critical	Any critical or non-recoverable threshold crossing associated with the following events: • temperature, voltage, or fan critical threshold crossing • power subsystem failure • system inability to power up due to incorrectly installed processors or processor incompatibility • critical event logging errors, including System Memory Uncorrectable ECC error and fatal/uncorrectable bus errors, such as PCI SERR and PERR
Non-Critical	A non-critical condition is a threshold crossing associated with the following events: • temperature, voltage, or fan non-critical threshold crossing • chassis intrusion • Set Fault Indication command from system BIOS; the BIOS may use the command to indicate additional, non-critical status such as system memory or CPU configuration changes
Degraded	A degraded condition is associated with the following events: • one or more processors are disabled by Fault Resilient Boot (FRB) or BIOS • some system memory disabled or mapped out by BIOS • one of the power supplies unplugged or not functional **TIP!** If you observe a degraded condition indication, check your power supply connections first. Shut down the 3D Sensor, disconnect both power cords, reconnect the power cords to reseat them, and then restart the 3D Sensor.

Chassis Rear View



The System Components: Rear View table describes the features that appear on the rear of the appliance.

System Components: Rear View

Feature	Description
PS/2 mouse connector PS/2 keyboard connector VGA port USB ports	Allows you to attach a monitor, keyboard, and mouse to the sensor, as an alternative to using the RJ45 serial port, to establish a direct workstation-to-appliance connection.
RJ45 serial port	Allows you to establish a direct workstation-to-appliance connection (using an RJ45 to DB-9 adapter) for direct access to all of the management services on the sensor. The RJ45 serial port is used for maintenance and configuration purposes **only** and is not intended to carry service traffic. See the RJ45 to DB-9 Adapter Pin-Out table on page 111. **IMPORTANT!** You cannot use the front and the rear panel serial ports at the same time.
10/100/1000 Ethernet management interface	Provides for an out-of-band management network connection. The management interface is used for maintenance and configuration purposes **only** and is not intended to carry service traffic.
Redundant power supplies	Provides power to the sensor through an AC power source.

The 10/100/1000 management interface is located on the rear of the appliance. The Management Interface LEDs table describes the LEDs associated with the management interface.

Management Interface LEDs

LED	Description
Left (Activity)	Indicates activity on the port. A blinking LED indicates activity; if the LED is off, there is no activity.
Right (Link)	Indicates whether the link is up. If the LED is on, the link is up; if it is off, there is no link.

The power supply modules are located on the rear of the appliance. The Power Supply LEDs table describes the LEDs associated with the dual power supplies.

Power Supply LEDs

LED	Description
Off	The power supply is not plugged in.
Amber	No power supplied to this module. OR A power supply critical event such as module failure, a blown fuse, or a fan failure; the power supply shuts down.
Blinking Amber	A power supply warning event, such as high temperature or a slow fan; the power supply continues to operate.
Blinking Green	AC input is present; volts on standby, the power supply is switched off.
Green	The power supply is plugged in and on.

The RJ45 to DB-9 Adapter Pin-Out table list the signals on a typical DB-9 serial connector and the corresponding pins on the 3D Sensor RJ45 serial connectors. You can use this table to construct an adapter for serial connections.

RJ45 to DB-9 Adapter Pin-Out

DB-9 Pin	Signal	Description	RJ45 Pin
1	DCD/DSR	Data Carrier Detect/Data Set Ready	7
2	RD	Receive Data	6
3	TD	Transmit Data	3
4	DTR	Data Terminal Ready	2
5	GND	Ground	4 & 5
6		No Connection	
7	RTS	Request To Send	1
8	CTS	Clear To Send	8
9		No Connection	

Physical and Environmental Parameters

The Physical and Environmental Parameters table describes the physical attributes and the environmental parameters for the appliance.

Physical and Environmental Parameters

Parameter	Description
Form Factor	2U
Dimensions (D x W x H)	20.0 x 16.93 x 3.5 (in inches) 50.8 x 43.0 x 8.9 (in centimeters)
Copper NIC	Gigabit copper ethernet fail-open interfaces in a paired configuration Cable and distance: Cat5E at 50m
Fiber SR (10Gb) NIC	Quad or dual Fiber Bypass 10GBase with LC connectors Cable and Distance: SR is Multimode Fiber (850nm) at 300m (Standard)
Power Supply	Dual 600W redundant power supplies designed for 120 VAC sources with up to 20 amperes overcurrent protection. Overall current rating is less than 6 amperes.
Operating Temperature	10°C to 35°C (50°F to 95°F)
Non-Operating Temperature	-40°C to 70°C (-40°F to 158°F)
Operating Humidity	5% to 85%
Non-Operating Humidity	50% to 90%, non-condensing with a maximum wet bulb of 28°C at temperatures from 25°C to 35°C (77°F to 95°F)
Altitude	0 to 1800m (5900 ft.) at 40°C (104°F), temperature decremented by 1°C for each additional 300m (985 ft.)
Acoustic Noise	< 7.0 dBA (rack mount) in an idle state at typical office ambient temperature
Operating Shock	No errors with half a sine wave shock of 2G (with 11 millisecond duration)
RoHS	Complies with RoHS Directive 2002/95/EC

Chapter 5
Restoring a 3D Sensor to Factory Defaults

The procedure for restoring a 3D Sensor to its original factory settings depends on the model you want to restore.

WARNING! Restoring your appliance with the restore ISO file results in the loss of all configuration and event data on the appliance. Consider backing up your appliance before you use the restore ISO file. The process retains the license file and network settings, if possible, but you may need to reenter the original license file and perform additional configurations (for example, Lights-Out Management) after the process completes.

For more information, see the following sections:

- Using an ISO File to Restore Your System on page 167 explains how to restore appliance models that use an ISO file on either a restore USB drive or an internal flash drive to store their restore image.
- Scrubbing the Contents of the Hard Drive on page 176 explains how, for some appliance models, you can scrub the appliance's internal hard drive before sending it back to Sourcefire Support should you encounter a hardware problem.

Using an ISO File to Restore Your System

For some appliance models, Sourcefire provides an ISO file for restoring the appliance to its original factory settings. Different appliance models use different devices to store their restore image file. The following table describes which device each model uses.

Restore Method by Appliance Model

Model	Device
3D500/1000/2000	USB Restore Drive
3D2100/2500/3500	USB Restore Drive
3D4500/3D6500	USB Restore Drive
3D9900	Internal Flash Drive
7000 Series	Internal Flash Drive
8000 Series	Internal Flash Drive

The following sections explain how to download the restore ISO file and how to use it to restore you appliance to its factory default settings:

- Obtaining the Restore ISO File on page 168 explains how to download the ISO file from the Sourcefire Support site.
- Using a Restore USB Drive on page 168 explains how to begin the restoration process if your appliance uses a restore USB drive to store the
- Using an Internal Flash Drive on page 170
- Completing the Restore Process on page 171

WARNING! Restoring your appliance with the restore ISO file results in the loss of all configuration and event data on the appliance. Consider backing up your appliance before you use the restore ISO file. The process retains the license file and network settings, if possible, but you may need to reenter the original license file after the process completes.

