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LANCOM XAC-40-1

Industrial WLAN client for automation and control

- Industrial WLAN Client for 2.4 and 5 GHz
- Robust and compact metal housing, IP-40
- Temperature range -20 to +50°C
- Power supply with 230 V, 24 V or PoE
- Fast Roaming functions
- Transparent WLAN-to-Ethernet conversion
- Wireless transmission with up to 108 Mbps

Professional WLAN client.

The wireless LAN client LANCOM XAC-40-1 is the perfect supplement to WLAN base stations from LANCOM. The client can operate as a WLAN connection terminal, for example to provide a stationary or mobile network connection. It functions as a transparent WLAN-to-Ethernet converter and is suitable for operation under severe environmental conditions. The LANCOM XAC-40-1 offers a comprehensive range of security and QoS functions, and also a method of fast roaming to ensure reliable connection quality at all times. An extensive range of management systems are available for operation and rollout.

Secure in any situation.

The LANCOM XAC-40-1 is equipped with all of the latest security features necessary for transferring sensitive data over WLAN. The WLAN can be secured by 802.11i or WPA2. The device has an integrated professional firewall and offers masking and intrusion detection for devices in the LAN. With the fast roaming and matured Quality of Service functions, even real-time data can be reliably transmitted in the highest quality and in parallel.

High performance and reliability.

The LANCOM XAC-40-1 offers WLAN bandwidths of up to 108 Mbps in the 2.4 GHz band (802.11b/g) or in the 5 GHz band (802.11a/n, incl. TPC and DFS). Bursting and compression technologies lead to significant increases in the effective data rate. The integrated concept for the security of operations along with the software "Made in Germany" guarantee trouble-free continuous operation around the clock.

LANCOM Systems offers a comprehensive range of professional indoor and outdoor antennas for bridging distances of up to several kilometers to the next base station.

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Firewall	
Stateful inspection firewall	Incoming/Outgoing Traffic inspection based on connection information
Packet filter	Check based on the header information of an IP packet (IP or MAC source/destination addresses; source/destination ports, DiffServ attribute); remote-site dependant, direction dependant, bandwidth dependant
Extended port forwarding	Network Address Translation (NAT) based on protocol and WAN address, i.e. to make internal webservers accessible from WAN
N:N IP address mapping	N:N IP address mapping for translation of IP addresses or entire networks
Tagging	The firewall marks packets with routing tags, e.g. for policy-based routing
Actions	Forward, drop, reject, block sender address, close destination port, disconnect
Notification	Via e-mail, SYSLOG or SNMP trap
Quality of Service	
Traffic shaping	Dynamic bandwidth management with IP traffic shaping
Bandwidth reservation	Dynamic reservation of minimum and maximum bandwidths, totally or connection bases, separate settings for send and receive directions
DiffServ/TOS	Priority queuing of packets based on DiffServ/TOS fields
Packet-size control	Automatic packet-size control by fragmentation or Path Maximum Transmission Unit (PMTU) adjustment.
Layer 2/Layer 3 tagging	Automatic or fixed translation of layer-2 priority information (802.11p-marked Ethernet frames) to layer-3 DiffServ attributes in routing mode. Translation from layer 3 to layer 2 with automatic recognition of 802.11p-support in the destination device.
Security	
Access control lists	Filtering of IP or MAC addresses and preset protocols for configuration access
Password protection	Password-protected configuration access can be set for each interface
Alerts	Alerts via e-mail, SNMP-Traps and SYSLOG
Authentication mechanisms	EAP-TLS, EAP-TTLS, PEAP, MSCHAP, MXCHAPv2 as EAP authentication mechanisms, PAP, CHAP and MS-CHAP as PPP authentication mechanisms
WLAN protocol filters	Limitation of the allowed transfer protocols, source and target addresses on the WLAN interface
Adjustable reset button	Adjustable reset button for "ignore", "boot-only" and "reset-or-boot"
IP redirect	Fixed redirection of any packet received over the WLAN interface to a dedicated target address
High availability / redundancy	
VRRP	VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station. Enables passive standby groups or reciprocal backup between multiple active devices including load balancing and user definable backup priorities
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
Line monitoring	Line monitoring with LCP echo monitoring, up to 4 addresses for end-to-end monitoring with ICMP polling.
WLAN	
Frequency band 2.4 GHz or 5 GHz (EU compliance)	2400 - 2483.5 MHz (ISM) or 5150 - 5750 MHz or 5725-5825 MHz (UK only)
Transfer rates 2.4 GHz	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), 802.11 b/g compatibility mode or pure g or pure b, Super A/G with Turbo Mode (108 Mbps), bursting, compression
Transfer rates 5 GHz	54 Mbps to IEEE 802.11a/h (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection), Super A/G with Turbo Mode (108 Mbps), bursting, compression, fully compatible with TPC (adjustable power output) and DFS (automatic channel selection, radar detection) according to ETSI regulations
Range *	Up to 150 m (up to 30 m in buildings) *
Maximum transmission power 2.4 GHz	802.11b: +19 dBm @ 1 and 2 Mbps, +19 dBm @ 5.5 and 11 Mbps
Maximum transmission power 2.4 GHz	802.11g: +19 dBm @ 6 Mbps, +14 dBm @ 54 Mbps
Maximum transmission power 5 GHz	802.11a/h: +18 dBm @ 6 Mbps, +12 dBm @ 54 Mbps with transmission power control (TPC) and manual power settings
Minimum transmission power	Transmission power reduction in software in 1 dB steps to min. 0.5 dBm
Reception sensitivity 2.4 GHz	802.11b: -87 dBm @ 11 Mbps, -94 dBm @ 1 Mbps
Reception sensitivity 2.4 GHz	802.11g: -87 dBm @ 6 Mbps, -70 dBm @ 54 Mbps
Reception sensitivity 5 GHz	802.11a/h: -87 dBm @ 6 Mbps, -67 dBm @ 54 Mbps
Radio channels 2.4 GHz	Up to 13 channels, max. 3 non-overlapping (2.4 GHz band)
Radio channels 5 GHz	Up to 19 non-overlapping channels (5 GHz band) with automatic dynamic channel selection (DFS)

