

# LANCOM 1803VAW-5G

SD-WAN VoIP gateway with VDSL, 5G, and Wi-Fi 6



As an all-in-one package for fast and highly available SD-WAN site networking, plus integrated dual-band concurrent Wi-Fi 6, the LANCOM 1803VAW-5G uses any Internet technology available at the site – whether VDSL, 5G, or fiber optics. The wide variety of interfaces and the ability to use multiple lines at the same time ensure maximum flexibility and reliability, even in the case of high data volumes and business-critical applications. In combination with the LANCOM Management Cloud, the LANCOM 1803VAW-5G enables automated network management that saves valuable resources such as costs and time. Fast Wi-Fi 6 and the connection of telephony components round off the overall package.

- SD-WAN – incl. zero-touch deployment and Auto-VLAN via the LANCOM Management Cloud
- Integrated VDSL Supervectoring modem for up to 300 Mbps
- High-speed Internet via fiber optics (GPON and AON modules available separately) and Gigabit Ethernet for connection of external modems
- Load balancing for the active/active operation of several Internet access lines and maximization of the available bandwidth
- Integrated 5G modem for primary operation via 4G/5G or in parallel with other access types for low latency and high bandwidth for real-time applications (video streaming, telephony or AR)
- Dual-band concurrent Wi-Fi 6 with up to 1,200 Mbps at 5 GHz and up to 575 Mbps at 2.4 GHz
- Professional telephony features thanks to integrated LANCOM VCM (Voice Call Manager) & SBC (session border controller)
- Continued use of existing ISDN and analog components via 2x ISDN S0 (NT) for point-to-point or multipoint line configuration, 2 x analog (internal) / fax
- 5 integrated IPSec VPN channels (25 optional)
- Network virtualization with up to 16 networks on one device (ARF)
- USB ports for the integration of modern IoT radio systems
- Maximum future compatibility, reliability, and security "Engineered in Germany"



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# LANCOM 1803VAW-5G

## **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.

## **WAN connectivity with VDSL Supervectoring and 5G**

The LANCOM 1803VAW-5G offers full VDSL Supervectoring support and is also backwards compatible with VDSL2 and ADSL2+. Data rates of up to 300 Mbps are possible on existing copper lines. Alternatively, thanks to high-performance 5G technology, the LANCOM 1803VAW-5G is ideal for intelligent backup scenarios, primary operation, or parallel operation in active/active mode with other access types. Highest availability and best bandwidths for the use of real-time applications such as video streaming or augmented reality (AR) in combination with lowest latencies make the branch router the ideal node in environments with high data traffic.

## **Professional integration of wireless clients via Wi-Fi 6**

The LANCOM 1803VAW-5G offers wireless LAN in the Wi-Fi 6 standard (IEEE 802.11ax) and can simultaneously integrate clients in the 2.4 GHz frequency band as well as modern end devices in the 5 GHz band into the network and supply them with fast Wi-Fi. The dual-band concurrent Wi-Fi 6 technology enables transmission rates of up to 1,200 Mbps in 5 GHz and up to 575 Mbps in 2.4 GHz in parallel.

## **Professional, comprehensive telephony functions**

Equipped with the LANCOM VCM (Voice Call Manager), the LANCOM SD-WAN VoIP gateway takes over classic telephony management tasks and integrates any type of telephony component such as SIP, ISDN, or analog. In addition, the LANCOM VCM provides common functions of a Session Border Controller (SBC): This ensures the secure separation of external (unsecure) and internal (secure) networks. For high call quality, voice packets are given preference thanks to bandwidth reservation (Quality of Service). In addition, as a SIP proxy, the VCM enables professional management of signaling and voice data for high security in the setup, implementation and teardown of telephone conversations, including any protocol conversion by means of transcoding. The VoIP gateway conveniently handles the translation between ISDN, analog, and VoIP.



