

LANCOM 883 VoIP

SD-WAN VoIP Gateway for the secure All-IP migration, telephony, and high-speed Internet via VDSL2 / ADSL2+ and WLAN for single-site businesses



This SD-WAN VoIP gateway enables small businesses on single sites to securely and seamlessly migrate from ISDN/analog to the new All-IP network. With integrated telephony functions and 2 analog interfaces, it is the perfect solution for connecting analog, ISDN and VoIP phones at locations with an All-IP connection—without having to replace existing components. At the same time the device provides high-speed Internet thanks to a VDSL2/ADSL2+ modem and fast wireless LAN based on IEEE 802.11n (Wi-Fi 4).

- SD-WAN VoIP gateway for the continued operation of existing ISDN components after converting to All-IP
- Professional telephony functions with the integrated LANCOM VCM (Voice Call Manager)
- Flexible professional routers for high-speed Internet access thanks to VDSL2 and ADSL2+ modem
- Professional integration of wireless clients thanks to the WLAN radio module as per IEEE 802.11n
- 2x ISDN S0 (TE/NT + NT) for point-to-point or multipoint line configuration
- 2x analog (internal) / fax
- Up to 4 simultaneous ISDN voice channels
- 3 IPsec VPN channels for professional and secure site connectivity
- Extension from 3 to 5 VPN channels with the LANCOM Enterprise Option and, if required, from 5 to 25 VPN channels with the LANCOM VPN Option possible
- Security Made in Germany
- Maximum security, reliability, and future-proofness



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Professional telephony with the LANCOM VCM (Voice Call Manager)

The LANCOM Voice Call Manager is already integrated into the LANCOM 883 VoIP and provides advanced telephony support. It handles the telephony management and controls all of the PBX components and functions of the router. Furthermore the VCM offers a simple integration of DECT telephony by autoprovisioning the LANCOM DECT 510 IP base station.

Operating VoIP terminal equipment and ISDN PBXs

The LANCOM 883 VoIP translates between ISDN, analog, and VoIP. Along with the latest VoIP equipment, you can continue to operate your existing ISDN and analog components without having to replace them. Even after switching to the new All-IP connection, this cost-saving solution conveniently and professionally integrates your ISDN and analog network components. It is also possible to operate a combination of analog, ISDN, and VoIP PBX devices directly at the LANCOM router.

Professional integration of wireless clients

The LANCOM 883+ VoIP is equipped with a Wi-Fi module as per IEEE 802.11n (Wi-Fi 4). This allows wireless clients to be professionally integrated into the network at up to 300 Mbps – ideal for home offices and small businesses, because the router provides professional WLAN coverage without the need for additional costly hardware.

LANCOM SD-WAN – Next-level networking

With LANCOM SD-WAN you can manage and monitor your entire corporate network centrally, cost-effectively, quickly, and stress-free! In combination with the LANCOM Management Cloud, the SD-WAN gateway gives you all the options for an automated setup of secure VPN connections (Auto-VPN) between sites, including network virtualization. Highlight features such as High Scalability VPN (HSVPN) and Advanced Mesh VPN offer you a significant plus in scalability and efficiency for a large number of branches and applications. Furthermore, if multiple WAN connections are defined, they are automatically operated in active/active mode (load balancing), thereby increasing the available total bandwidth. With Dynamic Path Selection and Dynamic Traffic Steering, applications are also dynamically routed via the best connection at any given time.

Secure communication via VPN

With virtual private networks (VPN), you use the public medium of the Internet as a communication path and secure the connection in such a way that the communication still remains completely inaccessible to external parties. This SD-WAN gateway offers you 3 integrated IPsec VPN channels for secure encryption, so that the protection of internal company data is always guaranteed when connecting mobile employees, home offices, or branch offices. In addition, your infrastructure grows with you as needed: With the LANCOM Enterprise Option, you can expand the number of VPN channels to 5 and, if required, subsequently from 5 to 25 with the LANCOM VPN Option.



