LANCOM ISG-4000

Central-site security and reliability

Large-scale multi-service IP networks must offer ultimate performance and reliability at the central site. The LANCOM ISG-4000 is the secure and future-viable heart of your VPN networking strategy, thanks to its powerful platform with state-of-the-art encryption technologies, freedom from backdoors, and redundancy features. Use SD-WAN to effortlessly connect your sites, branches, and remote workers. You can also upgrade this integrated services gateway with additional features such as a hotspot, clustering, or up to 1,000 VPN channels. It is a true VPN champion.

> Central-site VPN gateway with 200 simultaneous IPSec VPN connections (1,000 optional)
> Support for up to 4096 VLANs / 256 ARF contexts
> Optionally upgradeable with hotspot, content filtering or clustering features
> 2x 10 GE SFP+ ports
> 4x GE combo ports (ETH/SFP) and 1x GE-ETH port
> RJ45 config port
> SD-WAN – automatic VPN and VLAN configuration via the LMC

LANCOM
Systems

LANCOM ISG-4000

Secure site connectivity via VPN

The LANCOM ISG-4000 is the central instance of your network infrastructure. Reliable security for large enterprise scenarios, state-of-the-art encryption technologies via 200 integrated VPN channels, and the demand-oriented ports (2x 10 GBit/s SFP+, 4x combo ETH/SFP, 1x Ethernet, and 1x USB) give you optimal conditions for networking mobile employees, protecting your internal company data, and securing sensitive network segments or branch offices. The LANCOM VPN option upgrades the gateway to support up to 1,000 VPN channels. This ensures that your network is perfectly scalable and can grow on demand—without requiring additional hardware.

VPN champion

The independent user survey "Professional User Rating Security Solutions (PUR-S)" gave LANCOM top marks in the corporate and solution ratings in 2018. This was a successful title defense by LANCOM: LANCOM had already received the "Champion" award in the previous year, emerging from the survey as the best-placed VPN provider.

Maximum port versatility

From fiber-optic to Ethernet and USB ports: As the core of the network, this integrated services gateway enables an endless range of applications. You benefit from four combo ports with Ethernet and SFP interfaces, giving you the freedom you need. Two 10 GBit/s SFP+ ports also increase the capacity of your data transfers to servers, network storages or switches.

All-metal housing with integrated display

The LANCOM ISG-4000 comes in a high-quality all-metal housing with an integrated power supply unit. Thanks to the mounting system, it is easy to install in a 19" rack—featuring connection ports redirected to the front, it is quick and easy to work with. The display on the front of the device provides a continuous overview of various information including the temperature, CPU load, and the active VPN tunnels.

Security Made in Germany

In a market with a strong presence of American and Asian products, LANCOM offers maximum security "Made in Germany". The entire LANCOM core product range is developed and manufactured in Germany and tested according to the highest standards of security, data protection and quality. The company's own "closed-source" operating system LCOS is developed at the company headquarters in Germany. An in-house team of developers works in a highly secure environment as certified by the BSI (German Federal Office for Information Security)—all of which is subject to the highest standards of security, encryption, and quality.

Systematic networking solutions

LANCOM integrated services gateways are the basis for secure encrypted site connectivity and high-speed Internet access. As professional system components, they are fully compatible to all LANCOM network devices and they facilitate flexible scaling and expansion when combined with further LANCOM components. You can also upgrade this integrated services gateway with additional features such as a hotspot, clustering, or additional VPN channels.

Hyper integration and SD-WAN

Hyper Integration means: The ultimate networking solution—a combination of the complete LANCOM premium portfolio, the LAN, WAN and WLAN network segments, software-defined networking technology, and the LANCOM Management Cloud (LMC). The ISG-4000 can still be managed with LANconfig in the usual way, but it offers immense added value when operated in the LMC with SD-WAN.