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## WLAN product specifications

Frequency band 2.4 GHz and 5 GHz	2400-2483.5 MHz (ISM), 5150-5350 MHz and 5470-5725 MHz (depending on country-specific restrictions)
Data rates IEEE 802.11ax	→ up to 1200 Mbps according to IEEE 802.11ax with MCS11/QAM-1024 at 5 GHz, 2x2 MIMO and 80 MHz channel width → up to 575 Mbps according to IEEE 802.11ax with MCS11/QAM-1024 at 2.4 GHz, 2x2 MIMO and 40 MHz channel width
Data rates IEEE 802.11ac/n	867 Mbps according to IEEE 802.11ac with MCS9 (fallback to 6,5 Mbps with MCS0). Compatible to IEEE 802.11ac/n/a, IEEE 802.11ac/n, IEEE 802.11n/a compatibility mode or pure IEEE 802.11ac, pure IEEE 802.11n, pure IEEE 802.11a modems and data rates selectable
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
Output power at radio module, 2.4 GHz and per chain	→ IEEE 802.11b: +25 dBm @ 1 MBit/s, +25 dBm @ 11 MBit/s → IEEE 802.11g: +25 dBm @ 6 MBit/s, +24 dBm @ 54 MBit/s → IEEE 802.11n: +25 dBm @ MCS0/20 MHz, +23 dBm @ MCS7/20 MHz → IEEE 802.11ac/ax: +22 dBm @ MCS9/40 MHz, +20 dBm @ MCS11/40 MHz
Output power at radio module, 5 GHz and per chain	→ IEEE 802.11a: +25 dBm @ 6 MBit/s, +22 dBm @ 54 MBit/s → IEEE 802.11n: +25 dBm @ MCS0/20 MHz, +22 dBm @ MCS7/20 MHz → IEEE 802.11ac/ax: +19 dBm @ MCS9/80 MHz, +18 dBm @ MCS11/80 MHz
Receiver sensitivity, 2.4 GHz	→ IEEE 802.11b: -98 dBm @ 1 MBit/s, -90 dBm @ 11 MBit/s → IEEE 802.11g: -95 dBm @ 6 MBit/s, -76 dBm @ 54 MBit/s → IEEE 802.11n: -94 dBm @ MCS0/20 MHz, -74 dBm @ MCS7/20 MHz → IEEE 802.11ac/ax: -67 dBm @ MCS9/40 MHz, -61 dBm @ MCS11/40 MHz
Receiver sensitivity, 5 GHz	→ IEEE 802.11a: -94 dBm @ 6 MBit/s, -75 dBm @ 54 MBit/s → IEEE 802.11n: -93 dBm @ MCS0/20 MHz, -73 dBm @ MCS7/20 MHz → IEEE 802.11ac/ax: -63 dBm @ MCS9/80 MHz, -57 dBm @ MCS11/80 MHz
Radio channels 5 GHz	Up to 16 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)
antenna connectors	Two internal WLAN dual band antennas
Multi-SSID	Up to 14 independent WLAN networks; time-controlled activation and deactivation of WLAN networks



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## WLAN product specifications

Concurrent WLAN clients Up to 127 clients (recommended)

## Supported WLAN standards

IEEE standards IEEE 802.11ax (Wi-Fi 6), IEEE 802.11ac Wave 2 (Wi-Fi 5), IEEE 802.11n (Wi-Fi 4), IEEE 802.11a, IEEE 802.11g, IEEE 802.11b, IEEE 802.11i, IEEE 802.1X, IEEE 802.11h, IEEE 802.11d, IEEE 802.11v

### Standard IEEE 802.11ax (Wi-Fi 6)

Supported features 2x2 DL-/UL-MU-MIMO, DL-/UL-OFDMA, triggered target-wake-time, BSS coloring, QAM-1024, 80 MHz channels

### Standard IEEE 802.11ac (Wi-Fi 5)

Supported features 2x2 MIMO, 80 MHz channels, MU-MIMO, QAM-256

### Standard IEEE 802.11n (Wi-Fi 4)

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

## WLAN operating modes

Modes WLAN access point (standalone, WLC or LANCOM Management Cloud managed)

## Security

Encryption options WPA3-Personal, IEEE 802.1X (WPA3-Enterprise, WPA2-Enterprise), IEEE 802.11i (WPA2-Personal), WPA2™, WPA, WEP, IEEE 802.11w (Protected Management Frames), LEPS-MAC (LANCOM Enhanced Passphrase Security MAC), LEPS-U (LANCOM Enhanced Passphrase Security User)

Encryption AES-CCMP AES-GCMP, TKIP, RC4 (only used by WEP)

EAP types (authenticator) EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-FAST

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

Others WLAN protocol filters, IP-redirection of any packet received over the WLAN interface, IEEE 802.1X supplicant, client detection ("rogue WLAN client detection"), Wireless Intrusion Detection System (WIDS), RADIUS CoA (Change of Authorization)

