



## LANCOM 9100+ VPN

High-performance central-site VPN gateway for securely networking up to 1,000 sites

The LANCOM 9100+ VPN is a central-site VPN gateway which provides VPN connections for up to 200 sites as standard, upgrading to 1,000 sites with the LANCOM VPN Option. The LANCOM 9100+ VPN implements large multi-service IP network structures with the highest levels of security, reliability and performance. The right choice for secure, reliable and sustainable networking solutions "Made in Germany".

- › VPN site connectivity for large network infrastructures with large numbers of external sites
- › Provides 200 VPN channels, upgradable to 1000 per device
- › Advanced Routing & Forwarding with 256 VLAN/IP contexts
- › Status monitoring with the front-mounted display
- › Optional upgrades as a Public Spot gateway and Content Filter
- › Security Made in Germany
- › Maximum future compatibility, reliability and security

# LANCOM 9100+ VPN

## Secure connectivity for large networks

The LANCOM 9100+ VPN is a central-site VPN gateway that provides VPN connections for up to 200 sites as standard and upgrades to support up to 1,000 VPN connections. This connects numerous branch offices and mobile employees to your company network, with other benefits including high performance and future viability.

## Secure site connectivity via VPN

The LANCOM 9100+ VPN offers high levels of security. The standard equipment of 200 IPSec VPN channels guarantees strongest encryption of the communications between your sites, secure connections for mobile employees, and protection of corporate data. The LANCOM VPN option upgrades the central-site gateway to support 1,000 VPN channels. This ensures that your network is perfectly scalable and can grow on demand—without needing additional hardware.

## Advanced Routing & Forwarding

The LANCOM 9100+ VPN provides up to 256 securely isolated IP contexts, each of which has its own separate routing. This is an elegant way of operating IP applications with one central router while keeping the different communication channels securely separated from one another.

## Continuous status monitoring

A display on the front of the device provides a continuous overview of various information including the temperature, CPU load, and active VPNs. Without even starting your computer, you can see in an instant if your network is operating properly or if you need to act.

## Upgrade options

With the LANCOM 9100+ VPN, your network can do even more. The LANCOM Public Spot option upgrades the device to a hotspot gateway for deploying a user-friendly but secure hotspot. Even more security for the network comes with the LANCOM Content Filter, which blocks access to undesirable Internet content.

## 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. Our 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 central-site VPN 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. The result is a secure and flexible all-round solution that you can rely on. The overall network down to each individual device can be managed and monitored from one central instance—for a solution that is systematic.

## LANCOM 9100+ VPN

LCOS 10.12

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 packet filtering, extended port forwarding, N:N IP address mapping, packet tagging, user-defined rules and notifications
Quality of Service	Traffic shaping, bandwidth reservation, DiffServ/TOS, packet size 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), analog/GSM modem backup
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
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, Syslog, SNMPv1,v2c,v3
WAN operating mode	VDSL, ADSL1, ADSL2 or ADSL2+ additional with external DSL modem at an ETH port, UMTS/LTE
WAN protocols	PPPoE, Multi-PPPoE, ML-PPP, GRE, EoGRE, PPTP (PAC or PNS), L2TPv2 (LAC or LNS) and IPoE (using DHCP or no DHCP), RIP-1, RIP-2, VLAN, IPv6 over PPP (IPv6 and IPv4/IPv6 dual stack session), IPv6oE (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 and LANCAPI
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
Anti-theft*	Anti-theft ISDN site verification over B or D channel (self-initiated call back and blocking)
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.

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High availability / redundancy	
FirmSafe	For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates
ISDN backup	In case of failure of the main connection, a backup connection is established over ISDN. Automatic return to the main connection
Load balancing	Static and dynamic load balancing over up to 3 WAN connections. 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 certification 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
OCSF Client	Check X.509 certifications by using OCSF (Online Certificate Status Protocol) in real time as an alternative to CRLs
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 (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 or SHA-256 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 ISDN B- or D-channel or with 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

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VPN	
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
Radius	RADIUS authorization and accounting, outsourcing of VPN configurations in external RADIUS server in IKEv2, RADIUS CoA (Change of Authorization)
VPN throughput (max., AES)	
1418-byte frame size UDP	600 Mbps
Firewall throughput (max.)	
1518-byte frame size UDP	990 Mbps
VoIP	
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 10/100/1000 Mbps Ethernet ports; up to 3 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
ISDN	ISDN BRI port (S0 bus)
Serial interface	Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/GPRS modems. Supports internal COM port server and allows for transparent asynchronous transmission of serial data via TCP
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 separately), 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
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
LANCAPI	Available for all LANCOM routers with integrated ISDN interface. LANCAPI provides CAPI 2.0 features for Microsoft Windows to utilize ISDN channels over the IP network
CAPI Faxmodem	Softmodem for Microsoft Windows that makes use of LANCAPI to send and receive faxes via ISDN
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
*) Note	Not for use with All-IP connection
Monitoring	LANmonitor, WLANmonitor, LANCOM Management Cloud

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Hardware	
Weight	8,38 lbs (3,8 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	1
Power consumption (max)	30 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 <a href="http://www.lancom-systems.eu">www.lancom-systems.eu</a>
*) Note	There are no ISDN functions available in the US-Version
Scope of delivery	
Manual	Printed Installation Guide (DE/EN)
CD/DVD	Data medium with management software (LANconfig, LANmonitor, WLANmonitor, LANCAPI) and documentation
Cable	Serial configuration cable, 1.5m
Cable	2 Ethernet cables, 3m
Cable*	ISDN cable, 3m
Cable	IEC power cord
*) Note	Not available for FCC version.
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, 1 year subscription, item no. 61590
LANCOM Content Filter	LANCOM Content Filter +25 user, 1 year subscription, item no. 61591
LANCOM Content Filter	LANCOM Content Filter +100 user, 1 year subscription, item no. 61592
LANCOM Content Filter	LANCOM Content Filter +10 user, 3 year subscription, item no. 61593
LANCOM Content Filter	LANCOM Content Filter +25 user, 3 year subscription, item no. 61594
LANCOM Content Filter	LANCOM Content Filter +100 user, 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, and LANCOM 7100(+) VPN 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

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Options	
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	
LANCOM Serial Adapter Kit	For the connection of V.24 modems with AT command set and serial interface for the connection to the LANCOM COM interface, incl. serial cable and connection plug, item no. 61500
VPN Client Software	LANCOM Advanced VPN Client for Windows Vista, Windows 7, Windows 8, Windows 8.1, Windows 10, single license, item no. 61600
VPN Client Software	LANCOM Advanced VPN Client for Windows Vista, Windows 7, Windows 8, Windows 8.1, Windows 10, 10 licenses, item no. 61601
VPN Client Software	LANCOM Advanced VPN Client for Windows Vista, 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
Item number(s)	
LANCOM 9100+ VPN (EU)	61068
LANCOM 9100+ VPN (UK)	61069
LANCOM 9100 VPN (US)*	61059
* ) Note	There are no ISDN functions available in the US-Version

