LANCOM L-151E Wireless

Single Radio Entry 11n WLAN access point with up to 150 Mbps, Wireless ePaper technology and iBeacon support

The LANCOM L-151E Wireless is a professional 11n WLAN premium entry access point. It provides 11n clients with professional and reliable WLAN in the 2.4 GHz frequency band. In addition to that, the access point supports the wireless update of radio-controlled, battery-powered ePaper displays and iBeacon technology in an interference-free, parallel operation.

- Single Operation WLAN – operation at 2.4 with up to 150 Mbps with IEEE 802.11n
- Integrated radio module for updating LANCOM Wireless ePaper Displays
- Integrated iBeacon technology
- Dynamic WLAN optimization thanks to LANCOM Active Radio Control (ARC)
- Professional security features such as IEEE 802.1X
- Operation via LANCOM Management Cloud, WLAN controller or stand-alone
- Easy and secure integration of external users with the Public Spot Option in combination with a WLAN controller

LANCOM
Systems

LANCOM L-151E Wireless

Single Operation Wi-Fi with up to 150 Mbps

The LANCOM L-151E Wireless is a powerful 11n WLAN entry-class access point. It provides 11n clients optionally in the 2.4-GHz frequency band with 150 Mbps WLAN.

Update of LANCOM Wireless ePaper Displays

Besides providing two WLAN radio modules, the LANCOM L-151E Wireless also offers one radio module for the update of LANCOM Wireless ePaper Displays. Thanks to the intelligent combination of different radio technologies in one access point, the interference-free and parallel operation is guaranteed.

Integrated iBeacon technology

The iBeacon, integrated in the LANCOM L-151E Wireless, continously sends signals via the radio standard Bluetooth Low Energy (version 4.0). It is extremely well-suited for near-field communication and has the advantage that its power consumption is significantly lower compared to classic Bluetooth - an innovative method for various push marketing actions.

Active Radio Control for dynamic radio-field optimization

The LANCOM L-151E Wireless supports the WLAN optimization feature LANCOM Active Radio Control. This intelligent combination of innovative features included with the LCOS operating system – such as Client Steering, Adaptive Noise Immunity and RF Optimization – sustainably increases WLAN performance and supports administrators with professional tools for WLAN management.

LANCOM security for wireless networks

With numerous integrated security features, such as IEEE 802.1X, the LANCOM L-322E Wireless provides optimal security for networks. As a result, employees and visitors all benefit from security policies in the network.

Zero-touch deployment

The LANCOM L-151E Wireless can be versatilely operated: Managed via the LANCOM Management Cloud it is integrated into a comprehensive, automated network orchestration, based on Software-defined Networking technology. It can also be operated via a LANCOM WLAN controller or be applied in stand-alone operation.

Secure integration of external users

In controller-based scenarios, the LANCOM L-151gn Wireless is ideal for operating hotspots in combination with the LANCOM Public Spot Option. Users benefits from a hotspot that is secure and easy-to-use, while hotspot operators can be sure that their own network remains separate from the hotspot. This way, the hotspot operator can provide guest accesses with up to 150 Mbps in meeting rooms, cafes, and restaurants.

Maximum future viability

LANCOM products are designed for a service life of several years and are equipped with hardware dimensioned for the future. Even reaching back to older product generations, updates to the LANCOM Operating System – LCOS – are available several times a year, free of charge and offering major features.

