LCOS 10.94

R&S®LANCOM 1803VAW

Secure SD-WAN over VDSL, fiber, and Wi-Fi 6 incl. VoIP

Thanks to dual-band concurrent Wi-Fi 6 technology, the SD-WAN gateway R&S®LANCOM 1803VAW integrates mobile devices into the corporate network in parallel in the 5 GHz and 2.4 GHz bands. The integrated VDSL modem and the optional fiber-optic connection provide the necessary high-performance basis for fast Internet even with high data volumes. Secure R&S®LANCOM IPSec VPN and SD-WAN connect company sites and mobile employees, making the R&S®LANCOM 1803VAW a high-performance node for small and medium-sized businesses and branch office infrastructures. In combination with the R&S®LANCOM Management Cloud, you automate and centralize your network management to save valuable resources such as time and money.

- Secure SD-WAN – centralized cloud management with secure network separation, automated provisioning, and intelligent path control
- Integrated VDSL Supervectoring modem for up to 300 Mbps
- High-speed Internet via fiber optics (GPON and AON modules available separately) and Gigabit Ethernet
- 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 VPN channels (25 optional)
- Network virtualization with up to 16 networks on one device (ARF)
- Extended protection with the content filter of the R&S®LANCOM Security Essentials Option

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Reliable, intelligent site connectivity with Secure SD-WAN

Secure SD-WAN enables centrally managed and secure networking of all sites. In combination with the R&S®LANCOM Management Cloud (R&S®LMC), it allows company-wide security and access policies to be implemented, while rollouts, configurations, and updates are automated and accelerated. Encrypted Auto VPNs, High Scalability and Advanced Mesh VPNs, Dynamic Path Selection, as well as active/active WAN with load balancing ensure resilient, fail-safe connections.

Flexible WAN connectivity via VDSL and fiber

Depending on availability, the VDSL Supervectoring modem (up to 300 Mbps, backward compatible with VDSL2/ADSL2+), the SFP/TP combo port with optional GPON/AON module for fiber, and Gigabit Ethernet for ext. modems can be used.

Reliable integration of wireless clients with Wi-Fi 6

Mobile devices gain secure, direct network access via the Wi-Fi router. For stable coverage without additional hardware, Wi-Fi 6 (IEEE 802.11ax) supports simultaneous 2.4 GHz (up to 575 Mbps) and 5 GHz (up to 1,200 Mbps).

Multi-layered security – automatically integrated

A SPI firewall is integrated into the LCOS operating system ex works (Built-in Security). Secure network segmentation is provided via ARF and VLAN, while PQ-PSKs protect against "store-now-decrypt-later" attacks and prepare for quantum resistance.

Encrypted communication via VPN

The gateway enables secure Internet connections for mobile employees, home offices, and locations via 5 integrated VPN channels (IPsec and WireGuard) and can be expanded to up to 25 channels with the R&S®LANCOM VPN Option.

Business telephony features incl. VCM, SIP proxy, and SBC

The integrated Voice Call Manager (VCM), together with the SIP proxy and Session Border Controller (SBC), protects signaling and voice data, minimizes attack surfaces, and reliably separates networks. QoS, transcoding, and dedicated interfaces ensure high voice quality and the integration of ISDN, analog, and VoIP systems.

Sustainably designed: housing made from 70% recycled material

The housing of the R&S®LANCOM 1800 blackline series is made of 70% post-consumer recycled material (PCR), is manufactured without coatings, paint, or adhesives, and is designed for resource-efficient continuous operation thanks to its cooling concept.

Individually upgradeable security with content filter

The R&S®LANCOM Security Essentials Option enhances the router with a cloud-based web and content filter that protects against phishing, ransomware, and malicious websites. Thanks to its unlimited number of users, the option is ideally suited for growing networks.

