NETGEAR 16-Port Gigabit Smart PoE+ Switch with 2 SFP Ports and Cloud management

As a leading provider of network equipment for SMBs, NETGEAR® understands the importance of providing great choice of PoE port counts and power budgets that can adapt to the business's needs to keep up with the growth of virtualization, cloud-based services and applications like VoIP, video streaming and IP surveillance, whether in the hospitality, catering, education or retail domains.

The GS716TP and GS716TPP 16-Port Gigabit Switch with PoE+ and 2 SFP Ports join the NETGEAR Standalone Smart Switches family, adding full 16 port PoE+ support for deployment of modern high-power PoE devices. Cautious spender organizations can now deploy denser

PoE+ devices connected to a cost effective switch, with a reasonable PoE power budget of 180W (GS716TP) or 300W (GS716TPP).

NETGEAR Smart Switches offer powerful Layer 2 features, great PoE functionality, and enhanced performance and usability. These switches are the ideal solution even for the most advanced small and medium organizations looking for the best combination of features, performance, and value: they are purposely designed for converged networks where voice, video, data are all carried on a single network platform. Temperature- and load-based fan-speed control combines accurate monitoring with minimized system acoustic noise: the GS716TP and GS716TPP support quiet rack

mounting operation with a maximum of 27.3dB (GS716TP) and 28.2 dB (GS716TPP) even at full power and 25°C (77°F) ambient.

To empower the PoE applications, NETGEAR Insight Remote/Cloud Management is added to these two new switch models as an optional management mode. By activating the NETGEAR Insight Cloud management, the users will enable management features allowing businesses simpler configuration and deployment from anywhere using the NETGEAR Insight app from mobile devices or the Insight Cloud Portal from any device with a web browser.

Highlights

More Powerful Switch for High Power Devices

- 16 x PoE+ Gigabit ports with 180W PoE budget (GS716TP) or 300W PoE budget (GS716TPP)
- 2 dedicated Gigabit SFP fiber uplink ports

Fast and flexible solution for SMB data, voice and video converged network

- Non-blocking switching with 36Gbps bandwidth
- Flexible rack-mounting option

Powerful Connectivity and Security

- Advanced VLAN support for better network segmentation
- L2/L3/L4 access control lists (ACLs) for granular network access control including 802.1x port authentication
- Advanced per port PoE controls for remote power management of PoE connected devices including operation scheduling

- Advanced QoS (Quality of Service) for traffic prioritization including port-based, 802.1p and L2/L3/L4 DSCP-based
- Auto "denial-of-service" (DoS) prevention
- IGMP Snooping and Querier for multicast optimization
- Egress Rate limiting and priority queuing for better bandwidth allocation
- Port mirroring for network monitoring
- Energy Efficient Ethernet (IEEE 802.3az) for maximum power savings
- IPv6 management: IPv6 QoS, IPv6 ACL, IPv6 Multicast, and static and dynamic IPv6 address assignment
- Cable test to troubleshoot connection issues
- Easy-to-use Web browser-based management GUI available in English, German and Japanese
- SNMP v1, v2c, v3 and RMON remote monitoring

Fully-integrated cloud-manageable devices

Remote/Cloud Management capability with NETGEAR Insight. Instantly activate NETGEAR Insight Cloud management from the web GUI, given they subscribe to Basic (first 2 devices free), Premium or Insight Pro.

Small IT, not Big IT

- Easy to manage via web-based Management interface or Smart Control Center on Windows PC for multi-switch deployment
- NETGEAR Switch Discovery Tool (NSDT) to discover, register and access to the local browser interface to configure the switches

NETGEAR Quality and Reliability

- Worry-free Limited Lifetime Warranty*, online technical chat support and Next Business Day (NBD) replacement.

