PLANET
Networking & Communication

Pioneer of IP Innovation

16-Port 10/100TX 802.3at PoE + 2-Port Gigabit TP/SFP Combo Web Smart Ethernet Switch

FGSW-1816HPS

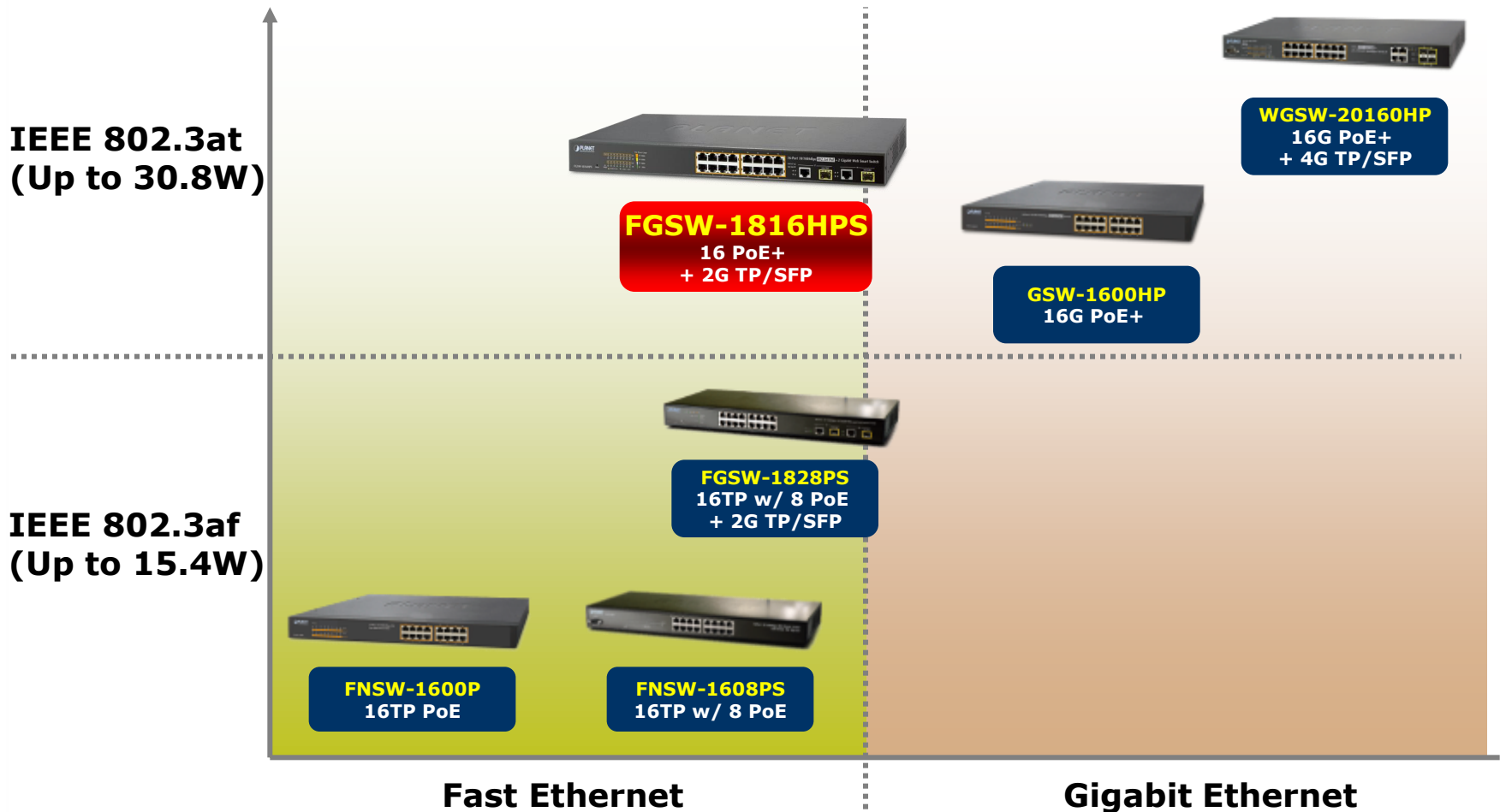802.3at End-span 802.3af | 30W PoE | WEB Management | 802.1Q VLAN | QoS | IGMP Snooping

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Presentation Outlines

- **Product Overview**
- **Product Benefits**
- **Product Features**

- **Applications**
- **Comparison**

Product Overview

◆ **The PLANET 16-Port PoE/PoE+ Switch Family**

IEEE 802.3at (Up to 30.8W)

FGSW-1816HPS
16 PoE+
+ 2G TP/SFP

WGSW-20160HP
16G PoE+
+ 4G TP/SFP

GSW-1600HP
16G PoE+

IEEE 802.3af (Up to 15.4W)

