



# USG FLEX 50/50AX

## Security Firewall

The latest USG FLEX 50/50AX is equipped with one single cloud management platform while strengthening the robust VPN connections across the branch offices and chain stores with an easy-to-use, integrated security solution designed specifically for your needs. USG FLEX 50/50AX delivers the best-of-breed protection without the cost or complexity.

### Benefits

#### Nebula together

The USG FLEX 50/50AX is now part of the Nebula cloud management family with the same easy management interface and streamlined configuration & updates. The network functions and management services are pushed to the cloud and are optimized for managing distributed networks.



Flexible to adapt to On Premises or Nebula cloud



Manage all distributed networks from one single screen



Web Filtering protects you from undesirable content



Device Insight provides better visibility and control



Analytics report and enhanced insights

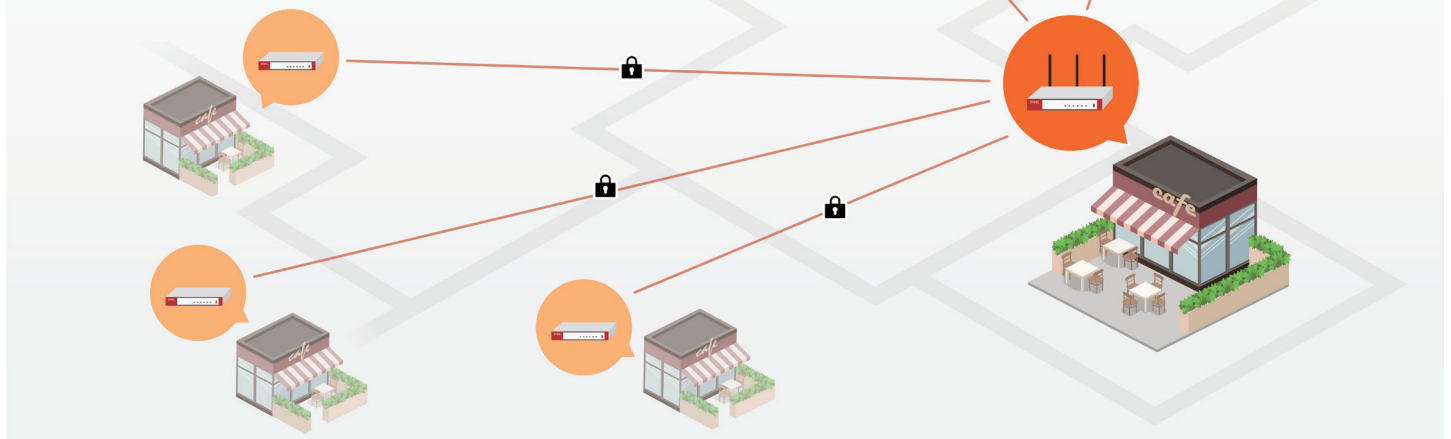


WiFi 6 (802.11ax) dual-radio speeds up to 1800 Mbps

## Secure retail/branch network

The USG FLEX 50/50AX provides comprehensive VPN connection types including IKEv2, SSL & IPsec VPN. All offer customers secured remote connections. IPsec VPN hardware engine for high-efficiency VPN tunnel. VPN load balance/failover with IKEv2 ensures strong VPN reliability and security for your business.

The USG FLEX 50/50AX is designed specifically for the needs of small business and branch locations, delivering enterprise-class security. Advanced networking and security features like Web Filtering, Security Profile Sync, and SecuReporter improves security by blocking access to malicious or risky websites, along with controlled access with integrated firewall policy for highly granular blocking and filtering, creating a unified security solution for both wired and wireless networks.



## Centralized provisioning from Nebula

With Zero-Touch deployment and simplified centralized management, installation and operation is no longer a hassle. After being registered to a network, the USG FLEX 50/50AX will automatically be discovered when it's connected, then the preconfigured settings are automatically applied.

The USG FLEX 50/50AX helps customers to comply with regulations by offering log archiving service without the need for additional hardware and software installation.