NETGEAR 16-Port Gigabit Smart PoE+ Switch with 2 SFP Ports and Cloud management

Hardware at a Glance

Model Name	Form-Factor	FRONT			REAR	SIDE
		10/100/1000BASE-T RJ-45 Copper Ports	1G SFP Uplink	PoE+ 802.3at Ports (Budget)	Power Supply (PoE Budget)	Fans
GS716TP	Rackmount	16	2	16 (180W)	1 internal PSU, fixed	1 internal fans, fixed
GS716TPP	Rackmount	16	2	16 (300W)	1 internal PSU, fixed	2 internal fans, fixed

Software at a Glance

Management	PoE Control Features	IPv4/IPv6 ACL and QoS	IPv4/IPv6 Multicast Filtering	VLANs	IEEE (802.3az) Energy Efficient Ethernet	Convergence	Link Aggregation
Web Browser-based GUI (HTTP/HTTPS), PC-Based Smart Control Center Utility (SCC), RMON, SNMP, NETGEAR Insight Cloud Management via mobile App and Insight Portal	PoE on/off, Dynamic PoE budget allocation, PoE power priority setting, PoE Power Usage Metering, PoE scheduling	L2, L3, L4, ingress	IGMP Snooping, Querier	Static, Dynamic, VoIP, Voice	Yes	LLDP-MED, RADIUS, 802.1X	LACP and Manual Static LAGs (up to 8 LAGs with max 8 members)

Performance at a Glance

Model Name	Packet buffer	CPU	ACLs	MAC Address Table ARP Table VLANs	Fabric	Latency (64-Byte Packet)	Multicast IGMP Group
GS716TP	1.5 MB	700MHz single core 128MB RAM 32MB SPI FLASH	100 shared (ingress)	16K Max MAC 64 VLANs	36 Gbps line-rate	1G Copper: <3.789 us 1G Fiber: < 3.304 us	256
GS716TPP							

Ordering Information

Model Name	Americas	Europe	Asia Pacific	India	China
GS716TP	GS716TP-100NAS	GS716TP-100EUS	GS716TP-100AJS	-	-
GS716TPP	GS716TPP-100NAS	GS716TPP-100EUS	GS716TPP-100AJS	-	-

Features and Benefits

Hardware Features	
Fully-integrated Cloud-manageable Devices	Require no additional hardware (cloud keys, network portals, local servers, VPN or proxy appliances etc) to directly connect to the cloud and allow remote management. No additional hardware or software. Just switch to Insight Cloud Management mode through Web browser-based User Interface and go.
1000BASE-T Copper Ethernet and PoE+ connections	Support high-density VoIP, Surveillance and Wi-Fi AP deployments, scalable for future growth. Never face the risk of running out of PoE ports.
1000BASE-X SFP ports	Two dedicated Gigabit SFP ports for aggregation to the network core. Support for Fiber and Copper modules.
Low Acoustics	Temperature- and load-based fan-speed control allow for quiet operation in both desktop or rack mount configuration.
Energy Efficient Ethernet (IEEE 802.3az)	Maximum power reduction for ongoing operation cost savings.
Desktop and rack-mount (kit available)	Flexible deployment on desktop and also support rackmount.
Software Features	
Remote setup, management, and monitoring anywhere, anytime, from your mobile device, PC, Mac, or tablet	Locally or remotely setup, configure, manage, monitor or even trouble-shoot your network from anywhere, anytime. Check network status, view dashboards for network health and activity, power cycle PoE ports, etc, and update firmware remotely. No need to be on-site, open up ports to your network, or VPN into it.
Auto-join and Configure (Zero-Touch Provisioning)	Additional Insight Managed devices added to the network automatically inherit settings and configuration.
Multi-site, Multi-network Single Pane-of-Glass View	View and configure multiple networks across multiple sites, all from one single app; NETGEAR Insight.
Comprehensive IPv6 Support for Management, ACL and QoS	Build current network with future in mind. Ensure investment protection and a smooth migration to an IPv6-based network without switch replacement.
Robust Security Features: • 802.1x authentication (EAP) • Port-based security by locked MAC	Build a secured, converged network with all types of traffic by preventing external attacks and blocking malware while allowing secure access for authorized users.
Comprehensive QoS Features: • Port-based or VLAN 802.1p-based prioritization • Layer 3-based (DSCP) prioritization • Port-based iegress rate limiting	Advanced controls for optimized network performance and better delivery of mission-critical traffic such as voice and video.
Auto-VoIP, Auto-Voice VLAN	Automatic Voice over IP prioritization (Auto-VoIP) simplifies most complex multi-vendor IP telephone deployments either based on OUI bytes(default database and user-based OUIs) in the phone source MAC address, providing the best class of service to VoIP streams (both data and signaling) over other ordinary traffic by classifying traffic, and enabling correct egress queue configuration.
IGMP Snooping	Facilitate fast receiver joins and leaves for multicast streams. Save cost and improve network efficiency by ensuring multicast traffic only reaches designated receivers without the need of an extra multicast router.
Protected Ports	Ensure no exchange of unicast, broadcast, or multicast traffic between the protected ports on the switch, thereby improving the security of your converged network. This allows your sensitive phone conversations to stay private and your surveillance video clips can be forwarded to their designated storage device without leakage or alteration.