FGSW-1828PS
16TP w/ 8 PoE
+ 2G TP/SFP

FNSW-1600P
16TP PoE

FNSW-1608PS
16TP w/ 8 PoE

Fast Ethernet

Gigabit Ethernet

Product Overview

◆ **Front Panel**

- **16-Port** 10/100Mbps Fast Ethernet ports, auto-MDI / MDI-X, auto negotiation
- **Two** Gigabit TP / SFP combo interfaces
- One Reset button on front panel for reboot / reset
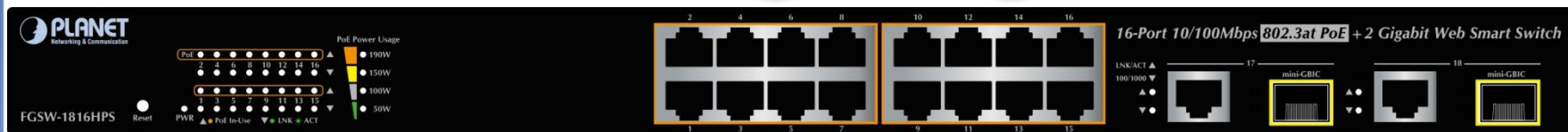
◆ **Rear Panel**

- 100~240V AC, universal power supply
- Thermal fan1

Product Overview

◆ **Why 16 PoE Ports ?**

Designed for IP Surveillance

NVR
4 / 8 / **16** / 32 channel

Video Recording

CMS
4 / 8 / **16** / 32 / 64 channel

Central Management Software

Make it a part of the IP Surveillance Kit
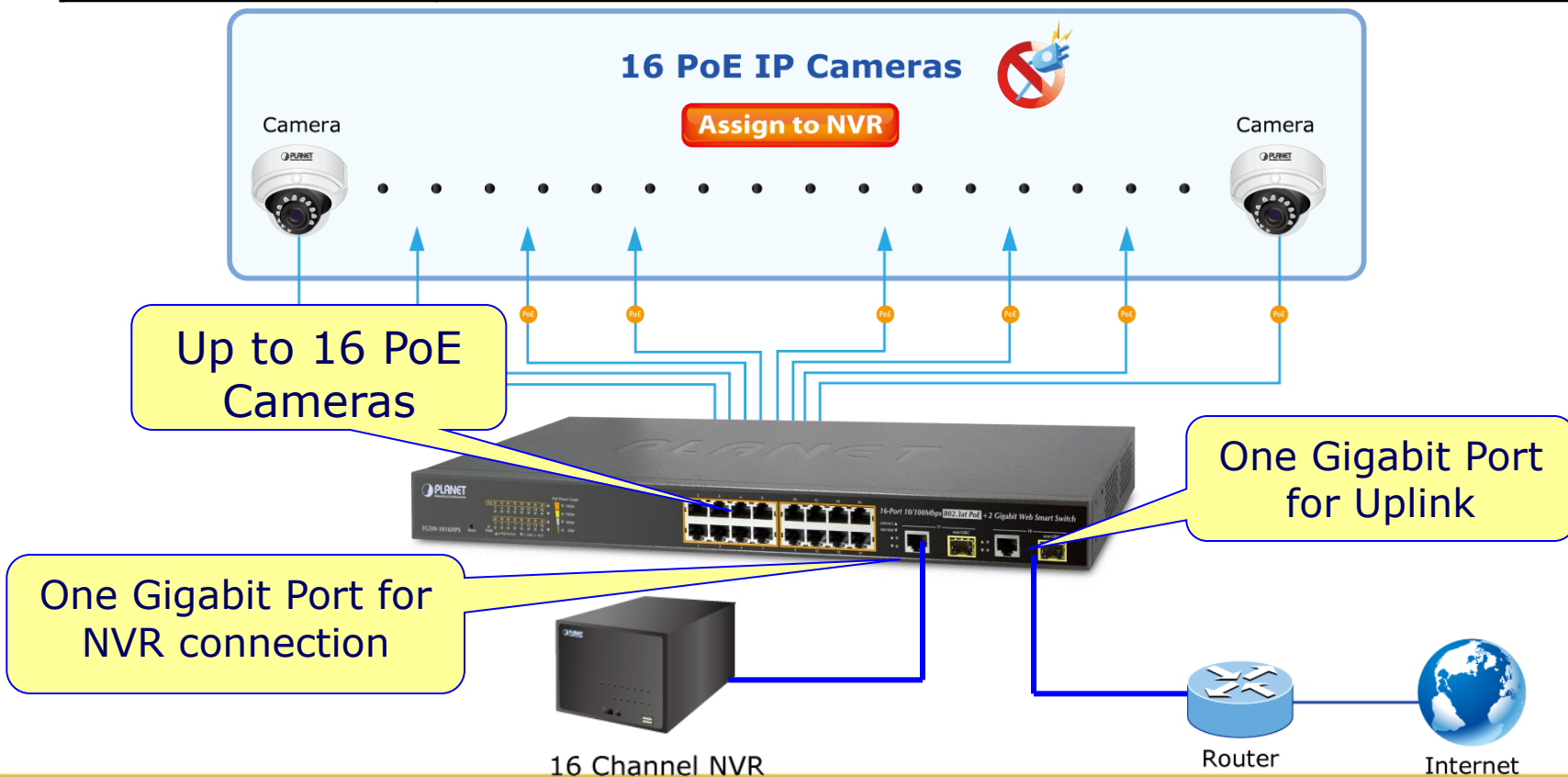
FGSW-1816HP