## LANCOM Active Radio Control

Client Management Steering of WLAN clients to the ideal access point using 802.11k and 802.11v

Band Steering Steering of 5GHz clients to the corresponding high-performance frequency band

Managed RF Optimization\* Selection of optimal WLAN channels by the administrator



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## LANCOM Active Radio Control

Airtime Fairness	Improved utilization of the WLAN bandwidth
Adaptive Transmission Power	Automatic adjustment of the transmission power for Wi - Fi backup scenarios
*) Note	Only in installations with WLAN controller

## Roaming

Roaming	IAPP (Inter Access Point Protocol), IEEE 802.11r (Fast Roaming), OKC (Opportunistic Key Caching)
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## Layer 2 features

VLAN	4.096 IDs based on IEEE 802.1q, dynamic assignment
Multicast	IGMP-Snooping, MLD-Snooping
Protocols	Ethernet over GRE-Tunnel (EoGRE), L2TPv3, 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, 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
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
Router	IPv4-, IPv6-, NetBIOS/IP multiprotokoll router, 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 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



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## Layer 3 features

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+, IGMPv3
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, MLDv2, PIM, NPTv6 (NAT66)
Multicast Routing	PIM (Protocol Independent Multicast), IGMP proxy, MLD proxy
WAN operating mode	VDSL, ADSL1, ADSL2 or ADSL2+ additional with external DSL modem at an ETH port
WAN protocols	PPPoE, Multi-PPPoE, 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), 464XLAT

## 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
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)



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## High availability / redundancy

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, ECDSA-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



# LANCOM 1803VAW-5G

## VPN

<b>XAUTH</b>	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
<b>RAS user template</b>	Configuration of all VPN client connections in IKE ConfigMode via a single configuration entry
<b>Proadaptive VPN</b>	Automated configuration and dynamic creation of all necessary VPN and routing entries based on a default entry for site-to-site connections.
<b>Algorithms</b>	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
<b>NAT-Traversal</b>	NAT-Traversal (NAT-T) support for VPN over routes without VPN passthrough
<b>LANCOM Dynamic VPN</b>	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
<b>Dynamic DNS</b>	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
<b>Specific DNS forwarding</b>	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
<b>Split DNS</b>	Allows the selective forwarding of traffic for IKEv2 depending on the addressed DNS domain.
<b>IPv4 VPN</b>	Connecting private IPv4 networks
<b>IPv4 VPN over IPv6 WAN</b>	Use of IPv4 VPN over IPv6 WAN connections
<b>IPv6 VPN</b>	Connecting private IPv6 networks
<b>IPv6 VPN over IPv4 WAN</b>	Use of IPv6 VPN over IPv4 WAN connections
<b>Radius</b>	RADIUS authorization and accounting, outsourcing of VPN configurations in external RADIUS server in IKEv2, RADIUS CoA (Change of Authorization)
<b>High Scalability VPN (HSVPN)</b>	Transmission of multiple, securely separated networks within a VPN tunnel
<b>Advanced Mesh VPN</b>	On demand dynamic VPN tunnel establishment between branches
<b>IKEv2-EAP*</b>	VPN clients can be authenticated with IKEv2-EAP against a central database like Microsoft Windows Server or RADIUS Server
<b>Two-factor authentication*</b>	Two-factor authentication with LANCOM Advanced VPN Client via IKEv2 EAP-OTP
<b>*)</b>	Only with VPN 25 option





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## 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](http://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)

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**Number of local ISDN subscribers** Up to 2 internal ISDN buses each with 2 parallel channels and each up to 10 telephone numbers

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**Number of simultaneous VoIP connections** Up to 60 external VoIP connections depending on code conversion, echo canceling and load

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**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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**Hunt groups** Hunt group cascades, Call diversion, simultaneously or sequentially. Automatic forwarding after timeout or when busy/unreachable

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**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.

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**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.

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**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

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**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

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**Session Border Controller (SBC)** Separation of insecure and secure networks, QoS, management of signaling and voice data, transcoding

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**Media protocols** RTP, SIPS and SRTP

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**Analog features** Internal FXS ports for one analog terminal device each, or as an analog PBX exchange line.

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**SIP-Codec support** SIP only: G.711  $\mu$ -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)

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**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.