## All from one place with ease

From access points, switches, security gateways and firewalls, all Nebula devices are managed through the cloud using an intuitive interface that allows you to configure, manage, and troubleshoot all distributed networks from one single screen without the complexity of remote site access.

## Comprehensive content filtering service

USG FLEX 50/50AX delivers enhanced content filtering functionality and security through its powerful combination of both reputation and category-based filtering. The dynamic content categorization analyzes the content of a previously unknown website and domain, then determines if it belongs to an undesirable category including gambling, pornography, games, and many others. A newly added DNS content filter offers a better approach to inspect web access, particularly when the website is deploying ESNI (Encrypted Server Name Indication) where the traditional URL filtering is not applicable to the destination domain.

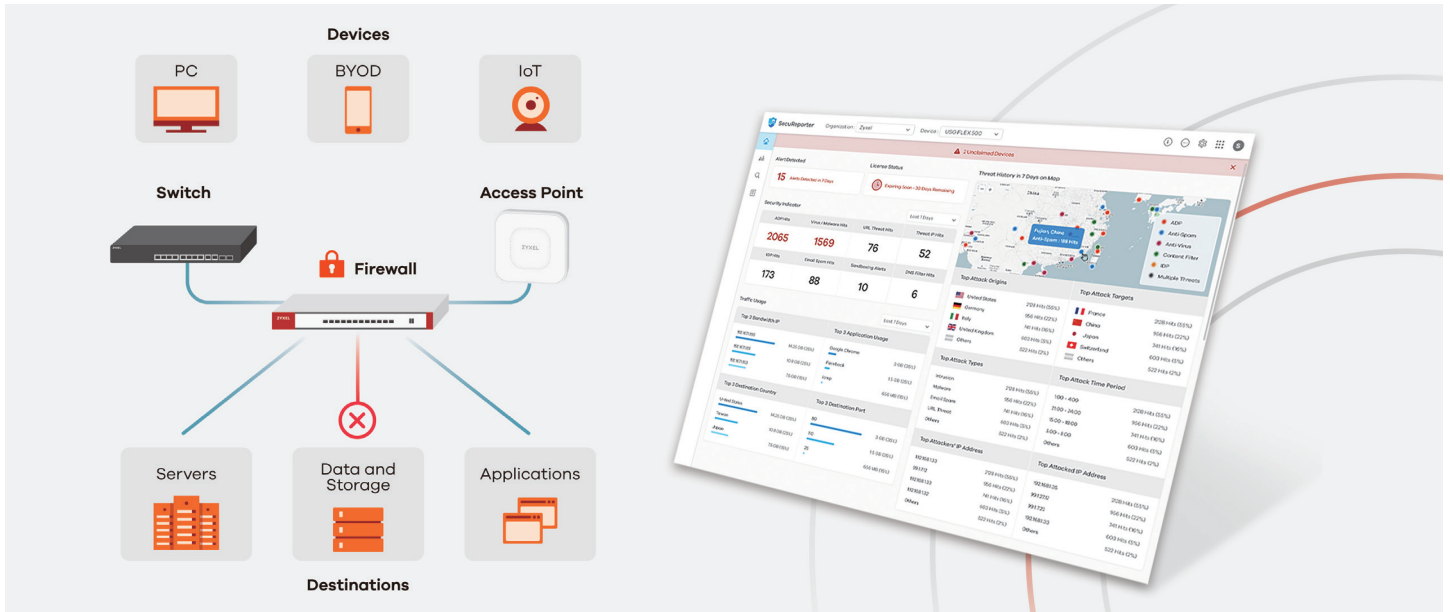


## Deep Insight into all your devices

Device Insight gives you more visibility of your networks including wired, wireless, BYOD, and IoT devices. Enable it to identify devices with distinct security segments down to individual level. Device insights also detect vulnerabilities that are associated with those devices. It helps SMB(s) to reduce the number of human hours spent on investigation. Continuing with our goal of providing our customers with increased visibility, Zyxel SecuReporter gives your organization comprehensive endpoint inventory dashboard.