LANCOM
Systems

LANCOM ISG-4000

LCOS 10.20

Layer 2 features	
VLAN	4.096 IDs based on IEEE 802.1q, dynamic assignment, Q-in-Q tagging
Multicast	IGMP-Snooping
Protocols	Ethernet over GRE-Tunnel (EoGRE), ARP-Lookup, LLDP, DHCP option 82, IPv6-Router-Advertisement-Snooping, DHCPv6-Snooping, LDRA (Lightweight DHCPv6 Relay Agent), Spanning Tree, Rapid Spanning Tree, ARP, Proxy ARP, BOOTP, DHCP, LACP

Layer 3 features	
Firewall	Stateful inspection firewall including paket filtering, extended port forwarding, N:N IP address mapping, paket tagging, user-defined rules and notifications
Quality of Service	Traffic shaping, bandwidth reservation, DiffServ/TOS, packetsize control, layer-2-in-layer-3 tagging
Security	Intrusion Prevention, IP spoofing, access control lists, Denial of Service protection, detailed settings for handling reassembly, session-recovery, PING, stealth mode and AUTH port, URL blocker, password protection, programmable reset button
PPP authentication mechanisms	PAP, CHAP, MS-CHAP, and MS-CHAPv2
High availability / redundancy	VRRP (Virtual Router Redundancy Protocol)
Router	IPv4-, IPv6-, NetBIOS/IP multiprotokoll router, IPv4/IPv6 dual stack
Router virtualization	ARF (Advanced Routing and Forwarding) up to separate processing of 256 contexts
IPv4 services	HTTP and HTTPS server for configuration by web interface, DNS client, DNS server, DNS relay, DNS proxy, dynamic DNS client, DHCP client, DHCP relay and DHCP server including autodetection, NetBIOS/IP proxy, NTP client, SNTP server, policy-based routing, Bonjour-Proxy, RADIUS
IPv6 services	HTTP and HTTPS server for configuration by web interface, DHCPv6 client, DHCPv6 server, DHCPv6 relay, DNS client, DNS server, dynamic DNS client, NTP client, SNTP server, Bonjour-Proxy, RADIUS
IPv6 compatible LCOS applications	WEBconfig, HTTP, HTTPS, SSH, Telnet, DNS, TFTP, firewall, RAS dial-in
Dynamic routing protocols	RIPv2, BGPv4, OSPFv2, LISP (Locator/ID Separation Protocol)
IPv4 protocols	DNS, HTTP, HTTPS, ICMP, NTP/SNTP, NetBIOS, PPPoE (server), RADIUS, RADSEC (secure RADIUS), RTP, SNMPv1,v2c,v3, TFTP, TACACS+
IPv6 protocols	NDP, stateless address autoconfiguration (SLAAC), stateful address autoconfiguration (DHCPv6), router advertisements, ICMPv6, DHCPv6, DNS, HTTP, HTTPS, PPPoE, RADIUS, SMTP, NTP, BGP, LISP, Syslog, SNMPv1,v2c,v3
WAN operating mode	VDSL, ADSL1, ADSL2 or ADSL2+ additional with external DSL modem at an ETH port
WAN protocols	PPPoE, Multi-PPPoE, ML-PPP, GRE, EoGRE, PPTP (PAC or PNS), L2TPv2 (LAC or LNS), L2TPv3 with Ethernet-Pseudowire and IPoE (using DHCP or no DHCP), RIP-1, RIP-2, VLAN, IPv6 over PPP (IPv6 and IPv4/IPv6 dual stack session), IP(v6)oE (autokonfiguration, DHCPv6 or static)
Tunneling protocols (IPv4/IPv6)	6to4, 6in4, 6rd (static and over DHCP), Dual Stack Lite (IPv4-in-IPv6-Tunnel)

Security	
Intrusion Prevention	Monitoring and blocking of login attempts and port scans
IP spoofing	Source IP address check on all interfaces: only IP addresses belonging to the defined IP networks are allowed
Access control lists	Filtering of IP or MAC addresses and preset protocols for configuration access
Denial of Service protection	Protection from fragmentation errors and SYN flooding
General	Detailed settings for handling reassembly, PING, stealth mode and AUTH port
URL blocker	Filtering of unwanted URLs based on DNS hitlists and wildcard filters. Extended functionality with Content Filter Option
Password protection	Password-protected configuration access can be set for each interface
Alerts	Alerts via e-mail, SNMP traps and SYSLOG
Authentication mechanisms	PAP, CHAP, MS-CHAP and MS-CHAPv2 as PPP authentication mechanism
Adjustable reset button	Adjustable reset button for 'ignore', 'boot-only' and 'reset-or-boot'

