

LANCOM 1640E

For reliable connectivity and versatile Internet access



Small and medium-sized companies often need secure, reliable access to the Internet as well as allowing mobile employees or branch offices to connect to the company headquarters. This SD WAN gateway is the ideal choice. It connects to any DSL or cable modem, whichever Internet connection is available at the site.

- Gigabit Ethernet interface for connection to DSL or cable modems
- 3 integrated IPsec VPN channels
- Network virtualization for 2 networks (ARF)
- Integrated stateful-inspection firewall with intrusion detection and Denial-of-Service protection
- Security Made in Germany
- Maximum future compatibility, reliability, and security

LCOS 10.70

LANCOM 1640E

High-speed Internet via external modems

The LANCOM 1640E is a business VPN router that connects to external modems via the Gigabit Ethernet port, providing highest independence from the available Internet lines at the site.

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.

Maximum data security from its integrated firewall

Equipped with a stateful inspection firewall, the LANCOM 1640E protects the entire network. This business router provides optimal protection against threats from the Internet with features such as intrusion prevention and Denial-of-Service protection.

Network virtualization with Advanced Routing & Forwarding

The LANCOM 1640E provides 2 securely isolated IP contexts, each of which has its own separate routing. This is an elegant way of operating IP applications on different networks while managing them on one central router.

Security Made in Germany

In a market with a strong presence of American and Asian products, LANCOM offers maximum security "Made in Germany". The entire LANCOM core product range is developed and manufactured in Germany and tested according to the highest standards of security, data protection and quality. The company's own "closed-source" operating system LCOS is developed at the company headquarters in Germany. Our own team of developers works in a highly secure environment as certified by the BSI (German Federal Office for Information Security), which is subject to the highest standards of security, encryption, and quality throughout.

LCOS 10.70

LANCOM 1640E

Layer 2 features

VLAN 4.096 IDs based on IEEE 802.1q, dynamic assignment

Multicast IGMP-Snooping, MLD-Snooping

Protocols ARP-Lookup, LLDP, ARP, Proxy ARP, BOOTP, DHCP

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

High availability / redundancy VRRP (Virtual Router Redundancy Protocol), analog/GSM modem backup

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

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, 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

Dynamic routing protocols RIPv2

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, Syslog, SNMPv1,v2c,v3, MLDv2, NPTv6 (NAT66)

WAN operating mode VDSL, ADSL1, ADSL2 or ADSL2+ additional with external DSL modem at an ETH port

WAN protocols PPPoE, Multi-PPPoE, ML-PPP, GRE, EoGRE, PPTP (PAC or PNS), L2TPv2 (LAC or LNS), L2TPv3 with Ethernet-Pseudowire and IPoE (using DHCP or no DHCP), RIP-1, RIP-2, VLAN, IPv6 over PPP (IPv6 and IPv4/IPv6 dual stack session), IP(v6)oE (autokonfiguration, DHCPv6 or static)

LCOS 10.70

LANCOM 1640E

Layer 3 features

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

Password protection Password-protected configuration access can be set for each interface

Alerts Alerts via e-mail, SNMP traps and SYSLOG

Authentication mechanisms PAP, CHAP, MS-CHAP and MS-CHAPv2 as PPP authentication mechanism

Adjustable reset button Adjustable reset button for 'ignore', 'boot-only' and 'reset-or-boot'

High availability / redundancy

VRRP VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station.

FirmSafe For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates

Analog/GSM modem backup Optional operation of an analog or GSM modem at the serial interface

Load balancing Static and dynamic load balancing over up to 2 WAN connections. Channel bundling with Multilink PPP (if supported by network operator)

VPN redundancy Backup of VPN connections across different hierarchy levels, e.g. in case of failure of a central VPN concentrator and re-routing to multiple distributed remote sites. Any number of VPN remote sites can be defined (the tunnel limit applies only to active connections). Up to 32 alternative remote stations, each with its own routing tag, can be defined per VPN connection. Automatic selection may be sequential, or dependant on the last connection, or random (VPN load balancing)

Line monitoring Line monitoring with LCP echo monitoring, dead-peer detection and up to 4 addresses for end-to-end monitoring with ICMP polling

VPN

IPSec over HTTPS Enables IPSec VPN based on TCP (at port 443 like HTTPS) which can go through firewalls in networks where e. g. port 500 for IKE is blocked. Suitable for client-to-site connections and site-to-site connections. IPSec over HTTPS is based on the NCP VPN Path Finder technology

Number of VPN tunnels Max. number of concurrent active IPSec, PPTP (MPPE) and L2TPv2 tunnels: 3. Unlimited configurable connections.

LCOS 10.70

LANCOM 1640E

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)
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.
Algorithms	3DES (168 bit), AES-CBC and -GCM (128, 192 or 256 bit), Blowfish (128 bit), RSA (1024-4096 bit), ECDSA (P-256-, P-384-, P-521-curves), Chacha20-Poly 1305 and CAST (128 bit). OpenSSL implementation with FIPS-140 certified algorithms. MD-5, SHA-1, SHA-256, SHA-384 or SHA-512 hashes
NAT-Traversal	NAT-Traversal (NAT-T) support for VPN over routes without VPN passthrough
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.