16-Port PoE Switch

16-CH NVR

16 PoE IP Cameras

Product Benefits

Model Name	FGSW-1816HPS
Power Budget	**220 watts**
Applications	**All types of IP surveillance, VoIP and Wi-Fi deployments**

16 PoE IP Cameras

Assign to NVR

Camera

Camera

Up to 16 PoE Cameras

One Gigabit Port for Uplink

One Gigabit Port for NVR connection

16 Channel NVR

Router

Internet

Product Benefits

◆ **As required by customers**

Providing
16 10/100Mbps PoE+
2 Gigabit TP/SFP Combo
interfaces in one unit

Works with 16-channel
NVR via one Gigabit
TP/SFP Combo port

FGSW-1816HPS

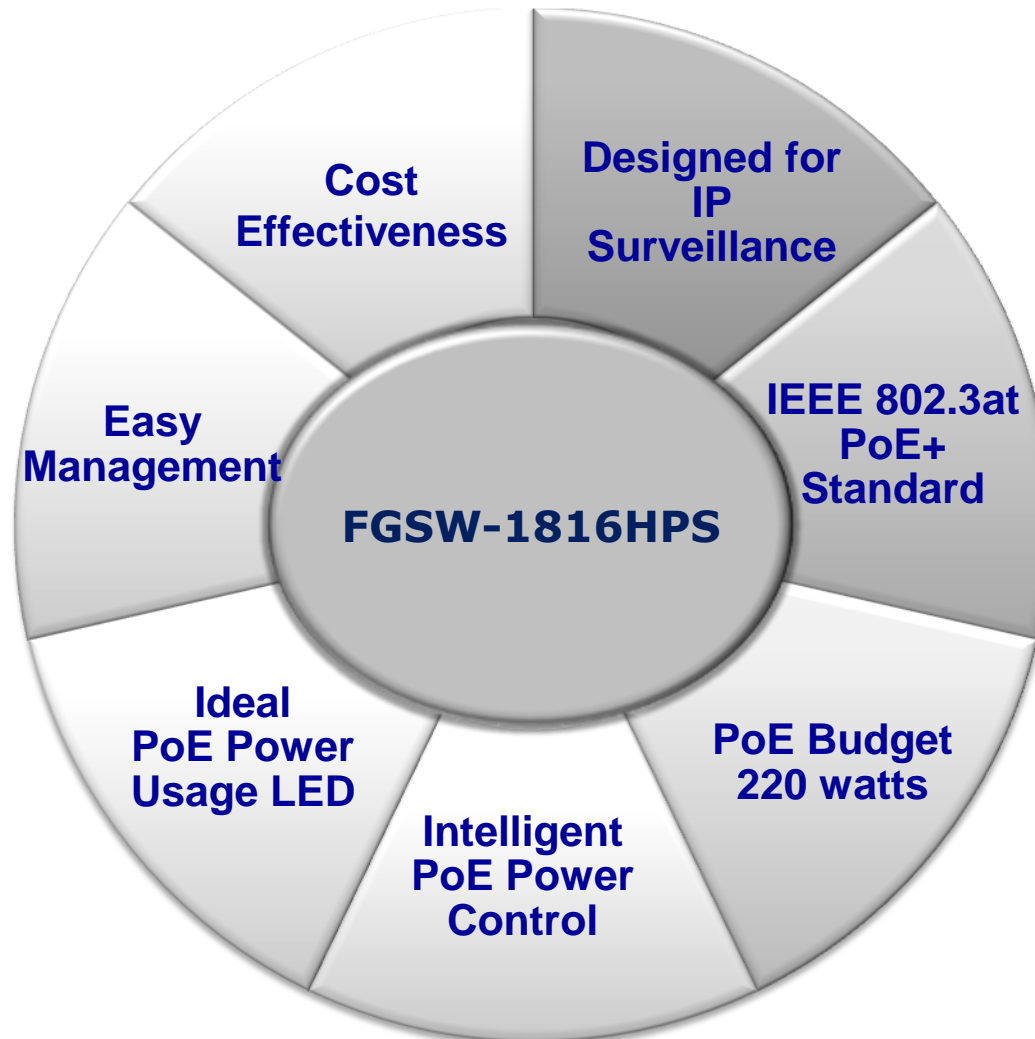Build an IP camera
system easily

...er Flexibility

Cost Effectiveness

Easy Management

Product Key Features

Product Features

◆ **Hardware**

- ✓ 16-Port 10/100Mbps Fast Ethernet interfaces

- ✓ 2-Port 10/100/1000Mbps Gigabit interfaces

- ✓ 2 mini-GBIC SFP slots, flexible for Gigabit fiber-optic network extension

- ✓ 1000Base-SX/LX :Maximum 120 kilometres (MGB-L120)