LANCOM 883 VoIP

WLAN product specifications

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| Frequency band 2.4 GHz or 5 GHz | 2400-2483.5 MHz (ISM) or 5180-5700 MHz (depending on country-specific restrictions) |
| Data rates IEEE 802.11n | 300 Mbps according to IEEE 802.11n with MCS15 (fallback to 6,5 Mbps with MCS0). Compatible to IEEE 802.11a/n, IEEE 802.11g/n, IEEE 802.11b/g/n or IEEE 802.11b/g compatibility mode or pure IEEE 802.11n, pure IEEE 802.11a, IEEE 802.11g or pure IEEE 802.11b mode and data rates selectable |
| Data rates IEEE 802.11a/ h | 54 Mbps (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection), fully compatible with TPC (adjustable power output) and DFS (automatic channel selection, radar detection) and data rates selectable |
| Data rates IEEE 802.11b/g | 54 Mbps to IEEE 802.11g (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection) compatible to IEEE 802.11b (11, 5.5, 2, 1 Mbps, Automatic Rate Selection), IEEE 802.11b/g compatibility mode or pure IEEE 802.11g or pure IEEE 802.11b and data rates selectable |
| Range IEEE 802.11a/b/g * | Up to 150 m (up to 30 m in buildings) |
| Output power at radio module, 5 GHz | IEEE 802.11a/h: +15 dBm @ 6 up to 36 Mbps, +14 dBm @ 48 Mbps, +12 dBm @ 54 Mbps IEEE 802.11n: +15 dBm @ (MCS0/8, 20 MHz), +7 up to +10 dBm @ (MCS7/15, 20 MHz), +14 dBm @ (MCS0/8, 40 MHz), +6 up to +9 dBm @ (MCS7/15, 40 MHz) |
| Output power at radio module, 2.4 GHz | IEEE 802.11b: +14dBm @ 1, 2, 5.5 and 11 Mbps, IEEE 802.11g: +17dBm @ 6 up to 36 Mbps, +16dBm @ 48 and 54 Mbps, IEEE 802.11n: +16dBm @ (MCS0/8, 20 MHz), +15 dBm @ (MCS7/15, 20 MHz), +15 dBm @ (MCS0/8, 40 MHz), +14 dBm @ (MCS7/15, 40 MHz) |
| Max. allowed radiation power (EIRP), 5 GHz | IEEE 802.11a/h: Up to 30 dBm / 1000 mW EIRP (depending on national regulations on channel usage and subject to further obligations such as TPC and DFS) |
| Max. allowed radiation power (EIRP), 2.4 GHz | IEEE 802.11b/g: Up to 20 dBm / 100 mW EIRP (transmission power control according to TPC) |
| Minimum transmission power | Transmission power reduction in software in 1 dB steps to min. 0.5 dBm |
| Receiver sensitivity 5 GHz | IEEE 802.11a/h: -98 dBm @ 6 Mbps, -81 dBm @ 54 Mbps, IEEE 802.11n: -94 dBm @ (MCS0, 20 MHz), -76dBm @ (MCS 7, 20 MHz), -92 dBm @ (MCS0, 40 MHz), -72 dBm @ (MCS7, 40 MHz) |
| Receiver sensitivity 2.4 GHz | IEEE 802.11b: -97 dBm @ 1 MBit/s, -93 dBm @ 11 MBit/s, IEEE 802.11g: -95dBm @ 6 MBit/s, -81dBm @ 54 MBit/s IEEE 802.11n: -94 dBm @ 6,5MBit/s (MCS0, 20 MHz), -77 dBm @ 65 MBit/s (MCS7, 20 MHz), -91 dBm @ 15 MBit/s (MCS0, 40 MHz), -74 dBm @ 150 MBit/s (MCS7, 40 MHz) |
| Radio channels 5 GHz | Up to 26 non-overlapping channels (available channels and further obligations such as automatic DFS dynamic channel selection depending on national regulations) |
| Radio channels 2.4 GHz | Up to 13 channels, max. 3 non-overlapping (depending on country-specific restrictions) |
| Multi-SSID | Up to 16 independent WLAN networks; time-controlled activation and deactivation of WLAN networks |
| Concurrent WLAN clients | Up to 40 clients (recommended), 512 clients (max.) |
| *) Note | The effective distances and transmission rates that can be achieved are depending of the onsite RF conditions |