Obtaining the Restore ISO File

You can obtain the restore ISO file for your appliance by downloading it from the Sourcefire Support site and copying it to a local storage device that is accessible to the appliance you are restoring.

To obtain the restore ISO file:

1. Using the correct user name and password for your support account, log into the Sourcefire Support site (https://support.sourcefire.com/).

   The Support site appears.

2. Click **Downloads**.

   The Downloads page appears.

3. From the **Versions** drop-down list, select the version number you want to download.

4. From the **Product Category** drop-down list, select **3D Sensor**.

   A list of files appears.

5. Scroll down to the ISO section and select the ISO file you want to download.

6. After the download process is complete, copy the ISO file to a web server, FTP server, or SCP-enabled host that is accessible to the appliance you wish to restore.

7. You have two options depending on the appliance model you are restoring:

   - If the appliance uses a restore USB drive for the restoration process, continue with Using a Restore USB Drive on page 168.
   - If the appliance uses an internal flash drive, continue with Using an Internal Flash Drive on page 170.

   Refer to the Restore Method by Appliance Model table on page 167 to determine which appliance models use which restore methods.

Using a Restore USB Drive

After you download the correct ISO restore file to a local storage device, you can continue with the process for restoring your appliance to its factory default settings.

To start the restore process, you will also need the restore USB drive that came with your appliance. The restore USB drive contains the restore utility. Contact your Sourcefire sales representative if you cannot locate your restore USB drive.

To restore an appliance that uses a restore USB drive:

1. Shut down the appliance using the system settings as described in the *Sourcefire 3D System User Guide*.
2. Power down the appliance.
   - For 3D500, 3D1000, and 3D2000 sensors, disconnect the power cord from the 3D Sensor, making sure to slide the plastic housing away from the socket.
   - For 3D2100, 3D3500, 3D4500, and 3D6500 sensors, press the power button.
3. Connect to the appliance in one of the following ways:
   - Connect a monitor and a keyboard directly to the appliance.
   - For the 3D500, 3D1000, 3D2000, and 3D6500 sensors only: Create a serial connection between the 3D Sensor and a computer running terminal emulation software such as Microsoft Windows Hyperterminal or XModem. The settings for this software are 9600 baud, 8 data bits, no parity checking, 1 stop bit, and no flow control.
4. Place the restore USB drive in any available USB port on the appliance and power up the appliance.

   If you attempt to use a restore USB drive from an earlier software version (for example, Version 4.9 instead of 4.10), you are warned that your restore drive is not correct for the ISO file being installed, and prompted to re-image the drive:
   - Enter `yes` to re-image the restore drive for the correct ISO file; the restore drive is updated, and you are prompted to reboot from the drive. Saved configurations are lost.
   - Enter `no` and the system reboots.

   IMPORTANT! Press Ctrl + U slowly and repeatedly when the Sourcefire splash screen appears; continue until the splash screen disappears.
5. Press Enter to select **OK** at the copyright screen.

   The Welcome menu prompts you to select the type of display connected to the appliance.
6. Depending on how you connected to the appliance in step 3, select a display mode:
   - If you connected to the appliance using a monitor and keyboard, enter `0`, or wait until the timer expires to use the default standard VGA display mode.
   - If you used a serial connection, enter `1`

   The Main Menu appears. Continue with Completing the Restore Process on page 171.

Using an Internal Flash Drive

After you download the correct ISO restore file to a local storage device, you can continue with the process for restoring your appliance to its factory default settings. If you need to restore the appliance using a two-pass process (that is, restore the flash drive, then restore the hard drive), you must run the restore procedure twice (see step 6).

IMPORTANT! For the 7000 Series appliances only, you must disable the Spanning Tree protocol on any port intended for use with Serial Over LAN.

Note that if you restore a system to original factory settings on a Series 3 sensor, your Lights-Out Management settings will be lost and you must reconfigure the feature.

WARNING! Never insert a USB drive into any USB port on a 3D9900 sensor. Additionally, remove any device with external storage (for example, a KVM switch with external storage) from a 3D9900 sensor before upgrading or restoring the sensor.

To restore an appliance that uses an internal flash drive:

1. On 8000 Series sensors only, if you want to connect a monitor and keyboard directly to the sensor, configure the console settings. See "System Settings" in the *Sourcefire 3D System User Guide*.
2. Shut down the appliance using the system settings as described in the *Sourcefire 3D System User Guide*.
3. Power down the appliance by pressing the power button.
4. Connect to the appliance in one of the following ways:
   - Connect a monitor and a keyboard directly to the appliance.
   - Create a serial connection between the appliance and a computer running terminal emulation software such as Microsoft Windows Hyperterminal or XModem. The settings for this software are 9600 baud, 8 data bits, no parity checking, 1 stop bit, and no flow control.

5. Power up the appliance.

   The appliance presents the following choices:

   0. Load installer with standard console

   1. Load installer with serial console

   Depending on how you connected to the appliance in step 4, select a display mode:

   - If you connected to the appliance using a monitor and keyboard, enter `0`.
   - If you used a serial connection, enter `1`

   The red LILO Boot Menu appears.

6. Select **System_Restore** and press Enter.

   If **System Restore** is the only option, the appliance is in the second pass of a two-pass restore process. Use the same protocol and settings as in the first pass.

   The Main Menu appears. Continue with Completing the Restore Process on page 171.

Completing the Restore Process

After you have prepared your appliance, continue with the restore process.

IMPORTANT! You must restore versions on stacked sensors at the same time. You cannot apply policies to a stacked pair that runs mismatched versions.

To complete the restore process:

1. From the Main Menu, select **1 IP Configuration** and press Enter to identify the interface on the appliance you will use to copy the restore ISO file.

   IMPORTANT! If this is the second pass of the two-pass restore process, use the same protocol and settings as the first pass. Fields are pre-populated with entries from the first pass.

   At the **Pick Device** menu, press spacebar to select `eth0` and press Enter.

   TIP! Use the arrow keys to move among the selections in the restore menus.

   The IP Configuration menu appears.

2. Select **IPv4** or **IPv6**, and press Enter.

   The **Static or DHCP** menu appears.