## Analytics report and enhanced insights

USG FLEX 50/50AX dashboard gives user-friendly traffic summary and threat visual statistics. Utilize SecuReporter for further threat analysis with correlation feature design, making it easy to proactively trackback network status to prevent the next threat event. Centralized visibility of network activities for you to easily manage multiple clients.



## Zyxel One Network experience

Aiming for relieving our customers from repetitive operations of deploying and managing a network, Zyxel One Network is designed to simplify the configuration, management, and troubleshooting, allowing our customers to focus on the business priorities. Zyxel One Network presents an easy-to-use tool, Zyxel One Network Utility (ZON Utility), to realize speed network setup. Zyxel Smart Connect allows Zyxel networking equipment to be aware and recognize each other and further facilitating the network maintenance via one-click remote functions such as factory reset or power cycling. Zyxel One Network redefines the network integration across multiple networking products from switch to WiFi AP and to Gateway.



**Zyxel one network**  
Redefining network integration

## Licenses

### Licensed Pack

The USG FLEX 50/50AX provides an indispensable feature set to perfectly fit small business requirements as well as to gain essential security services needed to protect against cyberattacks. Nebula Control Center (NCC) offers multiple

subscription options to meet customers' needs. The Nebula Plus/Professional Pack gives you some peace of mind at more control over your network updates and visibility, or even the most advanced management of cloud networking.



● On Premises Feature Included

● Nebula Feature Included

	Service / Component	On Premises	On Cloud
<b>Content Filter Pack</b>	Web Filtering	●	●
	SecuReporter	●	●
	Security Profile Sync		●
<b>Nebula Professional Pack</b>	Nebula Professional Pack Service		●
<b>Nebula Plus Pack</b>	Nebula Plus Pack Service		●

\*: Please contact your local customer service if you can't use your content filter license with Nebula.

## Specifications

Model	USG FLEX 50	USG FLEX 50AX	
Product photo			
<b>Hardware Specifications</b>			
WiFi standard	N/A	802.11 ax/ac/n/g/b/a	
10/100/1000 Mbps RJ-45 ports	4 x LAN/DMZ, 1 x WAN	4 x LAN/DMZ, 1 x WAN	
USB 3.0 ports	1	1	
Console port	Yes (RJ-45)	Yes (RJ-45)	
Rack-mountable	N/A	N/A	
Fanless	Yes	Yes	
<b>System Capacity &amp; Performance*1</b>			
SPI firewall throughput*2 (Mbps)	350	350	
VPN throughput (Mbps)	90	90	
VPN IMIX throughput (Mbps)*3	40	40	
Max. TCP concurrent sessions*4	20,000	20,000	
Max. concurrent IPsec VPN tunnels*5	10	20	
Recommended gateway-to-gateway IPsec VPN tunnels	5	5	
Concurrent SSL VPN users (default/max.)	5/15	15	
VLAN interface	8	8	
<b>Speed Test Performance</b>			
SPI firewall throughput*6 (Mbps)	320	320	
<b>Key Features</b>			
Security Service	Web Filtering*7	Yes	Yes
	SecuReporter*7	Yes	Yes
	2-Factor Authentication	Yes	Yes
	Device Insight	Yes	Yes
	Security Profile Synchronize*7	Yes	Yes

