

**Canadian Department of Communications Radio Interference Regulations**  
 This digital apparatus (NETGEAR Model ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.  
 Cet appareil numérique (NETGEAR Model ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P) respecte les limites de bruits radioélectriques visant les appareils numériques de class A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

**EN 55 022 Declaration of Performance**  
 This is to certify that the NETGEAR Model ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN35 022 Class A (CISPR 22).  
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**Statement of Conditions**  
 In the interest of improving internal design, operational function, and/or reliability, NETGEAR reserves the right to make changes to the product described in this document without notice. NETGEAR does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described here in.  
**Certificate of the Manufacturer/Importer**  
 It is hereby certified that the NETGEAR ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P has been suppressed in accordance with the conditions set out in the B.M.P.T.-Amisbivfig 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions. Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.  
**Voluntary Control Council for Interference (VCCI) Statement**  
 この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。  
**Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice**  
 This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:  
 • This device must accept any interference received, including interference that may cause undesired operation.  
 • This device may not cause harmful interference.  
 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 interferences in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interferences to radio communications. However, there is no guarantee that interference will not occur in a particular installation if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:  
 • Reorient or relocate the receiving antenna.  
 • Increase the separation between the equipment and receiver.  
 • Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.  
 • Consult the dealer or an experienced radio/TV technician for help.

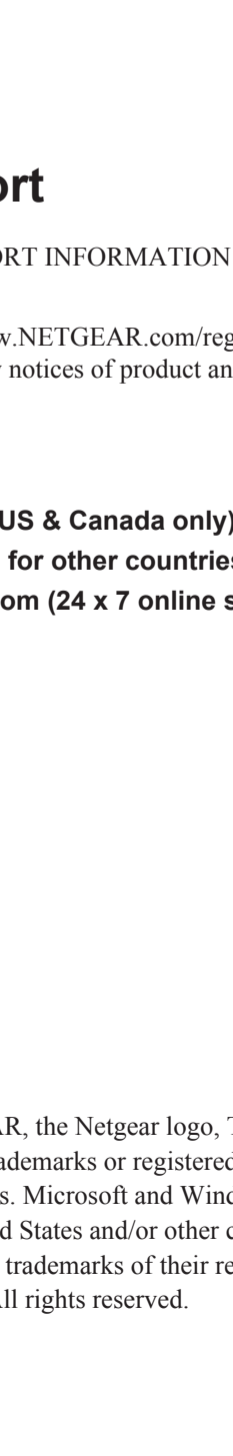
**Reglement sur le brouillage radioélectrique du ministère des Communications**  
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**Installation Overview**  
 Estimated Time: 5-10 minutes  
 1. Unpack the box and verify the contents.  
 2. Prepare to install the switch.  
 3. Install the switch and connect the other devices.

**Power over Ethernet (PoE)**  
 Power over Ethernet (PoE) integrates power and data onto one single cabling infrastructure, eliminating the need to have AC power adapters available at all locations. The IEEE 802.3af standard defines how products should provide and receive power over the data infrastructure. The FS116P complies with the IEEE 802.3af standard.  
 Using category 5/5e cable or better, PoE will provide power to PoE compatible devices, such as IP telephones, wireless LAN access points and IP cameras, for a distance up to 100 Meters. Products that are powered by PoE are generically called Powered Devices (PD). PoE is already widely adopted in the market, saving up to 50% of overall installation costs by eliminating the need to install separate electrical wiring and power outlets in new or hard to reach places.

**Introduction**  
 Congratulations on your purchase of the NETGEAR® ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P. This switch provides Power over Ethernet (PoE) capabilities in a small form factor. Integrating both 100Mbps Fast Ethernet and 10Mbps Ethernet capabilities in a sturdy, compact package, the FS116P provides 16 ports of standard networking. Ports 1 through 8 of this switch can provide standards-based PoE, and will automatically detect the presence of IEEE 802.3af-compliant devices. The switch will provide up to 15.4 W of power on each PoE port and can be used to drive WLAN access points, IP phones, IP cameras and other PoE-capable devices. The switch will automatically detect the device's power requirements, and will supply the required power to each appliance. If you have a problem with your switch, NETGEAR offers free support 24 hours a day and 7 days a week on the Web (www.NETGEAR.com), by e-mail (support@NETGEAR.com) and by phone (see the provided support information card for phone numbers).