LCOS 10.70

LANCOM 1640E

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 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 LANCOM tech paper "Routing-Performance" on www.lancom-systems.com
---------------------	--

VoIP

SIP ALG	The SIP ALG (Application Layer Gateway) acts as a proxy for SIP communication. For SIP calls the ALG opens the necessary ports for the corresponding media packets. Automatic address translation (STUN is no longer needed).
---------	---

Interfaces

WAN: Ethernet	10/100/1000 Mbps Gigabit Ethernet
Ethernet ports	3 individual 10/100/1000 Mbps Ethernet ports; up to 3 ports can be operated as additional WAN ports with load balancing. Ethernet ports can be electrically disabled within LCOS configuration. The ports support energy saving according to IEEE 802.3az
Port configuration	Each Ethernet port can be freely configured (LAN, DMZ, WAN, monitor port, off). LAN ports can be operated as a switch or separately. Additionally, external DSL modems or termination routers can be operated as a WAN port with load balancing and policy-based routing. DMZ ports can be operated with their own IP address range without NAT
USB 2.0 host port	USB 2.0 hi-speed host port for connecting USB printers (USB print server), serial devices (COM port server), USB data storage (FAT file system); bi-directional data exchange is possible
Serial interface	Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/GPRS modems. Supports internal COM port server and allows for transparent asynchronous transmission of serial data via TCP

LCOS 10.70

LANCOM 1640E

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
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

Environment	Temperature range 5–40° 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)	Approx. 8.5 watt

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 www.lancom-systems.com/doc

LCOS 10.70

LANCOM 1640E

Scope of delivery

Manual	Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)
Cable	2 Ethernet cables, 3m
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)

Support

Warranty	3 years For details, please refer to the General Warranty Conditions at: www.lancom-systems.com/warranty-conditions
Software updates	Regular free updates as part of the LANCOM Software Lifecycle Managements (www.lancom-systems.com/lifecycle)
Manufacturer support	Free technical manufacturer support as part of the LANCOM Software Lifecycle Management (www.lancom-systems.com/lifecycle).

Software

Software Lifecycle Management	After discontinuation, the device is subject to the LANCOM Software 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

LANCOM Content Filter	LANCOM Content Filter +10 user (additive up to 25), 1 year subscription, item no. 61590
LANCOM Content Filter	LANCOM Content Filter +25 user (additive up to 25), 1 year subscription, item no. 61591
LANCOM Content Filter	LANCOM Content Filter +10 user (additive up to 25), 3 year subscription, item no. 61593
LANCOM Content Filter	LANCOM Content Filter +25 user (additive up to 25), 3 year subscription, item no. 61594
LANCOM BPjM Filter	LANCOM BPjM Filter Option, 5 years subscription, item no. 61418
LANcare Basic S	Service package with security updates and support entitlement* until EOL and 5 years replacement service (* support access required, e.g. support contract or LANCOM Service Packs 24/7 or 10/5), item no. 10720
LANcare Advanced S	Service package with security updates and support entitlement* until EOL and 5 years NBD advance replacement (* support access required, e.g. support contract or LANCOM Service Packs 24/7 or 10/5), item no. 10730
LANCOM All-IP Lizenz Option	Upgrade option for the operation of the LANCOM routers with All-IP connections, support of PBX systems and telephony devices as well as voice & fax services, incl. Voice Call Manager, item no. 61419
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

LCOS 10.70

LANCOM 1640E

LANCOM Management Cloud

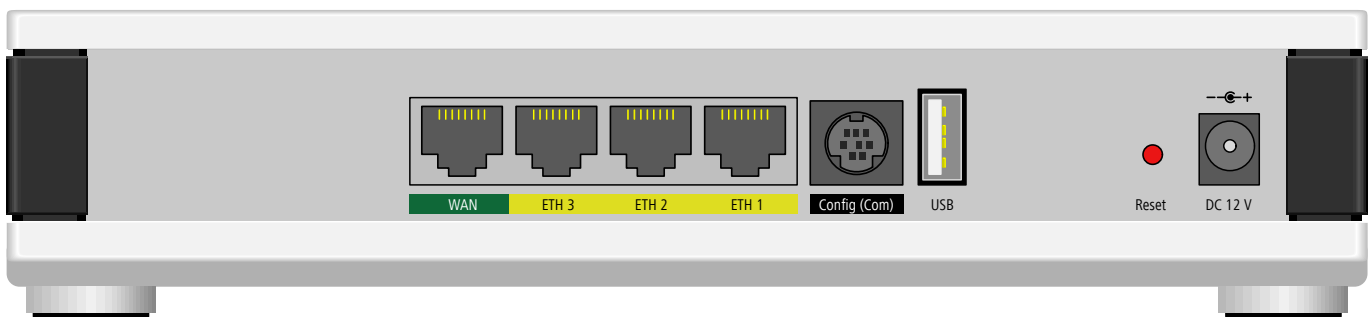
LANCOM LMC-A-1Y LMC License	LANCOM LMC-A-1Y License (1 Year), enables the management of one category A device for one year via the LANCOM Management Cloud, item no. 50100
LANCOM LMC-A-3Y LMC License	LANCOM LMC-A-3Y License (3 Years), enables the management of one category A device for three years via 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
LANCOM LMC-A-10Y LMC License	LANCOM LMC-A-10Y License (10 Years), enables the management of one category A device for ten years via the LANCOM Management Cloud, item no. 50132

Accessories

19" Rack Mount	19" rack mount adaptor, item no. 61501
19" Rack Mount	19" rack mount plus adaptor, item no. 61644
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 Mac OS X (10.5 Intel only, 10.6 or higher), single license, item no. 61606

Item number(s)

LANCOM 1640E (EU)	61084
LANCOM 1640E (WW)	61085



LANCOM Systems GmbH
 Adenauerstr. 20/B2
 52146 Wuerselen | Germany
 info@lancom.de
 www.lancom-systems.com

LANCOM, LANCOM Systems, LCOS, LANcommunity and Hyper Integration are registered trademarks. All other names or descriptions used may be trademarks or registered trademarks of their owners. This document contains statements relating to future products and their attributes. LANCOM Systems reserves the right to change these without notice. No liability for technical errors and/or omissions. 03/23