



## LANCOM 1790VA

### High-speed networking at Supervectoring connections

Small to medium-sized businesses and retail stores are heavily dependent on high-performance, reliable Internet access, and the secure networking of several locations. Which is why they rely on the expert for high security and impressive performance. With an integrated VDSL2/ADSL2+ modem and Supervectoring, the router provides fast data transmission at up to 300 Mbps together with secure site connectivity via IPsec VPN.

- › Integrated VDSL Supervectoring modem for up to 300 Mbps (backwards compatible with VDSL2 / ADSL2+)
- › SD-WAN – automatic VPN and VLAN configuration via the LANCOM Management Cloud
- › 5 integrated IPsec VPN channels (25 optional)
- › Network virtualization with up to 16 networks on one device (ARF)
- › Security Made in Germany
- › Maximum future compatibility, reliability and security

# LANCOM 1790VA

## Support for VDSL Supervectoring

VDSL Supervectoring technology significantly increases the data rates over existing copper lines, providing up to 300 Mbps. The LANCOM 1790VA offers full Supervectoring support while remaining backwards compatible with VDSL2 and ADSL2+.

## Professional VPN solution

VPN solutions from LANCOM offer flexible, economical and secure networking of headquarters, subsidiaries, branches, sites and home offices in small, mid-sized and large enterprises. The LANCOM 1790VA supports up to 5 simultaneous IPSec VPN channels, with optional upgrades for 25 channels.

## Radically simplified configuration with SD-WAN

In combination with the LANCOM Management Cloud, the LANCOM 1793VA opens the way to automated management. The software-defined WAN (SD-WAN) enables the automatic setup of secure VPN connections between sites, including network virtualization and backup across the wide-area network: A few mouse clicks is all it takes to enable the VPN function and select the required VLANs for each site. The laborious configuration of individual tunnel endpoints is no longer necessary.

## Stateful inspection firewall

Equipped with a stateful inspection firewall, the LANCOM 1790VA protects the whole network. With features such as intrusion prevention and Denial-of-Service protection, this business VPN router provides optimal protection and secures all of the data on the network.

## Advanced Routing & Forwarding

The LANCOM 1790VA provides up to 16 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 and keeping the different communication channels securely isolated from one another.

## 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 own team of developers works in a highly secure environment as certified by the BSI (German Federal Office for Information Security), which is subject to the highest standards of security, encryption, and quality throughout.

## Maximum future-proofing

LANCOM products are based on professional expertise, years of experience in IT, and high-quality materials. All of our devices are equipped with hardware that is dimensioned for the future and, even reaching back to older product generations, updates to the LANCOM Operating System—LCOS—are available several times a year, free of charge. This guarantees a long service life while staying technically up to date, which represents a true protection of your investment. Furthermore, LANCOM infrastructures are easily scalable. Maximum compatibility means that networks are easily extended with additional LANCOM components.

## LANCOM 1790VA

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| 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), 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 16 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  |
| Analog/GSM modem backup           | Optional operation of an analog or GSM modem at the serial interface  |

## LANCOM 1790VA

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: 5 (25 with VPN 25 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  |
| Realtime clock                     | Integrated, buffered realtime clock to save the date and time during power failure. Assures timely validation of certificates in any case   |
| Random number generator            | Generates real random numbers in hardware, e. g. for improved key generation for certificates immediately after switching-on  |
| 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  |
| 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   |

## LANCOM 1790VA

LCOS 10.20

| VPN                       |   |
|---------------------------|---|
| 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)   |
| *)                        | Only with VPN 25 option   |
| Performance               |   |
| Routing-Performance       | Data regarding the overall routing performance can be found inside the LANCOM tech paper "Routing-Performance" on <a href="http://www.lancom-systems.com">www.lancom-systems.com</a>  |
| 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                |   |
| WAN: VDSL / ADSL2+        | <ul style="list-style-type: none"> <li>&gt; VDSL2 compliant with ITU G.993.2, profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a, 35b</li> <li>&gt; VDSL Supervectoring as per ITU G.993.2 (Annex Q)</li> <li>&gt; VDSL2 Vectoring: as per ITU G.993.5 (G.Vector)</li> <li>&gt; ADSL2+ over ISDN as per ITU G.992.5 Annex B/J with DPBO, ITU G.992.3/5 and ITU G.992.1</li> <li>&gt; ADSL2+ over POTS as per ITU G.992.5 Annex A/M with DPBO, ITU G.992.3 and ITU.G.992.1</li> <li>&gt; Supports one virtual ATM circuit (VPI, VCI pair) at a time</li> </ul> |
| 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. The ports support energy saving according to IEEE 802.3az   |
| Port configuration        | Each Ethernet port can be freely configured (LAN, DMZ, WAN, monitor port, off). LAN ports can be operated as a switch or separately. Additionally, external DSL modems or termination routers can be operated as a WAN port with load balancing and policy-based routing. DMZ ports can be operated with their own IP address range without NAT   |
| 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 (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  |
| 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                    | 1,1 lbs (500 g)   |