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**Autoprovisioning** Automatic network and VoIP integration of LANCOM DECT 510 IP base station

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# LANCOM 1803VAW-5G

## 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).
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## Cellular radio

Supported standards	5G, LTE, UMTS and HSPA support (mode of transmission automatically or manually adjustable), 2G/GSM is not supported
Supported 5G modes	5G standalone (SA), 5G non-standalone (NSA)
Supported mobile bands (5G)	n1 (2100 MHz), n2 (1900 MHz), n3 (1800 MHz), n5 (850 MHz), n7 (2600 MHz), n8 (900 MHz), n12 (700 MHz), n13 (700 MHz), n14 (700 MHz), n18 (850 MHz), n20 (800 MHz), n25 (1900 MHz), n26 (850 MHz), n28 (700 MHz), n29 (700 MHz), n30 (2300 MHz), n38 (2600 MHz), n40 (2300 MHz), n41 (2500 MHz), n48 (3500 MHz), n66 (2100 MHz), n70 (2000 MHz), n71 (600 MHz), n75 (1500 MHz), n76 (1500 MHz), n77 (3700 MHz), n78 (3500 MHz), n79 (4700 MHz)
Supported mobile bands (4G)	B1 (2100 MHz), B2 (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B12 (700 MHz), B13 (700 MHz), B14 (700 MHz), B17 (700 MHz), B18 (850 MHz), B19 (850 MHz), B20 (800 MHz), B25 (1900 MHz), B26 (850 MHz), B28 (700 MHz), B29 (700 MHz), B30 (2300 MHz), B32 (1500 MHz), B34 (2000 MHz), B38 (2600 MHz), B39 (1900 MHz), B40 (2300 MHz), B41 (2500 MHz), B42 (3500 MHz), B43 (3700 MHz), B48 (3500 MHz), B66 (1700 MHz), B71 (600 MHz)
Supported mobile bands (3G)	Band 1 (2100 MHz), Band 2 (1900 MHz), Band 4 (1700 MHz), Band 5 (850 MHz), Band 8 (900 MHz), Band 19 (800 MHz)
Diversity support	Receive diversity on the aux antenna (3G); MIMO (2x2) for LTE (4G); MIMO (4x4) for 5G
External antenna connectors	Four SMA antenna connectors (SMA female) for external mobile radio antennas
Supported SIM card formats	Micro-SIM (3FF), Nano-SIM (4FF) via adaptor

## Interfaces

WAN: VDSL / ADSL2+	<ul style="list-style-type: none"> <li>→ VDSL2 compliant with ITU G.993.2, profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a, 35b</li> <li>→ VDSL Supervectoring as per ITU G.993.2 (Annex Q)</li> <li>→ VDSL2 Vectoring: as per ITU G.993.5 (G.Vector)</li> <li>→ 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>→ 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>→ Supports one virtual ATM circuit (VPI, VCI pair) at a time</li> </ul>
Ethernet ports	5 individual 10/100/1000 Mbps Ethernet ports, 1 of them is combo (TP/SFP), 1 port is set to WAN when delivered, up to 3 ports can be operated as additional WAN ports. 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), LANCOM Wireless ePaper USB stick, USB data storage (FAT file system); bi-directional data exchange is possible



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# LANCOM 1803VAW-5G

## Interfaces

ISDN	2x internal ISDN BRI port (NT)
Analog	2x internal FXS ports (Analog1, Analog2) each for one analog device
Serial interface	Serial configuration interface / COM port (USB-C): 9,600 - 115,000 baud.

## 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
Netflow	Export of information about incoming and outgoing IP traffic
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	2,07 lbs (940 g)
Environment	Temperature range 0–40°C; humidity 0–95%; non-condensing
Housing	Robust synthetic housing, rear connectors, ready for wall mounting, 293 x 44 x 190 mm (W x H x D)
Fans	1 silent fan
waste heat (max.)	173 BTU/h
Power consumption (max)	43 watt / 18 watt



LCOS 10.80

# LANCOM 1803VAW-5G

## Declarations of conformity\*

Europe/EFTA	CE
IPv6	IPv6 Ready Gold
Country of Origin	Made in Germany
*) Note	You will find all declarations of conformity on our website at <a href="http://www.lancom-systems.com/doc">www.lancom-systems.com/doc</a>