3. Configure the interface:
   - Select **Static** to configure a static IP address; a series of screens prompts you for the IP address, network mask, and default gateway for the interface you will use to copy the restore ISO file. Press Enter when prompted to confirm your configuration.
   - Select **DHCP** to automatically detect the IP address, network mask and default gateway for the interface you will use to copy the restore ISO file. Press Enter when prompted to confirm your configuration.

   The Main Menu appears.
4. Select **2 Choose the transport protocol** to identify the protocol for the server where the restore ISO file is located.

   WARNING! Previous versions allowed you to rename the ISO files. You **must not** change the names of the ISO files.

   For all server types (HTTP, FTP, and SCP) you are prompted for:
   - the IP address for the server
   - the path on the server to the restore ISO file (for example, `/mydownloads/restoreISO/`)
5. For HTTP servers, after identifying the IP address and path, and being presented with a list of ISOs on the server, skip to step 12.
6. For FTP servers, after identifying the IP address and path, you are prompted for the user name and password to access the server.
7. Enter the password into the password field.

   The password is hidden as you type. If the FTP option fails, use the SCP or HTTP option instead. Skip to step 12.
8. For SCP servers, after you specify the full path to the IP address of the server, you are prompted for the user name and password to access the server.

   If the server is not among the hosts in the trusted host file, you are prompted to add it.
9. Enter the user name for the SCP server.
10. You are prompted for the path to the SCP server.
11. At the prompt at the bottom of the page, enter the password for the SCP server.
12. Regardless of the transport protocol you select, a list of Sourcefire ISO files appears. Use the space bar to select the restore ISO you want to use.
13. At the prompt, press Enter to confirm the path and file name.

    The Main Menu appears.

14. Optionally, select **3 Select Patches/SEUs** to use the protocol and server established in step 4 and to inventory the server for patches and updates.

    WARNING! You must **not** change the names of the patch and update files.

    You are presented with a list of available patches at that location. You can select only one patch per update.

    You have two options:

    - Use the space bar to select the update you want to install, then select **OK** to confirm the selection.

      The installation process uses the same protocol and path you specified in step 4.
    - Select **Cancel** to ignore or bypass the update selection.

    At the prompt, press Enter to confirm your configuration.

    The Main Menu appears.

15. Optionally, select **6 Save Configuration** to save your configuration so that you can edit or run it at another time. Press Enter when prompted to confirm the configuration.

    The Main Menu appears.

16. Select **4 Download and Mount ISO** to download the restore ISO file from the server to your appliance using the configured information.

    TIP! You may see a warning that you are about to re-partition the disk and all data will be destroyed. Select **Yes** and press Enter to continue.

    If you are downloading from an SCP server, enter your password when prompted.

    The Main Menu appears.

17. Select **5 Run the Install** to restore the appliance to its factory defaults.

    The restore process begins with two possible outcomes:

    - If you are using a two-pass restore process and you are currently performing the first pass, the following message appears on the screen:

      ```
      The USB device was successfully imaged. Reboot from the USB device to continue installation...
      ```

      Continue with the step 18.
    - If you are using a single-pass restore process or this is the second pass of a two-pass restore process, you are prompted to restore the system.

      Skip to step 19.

18. Immediately press Enter to reboot the appliance.

    The appliance reboots and the LILO Boot Menu appears so that you can begin the second pass. Continue with step 6 in Using an Internal Flash Drive on page 170.

19. When prompted whether you wish to restore the system, enter `yes`.

20. When prompted whether to delete the license and network settings, enter `no`.

    IMPORTANT! If you choose to keep the network settings and license while restoring defaults, you must manually reapply intrusion policies to your IPS detection engines after restoring.

    If you choose to retain your license and network settings on a Series 3 device, you can execute the restore process using Lights-Out Management on

21. When asked if you are sure, enter `yes`.

    The restore process completes and the appliance reboots.

22. Before the sensor comes back up (while the screen is still blank), power down the sensor.

    - For 3D500/1000/2000 sensors, disconnect the power cord from the 3D Sensor, making sure to slide the plastic housing away from the socket.
    - For 3D2100/3500/4500 and 3D6500 sensors, press the power button.

    TIP! If you do not power down the 3D Sensor in time, you must wait until it finishes booting. Then, for 3D500/000/2000 sensors, log in as `admin` and enter `shutdown -h now` at the command prompt, and finally power down the appliance by disconnecting the power cord. For 3D2100/3500/4500 and 3D6500 sensors, wait until the appliance boots from the USB drive, then press the power button.

23. If you used an restore USB drive, remove the drive and power up the appliance.

24. After the appliance finishes booting, use another computer to connect to the appliance and, if required, paste the original license file into the **License** field and click **Submit License**.

25. Download and apply the latest software updates, VDB updates, and SEU from Sourcefire.

    For more information, see the *Sourcefire 3D System User Guide*.

Updating the Restore USB Drive

The restore USB drive that is delivered with your 3D4500 or 3D6500 sensor model contains information that allows you to restore the sensor to its original factory defaults. If you have subsequently upgraded the sensor to a new major version, and later want to restore the sensor to that version rather than the original, older version, then you must first update the restore US drive.

Consider an example where your sensor was delivered with Version 4.8 and you later upgraded to Version 4.9 and then to Version 4.9.0.4. If you find an issue in Version 4.9.0.4 that requires you to restore the sensor to an earlier version, the restore USB drive contains information for restoring it to Version 4.8. If you would rather restore the sensor to the later major version, that is, Version 4.9, you must first use the sensor, while it is still at Version 4.9.0.4, to update the software version on the restore USB drive. You can then restore the sensor to Version 4.9.

IMPORTANT! If you attempt to use the restore USB from a previous product version to restore your sensor to a later product version, the restore attempt fails.

You can downgrade your restore USB drive by using the legacy options from the main menu after selecting **System Restore** from the LILO boot prompt. See step 5 in Using a Restore USB Drive on page 168.

To update a restore USB drive:

1. Make sure your sensor is updated to the major version of the software that you want to use to update the restore USB drive.
2. Insert the restore USB drive into any USB port on the upgraded sensor.
3. From the command line, run `update-keyfob.sh` and follow the on-screen prompts.

   The restore USB drive is now ready to be used in the restore procedure.

Scrubbing the Contents of the Hard Drive

If your appliance uses a restore USB drive or an internal flash drive to restore the system, you have the option to securely scrub the hard drive to ensure that its contents can no longer be accessed. For example, if you need to return a defective appliance that contains sensitive data, you can use this feature to remove the data beforehand.

This mode of scrubbing the disk meets the following military standard:

STANDARDS

The DoD scrub sequence is compliant with the DoD 5220.22-M procedure for sanitizing removable and non-removeable rigid disks which requires overwriting all addressable locations with a character, its complement, then a random character, and verify. Please refer to the DoD document for additional constraints.