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Supported WLAN standards

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| IEEE standards | IEEE 802.11n (Wi-Fi 4), IEEE 802.11a, IEEE 802.11g, IEEE 802.11b, IEEE 802.11i, IEEE 802.1X, IEEE 802.11u, IEEE 802.11r (Fast Roaming), IEEE 802.11w (Protected Management Frames), WME and U-APSD/WMM Power Save as defined in IEEE 802.11e, IEEE 802.11h, IEEE 802.11d |
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Standard IEEE 802.11n (Wi-Fi 4)

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| Supported features | 2x2 MIMO, 40 MHz channel, 20/40MHz coexistence mechanisms in the 2.4 GHz band, MAC aggregation, Block Acknowledgement, STBC (Space Time Block Coding), LDPC (Low Density Parity Check), MRC (Maximal Ratio Combining), Short Guard Interval |
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WLAN operating modes

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| Modes | WLAN access point (standalone, WLC or LANCOM Management Cloud managed), WLAN bridge (P2P or P2MP), (standalone, WLC or LANCOM Management Cloud managed), WLAN client mode, transparent WLAN client mode |
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| *) Note | Only in installations with WLAN controller |
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Security

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| Encryption options | WPA3-Personal, IEEE 802.1X (WPA3-Enterprise, WPA2-Enterprise), IEEE 802.11i (WPA2-Personal), Wi-Fi Certified™ WPA2™, WPA, WEP, IEEE 802.11w (Protected Management Frames), LEPS-MAC (LANCOM Enhanced Passphrase Security MAC), LEPS-U (LANCOM Enhanced Passphrase Security User) |
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| Encryption | AES-CCMP AES-GCMP, TKIP, RC4 (only used by WEP) |
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| EAP types (authenticator) | EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-FAST |
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| RADIUS/EAP-server | User administration MAC-based, rate limiting, passphrases, VLAN user based, authentication of IEEE 802.1X clients via EAP-TLS, EAP-TTLS, EAP-MD5, EAP-GTC, PEAP, MSCHAP, MSCHAPv2, Dynamic Peer Discovery |
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| Others | WLAN protocol filters, IP-redirection of any packet received over the WLAN interface, IEEE 802.1X supplicant, background scanning, client detection ("rogue WLAN client detection"), Wireless Intrusion Detection System (WIDS), RADIUS CoA (Change of Authorization) |
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LANCOM Active Radio Control

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| Client Management | Steering of WLAN clients to the ideal access point using 802.11k and 802.11v |
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| Managed RF Optimization* | Selection of optimal WLAN channels by the administrator |
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| Adaptive Noise Immunity | Better WLAN throughput due to immunity against interferences |
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| Spectral Scan | Monitoring your WLAN for sources of interference |
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| *) Note | Only in installations with WLAN controller |
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Roaming

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| Roaming | IAPP (Inter Access Point Protocol), IEEE 802.11r (Fast Roaming), OKC (Opportunistic Key Caching), Fast Client Roaming (only in operating mode client modus) |
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Layer 2 features

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| VLAN | 4.096 IDs based on IEEE 802.1q, dynamic assignment |
| Quality of Service | WME based on IEEE 802.11e, Wi-Fi Certified™ WMM® |
| Rate limiting | SSID based, WLAN client based |
| Multicast | IGMP-Snooping, MLD-Snooping, Multicast-to-Unicast-conversion on WLAN interfaces |
| 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 |