**Technical Support**  
 PLEASE REFER TO THE SUPPORT INFORMATION CARD THAT SHIPPED WITH YOUR PRODUCT.  
 By registering your product at www.NETGEAR.com/register, we can provide you with faster expert technical support and timely notices of product and software upgrades.  
**NETGEAR, INC.**  
**Support Information**  
**Phone: 1-888-NETGEAR (For US & Canada only) - 24 x7 phone support**  
**See Support Information card for other countries.**  
**E-mail: support@NETGEAR.com (24 x 7 online support)**  
**www.NETGEAR.com**

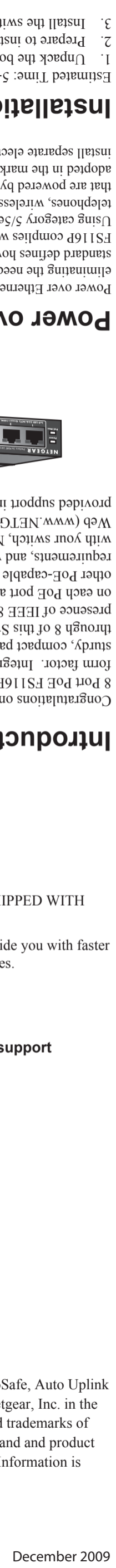


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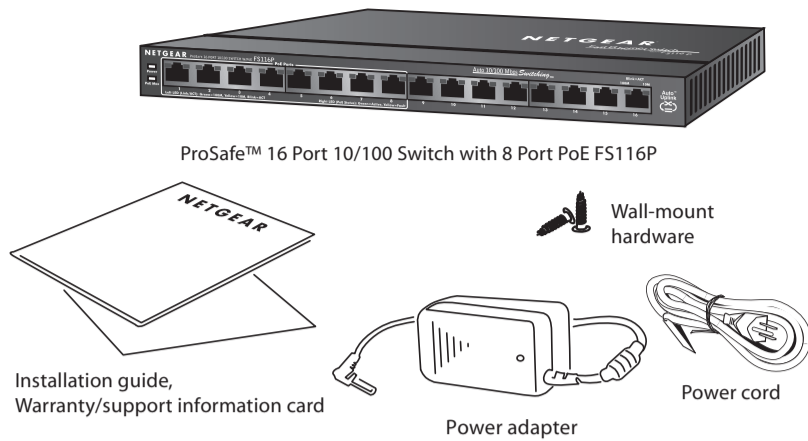
201-10536-02

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Installation Guide



# 1 Unpack the Box and Verify the Contents



When you open the box, verify that you received everything.

The package includes:

- ProSafe™ 16 Port 10/100 Switch with 8 Port PoE FS116P
- AC power adapter and power cord
- Wall-mounting screws
- FS116P Installation Guide (this document)
- Warranty and support information card

If you don't have everything listed above, see the support information card for contact information. If you're missing the Technical Support information card itself, get contact information at [www.NETGEAR.com](http://www.NETGEAR.com) in the Customer Service area.

# 2 Prepare to Install the Switch

Decide where you want to place the switch. Find a flat horizontal surface - such as a table, desk or shelf. The switch comes with wall-mounting screws. You're welcome to use the screws if you want to hang the switch in an open space on a wall. Make sure the selected location is:

- Not in direct sunlight or near a heater or heating vent.
- Not cluttered or crowded. There should be at least 2 inches (5 cm) of clear space on all sides of the switch.
- Well ventilated (especially if it is in a closet).