- ✓ 4K MAC address table size

- ✓ Switch architecture with non-blocking switch fabric (7.2Gbps) and wire-speed throughput

- ✓ Prevents packet loss with backpressure (half-duplex) and 802.3 pause frame flow control (full-duplex)

- ✓ Auto-MDI / MDI-X on each port

Product Features

◆ **Power over Ethernet Plus**

✓ Complies with **IEEE 802.3af / 802.3at** Power over Ethernet Plus PSE

✓ **16** 10/100Mbps copper ports with **built-in PoE+** injector

✓ **56V DC**, **30-watt** PoE power output

✓ **220-watt** PoE Power Budget

✓ **Auto detects** powered device and consumption levels

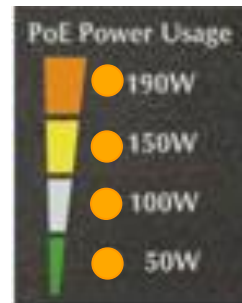✓ Circuit protection to prevent power interference between ports

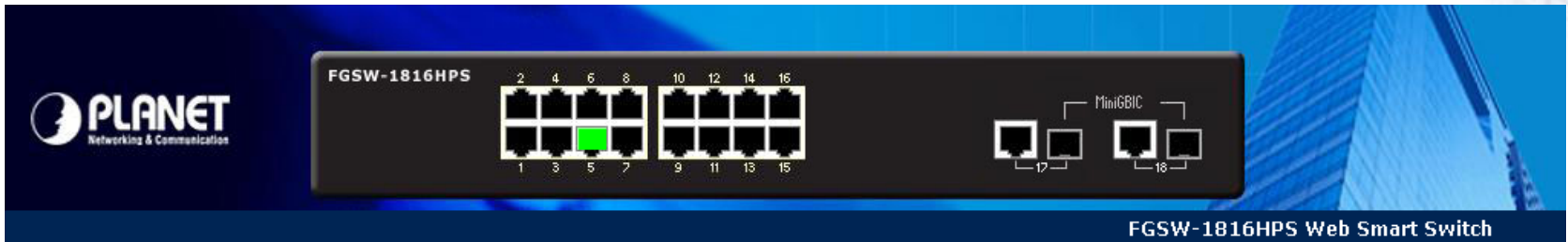| Model		FGSW-1816HPS
PoE Budget		220 watts
PoE Ability	Class 1 PD, <3.8W	16
	Class 2 PD, <6.5W	16
	Class 3 PD, <12.9W	16
	Class 4 PD, 25W	8
Input Power		100~240V AC / 50-60Hz, 4A

Product Features

◆ **Intelligent LED Indicator for Real-time PoE Usage**

   ✓ **With these LED indications, you can monitor the PoE power status of the FGSW-1816HPS easily and efficiently**

1. PoE Output Budget over **50 watts**
2. PoE Output Budget over **100 watts**
3. PoE Output Budget over **150 watts**
4. PoE Output Budget over **190 watts**

Product Features

Product Features

◆ **Management**

✓ Remote Web interface for switch management and setup

✓ Supports SNMP v1

✓ Supports DHCP Option82 and DHCP Relay

✓ Firmware upgrade through Web interface

✓ Configuration backup / reload through Web interface

✓ Reset button for system reboot or reset to factory default

✓ PLANET Smart Discovery Utility for deploy management

Product Features

◆ **VLAN**

- ✓ IEEE 802.1Q tag-based VLAN

- ✓ Port-based VLAN

- ✓ MTU VLAN (Multi-Tenant Unit VLAN)

◆ **Link Aggregation**

- ✓ Up to 3 trunk groups

- ✓ Up to 4 Fast Ethernet ports or 2 Gigabit ports per trunk group

- ✓ IEEE 802.3ad LACP (Link Aggregation Control Protocol)

- ✓ Cisco ether-channel (Static Trunk)