Layer 3 features

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| Firewall | Stateful inspection firewall including packet filtering, extended port forwarding, N:N IP address mapping, packet tagging, support for DNS targets, user-defined rules and notifications |
| Quality of Service | Traffic shaping, bandwidth reservation, DiffServ/TOS, packet size control, layer-2-in-layer-3 tagging, support for 8 QoS queues (6 free configurable) |
| 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-, IPv4/IPv6 dual stack |
| SD-WAN Application Routing | SD-WAN Application Routing in connection with the LANCOM Management Cloud |
| SD-WAN dynamic path selection | SD-WAN dynamic path selection in connection with the LANCOM Management Cloud |
| SD-WAN Zero Touch Deployment | Zero touch commissioning of the device in conjunction with the LANCOM Management Cloud |
| Router virtualization | ARF (Advanced Routing and Forwarding) up to separate processing of 2 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, 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 |
| Dynamic routing protocols | RIPv2 |
| IPv4 protocols | DNS, HTTP, HTTPS, ICMP, NTP/SNTP, PPPoE (server), RADIUS, RADSEC (secure RADIUS), RTP, SNMPv1,v2c,v3, TFTP, TACACS+, IGMPv3 |



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Layer 3 features

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| IPv6 protocols | NDP, stateless address autoconfiguration (SLAAC), stateful address autoconfiguration (DHCPv6), router advertisements, ICMPv6, DHCPv6, DNS, HTTP, HTTPS, PPPoE, RADIUS, SMTP, NTP, Syslog, SNMPv1,v2c,v3, MLDv2, NPTv6 (NAT66), VRRPv3 |
| 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, 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, Dual Stack Lite, 464XLAT |

Security

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| 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 |
| 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

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| VRRP | VRRP (Virtual Router Redundancy Protocol VRRPv2 and VRRPv3) 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 |
| ISDN backup | In case of failure of the main connection, a backup connection is established over ISDN. Automatic return to the main connection |
| Analog/GSM modem backup | Optional operation of an analog or GSM modem at the serial interface |
| Load balancing | Static and dynamic load balancing over up to 4 WAN connections (incl. client binding). |



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High availability / redundancy

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| 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

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| 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: 3. Unlimited configurable connections. |
| 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, ECDSA-Signature, digital signature) |
| 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 |
| 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. |



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VPN

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| Algorithms | 3DES (168 bit), AES-CBC and -GCM (128, 192 or 256 bit), RSA (1024-4096 bit), ECDSA (P-256-, P-384-, P-521-curves) and Chacha20-Poly 1305. 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 |
| 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 |
| Split DNS | Allows the selective forwarding of traffic for IKEv2 depending on the addressed DNS domain. |
| 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 |
| Radius | RADIUS authorization and accounting, outsourcing of VPN configurations in external RADIUS server in IKEv2, RADIUS CoA (Change of Authorization) |
| High Scalability VPN (HSVPN) | Transmission of multiple, securely separated networks within a VPN tunnel |
| Advanced Mesh VPN | On demand dynamic VPN tunnel establishment between branches |

Performance

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| Routing-Performance | Data regarding the overall routing performance can be found inside the LANCOM tech paper "Routing-Performance" on www.lancom-systems.com |
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VoIP

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| Number of local subscribers | 10 (up to 40 with VoIP +10 Option) |
| Number of local ISDN subscribers | Up to 2 internal ISDN buses each with 2 parallel channels and each up to 10 telephone numbers |
| Number of simultaneous VoIP connections | Up to 60 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 |