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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 moder 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 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 reverse SMA antenna connectors (RP-SMA female) for external WLAN antennas
Multi-SSID	Up to 14 independent WLAN networks; time-controlled activation and deactivation of WLAN networks
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

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WLAN operating modes	
Modes	WLAN access point (standalone or R&S®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 (R&S®LANCOM Enhanced Passphrase Security MAC), LEPS-U (R&S®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)
R&S®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
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)
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
OAM	Ethernet link OAM 802.3ah, IEEE 802.1ag CFM
Layer 3 features	
Firewall	Stateful inspection firewall including paket filtering, extended port forwarding, N:N IP address mapping, paket tagging, support for DNS targets, user-defined rules and notifications
Quality of Service	Traffic shaping, bandwidth reservation, DiffServ/TOS, packetsize 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)
Router	IPv4-, IPv6-, IPv4/IPv6 dual stack
SD-WAN Application Routing	SD-WAN Application Routing in connection with the R&S®LANCOM Management Cloud
SD-WAN dynamic path selection	SD-WAN dynamic path selection in connection with the R&S®LANCOM Management Cloud

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Layer 3 features	
SD-WAN Zero Touch Deployment	Zero touch commissioning of the device in conjunction with the R&S®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, 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, BGPv4, OSPFv2, LISP (Locator/ID Separation Protocol)
IPv4 protocols	DNS, HTTP, HTTPS, ICMP, NTP/SNTP, 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), VRRPv3
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, Dual Stack Lite, 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 Security Essentials Option
Password protection	Password-protected configuration access can be set for each interface
Two-factor authentication	Two-factor authentication (2FA) for local device management via WEBconfig, SSH or Telnet with external Authenticator application
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 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
Load balancing	Static and dynamic load balancing over up to 4 WAN connections (incl. client binding).
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

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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 WireGuard or 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 R&S®LANCOM Advanced VPN Client
1-Click-VPN Site-to-Site	Creation of VPN connections between R&S®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 certifaction 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 R&S®LANCOM routers and access points at XAUTH servers incl. IKE-config mode. XAUTH server enables clients to register via XAUTH at R&S®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.
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
Post-quantum security	Post-quantum Preshared Keys (PPK) for IKEv2
NAT-Traversal	NAT-Traversal (NAT-T) support for VPN over routes without VPN passthrough
MOBIKE	IKEv2 VPN clients can seamlessly switch between different networks (e.g. from WLAN to mobile radio) without having to re-establish the VPN tunnel
WireGuard	Support of WireGuard
R&S®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
Split DNS	Allows the selective forwarding of traffic for IKEv2 depending on the addressed DNS domain.

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VPN	
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
IKEv2-EAP*	VPN clients can be authenticated with IKEv2-EAP against a central database like Microsoft Windows Server or RADIUS Server
Two-factor authentication*	Two-factor authentication with R&S®LANCOM Advanced VPN Client via IKEv2 EAP-OTP
***)**	Only with VPN 25 option
Performance	
Routing-Performance	Data regarding the overall routing performance can be found inside the R&S®NC tech paper "Routing-Performance" here.
VoIP	
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
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	Provision of extension lines.
Analog features	Internal FXS ports for one analog terminal device each, or as an analog PBX exchange line with max. 100m supply line (intra-building).
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	Transmisson 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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VoIP	
Autoprovisioning	Automatic network and VoIP integration of R&S®LANCOM DECT N510/610 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	
WAN: VDSL / ADSL2+	► VDSL2 compliant with ITU G.993.2, profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a, 35b ► VDSL Supervectoring as per ITU G.993.2 (Annex Q) ► VDSL2 Vectoring: as per ITU G.993.5 (G.Vector) ► Certified for the use with Swisscom (CH) VDSL lines ► ADSL2+ over ISDN as per ITU G.992.5 Annex B/J with DPBO, ITU G.992.3/5 and ITU G.992.1 ► ADSL2+ over POTS as per ITU G.992.5 Annex A/M with DPBO, ITU G.992.3 and ITU.G.992.1 ► Supports one virtual ATM circuit (VPI, VCI pair) at a time
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), USB data storage (FAT file system); bi-directional data exchange is possible
ISDN	2x internal ISDN BRI port (NT)
Analog	2x internal FXS ports (Analog1, Analog2) each for one analog device with max. 100m supply line (intra-building)
Serial interface	Serial configuration interface / COM port (USB-C): 9,600 - 115,000 baud.
Management and monitoring	
Management	R&S®LANCOM Management Cloud, LANconfig, WEBconfig, R&S®LANCOM Layer 2 management (emergency management)
Management functions	Alternative boot configuration, voluntary automatic updates for LCMS and LCOS, individual access and function rights up to 16 administrators, RADIUS and RADSEC user management, remote access (WAN or (W)LAN, access rights (read/write) adjustable seperately), SSL, SSH, HTTPS, Telnet, TFTP, SNMP, HTTP, access rights via TACACS+, scripting, timed control of all parameters and actions through cron job
FirmSafe	Two stored firmware versions, incl. test mode for firmware updates
automatic firmware update	configurable automatic checking and installation of firmware updates
Monitoring	R&S®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 R&S®LANCOM Management Cloud
SD-WAN	SD-WAN – automatic WAN configuration via the R&S®LANCOM Management Cloud
Hardware	
Weight	1,80 lbs (815 g)