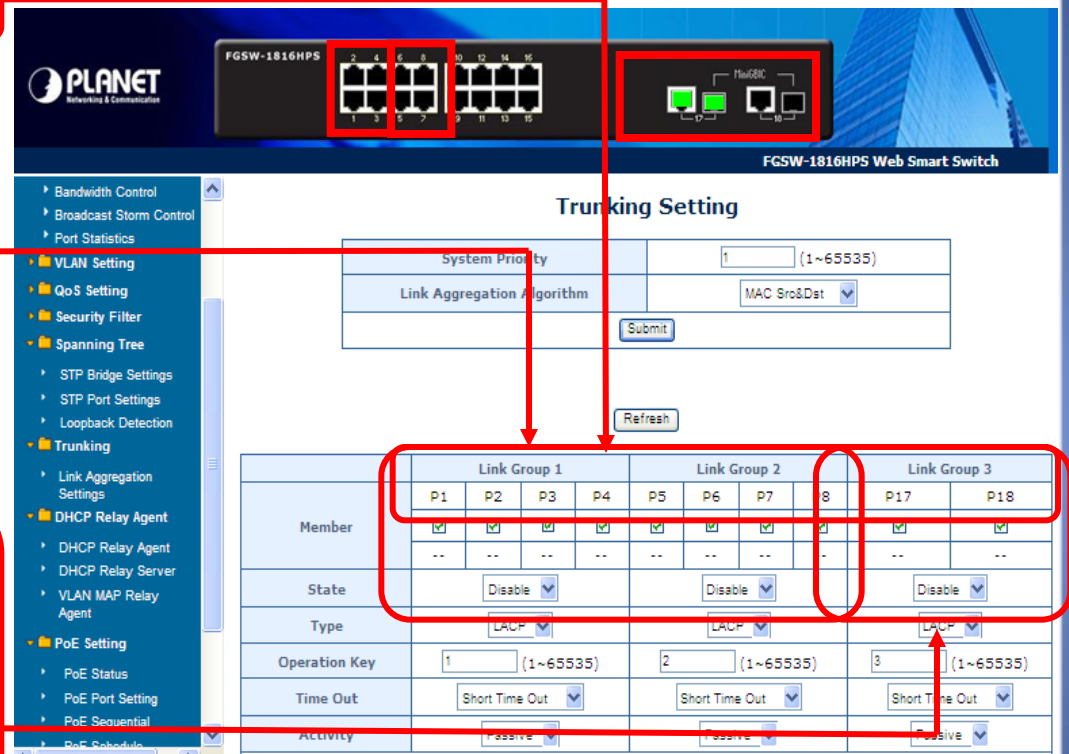# Product Features

◆ **Link Aggregation**

✓ Up to 3 trunk groups

✓ 2 groups of

 4-Port 10/ 100Base-TX trunk support,

 up to 800Mbps bandwidth per trunk

✓ 1 group of

 2-Port 10/100/1000Mbps trunk support,

 up to 2000Mbps bandwidth per trunk

Product Features

◆ **Spanning Tree Protocol**

    ✓ STP, IEEE 802.1D (Classic Spanning Tree Protocol)

    ✓ RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)

    ✓ Loopback Detection

◆ **Port Mirroring**

    ✓ Monitors the incoming or outgoing traffic on a particular port

◆ **In/Out Bandwidth Control**

    ✓ Provides a different transmission rate per Fast Ethernet port

Product Features

◆ **QoS**

   ✓ 2 priority queues on all switch ports

   ✓ Traffic classification:

      ✓ Port-based priority

      ✓ IEEE 802.1p based priority

      ✓ IP TOS / DSCP based priority

      ✓ TCP / UDP Port-based QoS

   ✓ Strict priority and Weighted Round Robin (WRR) CoS policies

   ✓ Broadcast Storm Control support

Product Features

◆ **Multicast**

✓ Supports IGMP Snooping v1 and v2

◆ **Security**

✓ MAC address filter

✓ TCP & UDP filter on each port

✓ Management idle time security

◆ **High-performance Wire-speed Switching**

◆ **Cost-effective Managed Edge/Department Switch**

Product Features

◆ **IGMP Snooping - Enable**
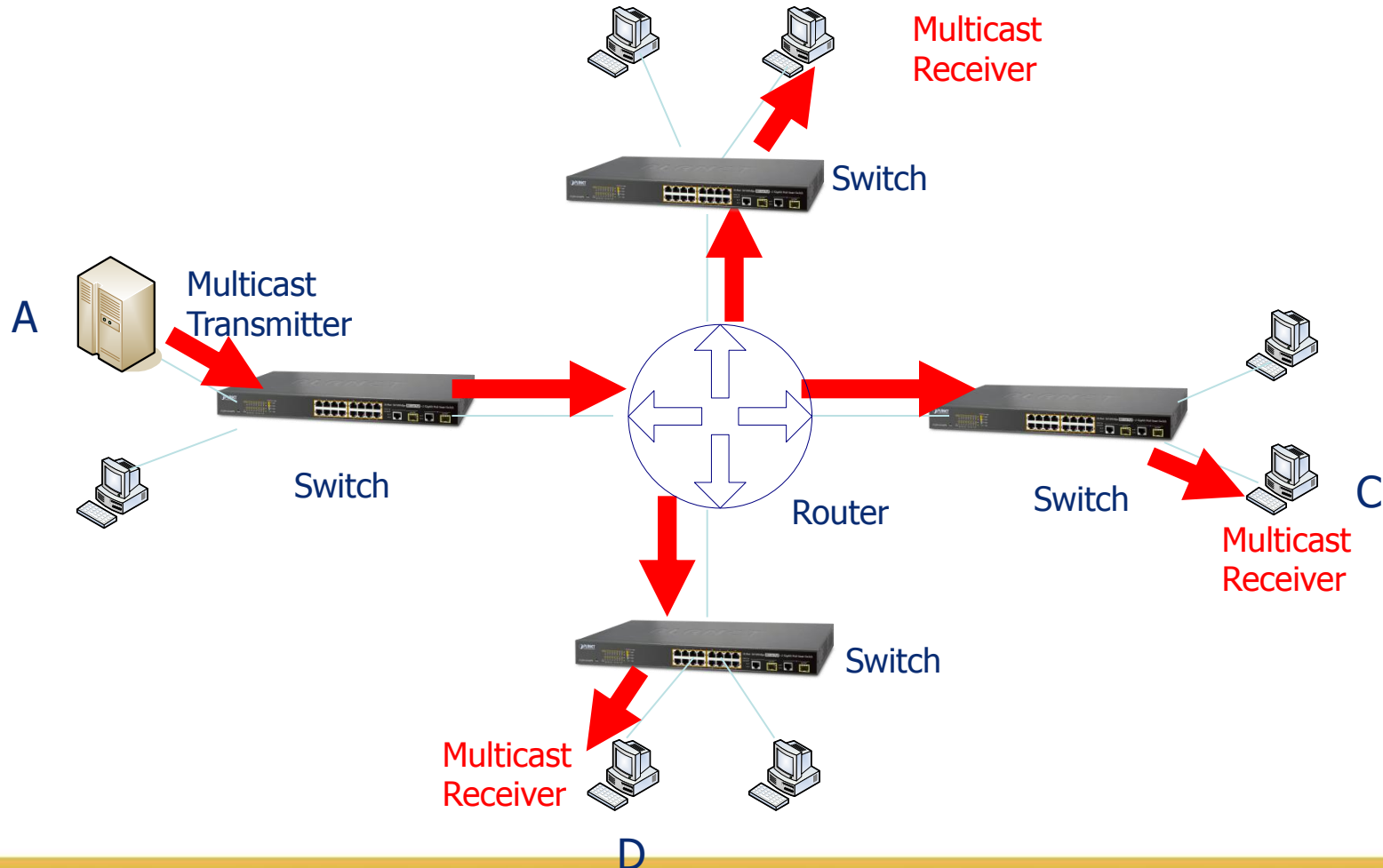
Applications