Software Features (continued)	
DHCP Snooping	Ensure IP address allocation integrity by only allowing DHCP messages from trusted DHCP servers and dropping malformed DHCP messages with a port or MAC address mismatch.
Dynamic VLAN Assignment (RADIUS)	IP phones and PCs can authenticate on the same port but under different VLAN assignment policies. Users are free to move around and enjoy the same level of network access regardless of their physical location on the network.
Link Aggregation (LACP)	Build up bigger bandwidth to support aggregated uplink/downlink traffic or to provide redundant link(s). Aggregate up to 8 ports for 8Gbps connections.
PoE Timer and Scheduling	Allows IT administrators to increase network security, better utilize network resources and conserve energy by scheduling or remotely controlling on/off of PoE ports.
Port Mirroring and Cable Test	Many-to-one port mirroring for better and quicker network diagnostics and troubleshooting. Cable test easily identifies bad Ethernet cables.
Dual Firmware Images	Dual firmware images for transparent firmware updates with minimum service interruption.
Firmware Updates from Cloud	Direct cloud-to-device firmware updates, initiated and/or scheduled using the Insight app, all from the palm of your hand, anytime, anywhere!

Simply Activate NETGEAR Insight Cloud Management to manage your network. Anytime. Anywhere.

By activating the NETGEAR Insight Cloud management, the users will enable fundamental management features allowing businesses simpler configuration and deployment from anywhere using the NETGEAR Insight app from mobile devices or the Insight Cloud Portal from any device with a web browser.

Unique advanced management features of these Insight Managed devices include:

- Remote monitoring and management with performance dashboards and troubleshooting features including remote reboot, port and PoE advanced configuration including remote enable/disable/power-cycle, PoE scheduling, and firmware updates with auto-schedule mode

- Single pane-of-glass multi-device, multi-network, and multi-site remote monitoring and notifications with the NETGEAR Insight app

- Full-fledged local or remote access for configuration, management, and monitoring on a larger display using your tablet, laptop, or desktop computer through the NETGEAR Insight Cloud Portal

- Configurable in-app and email alerts and notifications

- Auto-join and configure (zero-touch provisioning) for additional Insight Managed devices added to the network

- Centralized network configuration (policies) across Insight Managed Switches, Access Points, and ReadyNAS storage for VLANs, ACLs, QoS, LAGs, etc.

- Cloud-based network administration, monitoring, and firmware management

For more information about NETGEAR Insight-manageable device settings, please see at: https://www.netgear.com/support/product/Insight.aspx