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LCOS 10.20

| Hardware                               |   |
|--|---|
| Power supply                           | 12 V DC, external power adapter (230 V) with bayonet cap to protect against accidentally unplugging   |
| Environment                            | Temperature range 0–35° C; humidity 0–95%; non-condensing   |
| Housing                                | Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; 210 x 45 x 140 mm (W x H x D)  |
| Fans                                   | None; fanless design without rotating parts, high MTBF  |
| Power consumption (max)                | 14 watt   |
| Declarations of conformity*            |   |
| CE                                     | EN 60950-1, EN 55022, EN 55024  |
| 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.com">www.lancom-systems.com</a>   |
| Scope of delivery                      |   |
| Manual                                 | Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)  |
| Cable                                  | 1 Ethernet cable, 3 m   |
| Cable                                  | DSL cable for IP based communications incl. galvanic signature, 4,25m   |
| Power supply unit                      | External power adapter (230 V), NEST 12 V/2.0 A DC/S, coaxial power connector 2.1/5.5 mm bayonet, temperature range from -5 to +45° C, LANCOM item no. 111303 (EU)/LANCOM item no 110829 (UK)   |
| Support                                |   |
| Warranty                               | 3 years support   |
| Software updates                       | Regular free updates (LCOS operating system and LANtools) via Internet  |
| Options                                |   |
| VPN                                    | LANCOM VPN-25 Option (25 channels), item no. 60083  |
| LANCOM Content Filter                  | LANCOM Content Filter +10 user (additive up to 100), 1 year subscription, item no. 61590  |
| LANCOM Content Filter                  | LANCOM Content Filter +25 user (additive up to 100), 1 year subscription, item no. 61591  |
| LANCOM Content Filter                  | LANCOM Content Filter +100 user (additive up to 100), 1 year subscription, item no. 61592   |
| LANCOM Content Filter                  | LANCOM Content Filter +10 user (additive up to 100), 3 year subscription, item no. 61593  |
| LANCOM Content Filter                  | LANCOM Content Filter +25 user (additive up to 100), 3 year subscription, item no. 61594  |
| LANCOM Content Filter                  | LANCOM Content Filter +100 user (additive up to 100), 3 year subscription, item no. 61595   |
| LANCOM Warranty Basic Option S         | Option to extend the manufacturer's warranty from 3 to 5 years, item no. 10710  |
| LANCOM Warranty Advanced Option S      | Option to extend the manufacturer's warranty from 3 to 5 years and replacement of a defective device, item no. 10715  |
| LANCOM Public Spot                     | Hotspot option for LANCOM access points, LANCOM 17xx and LANCOM 19xx series for user authentication (17xx up to 64 / 19xx up to 256), versatile access (via voucher, e-mail, SMS), including a comfortable setup wizard, secure separation of guest access and internal network, item no. 60642 |
| LANCOM All-IP Option                   | Upgrade option for the operation of the LANCOM routers with All-IP connections, support of PBX systems and telephony devices as well as voice & fax services, incl. Voice Call Manager, All-IP (TAE/RJ45) and cross-over adapters (TE/NT), item no. 61422                                       |
| 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 WLC Basic Option for Routers    | LANCOM WLC Basic Option for Routers for up to 6 managed LANCOM access points or WLAN routers, item no. 61639  |
| LANCOM WLC AP Upgrade +6               | LANCOM WLC AP Upgrade +6 Option, enables your WLC to manage 6 Access Points/WLAN router in addition, item no. 61629   |
| 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 Management Cloud                |   |
| LANCOM LMC-B-1Y LMC License            | LANCOM LMC-B-1Y License (1 Year), enables the management of one category B device for one year via the LANCOM Management Cloud, item no. 50103  |

## LANCOM 1790VA

LCOS 10.20

| LANCOM Management Cloud     |   |
|-----------------------------|---|
| LANCOM LMC-B-3Y LMC License | LANCOM LMC-B-3Y License (3 Years), enables the management of one category B device for three years via the LANCOM Management Cloud, item no. 50104                                |
| LANCOM LMC-B-5Y LMC License | LANCOM LMC-B-5Y License (5 Years), enables the management of one category B device for five years via the LANCOM Management Cloud, item no. 50105                                 |
| Accessories                 |   |
| 19" Rack Mount              | 19" rack mount adaptor, item no. 61501  |
| LANCOM Wall Mount           | For simple, theft-proof mounting of LANCOM devices with plastic housings, item no. 61349  |
| LANCOM Wall Mount (White)   | For simple, theft-proof mounting of LANCOM devices with plastic housings, item no. 61345  |
| 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 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  |
| Item number(s)              |   |
| LANCOM 1790VA (EU)          | 62110   |