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WLAN product specifications	
Frequency band 2.4 GHz	2400-2483.5 MHz (ISM)
Integrated Antenna Gain (per antenna (2))	up to 3 dBi in 2.4 GHz
Data rates IEEE 802.11n	144,4 Mbps according to IEEE 802.11n with MCS15 (Fallback to 6,5 Mbps with MCS0). Compatible to IEEE 802.11g/n, IEEE 802.11b/g/n or IEEE 802.11b/g compatibility mode or pure IEEE 802.11n, IEEE 802.11g or pure IEEE 802.11b mode and data rates selectable
Data rates IEEE 802.11b/g	54 Mbps to IEEE 802.11g (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection) compatible to IEEE 802.11b (11, 5.5, 2, 1 Mbps, Automatic Rate Selection), IEEE 802.11b/g compatibility mode or pure IEEE 802.11g or pure IEEE 802.11b and data rates selectable
Range IEEE 802.11b/g *	Up to 150 m (up to 30 m in buildings)
Output power at radio module, 2.4 GHz	IEEE 802.11b: +14dBm @ 1, 2, 5.5 and 11 Mbps, IEEE 802.11g: +17dBm @ 6 up to 36 Mbps, +16dBm @ 48 and 54 Mbps, IEEE 802.11n: +16dBm @ (MCS0/8, 20 MHz), +15 dBm @ (MCS7/15, 20 MHz)
Max. allowed radiation power (EIRP), 2.4 GHz	IEEE 802.11b/g: Up to 20 dBm / 100 mW EIRP (transmission power control according to TPC)
Minimum transmission power	Transmission power reduction in software in 1 dB steps to min. 0.5 dBm
Receiver sensitivity 2.4 GHz	IEEE 802.11b: -98 dBm @ 1 Mbps , -94 dBm @ 11 Mbps ; IEEE 802.11g: -96 dBm @ 6 Mbps , -82 dBm @ 54 Mbps ; IEEE 802.11n: -95 dBm @ 6,5 Mbps (MCS0, 20 MHz) , -78 dBm @ 65 Mbps (MCS 7, 20 MHz)
Radio channels 2.4 GHz	Up to 13 channels, max. 3 non-overlapping (depending on country-specific restrictions)
Multi-SSID	Up to 8 independent WLAN networks
Concurrent WLAN clients	Up to 128 clients (recommended)
*) Note	The effective distances and transmission rates that can be achieved are depending of the onsite RF conditions
Supported WLAN standards	
IEEE standards	IEEE 802.11n (Wi-Fi 4), IEEE 802.11g, IEEE 802.11b, IEEE 802.11i, IEEE 802.1X, IEEE 802.11u, IEEE 802.11r (Fast Roaming), IEEE 802.11w (Protected Management Frames), WME and U-APSD/WMM Power Save as defined in IEEE 802.11e, IEEE 802.11h, IEEE 802.11d
Standard IEEE 802.11n (Wi-Fi 4)	
Supported features	2x2 MIMO, 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), WLAN router (standalone, WLC or LANCOM Management Cloud managed)
Security	
Encryption options	WPA3-Personal, IEEE 802.1X (WPA3-Enterprise, WPA2-Enterprise), IEEE 802.11i (WPA2-Personal), Wi-Fi Certified™ WPA2™, WPA, WEP, IEEE 802.11w (Protected Management Frames), LEPS-MAC (LANCOM Enhanced Passphrase Security MAC), LEPS-U (LANCOM Enhanced Passphrase Security User)
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 or MSCHAPv2
Others	WLAN protocol filters, IP-redirection of any packet received over the WLAN interface, IEEE 802.1X supplicant, background scanning, client detection ("rogue WLAN client detection"), Wireless Intrusion Detection System (WIDS), RADIUS CoA (Change of Authorization)
LANCOM Active Radio Control	
Client Management	Steering of WLAN clients to the ideal access point using 802.11k and 802.11v
Managed RF Optimization*	Selection of optimal WLAN channels by the administrator
Adaptive Noise Immunity	Better WLAN throughput due to immunity against interferences
Adaptive RF Optimization	Dynamic selection of the optimal WLAN channel
Airtime Fairness	Improved utilization of the WLAN bandwidth