Application Sample

Power The Devices in Your Business
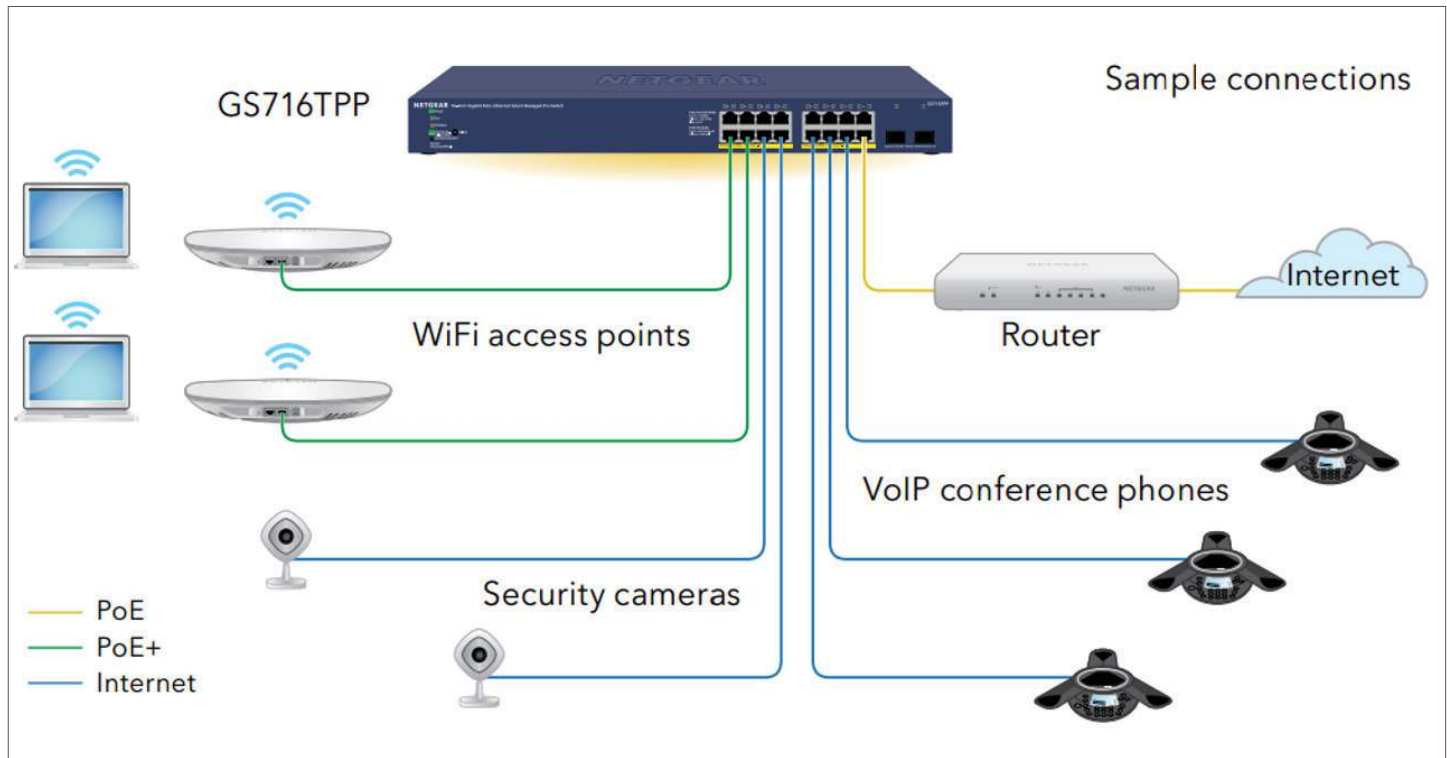
The new standalone GS716TP and GS716TPP switch are designed with 16 ports PoE+ and 2 SFP ports. With 180W power on GS716TP and 300W power on GS716TPP, the two switches can meet the current and future needs of wireless converged networks. Within small and medium-sized organizations, there is growing adoption of PoE devices such as VoIP phones, IP security cameras, wireless access points, proximity sensors, LED lighting, door locks, and other IoT devices that require network switches capable of supporting dense PoE installations. Wireless access points and pan-tilt-zoom HD cameras using Wave 2 802.11ac Wi-Fi also require PoE+ power (802.3at), increasing the power demands on PoE switches.

"PoE devices are putting a strain on switching power demands." As a leading provider of network equipment for SMBs, NETGEAR understands the importance of providing great choice of PoE port counts and power budgets that can adapt to the business's needs, whether in the hospitality, education or retail domains.

