LANCOM
SYSTEMS

lancom-systems.com

LANCOM OX-6402

Highly efficient Wi-Fi 6 for complex outdoor environments

Wi-Fi radio networks belong to all areas of life today. Whether office environments, schools, universities, shopping centres, sports stadiums or event locations, no area can do without Wi-Fi. This Wi-Fi 6 outdoor access point offers low latency times and high throughput per client even with high terminal device density. External Wi-Fi antenna connectors cater for targeted coverage in complex environments. You can therefore trust the possibilities of High Efficiency Wireless – Made by LANCOM.

→ Dual concurrent Wi-Fi – parallel operation at 2.4 GHz and 5 GHz with Wi-Fi 6 (IEEE 802.11ax)
→ 4x4 multi-user MIMO for simultaneous beam-steering for multiple clients (up- and downlink)
→ OFDMA for efficient Wi-Fi channel usage
→ Significantly longer battery life of connected devices thanks to TWT
→ Includes 4 omni-directional antennas, alternatively connection of optional sector antennas
→ Support of the security standard WPA3
→ Zero-touch deployment with a LANCOM WLAN controller or LANCOM Management Cloud
→ PoE passthrough for power supply to a connected PoE powered device
→ 2x 2.5 Gigabit Ethernet ports (1x PoE-in, 1x PoE-out)

LCOS LX 6.12

lancom-systems.com

LANCOM OX-6402

Dual concurrent Wi-Fi with an aggregated datarate of up to 3,550 Mbps

The LANCOM OX-6402 offers the Wi-Fi 6 standard (IEEE 802.11ax) for high-speed wireless LAN for clients in the 2.4- and 5-GHz bands. Wi-Fi 6 technology achieves transmission rates of up to 2.400 Mbps at 5 GHz and simultaneously up to 1.150 Mbps at 2.4 GHz.

4x4 Multi-User MIMO for downlinks and uplinks

Multi-user MIMO (MU-MIMO for short) simultaneously distributes all of the available spatial streams of the LANCOM OX-6402 between several different clients, rather than one after the other as was formerly the case. The available bandwidth is used efficiently and delays in the wireless network are substantially reduced. With Wi-Fi 6, MU-MIMO operates not only for the downlink but for the uplink as well.

OFDMA – carpooling in the radio field

Orthogonal Frequency Division Multiple Access (OFDMA) divides the frequency range of a Wi-Fi channel into a number of frequency blocks per unit of time. This creates subcarriers, which can be as narrow as just 2 MHz. Small data packets, so typical of IoT devices, no longer block entire 20-, 40-, 80- or even 160-MHz channels all by themselves. On the other hand, the Wi-Fi 6 access point is able to bundle multiple subcarriers. This is bit like carpooling, which stops the traffic being blocked by cars with just one occupant: Instead, the streets are freed up with just a few cars carrying several occupants.

160 MHz channel width

The access point can handle channel bandwidths of 20, 40, and 80 MHz (with 4 streams) and 160 MHz (with 2 streams). The channel width of 160 MHz enables a data throughput of up to 2.400 Mbps on appropriate terminals with two antennas that support the reception of two streams at 160 MHz in the 5 GHz frequency band.

Longer battery life thanks to TWT

Previously, smartphones, tablets and notebooks had to be ready to receive all the time so as not to miss their data packets. This can quickly use up battery charge. Wi-Fi 6 delivers a new technology to counteract power consumption on the client side. Target Wake Time, TWT for short, reduces consumption by allowing the access point and the client to negotiate exactly when the receiver should wake up to receive data packets.

Band steering

Optimized load balancing in your Wi-Fi by actively redirecting clients to the less congested and higher performance 5-GHz frequency band.

Operates via the LANCOM Management Cloud

The LANCOM OX-6402 offers unsurpassed user-friendliness: Managed through the LANCOM Management Cloud, it integrates into a holistic, automated network orchestration system based on software-defined networking technology.

