

## LANCOM OAP-1702B

**Flexible enterprise-class outdoor WLAN for a large number of mobile devices**



For an excellent outdoor Wi-Fi experience with a high number of WLAN clients, a future-proof infrastructure is required. This access point with external antennas offers 11ac Wave 2 WLAN (Wi-Fi 5) for best WLAN quality in radio networks with many parallel users – so-called high-density environments. The additionally integrated Bluetooth Low Energy radio module also enables modern BLE beaconing-based applications. Trust in reliable and secure Wi-Fi - "Made in Germany".

- Dual Concurrent WLAN - parallel operation in 2.4 and 5 GHz with up to 1733 Mbps in IEEE 802.11ac Wave 2 and 450 Mbps in IEEE 802.11n
- Robust IP67 protective housing - reliable even in extreme temperatures (-33°C to +70°C)
- Eight external antenna connectors
- Bluetooth Low Energy radio module for innovative beaconing applications
- Connections for Gigabit Ethernet with Power over Ethernet according to IEEE 802.3at
- Zero-touch deployment by LANCOM WLAN controller or LANCOM Management Cloud
- Easy and secure integration of external users with the LANCOM Public Spot Option

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# LANCOM OAP-1702B

## **Dual concurrent Wi-Fi with up to 1733 Mbps**

The LANCOM OAP-1702B offers two wireless WLAN modules for parallel operation in the 2.4 and 5 GHz frequency bands for flexible outdoor applications with external antenna connections: The comfortable setup of modern outdoor hotspots, the professional WLAN illumination of Open spaces or high-speed P2P connections for networking of distant parts of the building.

## **Maximum reliability in all weathers**

The LANCOM OAP-1702B has a rugged IP67 protective housing, making it fully dust proof and water-jet resistant. It withstands temperatures between -33°C and +70°C to guarantee reliable operations even under extreme conditions.

## **Integrated beaconing technology**

The Bluetooth Low Energy radio module integrated in the LANCOM OAP-1702B is the technical basis for modern BLE beaconing-based applications, such as push advertising services for mobile devices (iBeacon). Future firmware updates can also be used to implement additional services such as the localization of persons from objects (asset tracking / management) via partner solutions.

## **4x4 multi-user MIMO**

Multi-user MIMO (MU-MIMO for short) simultaneously distributes all of the available spatial streams of the LANCOM OAP-1702B between several different Wave 2 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.

## **160-MHz channel width**

Increasing the channel width from 80 to 160 MHz doubles the performance of Wave 2 clients. By optimizing the use of the radio spectrum, a client can be supplied with a data rate of up to 1733 Mbps.

## **Active Radio Control for dynamic radio-field optimization**

The LANCOM OAP-1702B supports the Wi-Fi optimization feature LANCOM Active Radio Control. This intelligent combination of innovative features included with the LCOS operating system—such as Spectral Scan, Band Steering, Adaptive Noise Immunity, Adaptive RF Optimization, Airtime Fairness, and Client Steering—sustainably increases Wi-Fi performance and supports administrators with professional tools for Wi-Fi management.

## **LANCOM security for wireless networks**

With numerous integrated security features such as IEEE 802.1X, this enterprise-class access point provides optimal security for networks. Administrators and employees alike benefit from professional security policies on the network.

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## LANCOM OAP-1702B

### **Managed via LANCOM Management Cloud, WLAN controller, or stand-alone**

The LANCOM OAP-1702B offers maximum flexibility in operation: Managed via the LANCOM Management Cloud, it is integrated into a holistic, automated network orchestration based on software-defined networking technology. In addition, it can be used centrally via a LANCOM WLAN controller as well as in stand-alone mode.