Also, you'll need one Category 5 (Cat 5) Ethernet cable with RJ-45 connectors for each device you want to connect to the switch. Each Ethernet cable must be less than 328 feet (100 meters).

## LED Definitions

### System LED:

Power	Indicator	Description
On (Green)		The FS116P is power on.
Off		Power is not being supplied to the unit.

### PoE Status LED (Port 1 ~ Port 8):

Green	The PoE powered device (PD) is connected and the port is supplying power successfully.
Yellow	Indicates one of the following failures resulted in stopping power to that port: <ul style="list-style-type: none"> <li>• Short circuit on PoE power circuit</li> <li>• PoE power demand exceeds power available</li> <li>• PoE current exceeds PD's classification</li> <li>• Out of proper voltage band (44 ~ 57 VDC)</li> </ul>
Off	No PoE powered device (PD) connected.

### PoE MAX

On (Yellow)	Indicates less than 7W of PoE power is available
Blinking (Yellow)	Indicates the PoE MAX LED was active in the previous two minutes
Off	There is at least 7W of PoE power available for another device

### PoE LED example 1:

4 PDs are connected to FS116P (Port 1 ~ Port 4) consuming 50W, leaving 5W of power available. The PoE MAX LED will light up, as there is less than 7W of power available. The FS116P will not provide power to any newly connected PD. The 5W of power is reserved for power surges by the original PD devices.

### PoE LED example 2:

Port 1, Port 2, Port 3 and Port 4 all have PD's drawing 13W, for a total power draw of 52W. Since the remaining power is less than 7W, the PoE MAX LED will light up. If all of the PD's surge to 14W, thereby exceeding the power budget (55W), Port 4 will stop providing power since it has the lowest priority of the ports providing power. The power from Port 4 will be allocated to provide power the other ports. (If the ports are plugged in at the same time, priority is based on port number.) The PoE status LED for Port 4 will turn yellow, and the PoE MAX LED will turn off, since there is now more than 7W available.

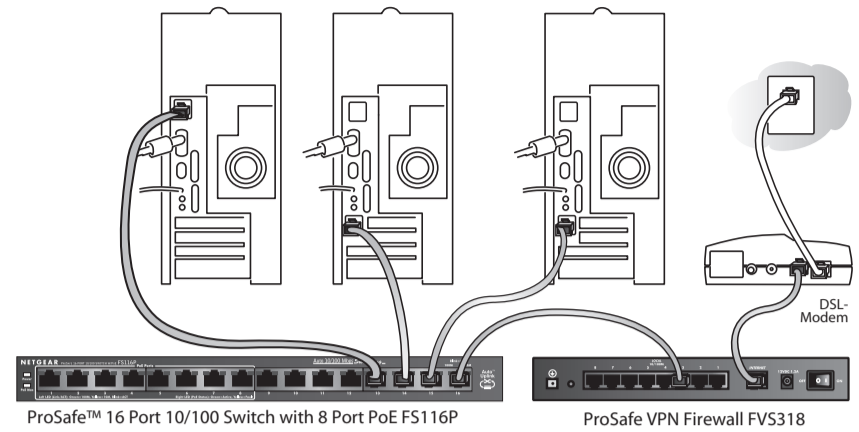
### Ethernet Port Status LED (Port 1 ~ Port 8):

Link/ACT	Indicator	Description
Green		A 100M link has been successfully established on the port.
Blinking		The port is transmitting or receiving data.
Yellow		A 10M link has been successfully established on the port.
Blinking		The port is transmitting or receiving data
Off		No link.

### Ethernet Port Status LED (Port 9 ~ Port 16):

<b>100M</b>	On	A 100M link has been successfully established on the port.
	Blinking	The port is transmitting or receiving data.
	Off	No link.
<b>10M</b>	On	A 10M link has been successfully established on the port.
	Blinking	The port is transmitting or receiving data.
	Off	No link.