High availability / redundancy	
VRRP	VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station.
FirmSafe	For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates

LANCOM
Systems

LANCOM ISG-4000 LCOS 10.20

High availability / redundancy	
Load balancing	Static and dynamic load balancing over up to 4 WAN connections (incl. client binding). Channel bundling with Multilink PPP (if supported by network operator)
VPN redundancy	Backup of VPN connections across different hierarchy levels, e.g. in case of failure of a central VPN concentrator and re-routing to multiple distributed remote sites. Any number of VPN remote sites can be defined (the tunnel limit applies only to active connections). Up to 32 alternative remote stations, each with its own routing tag, can be defined per VPN connection. Automatic selection may be sequential, or dependant on the last connection, or random (VPN load balancing)
Line monitoring	Line monitoring with LCP echo monitoring, dead-peer detection and up to 4 addresses for end-to-end monitoring with ICMP polling

VPN	
IPSec over HTTPS	Enables IPsec VPN based on TCP (at port 443 like HTTPS) which can go through firewalls in networks where e. g. port 500 for IKE is blocked. Suitable for client-to-site connections and site-to-site connections. IPSec over HTTPS is based on the NCP VPN Path Finder technology
Number of VPN tunnels	Max. number of concurrent active IPSec, PPTP (MPPE) and L2TPv2 tunnels: 200 (500 / 1000 with VPN-500 / VPN-1000 Option). Unlimited configurable connections. Configuration of all remote sites via one configuration entry when using the RAS user template or Proadaptive VPN.
Hardware accelerator	Integrated hardware accelerator for 3DES/AES encryption and decryption
1-Click-VPN Client assistant	One click function in LANconfig to create VPN client connections, incl. automatic profile creation for the LANCOM Advanced VPN Client
1-Click-VPN Site-to-Site	Creation of VPN connections between LANCOM routers via drag and drop in LANconfig
IKE, IKEv2	IPSec key exchange with Preshared Key or certificate (RSA signature, digital signature)
Smart Certificate	Convenient generation of digital X.509 certificates via an own certifation authority (SCEP-CA) on the webpage or via SCEP.
Certificates	X.509 digital multi-level certificate support, compatible with Microsoft Server / Enterprise Server and OpenSSL. Secure Key Storage protects a private key (PKCS#12) from theft.
Certificate rollout	Automatic creation, rollout and renewal of certificates via SCEP (Simple Certificate Enrollment Protocol) per certificate hierarchy
Certificate revocation lists (CRL)	CRL retrieval via HTTP per certificate hierarchy
OCSP Client	Check X.509 certifications by using OCSP (Online Certificate Status Protocol) in real time as an alternative to CRLs
OCSP Server / Responder	Offers validity information for certificates created with Smart Certificate via OCSP
XAUTH	XAUTH client for registering LANCOM routers and access points at XAUTH servers incl. IKE-config mode. XAUTH server enables clients to register via XAUTH at LANCOM routers. Connection of the XAUTH server to RADIUS servers provides the central authentication of VPN-access with user name and password. Authentication of VPN-client access via XAUTH and RADIUS connection additionally by OTP token
RAS user template	Configuration of all VPN client connections in IKE ConfigMode via a single configuration entry
Proadaptive VPN	Automated configuration and dynamic creation of all necessary VPN and routing entries based on a default entry for site-to-site connections. Propagation of dynamically learned routes via RIPv2 if required
Algorithms	3DES (168 bit), AES-CBC and -GCM (128, 192 or 256 bit), Blowfish (128 bit), RSA (1024-4096 bit) and CAST (128 bit). OpenSSL implementation with FIPS-140 certified algorithms. MD-5, SHA-1, SHA-256, SHA-384 or SHA-512 hashes
NAT-Traversal	NAT-Traversal (NAT-T) support for VPN over routes without VPN passthrough
IPCOMP	VPN data compression based on Deflate compression for higher IPSec throughput on low-bandwidth connections (must be supported by remote endpoint)
LANCOM Dynamic VPN	Enables VPN connections from or to dynamic IP addresses. The IP address is communicated via the ICMP or UDP protocol in encrypted form. Dynamic dial-in for remote sites via connection template
Dynamic DNS	Enables the registration of IP addresses with a Dynamic DNS provider in the case that fixed IP addresses are not used for the VPN connection
Specific DNS forwarding	DNS forwarding according to DNS domain, e.g. internal names are translated by proprietary DNS servers in the VPN. External names are translated by Internet DNS servers
IPv4 VPN	Connecting private IPv4 networks
IPv4 VPN over IPv6 WAN	Use of IPv4 VPN over IPv6 WAN connections
IPv6 VPN	Connecting private IPv6 networks
IPv6 VPN over IPv4 WAN	Use of IPv6 VPN over IPv4 WAN connections