◆ **PoE IP Surveillance with Extended Network Infrastructure for SMBs / Workgroups**
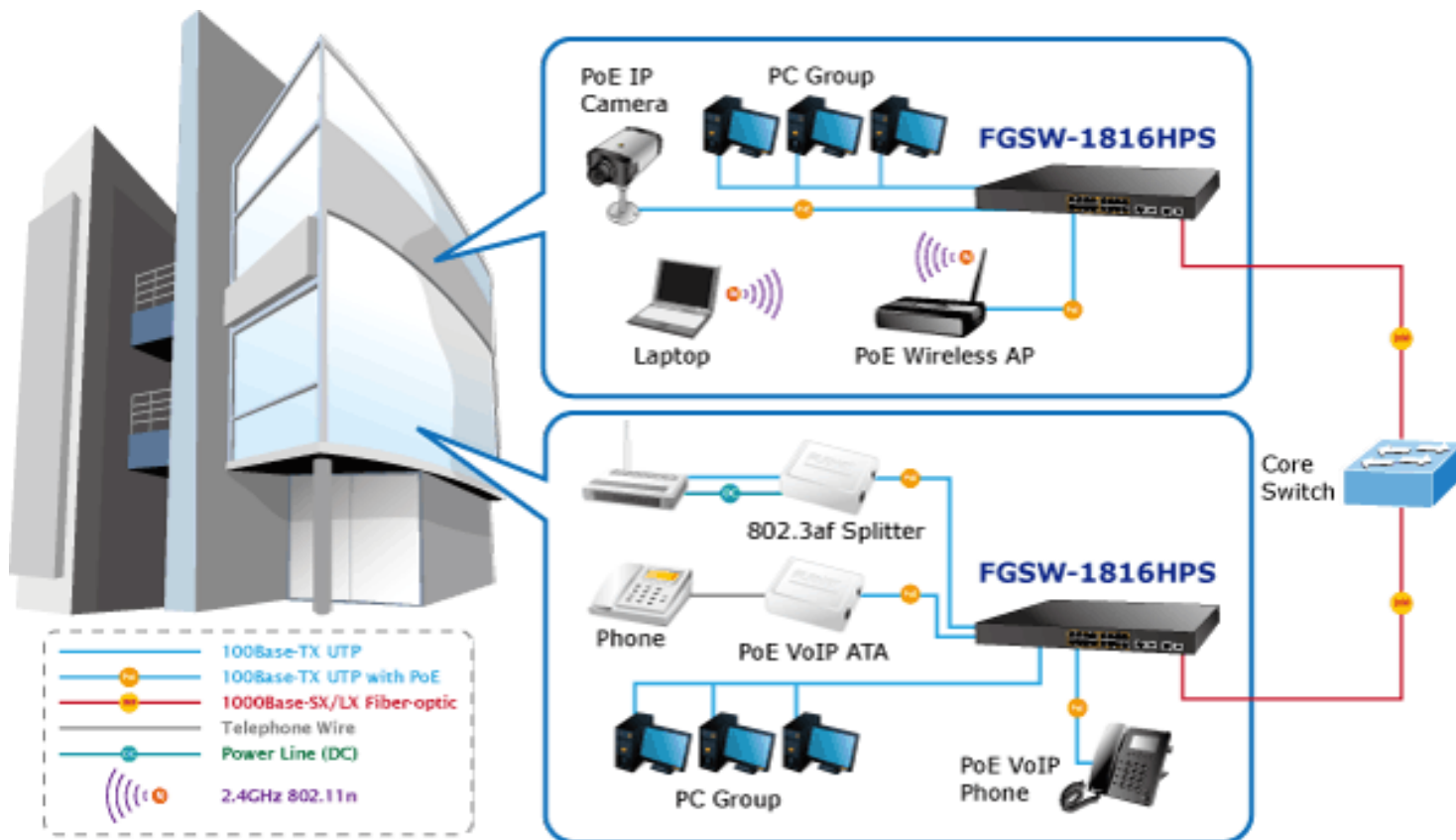
Applications