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VoIP

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| Hunt groups | Hunt group cascades, Call diversion, simultaneously or sequentially. Automatic forwarding after timeout or when busy/unreachable |
| 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 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 gateway | Conversion of analog or ISDN telephone calls to SIP calls, and vice versa. Local ISDN and analog subscribers register as local SIP users, and local ISDN/analog subscribers automatically register as SIP users at upstream SIP PBXs or SIP providers. Number translation between internal numbers and MSN/DDI |
| 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 |
| Session Border Controller (SBC) | Separation of insecure and secure networks, QoS, management of signaling and voice data, transcoding |
| Media protocols | RTP, SIPs and SRTP |
| ISDN features | Operation at ISDN exchange line or at ISDN extension line of existing PBXs. Provision of exchange lines or extension lines |
| Analog features | Internal FXS ports for one analog terminal device each, or as an analog PBX exchange line. |
| 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) |
| Fax transmission | Transmission of fax via SIP on the LAN/WAN side with T.38 or G.711. Conversion of SIP fax with T.38 and break-in/break-out at the outside line to ISDN G.711 with service signalisation. Connection and conversion to SIP T.38 or G.711 for SIP, analog or ISDN fax machines. Compatible to SwyxFax on true G.711 SIP lines. |
| 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

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| WAN: VDSL / ADSL2+ | <p>→ VDSL2 compliant with ITU G.993.2, profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a</p> <p>→ VDSL2 vectoring compliant with ITU G.993.5</p> <p>→ Compliant to: ADSL2+ over ISDN as per ITU G.992.5 Annex B with DPBO, ADSL2 over ISDN as per ITU G.992.3/5 Annex B/J, ADSL over ISDN as per ITU G.992.1 Annex B (EU, over ISDN)</p> <p>→ Supports one virtual ATM circuit (VPI, VCI pair) at a time</p> |
| WAN: Ethernet | 10/100/1000 Mbps Gigabit Ethernet |



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Interfaces

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| 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 |
| ISDN | 1x ISDN BRI port (NT) and 1x internal/external ISDN port (NT/TE) |
| Analog | 2x internal FXS ports (Analog1, Analog2) each for one analog device |
| 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

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| 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 |
| Netflow | Export of information about incoming and outgoing IP traffic |
| SD-WLAN | SD-WLAN – automatic WLAN configuration via the LANCOM Management Cloud |
| SD-LAN | SD-LAN – automatic LAN configuration via the LANCOM Management Cloud |



LCOS 10.90

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Management and monitoring

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| SD-WAN | SD-WAN – automatic WAN configuration via the LANCOM Management Cloud |
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Hardware

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| Weight | 1,32 lbs (600 g) |
| 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*

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|-------------------|---|
| Europe/EFTA | CE |
| Country of Origin | Made in Germany |
| *) Note | You will find all declarations of conformity on our website at www.lancom-systems.com/doc |

Scope of delivery

| | |
|-------------------|--|
| Manual | Hardware Quick Reference (DE/EN), Installation Guide (DE/EN) |
| Cable | DSL cable for IP based communications incl. galvanic signature, 4,25m |
| Adapter | 2x TAE adapter (RJ11 to TAE) |
| Power supply unit | External power adapter (230 V), NEST 12 V/2.0 A DC/S, coaxial power connector 2.1/5.5 mm, temperature range from -5 to +45° C, LANCOM item no. 111303 (EU)/ External power adapter (230 V), NEST 12 V/1.5 A DC/S, coaxial power connector 2.1/5.5 mm, temperature range from -5 to +45° C, LANCOM item no 110829 (UK) |

Support

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| Warranty extension | Free warranty extension up to 3 years (replacement service for defects) For details, please refer to the service and support conditions at www.lancom-systems.com/support-conditions or at www.lancom.de/rma . |
| Security updates | Up to 2 years after End of Sale of the device (but min. 3 years, see www.lancom-systems.com/product-tables), can be extended by purchasing LANcare products |
| Software updates | Regular free updates including new features as part of the LANCOM Lifecycle Management (www.lancom-systems.com/lifecycle) |
| Manufacturer support | For LANcommunity partners up to the End of Life of the device For end customers with LANcare Direct or LANcare Premium Support during the LANcare validity |