## Scope of delivery

Manual	Quick Installation Guide (DE/EN)
Cable	1 Ethernet cable, 3 m
Cable	DSL cable for IP based communications incl. galvanic signature, 4,25m
Adapter	2x TAE adapter (RJ11 to TAE)
Antennas	Four 2 dBi 5G/LTE/UMTS-antennas
Power supply unit	External power adapter (230 V), NEST 12 V/5 A DC/S, coaxial power connector 2.1/5.5 mm, temperature range from 0 to +40° C, LANCOM item no. 112112 (EU)

## Support

Warranty extension	Free warranty extension up to 3 years (replacement service for defects) For details, please refer to the service and support conditions at <a href="http://www.lancom-systems.com/support-conditions">www.lancom-systems.com/support-conditions</a> or at <a href="http://www.lancom.de/rma">www.lancom.de/rma</a> .
Security updates	Up to 2 years after End of Sale of the device (but min. 3 years, see <a href="http://www.lancom-systems.com/product-tables">www.lancom-systems.com/product-tables</a> ), can be extended by purchasing LANcare products
Software updates	Regular free updates including new features as part of the LANCOM Lifecycle Management ( <a href="http://www.lancom-systems.com/lifecycle">www.lancom-systems.com/lifecycle</a> )
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
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)



LCOS 10.80

# LANCOM 1803VAW-5G

## Support

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

Lifecycle Management	After discontinuation (End of Sale), the device is subject to the LANCOM Lifecycle Management. Details can be found at: <a href="http://www.lancom-systems.com/lifecycle">www.lancom-systems.com/lifecycle</a>
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

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 BPjM Filter	LANCOM BPjM Filter Option, 5 years subscription, item no. 61418
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, WLCs, and current central-site gateways, item no. 61638



LCOS 10.80

# LANCOM 1803VAW-5G

## Options

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
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## 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 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

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
External antenna	AirLancer O-360Q-5G, omnidirectional outdoor antenna MIMO (4x4), for all 4G/5G bands (700-3800 MHz), item no. 61234
1000Base-BX20-U SFP module	LANCOM SFP-AON-1, item no. 60200
GPON ONT SFP module	LANCOM SFP-GPON-1, Compatible for the use on FTTH-lines of Deutsche Telekom, item no. 60199
1000Base-BX20 SFP module pair	LANCOM SFP-BiDi1550-SC1, item no. 60201
1000Base-SX SFP module, 550 m	LANCOM SFP-SX-LC1, item no. 61556
1000Base-SX SFP module, 550 m (Bulk 10)	LANCOM SFP-SX-LC1 (Bulk 10), item no. 60184
1000Base-SX SFP module, 2 km	LANCOM SFP-SX2-LC1, item no. 60183
1000Base-LX SFP module	LANCOM SFP-LX-LC1, item no. 61557
1000Base-LX SFP module (Bulk 10)	LANCOM SFP-LX-LC1 (Bulk 10), item no. 60185
SFP copper module 1G	LANCOM SFP-CO1, item no. 61494
SFP copper module 1G (Bulk 10)	LANCOM SFP-CO1 (Bulk 10), item no. 60186
19" Rack Mount	19" LANCOM CPE blackline rack mount, item no. 61990
19" Rack Mount	19" LANCOM CPE blackline rack mount plus, item no. 61991
LANCOM Wireless ePaper USB	Control of ESL displays from the manufacturer SES-imagotag in the 2.4 GHz frequency band, item no. 62225



LCOS 10.80

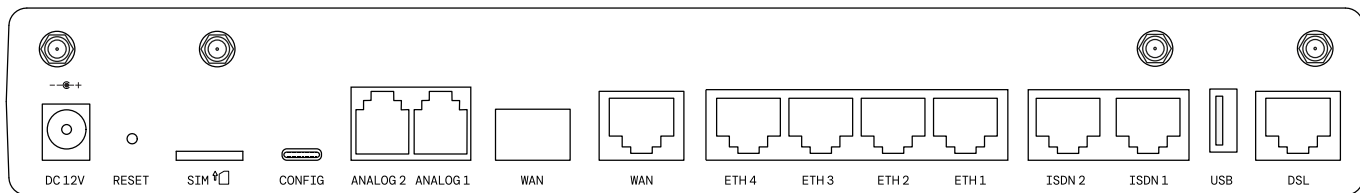
# LANCOM 1803VAW-5G

## Accessories

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
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
*) Note	Support for third-party accessories (SFP and DAC) is excluded and cannot be granted

## Item number(s)

LANCOM 1803VAW-5G (EU)	62158
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