# 3 Install the Switch and Connect the Other Devices



1. Place the switch on a flat surface or hook onto the screws.
2. For each device, insert one end of an Ethernet cable into the port in the device and insert the other end into one of the Ethernet ports on the switch. Note: If you have more than 16 devices to connect to this switch, you must connect them to a switch and then connect that switch to this switch.
3. Connect the power adapter's cord into the back of the switch and then plug the adapter into a power source (such as a wall socket or power strip). The Power light should light up. The corresponding 10M/100M LED for each connected and powered device should light when link (connection), and flash when activity occurs. Note: If any light doesn't operate as indicated, go to the Troubleshooting section.
4. Connect PDs to Port 1 ~ Port 8 of FS116P. These PoE ports will automatically activate when a compatible device is connected. The FS116P will not provide power to PD devices that are not compatible with the PoE Standard IEEE 802.3af. This feature allows users to freely and safely mix legacy and standards-based PoE devices on their network without concern for damaging equipment. (Please refer to LED Definitions section for more detail on PoE LED examples)

### Front Panel:



Front panel of FS116P

### Real Panel:



Real Panel of FS116P

**DC Power Jack:** Power is supplied through an external DC power adapter. Check the technical specification section for information about the DC power input voltage.

**Note:** Be sure to connect 48V/1.45A power adapter DC plug to DC jack of FS116P before plugging the power cord to AC power outlet.

**Grounding Connection:** A grounding strap location is provided to enable you to ground the case to Earth.

## Troubleshooting

### The Power light is not lit

The switch has no power.

- Make sure the power cord is properly connected to the switch.
- Make sure the power adapter is properly connected to a functioning power outlet. If it's in a power strip, make sure the power strip is turned on. If the socket is controlled by a light switch, make sure the switch is in the on position.
- Make sure you are using the NETGEAR power adapter supplied with your switch.

### The Link/Activity is not lit for a connected device or stays on continuously

There's a hardware connection problem.

- Make sure the cable connectors are securely plugged in at the switch and the device.
- Make sure the connected device is turned on.
- If the Ethernet cable is connected to a NIC or other Ethernet adapter make sure the card or adapter is installed correctly and is working.
- Make sure the cable is less than 328 feet (100 meters).

## Technical Specifications

Standards Compatibility:	IEEE 802.3i 10BASE-T Ethernet, IEEE 802.3u, 100BASE-TX Fast Ethernet, IEEE 802.3x Flow Control, IEEE 802.3af Power over Ethernet; IEEE 802.1p priority tags; compatible with Windows®, Mac®OS, NetWare®, Linux®
Data Rate:	100 Mbps with 4B/5B encoding and MLT-3 physical interface for 100BASE-TX 10 or 100 Mbps half-duplex Network Interface: RJ-45 connector for 10BASE-T or 100BASE-TX Ethernet interface
Port Description:	10/100Mbps Auto-Uplink RJ45 ports with PoE enabled (port 1 ~ port 8) 10/100Mbps Auto-Uplink RJ45 ports (port 9 ~ port 16)
DC Power:	69.6W max and 48V @ 1.45A DC input
PoE Power Budget:	55W max (all PoE ports, port 1 to port 8), 15.4W max per PoE port
Physical Dimensions (WxDxH):	287x103x27 mm (11.3x4.1x1.1 in.)
Weight:	0.9kg (2.0 lbs)
Operating Temperature:	0 to 40 C (32 to 104 F)
Operating Humidity:	10% to 90% relative humidity, non-condensing
Electromagnetic Compliance:	CE Class A; FCC Part 15, Class A; VCCI Class A; C-Tick Class A
Safety Agency Approvals:	CE/LVD

### Performance Specifications

Frame Filter Rate:	14,800 frames/sec max for 10M port / 148,800 frames/sec max for 100M port
Frame Forward Rate:	14,800 frames/sec max for 10M port / 148,800 frames/sec max for 100M port
Network Latency:	100 Mbps to 100 Mbps: 20 μs max (using 64-byte packets)
Address Database Size:	8256 MAC addresses
Addressing:	48-bit MAC address
Queue Buffer:	1.25 Mbit