◆ **Rapid Spanning Tree Protocol for Efficient Network System**

The FGSW-1816HPS features strong **rapid self-recovery capability** to prevent interruptions and external intrusions. It incorporates **Rapid Spanning Tree Protocol** (**802.1w RSTP**) into customer's automation network to enhance system reliability and uptime.
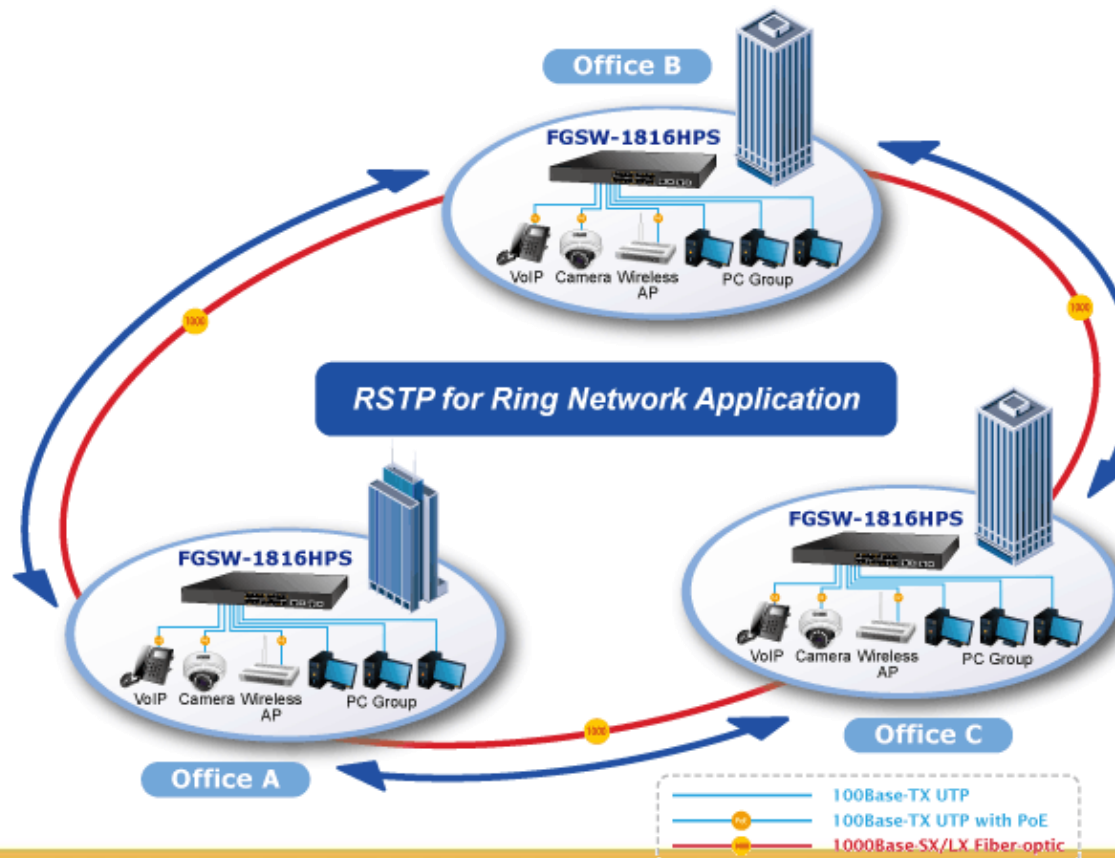
Product Comparison

Model Name	FGSW-1816HPS	FGSW-1828PS	FNSW-1608PS
Product Outlook			
Interface			
10/100Base-TX	16	16	16
10/100/1000Base-T	2	2	-
Gigabit SFP / mini-GBIC	2 (combo)	2 (combo)	-
Power over Ethernet			
PoE Ports	**16**	8	8
PoE Standard	IEEE 802.3at PoE / PSE	IEEE 802.3af PoE / PSE	IEEE 802.3af PoE / PSE
PoE Power Supply Type	End-Span	End-Span	End-Span
PoE Power Output	Per port 56V DC, Max. 30.8 watts	Per port 48V DC, Max. 15.4 watts	Per port 48V DC, Max. 15.4 watts
Power Pin Assignment	1/2(+), 3/6(-)	1/2(+), 3/6(-)	1/2(+), 3/6(-)
PoE Power Budget	220 watts (ax.)	110 watts (max.)	110 watts (max.)
PD Sequential	■	-	-
PD Schedule	■	-	-
Security			
IP / MAC Security	MAC Filter,TCP/UDP Filter	MAC Filter,TCP/UDP Filter	MAC Filter,TCP/UDP Filter
DHCP Relay	■	-	-
DHCP Option82	■	-	-