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WLAN	
Fast client roaming	With background scanning, moving LANCOM "client mode" Access Points pre-authenticate to alternative access points which offer a better signal before Roaming
VLAN	VLAN ID definable per interface, WLAN SSID, point-to-point connection and routing context (4094 IDs)
Dynamic VLAN assignment	Dynamic VLAN assignment for target user groups based on MAC addresses, BSSID or SSID by means of external RADIUS server.
Q-in-Q tagging	Support of layered 802.1q VLANs
Security	IEEE 802.11i / WPA2 with passphrase or 802.1x and hardware-accelerated AES, closed network, WEP64, WEP128, WEP152, user authentication, 802.1x /EAP
EAP server	Integrated EAP server for authentication of 802.1x clients via EAP-TLS, EAP-TTLS, PEAP, MSCHAP or MSCHAPv2
Quality of Service	Prioritization according to Wireless Multimedia Extensions (WME, subset of IEEE 802.11e)
Note	* The effective distance and transmission rate that can be achieved are depending of the site RF conditions.
WLAN operating modes	
WLAN client	Transparent WLAN client mode for wireless Ethernet extensions, e.g. connecting PCs or printers by Ethernet; up to 64 MAC addresses
Routing functions	
Router	IP and NetBIOS/IP multi-protocol router
Advanced Routing and Forwarding	Separate processing of 8 contexts due to virtualization of the routers. Mapping to VLANs and complete independent management and configuration of IP networks in the device, i.e. individual settings for DHCP, DNS, Firewalling, QoS, Routing etc.
HTTP	HTTP and HTTPS server for configuration by web interface
DNS	DNS client, DNS server, DNS relay, DNS proxy and dynamic DNS client
DHCP	DHCP client, DHCP relay and DHCP server with autodetection
NetBIOS	NetBIOS/IP proxy
NTP	NTP client and SNTP server, automatic adjustment for daylight-saving time
Policy-based routing	Policy-based routing based on routing tags. Based on firewall rules, certain data types are marked for specific routing, e.g. to particular remote sites or lines.
Dynamic routing	Dynamic routing with RIPv2. Learning and propagating routes; separate settings for LAN and WAN
Rapid Spanning Tree	802.1d Spanning Tree and 802.1w Rapid Spanning Tree support for dynamic path selection with redundant layer 2 connections
LAN protocols	
IP	ARP, proxy ARP, BOOTP, DHCP, DNS, HTTP, HTTPS, IP, ICMP, NTP/SNTP, NetBIOS, PPPoE (server), RADIUS, RIP-1, RIP-2, RTP, SIP, SNMP, TCP, TFTP, UDP, VRRP
Interfaces	
LAN	10/100Base-TX, autosensing, auto node hub, PoE compliant with IEEE 802.3af
Serial interface	Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/ GPRS modems
External antenna connectors	Two reverse SMA connectors for external LANCOM AirLancer Extender antennas or for antennas from other vendors. Please respect the restrictions which apply in your country when setting up an antenna system. For information about calculating the correct antenna setup, please refer to www.lancom-systems.com .
Management	
LANconfig	Configuration program for Microsoft Windows, incl. convenient Setup Wizards. Optional group configuration, simultaneous remote configuration and management of multiple devices over IP connection (HTTPS, HTTP, TFTP)
LANmonitor	Monitoring application for Microsoft Windows for (remote) surveillance and logging of the status of LANCOM devices and connections, incl. PING diagnosis
Webconfig	Integrated web server for the configuration of LANCOM devices via Internet browsers with HTTPS or HTTP
Access rights	Individual access and function rights for up to 16 administrators
Remote maintenance	Remote configuration with Telnet/SSL, SSH (with password or public key), browser (HTTP/HTTPS), TFTP or SNMP, firmware upload via HTTP/HTTPS or TFTP. A remote configuration for devices behind der LANCOM can be accomplished (after authentication) via tunneling of arbitrary TCP-based protocols, e.g. for HTTP(S) remote maintenance of VoIP phones or printers of the LAN
Security	Access rights (read/Write) over WAN or (W)LAN can be set up separately (Telnet/SSL, SSH, SNMP, HTTPS/HTTP), access control list
Scripting	Scripting function for batch-programming of all command-line parameters and for transferring (partial) configurations, irrespective of software versions and device types, incl. test mode for parameter changes
SNMP	SNMP management via SNMP V2, private MIB exportable by WEBconfig, MIB II