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LANCOM Active Radio Control	
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), Fast Client Roaming (only in operating mode client modus)
Wireless ePaper Displays	
Support of LANCOM Wireless ePaper Displays	The device is equipped with a radio module for the update of LANCOM Wireless ePaper Displays in the 2.4 GHz frequency band.
iBeacon	
Support of iBeacon technology	The device is equipped with a BLE radio module and can thus transmit a configurable iBeacon. The UUID as well as the major and minor ID are configurable. On top of that, all three radiated powers are supported (near, immediate, far).
Layer 2 features	
VLAN	4.096 IDs based on IEEE 802.1q, dynamic assignment, Q-in-Q tagging
Quality of Service	WME based on IEEE 802.11e, Wi-Fi Certified™ WMM®
Rate limiting	SSID based, WLAN client based
Multicast	IGMP-Snooping, MLD-Snooping, Multicast-to-Unicast-conversion on WLAN interfaces
Protocols	Ethernet over GRE-Tunnel (EoGRE), ARP-Lookup, LLDP, DHCP option 82, IPv6-Router-Advertisement-Snooping, DHCPv6-Snooping, LDRA (Lightweight DHCPv6 Relay Agent), Spanning Tree, Rapid Spanning Tree, ARP, Proxy ARP, BOOTP, DHCP
Layer 3 features	
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
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
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
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
WAN operating mode	VDSL, ADSL1, ADSL2 or ADSL2+ additional with external DSL modem at an ETH port
WAN protocols	PPPoE, Multi-PPPoE, ML-PPP, GRE, EoGRE, PPTP (PAC or PNS), L2TPv2 (LAC or LNS), L2TPv3 with Ethernet-Pseudowire, IPoE (using DHCP or no DHCP), RIP-1, RIP-2, VLAN, IPv6 over PPP (IPv6 and IPv4/IPv6 dual stack session), IP(v6)oE (autokonfiguration, DHCPv6 or static)
Tunneling protocols (IPv4/IPv6)	6to4, 6in4, 6rd (static and over DHCP), Dual Stack Lite (IPv4-in-IPv6-Tunnel)
Interfaces	
Ethernet port	1 x 10/100BASE-T autosensing (RJ-45), PoE (Power over Ethernet)

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Interfaces	
External antenna connectors	Two reverse SMA connectors for external antennas can be used to control Wireless ePaper Displays and iBeacon.
Hardware	
Power supply	12 V DC, external power adapter (230 V) with bayonet cap. PoE (Power over Ethernet), compliant with IEEE 802.3af
Environment	Temperature range 0° to +50°C; humidity up to 95%; non-condensing
Power consumption (max)	Approx. 5 watt with 12 V/ 1,5 A power supply adapter (total power consumption of access point and power supply adapter), approx. 4.3 watt via PoE
Housing	Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; 210 x 45 x 140 mm (W x H x D)
Management and monitoring	
Management	LANCOM Management Cloud, LANconfig, WEBconfig, WLAN controller, 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	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
SD-WLAN	SD-WLAN – automatic WLAN configuration via the LANCOM Management Cloud
SD-LAN	SD-LAN – automatic LAN configuration via the LANCOM Management Cloud
Declarations of conformity*	
CE	EN 60950-1, EN 301 489-1, EN 301 489-17
2.4 GHz WLAN	EN 300 328
IPv6	IPv6 Ready Gold
Country of Origin	Made in Germany
*) Note	You will find all declarations of conformity in the products section of our website at www.lancom-systems.com
Scope of delivery	
Manual	Installation Guide (DE/EN/FR/ES/IT/PT/NL)
Cable	1 Ethernet cable, 3 m
Antennas	Two 3 dBi dipole antennas
Power supply unit	External power adapter (230 V), NEST 12 V/1.5 A DC/S, coaxial power connector 2.1/5.5 mm bayonet, temperature range from -5 to +45° C, LANCOM item no. 111301 (EU)/LANCOM item no 110829 (UK) (not included in bulk delivery)
Support	
Warranty	3 years support
Software updates	Regular free updates (LCOS operating system and LANtools) via Internet
Options	
LANCOM Warranty Basic Option S	Option to extend the manufacturer´s warranty from 3 to 5 years, item no. 10710
LANCOM Warranty Advanced Option S	Option to extend the manufacturer´s warranty from 3 to 5 years and replacement of a defective device, item no. 10715

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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
Accessories	
LANCOM Wireless ePaper Displays	2.7" LANCOM Wireless ePaper Display, item no. 62213 (bulk 5), 4.4" LANCOM Wireless ePaper Display, item no. 62211 and item no. 62214 (bulk 5), 7.4" LANCOM Wireless ePaper Display, item no. 62212 and item no. 62215 (bulk 5)
LANCOM WLAN controllers	LANCOM WLC-4006+, item no. 62035 (EU), item no. 62036 (UK) and item no. 62037 (US), LANCOM WLC-1000, item no. 61783 (EU), LANCOM WLC Basic Option for Routers, item no. 61639
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
Power over Ethernet Injector	1-port PoE injector with Gigabit support, integrated power supply, compatible with the standard IEEE 802.3af/at, item no. 61738 (EU) and 61739 (UK)
Item number(s)	
LANCOM L-151E Wireless (EU,UK)	61577 (EU), 61581 (UK)
LANCOM L-151E Wireless 10-piece bulk	61585