Product Comparison

Model Name		FGSW-1816HPS	FGSW-1828PS	FNSW-1608PS
Product Outlook				
Layer 2 Features				
Switch Fabric		7.2Gbps	7.2Gbps	3.2Gbps
MAC Address Table Size		4K	4K	4K
Maximum Frame Size		1536 Bytes	1536 Bytes	1536 Bytes
Storm Control		Broadcast	Broadcast	Broadcast
Link Aggregation	Static	3 Trunks / 4 Ports for Fast Ethernet Port or 2 Ports for Gigabit Port	2 Trunks / 4 Ports	2 Trunks / 4 Ports
	LACP	3 Trunks / 4 Ports for Fast Ethernet Port or 2 Ports for Gigabit Port	2 Trunks / 4 Ports	2 Trunks / 4 Ports
VLAN	802.1Q	■	■	■
	Post-based	■	■	■
	Private VLAN	MTU VLAN	MTU VLAN	MTU VLAN
Active VLAN (1q/port)		30 / 18	32 / 16	32 / 18
Spanning Tree		802.1D / 802.1w	-	-
Loopback Detection		■	-	-
IGMP Snooping		V1, V2	V1, V2	V1, V2
Management				
Management & Configuration		Web	Web	Web
SNMP		V1	-	-
Other Management		System Uptime Idle Time Security	-	-
Configuration Backup / Restore		■	-	-

Appendix Sales Target

◆ **Target Markets**

    ✓ **IP Surveillance integrator, Wireless Service Provider**

    ✓ **Enterprise / SMB Office / Government / Campus**

    ✓ **System Integrator**

◆ **Profitable Products**

    ✓ **The following 8-port, 16-port PoE switches / injector hubs are potential to all customers:**

        • FNSW-1608PS, FGSW-1828PS, FNSW-1600P

        • GSW-1600HP, WGSW-20160HP

    ✓ **The following network video recorders (NVRs) are potential to all customers:**

        • NVR-1610, NVR-1620, NVR-3250

Appendix

◆ **Available Gigabit Ethernet Fiber Optic SFP Modules:**

Gigabit Ethernet Transceiver (1000Base-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-GT	1000	Copper	--	100m	--	0 ~ 60 ℃
MGB-SX	1000	LC	Multi Mode	550m	850nm	0 ~ 60 ℃
MGB-SX2	1000	LC	Multi Mode	2km	1310nm	0 ~ 60 ℃
MGB-LX	1000	LC	Single Mode	10km	1310nm	0 ~ 60 ℃
MGB-L30	1000	LC	Single Mode	30km	1310nm	0 ~ 60 ℃
MGB-L50	1000	LC	Single Mode	50km	1550nm	0 ~ 60 ℃
MGB-L70	1000	LC	Single Mode	70km	1550nm	0 ~ 60 ℃
MGB-L120	1000	LC	Single Mode	120km	1550nm	0 ~ 60 ℃
MGB-TSX	1000	LC	Multi Mode	550m	850nm	-40 ~ 75 ℃
MGB-TLX	1000	LC	Single Mode	10km	1310nm	-40 ~ 75 ℃
MGB-TL30	1000	LC	Single Mode	30km	1310nm	-40 ~ 75 ℃
MGB-TL70	1000	LC	Single Mode	70km	1550nm	-40 ~ 75 ℃

Appendix

◆ **Available Gigabit Ethernet WDM Fiber Optic SFP Modules:**

Gigabit Ethernet Transceiver (1000Base-BX, Single Fiber Bi-Directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-LA10	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	0 ~ 60 ℃
MGB-LB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	0 ~ 60 ℃
MGB-LA20	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60 ℃
MGB-LB20	1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60 ℃
MGB-LA40	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	0 ~ 60 ℃
MGB-LB40	1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	0 ~ 60 ℃
MGB-LA60	1000	WDM(LC)	Single Mode	60km	1310nm	1550nm	0 ~ 60 ℃
MGB-LB60	1000	WDM(LC)	Single Mode	60km	1550nm	1310nm	0 ~ 60 ℃
MGB-TLA10	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	-40 ~ 75 ℃
MGB-TLB10	1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	-40 ~ 75 ℃
MGB-TLA20	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 75 ℃
MGB-TLB20	1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 75 ℃
MGB-TLA40	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 75 ℃
MGB-TLB40	1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 75 ℃
MGB-TLA60	1000	WDM(LC)	Single Mode	60km	1310nm	1550nm	-40 ~ 75 ℃
MGB-TLB60	1000	WDM(LC)	Single Mode	60km	1550nm	1310nm	-40 ~ 75 ℃

Activating IP Power