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Management	
Timed control	Scheduled control of parameters and actions with CRON service
TFTP	TFTP client and server with variable file names (name, MAC/IP address, serial number)
Diagnosis	Extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, LANmonitor status display, internal logging buffer for SYSLOG and firewall events
Statistics	
Statistics	Extensive Ethernet, IP and DNS statistics; SYSLOG error counter
Hardware	
Power supply	12 V DC, external power adapter (230 V)
Power supply	Via Power over Ethernet, compliant with IEEE 802.3af
Power supply	2 x 24 V DC, redundant, with galvanic isolation, input voltage range 20 - 28 V
Environment	Temperature range -20 – +50 °humidity 0–95 %; non-condensing
Housing	Robust metal housing, IP 40 protection rating, connections on the front of the device; 80 x 100 x 135 mm (W x H x D), ready for wall and top-hat rail mounting
Power consumption (max)	12 V ca. 4.5 Watts, 24 V ca. 6 Watts, PoE ca. 4.5 Watts
Declarations of conformity	
CE	EN 55022, EN 301 489-1, EN 301 489-17, EN 60950
2.4 GHz WLAN	ETS 300 328
5 GHz WLAN	EN 301 893
Industrial	EN 61000-6-2: Electromagnetic compability, Immunity for industrial environments
Programmable Controllers	EN 61131-2: 2003 Part 2: Equipment requirements and tests (Chapter 6.1.1; 6.1.2 (+5°– +55°6.3.1.1; 6.3.2; 6.3.3.1; 8.2; 8.3 (Zone B); 9.11; 9.12)
Railway Applications	EN 50155: 2001 + A1:2002 + Corrigendum 2003, Electronic Equipment used on rolling stock (Chapter 10.2.2; only AC mains power; 10.2.3; 10.2.4; 10.2.6.1; 10.2.6.2; 10.2.6.4; 10.2.7; 10.2.8; 10.2.9.1; 10.2.11)
Vehicles	Commission Directive 2006/28/EC of 6 March 2006, radio interference (electromagnetic compatibility) of vehicles
Notifications	Certifications notified in Germany, Belgium, Netherlands, Luxembourg, Austria, Switzerland, UK, Italy, Spain, France, Portugal
Package content	
Manual	Printed User Manual (DE, EN)
CD	CD with firmware, management software (LANconfig, LANmonitor, WLANmonitor) and documentation
Cable	Serial configuration cable, 1.5m
Antennas	Two 3 dBi dipole dualband antennas
Power supply unit	12 V DC, external power adapter (230 V)
Support	
Warranty	3 years, support via Hotline and Internet KnowledgeBase
Software updates	Regular free updates (LCOS operating system and management tools) via Internet
Options	
Service	LANCOM Service Option (24h advance replacement within Germany, 4 year warranty, not for PoE Power Injector), item no. 61401
Accessories	
External antenna	AirLancer Extender O-30 2.4 GHz outdoor antenna, item no. 60478
External antenna	AirLancer Extender O-70 2.4 GHz outdoor antenna, item no. 60469
External antenna	AirLancer Extender O-9a 5 GHz outdoor antenna, item no. 61220
External antenna	AirLancer Extender O-18a 5 GHz outdoor antenna, item no. 61210
External antenna	AirLancer Extender O-D80g 2.4 GHz polarization diversity outdoor sector antenna, item no. 61221
External antenna	AirLancer Extender O-D60a 5 GHz polarization diversity outdoor sector antenna, item no. 61222
External antenna	AirLancer Extender O-360ag dualband omnidirectional outdoor antenna, item no. 61223
External antenna	AirLancer Extender I-60ag dualband indoor sector antenna, item no. 61214
External antenna	AirLancer Extender I-180 omnidirectional 2.4 GHz indoor antenna, item no. 60914
External antenna	AirLancer Extender I-360 omnidirectional 2.4 GHz indoor antenna, item no. 00745
Antenna cable	AirLancer cable NJ-NP 3m antenna-cable extension, item no. 61230

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Accessories	
Antenna cable	AirLancer cable NJ-NP 6m antenna-cable extension, item no. 61231
Antenna cable	AirLancer cable NJ-NP 9m antenna-cable extension, item no. 61232
Lightning Protection (antenna cable)	AirLancer Extender SA-5 lightning protection (2.4 and 5 GHz), item no. 61212
Lightning Protection (LAN cable)	AirLancer Extender SA-LAN lightning protection LAN cable, item no. 61213
Documentation	LANCOM LCOS Reference Manual (DE), item no. 61700
Power over Ethernet Injector	LANCOM PoE Power Injector, item no. 61502
Power over Ethernet Switch	LANCOM ES-1108P, 8 port switch with 4 PoE ports, item no. 61450
Item numbers	
LANCOM XAC-40-1	61196

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