LCOS LX 6.12

lancom-systems.com

LANCOM OX-6402

Wi-Fi security standard WPA3

WPA3, the successor of WPA2, offers important upgrades and security features for small ("WPA3-Personal") and large networks ("WPA3-Enterprise").

LCOS LX 6.12

LANCOM OX-6402

Wi-Fi product specification

Frequency band 2.4 GHz and 5 GHz	2400-2483.5 MHz (ISM), 5150-5700 MHz (depending on country-specific restrictions)
Antenna Gain of included omni antennas	up to 2 dBi in 2.4 GHz, up to 3 dBi in 5 GHz
Data rates IEEE 802.11ax	→ up to 2400 MBit/s according to IEEE 802.11ax with MCS11/QAM-1024 at 5 GHz, 4x4 MIMO and 80 MHz channel width or 2x2 MIMO and 160 MHz channel width → up to 1150 MBit/s according to IEEE 802.11ax with MCS11/QAM-1024 at 2.4 GHz, 4x4 MIMO and 40 MHz channel width
Data rates IEEE 802.11ac/n	1733 Mbps according to IEEE 802.11ac (fallback to 6.5 Mbps).
Data rates IEEE 802.11n	600 Mbps according to IEEE 802.11n (fallback to 6.5 Mbps).
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)
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)
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), configurable maximum transmit power
Radio channels 2.4 GHz	Up to 13 channels, max. 3 non-overlapping (depending on country-specific restrictions), configurable maximum transmit power
Multi-SSID	Up to 32 (simultaneous use of up to 16 independent Wi-Fi networks at WLAN interface 1 and up to 16 independent Wi-Fi networks at WLAN interface 2); time-controlled activation and deactivation of Wi-Fi networks
Concurrent Wi-Fi clients	Up to 512 clients
Hotspot	Support for the Cloud-managed Hotspot in combination with the LANCOM Management Cloud

Supported Wi-Fi standards

IEEE standards	IEEE 802.11ax, IEEE 802.11ac Wave 2, IEEE 802.11n, 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

Supported features	4x4 DL-/UL-MU-MIMO, DL-/UL-OFDMA, triggered target-wake-time, BSS coloring, QAM-1024, 80 MHz channels, 160 MHz channels

Standard IEEE 802.11ac

Supported features	4x4 MIMO, 80 MHz channels, 160 MHz channels, MU-MIMO, QAM-256

LCOS LX 6.12

LANCOM OX-6402

Standard IEEE 802.11n	
Supported features	4x4 MIMO, 40-MHz channels, 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

Operating modes	
Modes	Standalone, WLC-managed or LANCOM Management Cloud managed

Wi-Fi security	
Encryption options	IEEE 802.1X (WPA3-Enterprise, WPA2-Enterprise), WPA3-Personal, IEEE 802.11i (WPA2-Personal), WEP, LEPS-U (Private PSK, only possible with WPA2), LEPS-MAC
Encryption algorithms	AES-CCMP, AES-GCMP, TKIP, RC4
EAP types (authenticator)	EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-FAST

Roaming	
Roaming	IAPP (Inter Access Point Protocol), Fast Roaming (802.11r), OKC, Pre-Authentication

LANCOM Active Radio Control	
Band Steering	Steering of 5GHz clients to the corresponding high-performance frequency band; support for 802.11v

Bluetooth Low Energy (BLE)	
Support of Bluetooth Low Energy technology (BLE)	The device can scan the environment for BLE devices and can forward the resulting scan data via a REST API.