LANCOM
Systems

LANCOM ISG-4000 LCOS 10.20

VPN	
Radius	RADIUS authorization and accounting, outsourcing of VPN configurations in external RADIUS server in IKEv2, RADIUS CoA (Change of Authorization)

VoIP	
Number of local subscribers	10 (up to 40 with VoIP +10 Option)
Number of simultaneous VoIP connections	Up to 25 external VoIP connections depending on code conversion, echo canceling and load
Functionality	Hold/Request, Swap, Transfer, Call Forwarding (CFU, CFB, CFNR), number display/suppression (CLIP, CLIR), suppression of second call (Busy on Busy), immediate outgoing line, hunt groups, call diversion, overlap dialing
Hunt groups	Hunt group cascades, Call diversion, simultaneously or sequentially. Automatic forwarding after timeout or when busy/unreachable
Multi login	Registration of several local VoIP terminal devices with the same number/ID.
Call router	Central switching of all incoming and outgoing calls. Number translation by mapping, numeral replacement and number supplementation. Configuration of line and route selection incl. line backup. Routing based on calling and called number, SIP domain and line. Blocking of telephone numbers or blocks of telephone numbers. Inclusion of local subscribers into the number range of an upstream PBX. Supplement/remove line-related prefixes or switchboard numbers.
SIP registrar	Management of local VoIP users/VoIP PBXs, registration at VoIP providers/upstream VoIP PBXs. Service location (SRV) support. Line monitoring for SIP trunk, link, remote gateway and SIP PBX line
SIP proxy	Up to 25 SIP-provider accounts (up to 55 with VoIP +10 Option), up to 4 SIP PBXs incl. line backup. SIP connections from/to internal subscribers, SIP providers and SIP PBXs. Automatic bandwidth management and automatic configuration of the firewall for SIP connections.
SIP trunk	Call switching based on extension numbers to/from VoIP PBXs/VoIP providers (support of the VoIP-DDI functions compliant with ITU-T Q.1912.5). Mapping of entire VoIP telephone number blocks
SIP link	Call switching of any numbers to/from SIP PBXs/SIP providers. Mapping of entire SIP telephone number blocks
Media proxy	Termination and interconnection of multiple media streams. Control of media sessions. IP address and port translation for media stream packets. Connection of parties at media stream level where a call transfer in SIP (REFER) is not possible
Session Border Controller (SBC)	Separation of insecure and secure networks, QoS, management of signaling and voice data, transcoding
Media protocols	RTP, SIPS and SRTP
Supported providers	German Telekom, QSC, Ecotel and Sipgate
Audio properties	Echo canceling (G.168) with automatic deactivation during fax transmission, automatic adaptive jitter buffer. Inband tone signaling compliant with EU standards and country-specific. Voice encoding with G.711 µ-law/A-law (64 kbps)
SIP-Codec support	SIP only: G.711 µ-law/A-law (64 kbps), G.722, G.723, G.726, G.729, iLBC, PCM (16, 20 und 24 Bit, Mono und Stereo), OPUS, AAC (LC, HE HEv2), MPEG Layer II, ADPCM 4SB. DTMF support (Inband, RFC2833, SIP-INFO)
Auto QoS	Automatic dynamic bandwidth reservation per SIP connection. Voice packet prioritization, DiffServ marking, traffic shaping (incoming/outgoing) and packet-size management of non-prioritized connections compared to VoIP. Independent settings for DiffServ marking of signaling (SIP) and media streams (RTP)
VoIP monitoring	Reporting of Call Data Records (CDR) via SYSLOG or e-mail. Status display of subscribers, lines, and connections. Logging of VoIP Call Manager events in LANmonitor. SYSLOG and TRACE for voice connections. Active monitoring even with SNMP
Autoprovisioning	Automatic network and VoIP integration of LANCOM DECT 510 IP base station
SIP ALG	The SIP ALG (Application Layer Gateway) acts as a proxy for SIP communication. For SIP calls the ALG opens the necessary ports for the corresponding media packets. Automatic address translation (STUN is no longer needed).