These switches provide a great value, with configurable Layer 2 network features like VLANs and PoE operation scheduling. Advanced features such as DiffServ QoS, LACP link aggregation and Spanning Tree will satisfy even the most advanced small business networks. With Insight Cloud management capability, managing those PoE and Smart switching features is just one click away.

Technical Specifications	GS716TP	GS716TPP
Gigabit Ethernet RJ-45 Copper ports (10M/100M/1G) - 1000BASE-T	16	
PoE / PoE+ ports	16	
Gigabit SFP (fiber) ports (100M/1G) - 1000BASE-X	2 (dedicated)	
Power Supply	Internal Power Supply	
LEDs		
Front (per device)	Power (with Cloud Mode Indicator), Fan, PoE Max, LED Mode	
Front (per port)	Speed/Link/Activity/PoE Status	
Unified Network Management (Discovery, Setup, Monitoring, and Management) through NETGEAR Insight Cloud Management		
Discovery, setup, monitoring and management	NETGEAR Insight mobile app on phone or tablet; Insight Cloud Portal from PC, Mac, or tablet web browser	
Remote/Cloud management	Anywhere, anytime, from the palm of your hand using Insight mobile app or from any PC, Mac, or tablet web browser using the Insight Cloud Portal	
Centralized network configuration (policies)	Centralized network configuration (policies) across Insight Switches, Wireless Access Points, and Business-class ReadyNAS Storage for VLANs, ACLs, QoS, and LAGs	
Device auto-join and configure (zero-touch provisioning)	Additional Insight Managed devices added to the network automatically inherit the network configuration	
Multi-site, multi-network single pane-of-glass view	Manage multiple sites, locations, and networks in a single view using the Insight mobile app or Insight Cloud Portal	
Multi-switch, multi-port concurrent configuration for ACLs, VLANs, QoS, PoE, etc	Apply settings and policies on multiple ports across multiple switches all at the same time using the Port Config Wizard	
Performance Specification		
CPU	700MHz single core 128MB RAM 32MB SPI FLASH	
Packet buffer memory (Dynamically shared across only used ports	1.5 MB	
Forwarding modes	Store-and-forward	
Bandwidth (non-blocking, full duplex	36 Gbps	
Priority queues	8	
Priority queuing	Weighted Round Robin (WRR) and Strict Priority	
MAC Address database size (48-bit MAC addresses)	16K	
Multicast groups	256	
Number of VLANs	64	
Number of DHCP snooping bindings	256	
Access Control Lists (ACLs)	100 shared for MAC, IP and IPv6 ACLs (ingress)	
Packet forwarding rate (64 byte packet size) (Mfps or Mpps)	26.8	

Performance Specification	GS716TP	GS716TPP
1G Copper standard latency (µsec) (64-byte; 1518-byte; 9216-byte frames)	64-byte: 3.932 µsec 1518-bye: 3. 669µsec 9216-byte: 3.286 µsec	64-byte: 3.941 µsec 1518-bye: 3.664 µsec 9216-byte: 3.296 µsec
1G SFP Fiber latency (µsec) (64-byte; 1518-byte; 9216-byte frames)	64-byte: 3.304 µsec 1518-bye:3.304 µsec 9216-byte: 3.447 µsec	64-byte: 3.181 µsec 1518-bye: 3.181 µsec 9216-byte: 3.332 µsec
Jumbo frame support	9216	
Acoustic noise level @ 25° C (dBA) (ANSI-S10.12)	27.3 dBA	28.2 dBA
Mean Time Between Failures (MTBF) @ 25° C	1,186,673 hrs (135 yrs)	1,257,629 hrs (144 yrs)
PoE Configuration		
Number of PoE (802.3af) / PoE+ (802.3at) ports	16 PoE+	16 PoE+
Total PoE power budget (watts)	180W	300W
Advanced per-port PoE controls (enable/disable/power limit)	Yes	
Advanced per-port PoE scheduling/timers	Yes	
L2 Services - VLANs		
IEEE 802.1Q VLAN Tagging	Yes	
Protocol based VLANs	Yes	
MAC based VLANs	Yes	
L2 Services - Availability		
Broadcast, multicast, unknown unicast storm control		
IEEE 802.3ad - LAGs (LACP)	Yes	
IEEE 802.3x (full duplex and flow control)	Yes	
IEEE 802.1D Spanning Tree Protocol	Yes	
IEEE 802.1w Rapid Spanning Tree	Yes	
IEEE 802.1s Multiple Spanning Tree	Yes	
L2 Services - Multicast Filtering		
IGMP snooping (v1, v2 and v3)	Yes	
IGMP snooping queries	Yes	
Block unknown multicast	Yes	
Multicast groups	256	
DHCP Services		
DHCP client	Yes	
DHCP snooping	Yes	
Number of DHCP snooping bindings	256	