Model		USG FLEX 50	USG FLEX 50AX
<b>Key Features</b>			
<b>VPN Features</b>	<b>VPN</b>	IKEv2, IPSec, SSL, L2TP/IPSec	IKEv2, IPSec, SSL, L2TP/IPSec
	<b>Microsoft Azure</b>	Yes	Yes
	<b>Amazon VPC</b>	Yes	Yes
<b>Connectivity Management</b>	<b>Nebula Cloud Managed Mode</b>	Yes	Yes
	<b>Easy Mode*<sup>8</sup></b>	Yes	Yes
	<b>Concurrent devices logins*<sup>9</sup></b>	64	64
<b>Power Requirements</b>			
<b>Power input</b>		12 V DC, 2.0 A max.	12 V DC, 2.5 A max.
<b>Max. power consumption (Watt Max.)</b>		12	24.3
<b>Heat dissipation (BTU/hr)</b>		40.92	55.37
<b>Physical Specifications</b>			
<b>Item</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	216 x 143 x 33/ 8.50 x 5.63 x 1.30	216 x 149.28 x 33/ 8.50 x 5.88 x 1.30
	<b>Weight (kg/lb.)</b>	0.88/1.94	1.00/2.20
	<b>Packing</b>	<b>Dimensions (WxDxH)(mm/in.)</b>	276 x 185 x 98/ 10.87 x 7.28 x 3.86
	<b>Weight (kg/lb.)</b>	1.41/3.11	1.53/3.37
<b>Included accessories</b>		<ul style="list-style-type: none"> <li>Power adapter</li> <li>RJ-45 - RS-232 cable for console connection</li> </ul>	<ul style="list-style-type: none"> <li>Power adapter with plug</li> <li>RJ-45 - RS-232 cable for console connection</li> <li>Antenna</li> </ul>
<b>Environmental Specifications</b>			
<b>Operating environment</b>	<b>Temperature</b>	0°C to 40°C/32°F to 104°F	0°C to 40°C/32°F to 104°F
	<b>Humidity</b>	10% to 90% (non-condensing)	10% to 90% (non-condensing)
<b>Storage environment</b>	<b>Temperature</b>	-30°C to 70°C/-22°F to 158°F	-30°C to 70°C/-22°F to 158°F
	<b>Humidity</b>	10% to 90% (non-condensing)	10% to 90% (non-condensing)
<b>MTBF (hr)</b>		655,130	766,228.2
<b>Certifications</b>			
<b>EMC</b>		FCC Part 15 (Class B), IC, CE EMC (Class B), RCM, BSMI	FCC Part 15 (Class B), IC EMC (Class B), CE EMC (Class B), RCM (Class B), BSMI
<b>Safety</b>		BSMI, UL	LVD (EN62368-1), BSMI

\*: This matrix with firmware ZLD5.36 or later.

\*1: Actual performance may vary depending on system configuration, network conditions, and activated applications.

\*2: Maximum throughput based on RFC 2544 (1,518-byte UDP packets).

\*3: VPN throughput measured based on RFC 2544 (1,424-byte UDP packets); IMIX: UDP throughput based on a combination of 64 byte, 512 byte and 1424 byte packet sizes.

\*4: Maximum sessions measured using the industry standard IXIA IxLoad testing tool.

\*5: Including Gateway-to-Gateway and Client-to-Gateway.

\*6: The Speedtest result is conducted with 1 Gbps WAN link in real world and it is subject to fluctuate due to quality of the ISP link.

\*7: With Zyxel service license to enable or extend the feature capacity.

\*8: Only applicable when devices are in on-premise mode.

\*9: This is the recommend maximum number of concurrent logged-in devices.