Layer 2 functions	
VLAN	4096 VLAN IDs, static assignment to SSIDs, dynamic Assignment via LEPS-U/LEPS-MAC or 802.1X (RADIUS)
Quality of Service	WME based on IEEE 802.11e
Bandwidth limitation	per SSID, per Client
Multicast	IGMP-Snooping, Multicast-to-Unicast-conversion on WLAN interfaces
Protocols	LLDP, Proxy ARP, LACP, L2TPv3

Network	
Protocols	IPv4, IPv6, dual stack

Interfaces	
Ethernet ports	→ 2x 10/100/1000/2.5GBASE-T (RJ45/8P8C), PoE (Power over Ethernet), PoE Passthrough

LCOS LX 6.12

LANCOM OX-6402

Interfaces

Antenna connectors	Four N-type antenna connectors
Internal antenna	integrated BLE antenna

Hardware

Power supply	PoE 802.3bt if PoE Passthrough is used (802.3at max. available via PoE passthrough); PoE 802.3at if PoE passthrough is not used.
Power consumption	max. 25W (without PoE Passthrough)
Environment	temperature range -30°C - +65°C, protection class IP67
Housing	Robust metal housing, IP67 protection rating, ready for wall and pole mounting, 3 LEDs for status display, please note: device must not be mounted in salt water environments without a suitable protective housing; Dimensions 255 × 250 × 80 mm (length x width x depth)

Management and monitoring

Management	LANCOM Management Cloud, WLAN-Controller, WEBconfig, LANconfig, LL2M, external Syslog, Packet Capturing
Monitoring	LANCOM Management Cloud, WLAN-Controller, WEBconfig, LANmonitor, SNMP

Conformity*

Europe/EFTA	CE
Australia / New Zealand	RCM
Country of Origin	Software designed in Germany, Assembled in Malaysia or Assembled in China
*) Note	The full text of the specific Declaration of Conformity is available at the following Internet address: www.lancom-systems.com/doc

Scope of delivery

Documentation	Installation Guide (DE/EN); Mounting Instructions (DE/EN)
Antennas	Four dual band WiFi antennas (2 dBi @ 2.4 GHz, 3 dBi @ 5 GHz)
Cable	Water-resistant, UV-resistant Ethernet PoE cable with water-resistant screw connector, 15m, temperature range from -33°C to +70°C

Accessories

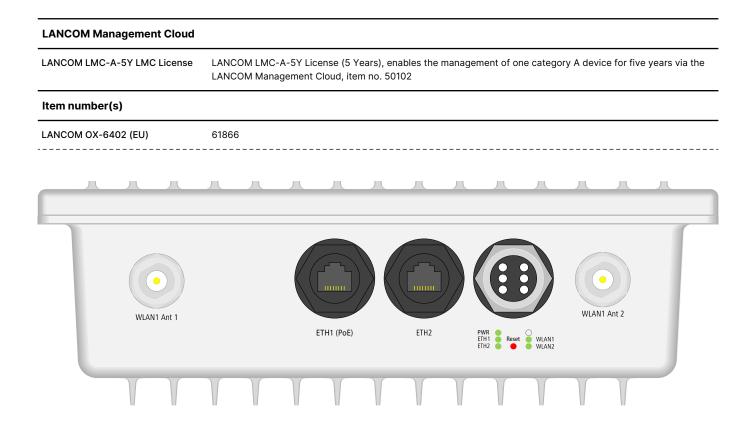|	
LANCOM PoE++ Injector	1-port PoE injector with up to 5 Gigabit support, integrated power supply, compatible with the standard IEEE 802.3af/at/bt (up to 65W), item no. 61779 (EU)

LCOS LX 6.12

LANCOM OX-6402

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 Lifecycle Managements (www.lancom-systems.com/lifecycle)
Manufacturer support	Technical manufacturer support as part of a support contract (LANcommunity partner, LANcare Direct, or LANcare Premium Support)
LANcare Basic L	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. 10722
LANcare Advanced L	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. 10732
LANcare Direct Advanced 24/7 L	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. 10782, 10783 or 10784)
LANcare Direct 24/7 L	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. 10758, 10759 or 10760)
LANcare Direct Advanced 10/5 L	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. 10770, 10771 or 10772)
LANcare Direct 10/5 L	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. 10746, 10747 or 10748)

Software

Lifecycle Management	After discontinuation (End of Sale), the device is subject to the LANCOM 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.

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

LCOS LX 6.12

LANCOM OX-6402

LANCOM Management Cloud	
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

Item number(s)	
LANCOM OX-6402 (EU)	61866