Link Aggregation	GS716TP	GS716TPP
IEEE 802.3ad - LAGs (LACP)	Yes	
Manual Static LAG	Yes	
# of Static or LACP LAGs / # of members in each LAG	8 LAGs with max 8 members in each LAG	
Network Monitoring and Discovery Service		
802.1ab LLDP	Yes	
LLDP-MED	Yes	
SNMP	Yes, v1/v2c/v3	
RMON group 1,2,3,9	Yes	
Network Security		
IEEE 802.1x	Yes	
Guest VLAN	Yes	
RADIUS based VLAN assignment via .1x	Yes	
MAC-based .1x	Yes	
RADIUS accounting	Yes	
Access Control Lists (ACLs)	L2 / L3 / L4	
IP-based ACLs (IPv4 and IPv6)	Yes	
MAC-based ACLs	Yes	
TCP/UDP-based ACLs	Yes	
MAC lockdown	Yes	
MAC lockdown by the number of MACs	Yes	
Control MAC # Dynamic learned entries	4096	
Control MAC # static entries	48	
IEEE 802.1x RADIUS port access authentication / type	Yes	
Port-based security by locked MAC addresses	Yes	
Broadcast, multicast, unknown unicast storm control	Yes	
DoS attacks prevention	Yes	
Protected ports	Yes	
Quality of Service (QoS)		
Port-based rate limiting	Yes, egress	
Port-based QoS	Yes	
Support for IPv6 fields	Yes	
DiffServ QoS	Yes, ingress	
IEEE 802.1p COS	Yes	
Destination MAC and IP	Yes	
IPv4 and IPv6 DSCP	IPv4 only	

Quality of Service (QoS)	GS716TP	GS716TPP
TCP/UDP-based	Yes	
Weighted Round Robin (WRR)	Yes	
Strict priority queue technology	Yes	
Auto-VoIP VLAN / Auto-Voice VLAN	Yes, manuel or automatic assignment of VoIP phone traffic based on OUI bytes (default database and user-based OUIs) in the phone source MAC address to Voice VLAN associated with high priority QoS parameters	
Other Features		
Advanced per-port PoE controls (enable/disable/power limit)	Yes	
Advanced per-port PoE scheduling/timers	Yes	
Loop detection & prevention	Yes	
DNS Client	Yes	
Option to enable/disable BPDU flooding when STP is disabled	Yes	
Option to enable/disable the flooding of EAPOL when 802.1x is disabled	Yes	
Management, Monitoring & Troubleshooting		
Cloud/Remote management	Yes	
Insight mobile app & Insight Cloud Portal management	Yes	
uPnP Discovery	Yes, activated by default	
Bonjour Discovery	No	
Networking monitoring	Yes	
Data/performance logs	Yes	
Centralized network configuration/policies (network-centric management)	Yes	
Device auto-join and configure (zero-touch provisioning)	Yes	
Multi-site, multi-network single pane-of-glass view	Yes	
Multi-switch, multi-port concurrent configuration	Yes	
Network/global password (for all Insight Managed devices on a network)	Yes (per network/subnet via NETGEAR Insight mobile app and Insight Cloud Portal)	
Password management	Yes	
IP Access List	Yes	
Configurable management VLAN	Yes	
Admin access control via RADIUS and TACACS+	Yes	
IPv6 management	Yes	
SNTP client over UDP port 123	Yes	
Firmware upgrade direct from Cloud (via mobile device or Insight Cloud Portal)	Yes	
SNMP v1/v2c	Yes	
SNMP v3 with multiple IP addresses	Yes	