## Wireless Specifications

Model		USG FLEX 50AX
Standard compliance		802.11 ax/ac/n/g/b/a
Wireless frequency		2.4/5 GHz
Radio		2
SSID number		4
Maximum transmit power (Max. total channel)	US (FCC) 2.4 GHz	29.8 dBm, 2 antennas
	US (FCC) 5 GHz	32.6 dBm, 2 antennas
	EU (ETSI) 2.4 GHz	19.93 dBm (EIRP), 2 antennas
	EU (ETSI) 5 GHz	22.99 dBm (EIRP), 2 antennas
No. of antenna		2 detachable antennas
Antenna gain		3 dbi @2.4 GHz/5 GHz
Data rate		<ul style="list-style-type: none"> <li>• 2.4 GHz: up to 600 Mbps</li> <li>• 5 GHz: up to 1200 Mbps</li> </ul>
Frequency band	2.4 GHz (IEEE 802.11 b/g/n)	<ul style="list-style-type: none"> <li>• USA (FCC): 2.412 to 2.462 GHz</li> <li>• Europe (ETSI): 2.412 to 2.472 GHz</li> <li>• TWN (NCC): 2.412 to 2.462 GHz</li> </ul>
	5 GHz (IEEE 802.11 a/n/ac/ax)	<ul style="list-style-type: none"> <li>• USA (FCC): 5.150 to 5.250 GHz; 5.725 to 5.850 GHz</li> <li>• Europe (ETSI): 5.15 to 5.35 GHz; 5.470 to 5.725 GHz</li> <li>• TWN (NCC): 5.15 to 5.25 GHz; 5.725 to 5.850 GHz</li> </ul>
Receive sensitivity	2.4 GHz	<ul style="list-style-type: none"> <li>• 11 Mbps ≤ -99 dBm</li> <li>• 54 Mbps ≤ -95 dBm</li> <li>• HT20, MCS7 ≤ -90 dBm</li> <li>• HT40, MCS7 ≤ -86 dBm</li> </ul>
	5 GHz	<ul style="list-style-type: none"> <li>• 54 Mbps ≤ -90 dBm</li> <li>• HT20, MCS7 ≤ -85 dBm</li> <li>• HT40, MCS7 ≤ -81 dBm</li> <li>• VHT20, MCS8 ≤ -90 dBm +/-2 dBm</li> <li>• VHT40, MCS9 ≤ -85 dBm +/-2 dBm</li> <li>• VHT80, MCS9 ≤ -68 dBm +/-2 dBm</li> <li>• HE20, MCS11 ≤ -61 dBm +/-2 dBm</li> <li>• HE40, MCS11 ≤ -58 dBm +/-2 dBm</li> <li>• HE80, MCS11 ≤ -55 dBm +/-2 dBm</li> </ul>

## Software Features

### Security Service

#### Firewall

- Routing and transparent (bridge) modes
- Stateful packet inspection
- SIP NAT traversal
- H.323 NAT traversal\*1
- ALG support for customized ports
- Protocol anomaly detection and protection
- Traffic anomaly detection and protection
- Flooding detection and protection
- DoS/DDoS protection

#### Web Filtering

- HTTPs domain filtering
- SafeSearch support
- Allow List websites enforcement

- URL Block and Allow List with keyword blocking
- Customizable warning messages and redirect URL
- Customizable Content Filtering block page
- URL categories increased to 111
- CTIRU (Counter-Terrorism Internet Referral Unit) support
- Support DNS base filtering (domain filtering)

#### Geo Enforcer

- Geo IP blocking
- Geographical visibility on traffics statistics and logs
- IPv6 address support\*2

#### Device Insight

- Agentless Scanning for discovery and classification of devices

- View all devices on the network, including wired, wireless, BYOD, IoT, and SecuExtender (remote endpoint) on SecuReporter
- Visibility of network devices (switches, wireless access points, firewalls) from Zyxel or 3rd party vendors

### VPN

#### IPSec VPN

- Encryption: DES, 3DES, AES (256-bit)
- Authentication: MD5, SHA1, SHA2 (512-bit)
- Support Route-based VPN Tunnel Interface (VTI)
- Key management: IKEv1 (x-auth, mode-config), IKEv2 (EAP, configuration payload)

- Perfect forward secrecy (DH groups) support 1, 2, 5, 14, 15-18, 20-21
- IPSec NAT traversal (NAT-T)
- Dead Peer Detection (DPD) and relay detection
- PSK and PKI (X.509) certificate support
- VPN concentrator
- Route-based VPN Tunnel Interface (VTI)
- VPN auto-reconnection
- VPN high availability (Failover, LB)
- L2TP over IPSec
- GRE and GRE over IPSec
- NAT over IPSec
- SecuExtender Zero Trust VPN Client provisioning
- Support native Windows, iOS/macOS and Android (StrongSwan) client provision\*<sup>1</sup>
- Support 2FA Email/SMS\*<sup>1</sup>
- Support 2FA Google Authenticator