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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 802.11ac/n	1733 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 modems and data rates selectable
Data rates IEEE 802.11n	450 Mbps according to IEEE 802.11n with MCS23 (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 and data rates selectable
Range (outdoor / P2P)	The actual range depends on the environmental conditions. The Antenna Distance Calculator on <a href="http://www.lancom-systems.com">www.lancom-systems.com</a> provides information on the possible data rates and distances.
Output power at radio module WLAN-1, 2.4 GHz per chain	IEEE 802.11b/g: +20 Mbps (1 up to 18 Mbps), +17dBm (54 Mbps); IEEE 802.11n: +20 dBm (MCS 0-3, 20 MHz), +15 dBm (MCS 8, 20 MHz), +20 dBm (MCS 0-3, 40 MHz), +15 dBm (MCS 9, 40 MHz)
Output power at radio module WLAN-2, 5 GHz per chain	Maximum transmit power may be limited below these numbers to ensure compliance with local regulatory requirements. IEEE 802.11a/h: +21 dBm (6 up to 18 Mbps), +17 dBm (54 Mbps); IEEE 802.11n/ac: +21 dBm (MCS 0-2, 20 MHz), +15 dBm (MCS 8, 20 MHz), +21 dBm (MCS 0-2, 40 MHz), +15 dBm (MCS 9, 40 MHz); IEEE 802.11ac: +20 dBm (MCS 0-3, 80 MHz), +15 dBm (MCS 9, 80 MHz)
Minimum transmission power	Transmission power reduction in software in 1 dB steps to min. 0.5 dBm
Receiver sensitivity WLAN-1, 2.4 GHz	IEEE 802.11b: -95 dBm (1 MBit/s), -89 dBm (11 MBit/s); IEEE 802.11g: -93dBm (6 MBit/s), -73dBm (54 MBit/s); IEEE 802.11n: -93 dBm (MCS 0, 20 MHz), -69 dBm (MCS 8, 20 MHz), -92 dBm (MCS 0, 40 MHz), -65 dBm (MCS 9, 40 MHz)
Receiver sensitivity WLAN-2, 5 GHz	IEEE 802.11a/h: -94 dBm (6 Mbps), -77 dBm (54 Mbps); IEEE 802.11n/ac: -94 dBm (MCS0, 20 MHz), -71dBm (MCS 8, 20 MHz), -91 dBm (MCS 0, 40 MHz), -66 dBm (MCS 9, 40 MHz); IEEE 802.11ac: -88 dBm (MCS 0, 80 MHz), -62 dBm (MCS 9, 80 MHz)
Radio channels 5 GHz	Up to 26 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)
Multi-SSID	Up to 30 independent WLAN networks; time-controlled activation and deactivation of WLAN networks
Concurrent WLAN clients	Up to 512 clients (recommended)
Others	Wireless Quality Indicators (WQI), Hotspot 2.0
PRP	Packet loss of point-to-point connections can be reduced by using the Parallel Redundancy Protocol with dual radio access points due to parallel data transmissions

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## WLAN product specifications

\*) Note The effective distances and transmission rates that can be achieved are depending of the onsite RF conditions

## Supported WLAN standards

IEEE standards IEEE 802.11ac 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 802.11u, IEEE 802.11r (Fast Roaming), IEEE 802.11k, IEEE 802.11v, 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 802.11ac (Wi-Fi 5)

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

## Standard IEEE 802.11n (Wi-Fi 4)

Supported features 3x3 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

## WLAN operating modes

Modes WLAN access point (standalone, WLC or LANCOM Management Cloud managed), WLAN bridge (P2P or P2MP) (standalone or AutoWDS\*), (standalone, WLC or LANCOM Management Cloud managed), WLAN client mode, transparent WLAN client mode

\*) Note Only in installations with WLAN controller

## 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 (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, MSCHAPv2, Dynamic Peer Discovery

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

Band Steering Steering of 5GHz clients to the corresponding high-performance frequency band

Managed RF Optimization\* Selection of optimal WLAN channels by the administrator

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## LANCOM Active Radio Control