Management, Monitoring & Troubleshooting	GS716TP	GS716TPP
RMON group 1,2,3,9	Yes	
Smart Control Center (SCC) for multi-switch management	Yes	
Port mirroring	Yes	
Many-to-one port mirroring	Yes	
Cable test utility	Yes	
Ping and tracer out client	Yes	
Local-only web browser-based management GUI	Yes	
HTTP/TLS Web-based access (version)	Yes (v1.2)	
HTTP firmware download	Yes	
Dual software (firmware) image	Yes	
Memory and flash log	Yes	
Syslog (Server)	Yes	
Power Consumption		
Max power (worst case, all ports used, line-rate traffic) (Watts)	17.01 W	18.06 W
Max power (worst case, all ports used, full PoE, line-rate traffic) (Watts)	193.90 W	317.74 W
Min power (link-down standby) (Watts)	12.00 W	13.36 W
Heat Dissipation (min w/o PoE and max with full PoE) (BTU/hr)	Max: 662.05BTU/hr Min: 40.97 BTU/hr	Max: 1100.46BTU/hr Min: 45.62 BTU/hr
Energy Efficient Ethernet (EEE) IEEE 802.3az	Yes (deactivated by default)	
Auto power down	Yes (deactivated by default)	
Fan(s) (temperature- and load-based speed control)	1	2
Physical Specifications		
Dimensions (W x D x H)	440 x 204 x 43 mm (17.3 x 8.0 x 1.7 in)	440 x 204 x 43 mm (17.3 x 8.0 x 1.7 in)
Weight	3.00 kg (6.61 lb)	3.08 kg (6.79 lb)
Mounting options	Desktop, rack-mount	Desktop, rack-mount
Environmental Specifications		
Operating		
Operating Temperature	0° to 50°C (32° to 122°F)	
Humidity	95% maximum relative humidity (RH), non-condensing	
Altitude	10,000 ft (3,000 m) maximum	
Storage		
Storage Temperature	–20° to 70°C (– 4° to 158°F)	
Humidity (relative)	95% maximum relative humidity (RH), non-condensing	
Altitude	10,000 ft (3,000 m) maximum	

Warranty and Support	GS716TP	GS716TPP
Hardware Limited Warranty	Limited Lifetime* (switch) 2 years (power adapter)	
Next-Business-Day (NBD) Replacement	Limited Lifetime*	
Technical support via phone	90 days free from date of purchase*	
24x7 Online Chat Technical support	Limited Lifetime*	
ProSUPPORT OnCall 24x7 Service Packs**	Category 1 PMB0311-10000S PMB0331-10000S PMB0351-10000S	
Ordering Information		
GS716TP-100NAS	North America, Latin America	
GS716TP-100EUS	Europe	
GS716TP-100AJS	Asia Pacific	
GS716TPP-100NAS	North America, Latin America	
GS716TPP-100EUS	Europe	
GS716TPP-100AJS	Asia Pacific	
Optional Modules, Software Licenses and Accessories		
AGM731F	SFP Transceiver 1000BASE-SX (Short range, multimode)	
AGM732F	SFP Transceiver 1000BASE-LX (Long range, single mode)	
AGM734-10000S	SFP Transceiver 1000BASE-T Copper RJ45 GBIC	

*This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and covers unmodified hardware, fans and internal power supplies – not software or external power supplies, and requires product registration at https://www.netgear.com/business/registration within 90 days of purchase; see https://www.netgear.com/about/warranty for details. Intended for indoor use only.

**The NETGEAR OnCall 24x7 contract provides unlimited phone, chat and email technical support for your networking product.

† NETGEAR #1 in US Market Share according to NPD data for Unmanaged and Smart Switches, September 2019. NETGEAR #1 in Europe Market Share according to Context data for Unmanaged and Smart Switches, September 2019.

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