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Support

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| LANcare Basic S | Security updates until EOL (min. 5 years) and 5 years replacement service with shipment of the replacement device within 5 days after arrival of the defective device (8/5/5Days), item no. 10720 |
| LANcare Advanced S | Security updates until EOL (min. 5 years) and 5 years NBD advance replacement with delivery of the replacement device within one business day (8/5/NBD), item no. 10730 |
| LANcare Direct Advanced 24/7 S | Direct, prioritized 10/5 manufacturer support incl. 24/7 emergency hotline and security updates for the device, NBD advance replacement with delivery of the device on the next business day (24/7/NBD), guaranteed first response times (SLA) of max. 30 minutes for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years (item no. 10776, 10777 or 10778) |
| LANcare Direct 24/7 S | Direct, prioritized 10/5 manufacturer support incl. 24/7 emergency hotline and security updates for the device, guaranteed first response times (SLA) of max. 30 minutes for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years (item no. 10752, 10753 or 10754) |
| LANcare Direct Advanced 10/5 S | Direct, prioritized 10/5 manufacturer support and security updates for the device, NBD advance replacement with delivery of the device on the next business day (10/5/NBD), guaranteed first response times (SLA) of max. 2 hours for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years.(item no. 10764, 10765 or 10766) |
| LANcare Direct 10/5 S | Direct, prioritized 10/5 manufacturer support and security updates for the device, guaranteed first response times (SLA) of max. 2 hours for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years.(item no. 10740, 10741 or 10742) |

Software

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| Lifecycle Management | After discontinuation (End of Sale), the device is subject to the LANCOM Lifecycle Management. Details can be found at: www.lancom-systems.com/lifecycle |
| Anti-backdoor policy | Products from LANCOM are free of hidden access paths (backdoors) and other undesirable features for introducing, extracting or manipulating data. The trust seal "IT Security made in Germany" (ITSMIG) and certification by the German Federal Office for Information Security (BSI) confirm the trustworthiness and the outstanding level of security. |

Options

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|-----------------------|---|
| 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 BPjM Filter | LANCOM BPjM Filter Option, 5 years subscription, item no. 61418 |



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Options

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| LANCOM Public Spot | Hotspot option for LANCOM products, versatile access (via voucher, e-mail, SMS), including a comfortable setup wizard, secure separation of guest access and internal network, item no. 60642 |
| LANCOM Public Spot (10 bulk) | Hotspot option for LANCOM products, versatile access (via voucher, e-mail, SMS), including a comfortable setup wizard, secure separation of guest access and internal network (10 bulk), item no. 61312 |
| 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, 2100EF, 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 Enterprise Option | Software upgrade for the LANCOM 88x VoIP router series to the following functions: 5 active IPSec VPN channels, 16 ARF contexts, support of enterprise routing protocols (BGP and OSPF), item no. 61409 |
| VPN* | LANCOM VPN-25 Option (25 channels), item no. 60083 |
| *) | Only usable with activated LANCOM Enterprise option |

LANCOM Management Cloud

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| LANCOM LMC-A-1Y LMC License | LANCOM LMC-A-1Y License (1 Year), enables the management of one category A device for one year via the LANCOM Management Cloud, item no. 50100 |
| LANCOM LMC-A-3Y LMC License | LANCOM LMC-A-3Y License (3 Years), enables the management of one category A device for three years via the LANCOM Management Cloud, item no. 50101 |
| LANCOM LMC-A-5Y LMC License | LANCOM LMC-A-5Y License (5 Years), enables the management of one category A device for five years via the LANCOM Management Cloud, item no. 50102 |

Accessories

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| LANCOM DECT 510 IP (EU) | Professional DECT base station for up to 6 DECT phones, network integration and configuration via LANCOM VoIP router, 4 simultaneous calls possible, highest voice quality, power supply via PoE or power supply unit, item no. 61901 |
| 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 7,8/8.1,10,11 - single license, item no. 61600 |
| VPN Client Software | LANCOM Advanced VPN Client for Windows 7,8/8.1,10,11 - 10 licenses, item no. 61601 |



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Accessories

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| VPN Client Software | LANCOM Advanced VPN Client for Windows 7,8/8.1,10,11 - 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 883 VoIP (All-IP, EU, over ISDN) 62080