### SSL VPN

- Supports Windows and macOS
- Supports full tunnel mode
- Supports 2-Factor authentication

## Networking

### Mobile Broadband\*<sup>1</sup>

- WAN connection failover via 3G and 4G\* USB modems
- Auto fallback when primary WAN recovers

### IPv6 Support\*<sup>1</sup>

- Dual stack
- IPv4 tunneling (6rd and 6to4 transition tunnel)
- IPv6 addressing
- DNS, DHCPv6 server/client
- Bridge
- VLAN
- PPPoE
- Static/Policy route
- Session control
- Firewall and ADP
- IPSec (IKEv2 6in6, 4in6, 6in4)
- Content Filtering

### Connection

- Routing mode
- Bridge mode and hybrid mode\*<sup>1</sup>

- Ethernet and PPPoE
- NAT and PAT
- NAT Virtual Server Load Balancing
- VLAN tagging (802.1Q)
- Virtual interface (alias interface)
- Policy-based routing (user-aware)\*<sup>1</sup>
- Policy-based NAT (SNAT)
- Dynamic routing (RIPv1/v2 and OSPF, BGP)\*<sup>1</sup>
- DHCP client/server/relay
- Dynamic DNS support
- WAN trunk for more than 2 ports
- Per host session limit
- Guaranteed bandwidth
- Maximum bandwidth
- Priority-bandwidth utilization
- Bandwidth limit per user
- Bandwidth limit per IP

## Management

### Nebula Cloud Management\*<sup>2</sup>

- Unlimited Registration & Central Management (Configuration, Monitoring, Dashboard, Location Map & Floor Plan Visual) of Nebula Devices
- Zero Touch Auto-Deployment of Hardware/Configuration from Cloud
- Over-the-air Firmware Management
- Central Device and Client Monitoring (Log and Statistics Information) and Reporting
- Security Profile Sync

### Authentication

- Local user database
- Cloud user database\*<sup>2</sup>
- Built-in user database
- External user database: Microsoft Windows Active Directory, RADIUS, LDAP
- IEEE 802.1x authentication
- Captive portal Web authentication
- XAUTH, IKEv2 with EAP VPN authentication
- Web-based authentication
- Forced user authentication (transparent authentication)
- IP-MAC address binding
- Supports 2-factor authentication
  - Google Authenticator
  - SMS/Email

## System Management

- Role-based administration
- Multiple administrator logins
- Supports Cloud Helper
- Multi-lingual Web GUI (HTTPS and HTTP)
- Command line interface (console, Web console, SSH and telnet)\*<sup>1</sup>
- SNMP v1, v2c, v3
- System configuration rollback\*<sup>1</sup>
- Configuration auto backup\*<sup>1</sup>
- Firmware upgrade via FTP, FTP-TLS, and web GUI\*<sup>1</sup>
- Dual firmware images

## Logging/Monitoring

- Comprehensive local logging
- Syslog (send to up to 4 servers)
- Email alerts (send to up to 2 servers)
- Real-time traffic monitoring
- System status monitoring
- Built-in daily report
- Cloud CNM SecuReporter

## Zyxel One Network

- ZON Utility
  - IP configuration
  - Web GUI access
  - Firmware upgrade
  - Password configuration
- Smart Connect
  - Location and System Name update
  - Discover neighboring devices
  - One-click remote management access to the neighboring Zyxel devices

## Subscription Services

- Content Filter Pack
  - Web Filtering
  - SecuReporter
  - Security Profile Sync
- Nebula Professional Pack
- Nebula Plus Pack

\*: For specific models supporting the 3G and 4G dongles on the list, please refer to the Zyxel product page at 3G dongle document.

\*1: Only supported in On-Premise mode.

\*2: Only supported in Cloud mode.

For more product information, visit us on the web at [www.zyxel.com](http://www.zyxel.com)

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