Interfaces	
Ethernet ports	4 individual combo ports (ETH/SFP), 1 ETH port (10/100/1000 Mbps Ethernet), and two SFP+ ports (10 GBit/s); up to 4 ports can be operated as additional WAN ports with load balancing. Ethernet ports can be electrically disabled within LCOS configuration
Port configuration	Each Ethernet port can be freely configured (LAN, DMZ, WAN, monitor port, off). Additionally, external DSL modems or termination routers can be operated as a WAN port with load balancing and policy-based routing.
USB 2.0 host port	USB 2.0 hi-speed host port for connecting USB printers (USB print server), serial devices (COM port server), USB data storage (FAT file system); bi-directional data exchange is possible
Serial interface	Serial configuration interface / COM port (RJ-45): 9,600 - 115,000 baud. Supports internal COM port server and allows for transparent asynchronous transmission of serial data via TCP

LANCOM
Systems

LANCOM ISG-4000

LCOS 10.20

Management and monitoring	
Management	LANCOM Management Cloud, LANconfig, WEBconfig, LANCOM Layer 2 management (emergency management)
Management functions	Alternative boot configuration, voluntary automatic updates for LCMS and LCOS, individual access and function rights up to 16 administrators, RADIUS and RADSEC user management, remote access (WAN or (W)LAN, access rights (read/write) adjustable seperately), SSL, SSH, HTTPS, Telnet, TFTP, SNMP, HTTP, access rights via TACACS+, scripting, timed control of all parameters and actions through cron job
FirmSafe	Two stored firmware versions, incl. test mode for firmware updates
automatic firmware update	configurable automatic checking and installation of firmware updates
Monitoring	LANCOM Management Cloud, LANmonitor, WLANmonitor
Monitoring functions	Device SYSLOG, SNMPv1,v2c,v3 incl. SNMP-TRAPS, extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, internal logging buffer for firewall events
Monitoring statistics	Extensive Ethernet, IP and DNS statistics; SYSLOG error counter, accounting information exportable via LANmonitor and SYSLOG, Layer 7 Application Detection including application-centric tracking of traffic volume
iPerf	iPerf is a tool for measurements of the bandwidth on IP networks (integrated client and server)
SLA-Monitor (ICMP)	Performance monitoring of connections
SD-LAN	SD-LAN – automatic LAN configuration via the LANCOM Management Cloud
SD-WAN	SD-WAN – automatic WAN configuration via the LANCOM Management Cloud

Hardware	
Weight	3,5 kg
Power supply	Internal power supply unit (110–230 V, 50-60 Hz)
Environment	Temperature range 5–40° C; humidity 0–95%; non-condensing
Housing	Robust metal housing, 19" 1 HU, 435 x 45 x 207 mm, with removable mounting brackets, network connectors on the front
Fans	3
Power consumption (max)	50 watt

Declarations of conformity*	
CE	EN 60950-1, EN 55022, EN 55024
FCC	FCC Part 15, Class B with FTP cabling
IPv6	IPv6 Ready Gold
Country of Origin	Made in Germany
*) Note	You will find all declarations of conformity in the products section of our website at www.lancom-systems.com

Scope of delivery	
Manual	Printed Installation Guide (DE/EN)
Cable	Serial configuration cable, 1.5m
Cable	2 Ethernet cables, 3m
Cable	EU version: IEC power cord, WW version: country-specific IEC power cords are separately available

Support	
Warranty	3 years support
Software updates	Regular free updates (LCOS operating system and LANtools) via Internet