To scrub the hard drive:

1. Connect to the appliance and proceed to the system restore Main Menu. The procedure for this depends on whether your appliance uses an internal flash drive or a restore USB drive. See the Restore Method by Appliance Model table on page 167 to determine which method your appliance uses:
   - If your appliance uses a restore USB drive, see Using a Restore USB Drive on page 168.
   - If your appliance uses an internal flash drive, see Using an Internal Flash Drive on page 170.

   At the end of either procedure, the Main Menu appears.
2. From the Main Menu, select option **8 Wipe Contents of Disk** from the Restore process.

   Note that the scrub program takes several hours to complete depending on the size of the hard drive.

Chapter 6
Safety and Regulatory Information

Sourcefire appliances are delivered on multiple hardware platforms. General Safety Guidelines are applicable to all appliances. Regulatory Information for each appliance is described in its own section. Please read the following sections prior to installing the appliance and follow all guidelines when working with the appliance.

General Safety Guidelines

Follow these rules to ensure general safety:

1. Observe good housekeeping in the area of the machines during and after maintenance.
2. At all times, keep the chassis area free from dust.
3. When lifting any heavy object:
   - Lifting the chassis may require two people.
   - Ensure you can stand safely without slipping.
   - Distribute the weight of the object equally between your feet.

- Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
- Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.

4. Do not perform any action that causes hazards or makes the equipment unsafe.
5. Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
6. Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
7. Keep your tool case away from walk areas so that other people will not trip over it.
8. Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
9. Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
10. The appliance must be properly grounded when connecting power to the AC outlet.
11. Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

WARNING! **Remember:** Metal objects are good electrical conductors.

12. To avoid electrical shock, do not open or remove chassis covers or metal parts without proper instruction.
13. Wear safety glasses when you are: hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
14. There must be ample clearance on all sides of the chassis for the cooling air inlet and exhaust ports, as well as for access to the network interface modules (no less than 2 inches).
15. Remove all factory packaging before using the appliance.
16. Do not cover or block vents, or otherwise enclose the appliance.

Safety Warning Statements

Before installing this product, read the safety information in this section.

Statement 1

DANGER! Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.

To connect:

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlet.
5. Turn device ON.

To disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

Statement 2

CAUTION! When replacing the lithium battery, use only an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water.
- Heat to more than 100° C (212° F).
- Repair or disassemble.

Dispose of the battery as required by local ordinances or regulations.

Statement 3

CAUTION! When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

All lasers in the 7000 Series and 8000 Series are Class 1.

When the 7000 Series or 8000 Series is operated with optical devices, it is classified as a Class 1 Laser device. The 7000 Series and 8000 Series have not been tested or certified with a higher classification of laser. Please adhere to the safety instructions and warnings provided with the Optical SFP+ Devices.

Optical SFPs use a small laser to generate the fiber-optic signal. Keep the optical transmit and received ports covered whenever a cable is not connected to the port.

DANGER! Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following. Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Statement 4

CAUTION! Use safe practices when lifting.

Statement 5

CAUTION! The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

Statement 6

CAUTION! Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Statement 7

CAUTION! The following label indicates a hot surface nearby.

Statement 8

DANGER! Overloading a branch circuit is potentially a fire hazard and a shock hazard under certain conditions. To avoid these hazards, ensure that your system electrical requirements do not exceed the branch circuit protection requirements.

Statement 9

CAUTION! Hazardous voltage, current, and energy levels might be present. Only a qualified service technician is authorized to remove the covers where the following label is attached.

Statement 10

CAUTION! Make sure that the rack is secured properly to avoid tipping when the server unit is extended.

Statement 11

CAUTION! Some accessory or option board outputs exceed Class 2 or limited power source limits and must be installed with appropriate interconnecting cabling in accordance with the national electric code.

Statement 12

CAUTION! The following label indicates moving parts nearby.

WARNING! Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.

Statement 13

WARNING! The following label indicates this product contains hazardous moving parts. Keep away from moving fan blades.

Regulatory Information

The regulatory information for each of the appliances is described in its own section:

Sourcefire 3D Sensor 500/1000/2000 Information

This appliance complies with the following electromagnetic compatibility (EMC) regulations:

Federal Communications Commission (FCC) statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Sourcefire is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference
2. this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

ATTENTION: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

NOTICE TO CUSTOMERS: This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformance with the protection requirements of European Council Directive EMC 2004/108/EC.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

ATTENTION: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Sourcefire 3D Sensor 2100/2500/3500/4500 Information

This product complies with the following regulatory standards:

- UL 60950-1, 1st Edition/CSA 22.2 (USA/Canada)
- Low Voltage Directive, 73/23/EEC TUV/GS to EN60950-1, 1st Edition (Europe)
- CB Certificate and Report to IEC60950-1, 1St Edition and all international derivations (International)
- FCC 47 CFR Parts 2 and 15, Verified Class A Limit (USA)
- IC ICES-003 Class A Limit (Canada)
- EMC Directive, 89/336/EEC (Europe)
- EN55022, Class A Limit, Radiated & Conducted Emissions (Europe)
- EN55024 Immunity Characteristics for ITE (Europe)
- EN61000-4-2 ESD Immunity (level 2 contact discharge, level 3 air discharge) (Europe)
- EN61000-4-3 Radiated Immunity (level 2) (Europe)
- EN61000-4-4 Electrical Fast Transient (level 2) (Europe)
- EN61000-4-5 Surge (Europe)
- EN61000-4-6 Conducted RF (Europe)
- EN61000-4-8 Power Frequency Magnetic Fields (Europe)
- EN61000-4-11 Voltage Fluctuations and Short Interrupts (Europe)
- EN61000-3-2 Harmonic Currents (Europe)

- EN61000-3-3 Voltage Flicker (Europe)
- EN55022, Class A Limit (Australia/New Zealand)
- VCCI Class A ITE (CISPR 22, Class A Limit) (Japan)
- BSMI Approval, CNS 13438, Class A and CNS13436 Safety (Taiwan)
- RRL Approval, Class A (Korea)
- CCC Approval, Class A (EMC and Safety) (China)
- Gost Approval (EMC and safety) (Russia)
- CISPR 22, Class A Limit, CISPR 24 Immunity (International)

Sourcefire 3D Sensor 6500/9900 Information

This product complies with the following regulatory standards:

- UL 60950-1, 1st Edition/CSA 60950-1 (USA/Canada)
- EN60950-1 (Europe)
- IEC60950-1 (International), CB Certificate & Report including all international deviations
- FCC /ICES-003 - Emissions (USA/Canada)
- CISPR 22 - Emissions (International)
- EN55022 - Emissions (Europe)
- EN55024 - Immunity (Europe)
- EN61000-3-2 - Harmonics (Europe)
- EN61000-3-3 - Voltage Flicker (Europe)
- CE- EMC Directive 89/336/EEC (Europe)
- VCCI Emissions (Japan)
- AS/NZS: CISPR 22 Emissions (Australia / New Zealand)
- BSMI CNS13438 Emissions (Taiwan)
- GOST R Approval Emissions and Immunity (Russia)
- RRL Approval (Korea)
- CCC Certification (China)

Sourcefire 3D Sensor 7000 Series Information

3D7010/7020/7030

This product complies with the following standards:

Emissions:

- FCC, 47 CFR Part 15, Class A digital device
- EN 55022:2010, Class A
- EN 55024:2010
- EN61000-3-2:2006
- EN61000-3-3:2008
- BSMI CNS 13438

Safety:

- IEC 60950-1
- UL/CSA 60950-1:2nd Edition – 2011
- EN 60950-1: 2006/A11:2009
- EC Council Directive 2001/95/EC
- BSMI CNS 14336-1
- UL CB scheme

These Sourcefire units are also in conformity with:

- Directive 2011/65/EU, Restriction of Hazardous Substances (RoHS)
- Directive 1907/2006EC, Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

3D7110/7120

This product complies with the following safety standards:

3D7110/7120 Safety and Regulatory Compliance

Regulation	Description
IEC 60950-1	Safety of Information Technology Equipment
UL/CSA 60950-1:2nd Edition – 2007	Safety of Information Technology Equipment
EN 60950-1: 2006/A11:2009	Safety of Information Technology Equipment
AS/NZS 60950-1: 2001	Safety of Information Technology Equipment

3D7110/7120 Safety and Regulatory Compliance (Continued)

Regulation	Description
AS/NZS CISPR22:2022	Information Technology Equipment - Radio Disturbance Characteristics
FCC, 47 CFR Part 15, Class A digital device	Radio Frequency Devices – Subpart B – Unintentional Radiators
ICES-003 Issue 4 – Feb 2004, Class A	Interference-Causing Equipment Standards – Digital Apparatus
EN 55022:2006, Class A	Information Technology Equipment – Radio Disturbance Characteristics
EN 55024:1998 + A1:2001 + A2:2003	Information Technology Equipment – Immunity Characteristics
CISPR 22:2005 + A1:2005+A2:2006, Class A	Information Technology Equipment – Radio Disturbance Characteristics
CISPR 24:1997	Information Technology Equipment – Immunity Characteristics
EN61000-3-2:2006	Power Line Harmonics
EN61000-3-3:2008	Flicker and Voltage Fluctuations
ANSI C63.4	Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment
EC Council Directive 2001/95/EC	Safety
EC Council Directive 2006/95/EC	LVD
EC Council Directive 2004/108/EC	Electromagnetic compatibility

These Sourcefire units are also in conformity with:

Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS)

Chassis Designations

The 7000 Series Chassis Models table lists the chassis designations and Korean certification registration numbers for the 3D7110/7120 models.

7000 Series Chassis Models

3D Sensor Model	Hardware Chassis Code	Korean KC Certification Registration Number
3D7010/7020/7030	CHRY-1U-AC	KCC-REM-SFi-CHRY1UAC
3D7110/7120	GERY-1U-8-C-AC	KCC-REM-SFi-GERY1U8CAC
3D7110/7120	GERY-1U-8-FM-AC	KCC-REM-SFi-GERY1U8FMAC

Safety Notice for Korea

Required statement indicating that Sourcefire's equipment is Class A:

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Safety Notice for Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Safety Notice for Japan

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

Sourcefire 3D Sensor 8000 Series Information

This product complies with the following safety standards:

8000 Series Safety and Regulatory Compliance

Regulation	Description
IEC 60950-1	Safety of Information Technology Equipment
UL/CSA 60950-1:2nd Edition – 2007	Safety of Information Technology Equipment
EN 60950-1: 2006/A11:2009	Safety of Information Technology Equipment
AS/NZS 60950-1: 2001	Safety of Information Technology Equipment
AS/NZS CISPR22:2022	Information Technology Equipment - Radio Disturbance Characteristics
FCC, 47 CFR Part 15, Class A digital device	Radio Frequency Devices – Subpart B – Unintentional Radiators
ICES-003 Issue 4 – Feb 2004, Class A	Interference-Causing Equipment Standards – Digital Apparatus
EN 55022:2006, Class A	Information Technology Equipment – Radio Disturbance Characteristics
EN 55024:1998 + A1:2001 + A2:2003	Information Technology Equipment – Immunity Characteristics
CISPR 22:2005 + A1:2005+A2:2006, Class A	Information Technology Equipment – Radio Disturbance Characteristics
CISPR 24:1997	Information Technology Equipment – Immunity Characteristics
EN61000-3-2:2006	Power Line Harmonics
EN61000-3-3:2008	Flicker and Voltage Fluctuations
ANSI C63.4	Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment
EC Council Directive 2001/95/EC	Safety

8000 Series Safety and Regulatory Compliance (Continued)

Regulation	Description
EC Council Directive 2006/95/EC	LVD
EC Council Directive 2004/108/EC	Electromagnetic compatibility

These Sourcefire units are also in conformity with:

Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS)

Chassis Designations

The 8000 Series Chassis Models table lists the chassis designations for the 8000 Series models.

8000 Series Chassis Models

3D Sensor Model	Hardware Chassis Code
3D8120 / 3D8130 / 3D8140 (AC power)	CHAS-1U-AC
3D8120 / 3D8130 / 3D8140 (DC power)	CHAS-1U-DC
3D8120 / 3D8130 / 3D8140 (AC or DC power)	CHAS-1U-AC/DC
3D8250 / 3D8260 / 3D8270 / 3D8290 (AC power)	CHAS-2U-AC
3D8250 / 3D8260 / 3D8270 / 3D8290 (DC power)	CHAS-2U-DC
3D8250 / 3D8260 / 3D8270 / 3D8290 (AC or DC power)	CHAS-2U-AC/DC

Safety Notice for Korea

Required statement indicating that Sourcefire's equipment is Class A:

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Safety Notice for Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Safety Notice for Japan

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

Chassis Designations for Korea

The 8000 Series Chassis Models for Korea table lists the chassis designations for the 8000 Series models available in the Republic of Korea. Please note a blank (empty position) may be substituted for a network module for each slot listed.