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Hardware	
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.)	140 BTU/h
Power consumption (max./idle)	35 watt / 17 watt
Declarations of conformity*	
Europe/EFTA	CE
Country of Origin	Made in Germany
***) Note**	The full text of the specific Declaration of Conformity is available here
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	Two 3 dBi dipole antennas (Gain depends on frequency.)
Power supply unit	External power adapter (230 V), NEST 12 V/3.5 A DC/S, coaxial power connector 2.1/5.5 mm, temperature range from 0 to +40° C, R&S®LANCOM item no. 112098
Support	
Warranty extension	Free warranty extension up to 3 years (replacement service for defects) Find details here. The service and support conditions valid as of July 1, 2026, available at rs-nc.rohde-schwarz.com/fileadmin/pdf/LCS/ServiceSupportConditions/Rohde-Schwarz-Networks-and-Cybersecurity-GmbH-Service-and-Support-Conditions-20260701.pdf, apply.
Security updates	Up to 2 years after End of Sale of the device (but min. 3 years, see Link), can be extended by purchasing R&S®NC Support products
Software updates	Regular free updates including new features as part of the R&S®NC Lifecycle Management (Link)
Information on the EU Data Act	For details on product data and data on connected services, please refer to: Link
Manufacturer support	Available with R&S®NC products such as Support Access (for R&S®NC Community Partners only), Direct, or Premium
R&S®NC Replacement 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
R&S®NC Replacement 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
R&S®NC Support 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)
R&S®NC Support 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)
R&S®NC Support 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)

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Support	
R&S®NC Support 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)
Software	
Lifecycle Management	After discontinuation (End of Sale), the device is subject to the R&S®NC Lifecycle Management. Details can be found at: Link
IT Security made in Germany	The development and quality assurance take place in Germany in accordance with high security standards. The „IT Security made in Germany" quality label of the German IT Security Association attests to the level of security achieved.
Options	
VPN	R&S®LANCOM VPN-25 Option (25 channels), item no. 60083
R&S®LANCOM Security Essentials	R&S®LANCOM Security Essentials B Option 1-Year (for R&S®LANCOM SD-WAN gateways of the 700, 800, 1600, 1700, 1800, IAP, and OAP series as well as WLAN controller R&S®LANCOM WLC-60), item no. 62168
R&S®LANCOM Security Essentials	R&S®LANCOM Security Essentials B Option 3-Years (for R&S®LANCOM SD-WAN gateways of the 700, 800, 1600, 1700, 1800, IAP, and OAP series as well as WLAN controller R&S®LANCOM WLC-60), item no. 62169
R&S®LANCOM Security Essentials	R&S®LANCOM Security Essentials B Option 5-Years (for R&S®LANCOM SD-WAN gateways of the 700, 800, 1600, 1700, 1800, IAP, and OAP series as well as WLAN controller R&S®LANCOM WLC-60), item no. 62170
R&S®LANCOM BPjM Filter	R&S®LANCOM BPjM Filter Option, 5 years subscription, item no. 61418
R&S®LANCOM Public Spot	Hotspot option for R&S®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
R&S®LANCOM Public Spot (10 bulk)	Hotspot option for R&S®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
R&S®LANCOM Public Spot PMS Accounting Plus	Extension of the R&S®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
R&S®LANCOM VoIP +10 Option	Upgrade for R&S®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
R&S®LANCOM Management Cloud	
R&S®LANCOM Management Cloud	R&S®LMC-B-1Y License (1 Year), enables the management of one category B device for one year via the R&S®LANCOM Management Cloud, item no. 50103
R&S®LANCOM Management Cloud	R&S®LMC-B-3Y License (3 Years), enables the management of one category B device for three years via the R&S®LANCOM Management Cloud, item no. 50104
R&S®LANCOM Management Cloud	R&S®LMC-B-5Y License (5 Years), enables the management of one category B device for five years via the R&S®LANCOM Management Cloud, item no. 50105
Accessories	
R&S®LANCOM DECT N610 IP (EU)	Professional DECT base station for up to 8 DECT phones, network integration and configuration via R&S®LANCOM VoIP router, 8 simultaneous calls possible, highest voice quality, power supply via PoE or power supply unit, item no. 61926
1000Base-BX20-U SFP module	R&S®LANCOM SFP-AON-1, item no. 60200
GPON ONT SFP module	R&S®LANCOM SFP-GPON-1, Compatible for the use on FTTH-lines of Deutsche Telekom, item no. 60199
XGS-PON ONT SFP module	R&S®LANCOM SFP-XGSPON-1, Compatible for the use on FTTH-lines of Deutsche Telekom, item no. 60207
1000Base-BX20 SFP module pair	R&S®LANCOM SFP-BiDi1550-SC1, item no. 60201
1000Base-SX SFP module, 550 m	R&S®LANCOM SFP-SX-LC1, item no. 61556

