

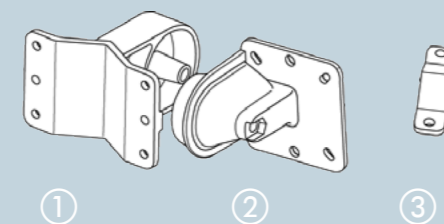


... connecting your business

LANCOM OAP-3G LANCOM OAP-321-3G

Quick Reference Guide Hardware-Schnellübersicht

Mounting



Screw the connector flange ② to the back of the housing with the four screws and their washers.

Wall mounting

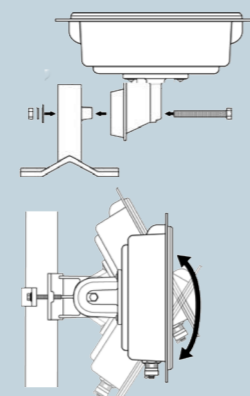
Use the mounting arm ① as a template. Fix the mounting arm to the wall with the supplied screws and dowling plugs.

Pole mounting

Place the clamp profile ③ around the pole. Screw the clamp profile onto the mounting arm with the supplied screws.

Attach the access point with the connector flange ② to the mounting arm ③. Use the M8 x 110 bolt with spring locking washer, washer and nut.

The main beam direction of the integrated antenna can be adjusted by tilting the access point up or down by rotating the connection flange about the mounting arm.

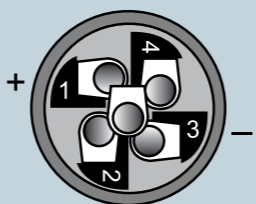


Observe the mounting instructions in the accompanying LANCOM Outdoor Wireless Guide. Installing access points and/or external antennas without adequate lightning protection can lead to serious damage to the devices and/or to the associated network infrastructure.

Assembling a 12-28V connector cable

The device is supplied with a 5-pin cable connector with M12 connector. You can use this plug to assemble a cable for connecting the OAP device to a suitable power source (see below). Observe the following guidelines for cable assembly:

- Use only an outdoor-grade cable with protection class IP67
- Use a cable with a cross section of the cores of 0.75 mm². The permissible outer diameter of the cable is between 6 and 8 mm.
- For the pin assignment, use pin 1 (positive) and pin 3 (negative). The other pins remain unconnected.
- Use wire-end ferrules that are suitable for the cable you are using.