8000 Series Chassis Models for Korea

3D Sensor Model	Hardware Chassis Code	Korean KC Certification Registration Number	Network Module Configuration
3D8120 / 3D8130 / 3D8140 (AC power)	CHAS-1U-AC-0003	KCC-REM-SFi-CHAS1UAC0003	Slot 1: NM-C4-0 (or blank) Slot 2: NM-C4-0 (or blank) Slot 3: NM-FX4-0 (or blank)
3D8120 / 3D8130 / 3D8140 (DC power)	CHAS-1U-DC-0003	KCC-REM-SFi-CHAS1UDC0003	Slot 1: NM-C4-0 (or blank) Slot 2: NM-C4-0 (or blank) Slot 3: NM-FX4-0 (or blank)
3D8120 / 3D8130 / 3D8140 (AC power)	CHAS-1U-AC-0004	KCC-REM-SFi-CHAS1UAC0004	Slot 1: SF-3D-CLST-MOD-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 3: NM-*R2-0 (or blank)[1]

8000 Series Chassis Models for Korea (Continued)

3D Sensor Model	Hardware Chassis Code	Korean KC Certification Registration Number	Network Module Configuration
3D8120 / 3D8130 / 3D8140 (DC power)	CHAS-1U-DC-0004	KCC-REM-SFi-CHAS1UDC0004	Slot 1: SF-3D-CLST-MOD-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 3: NM-*R2-0 (or blank)[1]
3D8250 / 3D8260 / 3D8270 / 3D8290 (AC power)	CHAS-2U-AC-0005	KCC-REM-SFi-CHAS2UAC0005	Slot 1: SF-3D-CLST-MOD-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 3: NM-C4-0 (or blank) Slot 4: NM-FX4-0 (or blank) Slot 5: NM-FX4-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 7: NM-C4-0 (or blank)
3D8250 / 3D8260 / 3D8270 / 3D8290 (DC power)	CHAS-2U-DC-0005	KCC-REM-SFi-CHAS2UDC0005	Slot 1: SF-3D-CLST-MOD-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 3: NM-C4-0 (or blank) Slot 4: NM-FX4-0 (or blank) Slot 5: NM-FX4-0 (or blank) Slot 2: NM-*R2-0 (or blank)[1] Slot 7: NM-C4-0 (or blank)

[1]This network module can be either NM-SR2-0 or NM-LR2-0.

NetMod Designations for Korea

The 8000 Series NetMod Designation for Korea table lists the NetMod designations for the Series 3 models available in Korea.

8000 Series NetMod Designation for Korea

NetMod Model	Korean KC Certification Registration Number
SF-3D-CLST-MOD-0	KCC-REM-SFi-SF3DCLSTMOD0
NM-C4-0	KCC-REM-SFi-NMC40
NM-FX4-0	KCC-REM-SFi-NMFX40
NM-SR2-0	KCC-REM-SFi-NMSR20

Waste Electrical and Electronic Equipment Directive (WEEE)

Sourcefire is compliant with the Waste Electrical and Electronic Equipment Directive (WEEE), Directive 2002/96/EC, as amended by 2003/108/EC. European Union customers who wish to dispose of a Sourcefire product may send it to Sourcefire for proper disposal.

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Fax: +31-(0)20-6583 359

Chapter 7

Power Requirements for Sourcefire 3D Sensors

The following section describes the power requirements for the Sourcefire 3D System 3D Sensor and related information:

Warnings and Cautions

This document contains both warnings and cautions. Warnings are safety related. Failure to follow warnings may lead to injury or equipment damage. Cautions are requirements for proper function. Failure to follow cautions may result in improper operation.

Interface Connections

WARNING! The intra-building ports of the equipment or subassembly are suitable for connection to intra-building or exposed wiring or cabling only. The intra-building ports of the equipment or subassembly **must not** be metallically connected to interfaces that connect outside the plant (OSP) or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the

exposed OSP cabling. The addition of the primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Static Control

CAUTION! Electrostatic discharge control procedures, such as using grounded wrist straps and an ESD work surface, must be in place before unpacking, installing, or moving the appliance. Excessive electrostatic discharges can damage the appliance or cause unintended operation.

3D7010/7020/7030

The 3D7010/7020/7030 (CHRY-1U-AC) is suitable for installation by qualified personnel in network telecommunication facilities and locations where the National Electric Code applies. Note that this 3D Sensor is available only as an AC appliance.

Sourcefire recommends that you save the packing materials in case a return is necessary.

For more information, see the following sections:

- See Installation on page 195 for circuit installation, voltage, current, frequency range, and power cord information.
- See Grounding/Earthing Requirements on page 196 for bonding locations, recommended terminals, and ground wire requirements.

Installation

The Sourcefire 3D System appliances must be installed in accordance with the requirements of Article 250 of NFPA 70, National Electric Code (NEC) Handbook and local electrical codes.

The appliance uses a single power supply. An external surge protection device must be used at the input of the network equipment where the Sourcefire 3D System is to be installed.

The circuit must be rated for the full rating of the appliance.

Voltage

The power supply works with 100VAC to 240VAC nominal (90VAC to 264VAC maximum). Use of voltages outside this range may cause damage to the appliance.

Current

The labeled current rating is 2A maximum over the full range. Appropriate wire and breakers must be used to reduce the potential for fire.

Frequency Range

The frequency range of the AC power supply is 47 Hz to 63 Hz. Frequencies outside this range may cause the appliance to not operate or to operate incorrectly.

Power Cord

The power connection on the power supply is an IEC C14 connector and accepts IEC C13 connectors. A UL-recognized power cord must be used. The minimum wire gauge is 16 AWG. The cord supplied with the appliance is a 16 AWG, UL-recognized cord with NEMA 515P plug. Contact the factory about other power cords.

IMPORTANT! Do **not** cut the cord on the power supply.

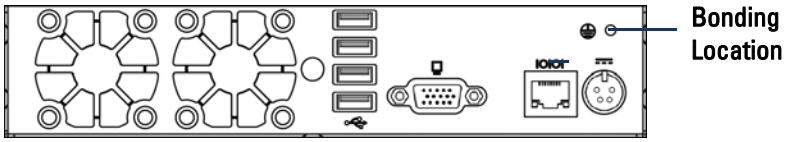
Grounding/Earthing Requirements

The appliance must be grounded to the common bonding network.

Bonding Location

A ground bonding location is provided on the rear of the chassis. An M4 stud is provided. An outside-toothed lock washer is provided for attaching a ring terminal. A standard ground symbol is available by each stud.

The following illustration indicates the bonding location on the chassis.



Recommended Terminals

You must use a UL-Approved terminal for the ground connection. A ring terminal with a clearance hole for #6 (M3.5) stud may be used. For 16 AWG wire, AMP/Tyco 36151 is recommended. This is a UL-approved ring terminal with a hole for a #6 stud.

Ground Wire Requirements

The ground wire must be sized sufficiently to handle the current of the circuit in case of a single fault. The size of the ground wire should be equal to the current of the breaker used to protect the circuit. See Current on page 195.