Options	
VPN	LANCOM VPN-500 Option (500 channels), item no. 61402
VPN	LANCOM VPN-1000 Option (1000 channels), item no. 61403
LANCOM Content Filter	LANCOM Content Filter +10 user (additive up to 1,000), 1 year subscription, item no. 61590
LANCOM Content Filter	LANCOM Content Filter +25 user (additive up to 1,000), 1 year subscription, item no. 61591

LANCOM
Systems

LANCOM ISG-4000
LCOS 10.20

Options	
LANCOM Content Filter	LANCOM Content Filter +100 user (additive up to 1,000), 1 year subscription, item no. 61592
LANCOM Content Filter	LANCOM Content Filter +10 user (additive up to 1,000), 3 year subscription, item no. 61593
LANCOM Content Filter	LANCOM Content Filter +25 user (additive up to 1,000), 3 year subscription, item no. 61594
LANCOM Content Filter	LANCOM Content Filter +100 user (additive up to 1,000), 3 year subscription, item no. 61595
LANCOM Warranty Basic Option XL	Option to extend the manufacturer's warranty from 3 to 5 years, item no. 10713
LANCOM Warranty Advanced Option XL	Option to extend the manufacturer's warranty from 3 to 5 years and replacement of a defective device, item no. 10718
LANCOM Public Spot XL	Hotspot option for LANCOM WLC-4100, WLC-4025(+), LANCOM 9100(+) VPN, LANCOM 7100(+) VPN, LANCOM ISG-1000, and LANCOM ISG-4000 for user authentication (recommended up to 2,500), versatile access (via voucher, e-mail, SMS), including a comfortable setup wizard, item no. 61624
LANCOM Public Spot PMS Accounting Plus	Extension of the LANCOM Public Spot (XL) Option for the connection to hotel billing systems with FIAS interface (such as Micros Fidelio) for authentication and billing of guest accesses for 178x/19xx routers, WLCs, and current central-site gateways, item no. 61638
LANCOM VoIP +10 Option	Upgrade for LANCOM VoIP router with 10 additional internal VoIP numbers (additionally up to 40) and 10 external SIP lines (additionally up to 55) item no. 61423
LANCOM VPN High Availability Clustering XL Option	Comfortable administration of cluster devices like one single device - even at networks across locations, item no. 61637
LANCOM Management Cloud	
LANCOM LMC-D-1Y LMC License	LANCOM LMC-D-1Y License (1 Year), enables the management of one category D device for one year via the LANCOM Management Cloud, item no. 50109
LANCOM LMC-D-3Y LMC License	LANCOM LMC-D-3Y License (3 Years), enables the management of one category D device for three years via the LANCOM Management Cloud, item no. 50110
LANCOM LMC-D-5Y LMC License	LANCOM LMC-D-5Y License (5 Years), enables the management of one category D device for five years via the LANCOM Management Cloud, item no. 50111
Accessories	
VPN Client Software	LANCOM Advanced VPN Client for Windows 7, Windows 8, Windows 8.1, Windows 10, single license, item no. 61600
VPN Client Software	LANCOM Advanced VPN Client for Windows 7, Windows 8, Windows 8.1, Windows 10, 10 licenses, item no. 61601
VPN Client Software	LANCOM Advanced VPN Client for Windows 7, Windows 8, Windows 8.1, Windows 10, 25 licenses, item no. 61602
VPN Client Software	LANCOM Advanced VPN Client for Mac OS X (10.5 Intel only, 10.6 or higher), single license, item no. 61606
VPN Client Software	LANCOM Advanced VPN Client for Mac OS X (10.5 Intel only, 10.6 or higher), 10 licenses, item no. 61607
LANCOM Power Cord (UK)	IEC power cord, UK plug, item no. 61650
LANCOM Power Cord (US)	IEC power cord, US plug, item no. 61651
LANCOM Power Cord (CH)	IEC power cord, CH plug, item no. 61652
Item number(s)	
LANCOM ISG-4000 (EU)	61075
LANCOM ISG-4000 (WW)	61076

www.lancom-systems.com

LANCOM Systems GmbH I Adenauerstr. 20/B2 I 52146 Wuerselen I Germany I E-mail info@lancom.de

LANCOM Systems