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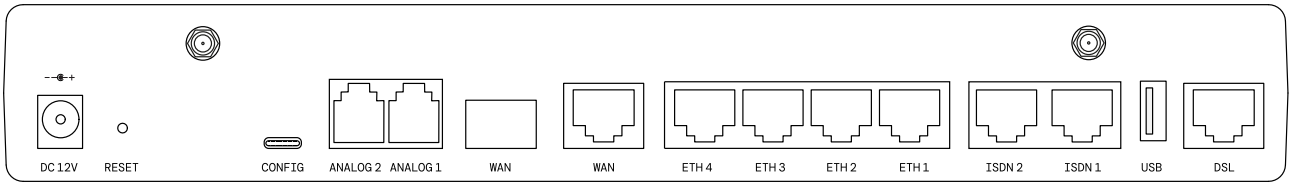
Accessories	
1000Base-SX SFP module, 550 m (Bulk 10)	R&S®LANCOM SFP-SX-LC1 (Bulk 10), item no. 60184
1000Base-SX SFP module, 2 km	R&S®LANCOM SFP-SX2-LC1, item no. 60183
1000Base-LX SFP module	R&S®LANCOM SFP-LX-LC1, item no. 61557
1000Base-LX SFP module (Bulk 10)	R&S®LANCOM SFP-LX-LC1 (Bulk 10), item no. 60185
SFP copper module 1G	R&S®LANCOM SFP-CO1, item no. 61494
SFP copper module 1G (Bulk 10)	R&S®LANCOM SFP-CO1 (Bulk 10), item no. 60186
19" Rack Mount	19" R&S®LANCOM CPE blackline rack mount, item no. 61990
19" Rack Mount	19" R&S®LANCOM CPE blackline rack mount plus, item no. 61991
VPN Client Software	R&S®LANCOM Advanced VPN Client for Windows - single license, item no. 61600
VPN Client Software	R&S®LANCOM Advanced VPN Client for Windows - 10 licenses, item no. 61601
VPN Client Software	R&S®LANCOM Advanced VPN Client for Windows - 25 licenses, item no. 61602
VPN Client Software	R&S®LANCOM Advanced VPN Client for Mac OS X, single license, item no. 61606
VPN Client Software	R&S®LANCOM Advanced VPN Client for Mac OS X, 10 licenses, item no. 61607
***) Note**	Support for third-party accessories (SFP and DAC) is excluded and cannot be granted
Item number(s)	
R&S®LANCOM 1803VAW (EU)	62154



Rohde & Schwarz Networks and Cybersecurity GmbH
Adenauerstr. 20/B2
52146 Wuerselen | Germany
info.rs-nc@rohde-schwarz.com | www.rohde-schwarz.com/networks-and-cybersecurity