Bare conductors must be coated with antioxidant before crimp connections are made. Only copper cables can be used for grounding purposes.

3D7110/7120

The 3D7110/7120 (GERY-1U-8-AC) is suitable for installation by qualified personnel in network telecommunication facilities and locations where the National Electric Code applies. Note that this 3D Sensor is available only as an AC appliance.

Sourcefire recommends that you save the packing materials in case a return is necessary.

For more information, see the following sections:

- See Installation on page 197 for circuit installation, voltage, current, and frequency range, and power cord information.
- See Grounding/Earthing Requirements on page 198 for bonding locations, recommended terminals, and ground wire requirements.

Installation

The Sourcefire 3D System must be installed in accordance with the requirements of Article 250 of NFPA 70, National Electric Code (NEC) Handbook and local electrical codes.

Separate circuits are required to create redundant power sources. Use an uninterruptible or battery-backed power source to prevent power status issues or power loss due to input line power glitches.

Supply sufficient power to each power supply to run the entire appliance. The voltage and current ratings for each supply are listed on the label on the appliance.

Use an external Surge Protection Device at the input of the network equipment where the Sourcefire 3D System is to be installed.

Separate Circuit Installation

If separate circuits are used, each one must be rated the full rating of the appliance. This configuration provides for circuit failure and power supply failure.

Example: Each supply is attached to a different 220V circuit. Each circuit must be capable of supplying 5A, as stated on the label.

Same Circuit Installation

If the same circuit is used to feed both supplies, then the power rating of one supply applies to the whole box. This configuration only provides protection from a power supply failure.

Example: Both supplies are attached to the same 220V circuit. The maximum draw from this circuit would be 5A, as stated on the label.

Voltage

The power supplies will work with these voltages: 100VAC to 240VAC nominal (85VAC to 264VAC maximum). Use of voltages outside this range may cause damage to the appliance.

Current

The labeled current rating for each supply is: 10A maximum over the full range, per supply 5A maximum for 187VAC to 264VAC, per supply. Appropriate wire and breakers must be used to reduce the potential for fire.

Frequency Range

The frequency range of the AC power supply is 47 Hz to 63 Hz. Frequencies outside this range may cause the appliance to not operate or to operate incorrectly.

Power Cords

The power connections on the power supplies are IEC C14 connectors and they will accept IEC C13 connectors. A UL-recognized power cord must be used. The minimum wire gauge is 16 AWG. The cords supplied with the appliances are 16 AWG, UL-recognized cords with NEMA 515P plug. Contact the factory about other power cords.

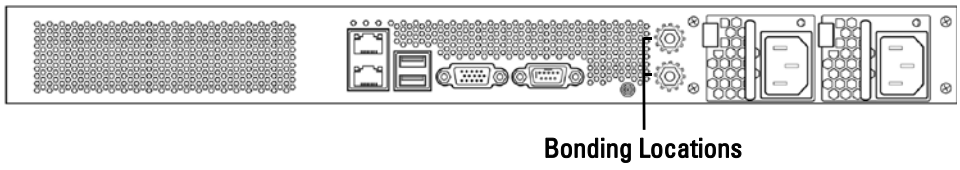
Grounding/Earthing Requirements

The Sourcefire 3D System must be grounded to the Common Bonding Network.

Bonding Locations

Ground bonding locations are provided on the rear of the chassis. M4 studs are provided. Outside-toothed lock washers are provided for attaching ring terminals. A standard ground symbol is available by each stud.

The following illustration indicates the bonding locations on the chassis.



Recommended Terminals

You must use UL-Approved terminals for the ground connection. Ring terminals with a clearance hole for 4mm or #8 studs may be used. For 10-12 AWG wire, Tyco 34853 is recommended. This is a UL-approved, ring terminal with a hole for a #8 stud.

Ground Wire Requirements

The ground wire must be sized sufficiently to handle the current of the circuit in case of a single fault. The size of the ground wire should be equal to the current of the breaker used to protect the circuit. See Current on page 195.

Bare conductors must be coated with antioxidant before crimp connections are made. Only copper cables can be used for grounding purposes.

3D8120/8130/8140 and 3D8250/8260/8270/8290

3D Sensors included in this section are:

- 3D8120/8130/8140 (CHAS-1U-AC, CHAS-1U-DC, or CHAS-1U-AC/DC)
- 3D8250/8260/8270/8290 (CHAS-2U-AC, CHAS-2U-DC, or CHAS-2U-AC/DC)

These Sourcefire 3D Sensors are suitable for installation by qualified personnel in network telecommunication facilities and locations where the National Electric Code applies.

Sourcefire recommends that you save the packing materials in case a return is necessary.

For more information, see the following sections:

- See AC Installation on page 199 for circuit installation, voltage, current, and frequency range, and power cord information.
- See DC Installation on page 201 for circuit installation, voltage, current, ground references, terminals, breaker requirements, and minimum wire size.
- See Grounding/Earthing Requirements on page 202 for bonding locations, recommended terminals, ground wire requirements, and DC supplies.

AC Installation

The Sourcefire 3D System must be installed in accordance with the requirements of Article 250 of NFPA 70, National Electric Code (NEC) Handbook and local electrical codes.

Separate circuits are required to create redundant power sources. Use an uninterruptible or battery-backed power source to prevent power status issues or power loss due to input line power glitches.

Supply sufficient power to each power supply to run the entire appliance. The voltage and current ratings for each supply are listed on the label on the appliance.

Use an external Surge Protection Device at the input of the network equipment where the Sourcefire 3D System is to be installed.

Separate Circuit Installation

If separate circuits are used, each one must be rated the full rating of the appliance. This configuration provides for circuit failure and power supply failure.

Example: Each supply is attached to a different 220V circuit. Each circuit must be capable of supplying 5A, as stated on the label.

Same Circuit Installation

If the same circuit is used to feed both supplies, then the power rating of one supply applies to the whole box. This configuration only provides protection from a power supply failure.

Example: Both supplies are attached to the same 220V circuit. The maximum draw from this circuit would be 5A, as stated on the label.

AC Voltage

The power supplies will work with these voltages: 100VAC to 240VAC nominal (85VAC to 264VAC maximum). Use of voltages outside this range may cause damage to the appliance.

AC Current

The labeled current rating for each supply is: 10A maximum over the full range, per supply 5A maximum for 187VAC to 264VAC, per supply. Appropriate wire and breakers must be used to reduce the potential for fire.

Frequency Range

The frequency range of the AC power supply is 47 Hz to 63 Hz. Frequencies outside this range may cause the appliance to not operate or to operate incorrectly.