Adaptive Noise Immunity	Better WLAN throughput due to immunity against interferences
Spectral Scan	Monitoring your WLAN for sources of interference
Adaptive RF Optimization	Dynamic selection of the optimal WLAN channel
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), Fast Client Roaming (only in operating mode client modus)
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## Bluetooth Low Energy (BLE)

iBeacon	Support for 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).
Support of Bluetooth Low Energy technology (BLE)	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
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), 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

## 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

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## Layer 3 features

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, SNMP 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, SNMP 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, 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), 464XLAT

## Interfaces

Ethernet ports	2 x 10/100/1000BASE-T autosensing (RJ-45), IEEE 802.3az, PoE (Power over Ethernet) at ETH1
External antenna connectors	Eight N connectors

## Hardware

Power supply	Via Power over Ethernet, compliant with IEEE 802.3at
Environment	Temperature range -33°C to +70°C
Power consumption (max)	Approx. 18 W via PoE (value solely refers to the power consumption of the access point)
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 x 250 x 80 mm (length x width x depth)

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# LANCOM OAP-1702B

## 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 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, 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
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 50581, EN 62368-1, EN 62311, EN 301 489-1, EN 301 489-17
5 GHz WLAN	EN 301 893
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 <a href="http://www.lancom-systems.com">www.lancom-systems.com</a>

## Scope of delivery

Manual	Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)
Cable	Water-resistant, UV-resistant Ethernet PoE cable with water-resistant screw connector, 15m, temperature range from -33°C to +70°C
Mounting Kit	Mounting kit for wall and pole mounting



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## Scope of delivery

Antenna	Eight 3 dBi dipole dual-band antennas (7x external for WLAN, 1x external for BLE)
Power supply unit	Via Power over Ethernet compliant with IEEE 802.3at, 1 x PoE Injector supplied

## Support

Warranty	3 years For details, please refer to the General Warranty Conditions at: <a href="http://www.lancom-systems.com/warranty-conditions">www.lancom-systems.com/warranty-conditions</a>
Software updates	Regular free updates as part of the LANCOM Lifecycle Managements ( <a href="http://www.lancom-systems.com/lifecycle">www.lancom-systems.com/lifecycle</a> )
Manufacturer support	Technical manufacturer support as part of a support contract (LANcommunity partner, LANcare Direct, or LANcare Premium Support)
LANcare Basic L	Security updates and manufacturer support until EOL status (min. 5 years, support contract required: LANcommunity partner, LANcare Direct, or LANcare Premium Support), 5 years replacement service with shipment of the device within 5 days after arrival of the faulty device (8/5/5Days), item no. 10722
LANcare Advanced L	Security updates and manufacturer support until EOL status (min. 5 years, support contract required: LANcommunity partner, LANcare Direct, or LANcare Premium Support), 5 years NBD advance replacement with delivery of the device on the next business day (8/5/NBD), 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: <a href="http://www.lancom-systems.com/lifecycle">www.lancom-systems.com/lifecycle</a>
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 OAP-1702B

## Options

**LANCOM OAP VPN** Option for the extension of the LANCOM OAP-8xx and OAP-170xB series with IPSec VPN functionality, 5 active VPN channels enable the secure maintenance and management of OAPs, and the provision of confidential WLANs via a VPN connection to the company headquarters, item no. 61635

**LANCOM Public Spot** Hotspot option for 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

**\*) Note** Further details on LANCOM Service Packs are available at the following Internet address:  
[www.lancom-systems.com/products/services-and-support](http://www.lancom-systems.com/products/services-and-support)

## 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 WLAN controllers** LANCOM WLC-30, Art.-Nr. 61789 (EU), LANCOM WLC-1000, Art.-Nr. 61783 (EU), LANCOM WLC Basic Option for Routers, Art.-Nr. 61639

**Surge arrestor (LAN cable)** AirLancer Extender SN-LAN surge arrestor (LAN cable), item no. 61261

**LAN cable (outdoor)** LANCOM OAP Ethernet cable (30 m), item no. 61347

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

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**Item number(s)**

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LANCOM OAP-1702B (EU)

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