Power Cords

The power connections on the power supplies are IEC C14 connectors and they will accept IEC C13 connectors. A UL-recognized power cord must be used. The minimum wire gauge is 16 AWG. The cords supplied with the appliances are 16 AWG, UL-recognized cords with NEMA 515P plug. Contact the factory about other power cords.

DC Installation

Separate circuits are required to create redundant power sources. Use an uninterruptible or battery-backed power source to prevent power status issues or power loss due to input line power glitches.

Supply sufficient power to each power supply to run the entire appliance. The voltage and current ratings for each supply are listed on the label on the appliance.

Use an external Surge Protection Device at the input of the network equipment where the Sourcefire 3D System is to be installed.

Separate Circuit Installation

If separate circuits are used, each circuit must be rated to the full rating of the appliance. This configuration provides for circuit failure and power supply failure.

Example: Each supply is attached to a different –48VDC circuit. Each circuit must be capable of supplying 20A, as stated on the label.

Same Circuit Installation

If the same circuit is used to feed both supplies, then the power rating of one supply applies to the whole box. This configuration only provides protection from a power supply failure.

Example: Both supplies are attached to the same –48VDC circuit. The maximum draw from this circuit would be 20A, as stated on the label.

WARNING! Use of this optimization requires that the power cords are rated for the full rating for each supply.

DC Voltage

The power supplies will work with these voltages:

- -48VDC nominal referenced to RTN.
- -40VDC to -72VDC maximum

Use of voltages outside this range may cause damage to the appliance.

DC Current

20A maximum, per supply

Ground Reference

The DC power supplies are fully isolated from the ground reference.

Recommended Terminals

Power is connected to the DC supplies through screw terminals. Terminals must be UL approved. Terminals must have a hole supporting an M4 or a #8 screw. The maximum width of the terminal is 8.1mm (0.320"). A representative spade terminal for 10-12 gauge wire is Tyco 325197.

Breaker Requirements

A breaker sufficient to carry the rated current at the rated voltage must be provided. The circuit breaker must meet the following requirements:

- UL Recognized
- CSA Approved (Recommended)
- VDE Approved (Recommended)
- Support the maximum load (20A)
- Support the installation voltage (-40V to -72VDC, as required by the power supply)
- Rated for DC use

A recommended breaker is: Airpax IELK1-1-72-20.0-01-V. The terminal option used will depend on the installation. This breaker is a single pole, 20A breaker with a DC rating of 80V. It is listed as having a *long delay*. Information about this breaker can be found at http://www.airpax.net/site/utilities/eliterature/pdfs/ial.pdf.

Minimum Wire Size Requirements

Power feeds with three wires (one circuit) per raceway may use 12 AWG wire. Power feeds with more than one circuit per raceway must use 10 AWG wire. Note that the two separate feeds for the redundant supplies are two circuits and must use 10 AWG wire.

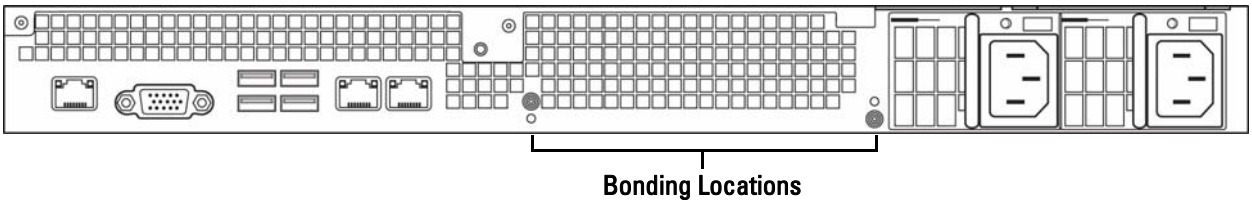
Grounding/Earthing Requirements

The Sourcefire 3D System must be grounded to the Common Bonding Network.

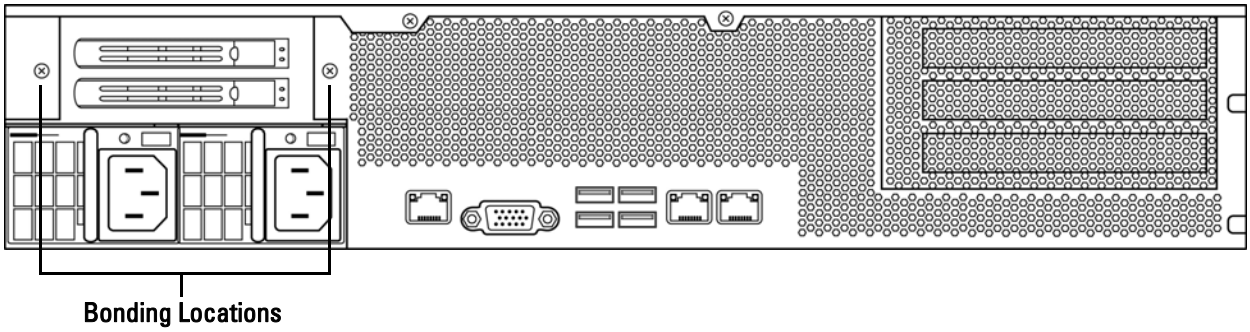
Bonding Locations

Ground bonding locations are provided on the rear of the chassis. M4 studs are provided. Outside-toothed lock washers are provided for attaching ring terminals. A standard ground symbol is available by each stud.

The following illustration indicates the bonding locations on the 1U chassis.



The following illustration indicates the bonding locations on the 2U chassis.



Recommended Terminals

You must use UL-Approved terminals for the ground connection. Ring terminals with a clearance hole for 4mm or #8 studs may be used. For 10-12 AWG wire, Tyco 34853 is recommended. This is a UL-approved, ring terminal with a hole for a #8 stud.

Ground Wire Requirements

The ground wire must be sized sufficiently to handle the current of the circuit in case of a single fault. The size of the ground wire should be equal to the current of the breaker used to protect the circuit. For AC circuits, see Current on page 195. For DC currents, see DC Current on page 201.

Bare conductors must be coated with antioxidant before crimp connections are made. Only copper cables can be used for grounding purposes.

DC Supplies

The DC power supplies have additional ground connections on each supply. This allows the hot-swappable supply to be connected to power, return and ground so that it may be safely inserted. This ground lug must be attached.

It is a M4 screw with an outside-toothed lock washer. screw.

The ground wire should be sized to match the breaker for the circuit.

For Assistance

If you have any questions or require assistance with the Sourcefire 3D Sensor, please contact Sourcefire Support:

- Visit the Sourcefire Support Site at https://support.sourcefire.com/.
- Email Sourcefire Support at support@sourcefire.com.
- Call Sourcefire Support at 410.423.1901 or 1.800.917.4134.

Thank you for using Sourcefire products.