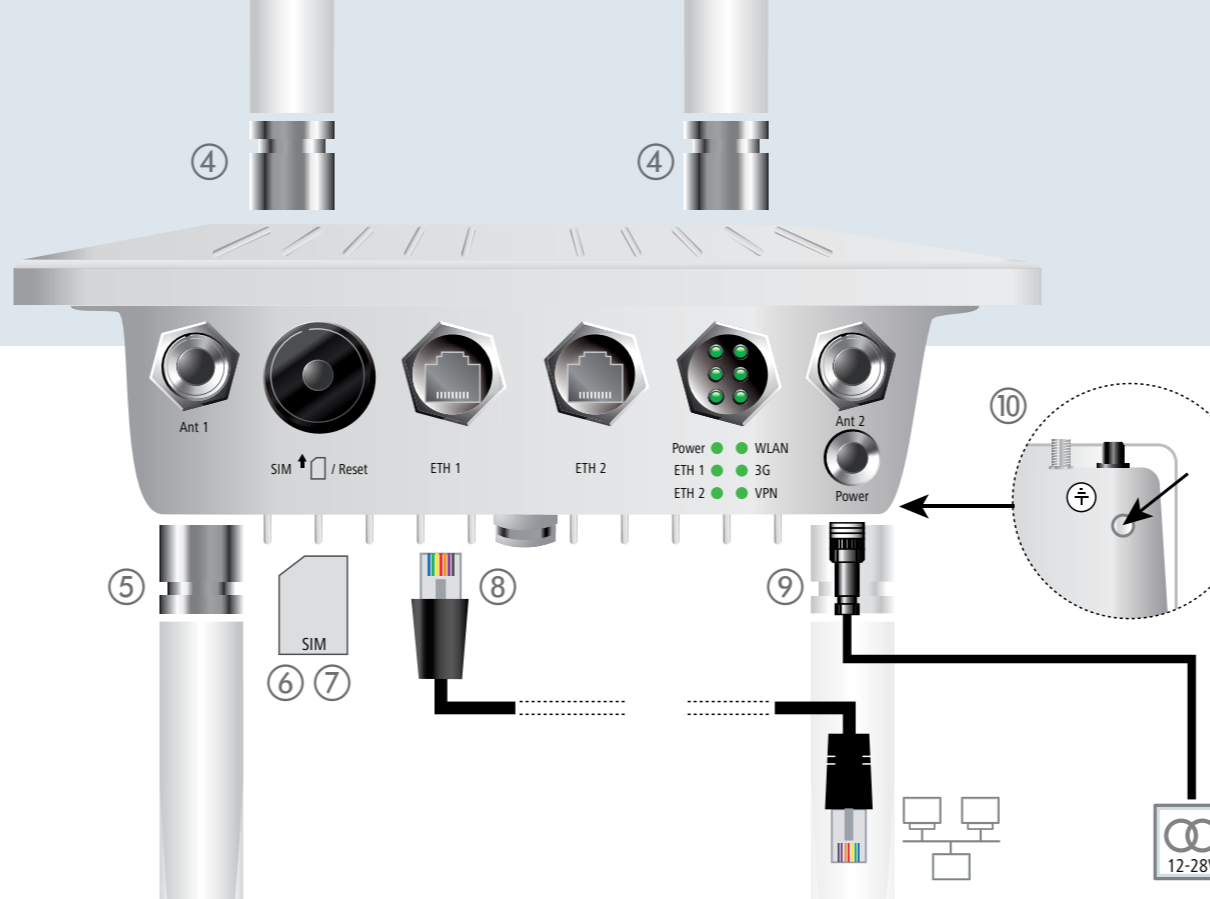
The maximum cable length depends on the supply voltage and ambient temperature. The longer the cable, the greater the power loss. Consider this loss when you select your power supply.

An operating voltage of 10-28 volts is necessary at the device. The following guidelines apply for two typical applications:

- Power supply with 12 V: Max. cable length of 30 m at ambient temperatures of 55°C
- Power supply with 20-24 V: Max. cable length of 150 m at ambient temperatures of up to 70°C



The cable must be connected with care to ensure that the device remains sealed. Any work required for the electrical installation must be carried out by a trained electrician.



④ Optional: 3G antennas and GPS antenna

Screw the two supplied cellular antennas onto the connectors 3G Aux and 3G Main. Alternatively, screw the GPS antenna (available at no charge) to the connector 3G Aux (see voucher supplied).

⑤ Optional: WLAN antennas

Screw the supplied WLAN antennas to the terminals Ant. 1 and Ant. 2. Depending on how the antennas are to be used, the 'Antenna Grouping' parameter may need to be configured in order provide the desired MIMO behavior.

⑥ Optional: SIM card

Use a coin to loosen the screw cap of the SIM card slot. Slide the SIM card into the slot using the marking to ensure that the card is the right way round. Ensure that the SIM card clicks into place on insertion. To remove the card from the device again, press the card lightly into the device. Let go to release the SIM card from the slot.

⑦ Optional: Reset

To restore the device to its default configuration, keep the reset button on the device pressed until the LEDs on the device go out. The automatic restart that follows restores the default configuration to the device.

⑧ LAN

Using the supplied outdoor Ethernet cable, connect the 'LAN-In' port to a free network socket for your local network.

⑨ Power

Use the supplied M12 industrial connector to connect your self-assembled cable to a voltage source ranging from 10-28 V DC.

⑩ Ground

Screw one end of the green grounding wire to the housing and attach the other end to a suitable ground.



The SIM may only be inserted or removed with the device switched off. Inserting or removing the SIM card while the device is switched on could destroy the SIM card!



The housing of the device may become warm during operation. If the device is operated with outside temperatures exceeding 60 °C, it should be mounted with protection against contact.

MOUNTING AND CONNECTING THE DEVICE



① Power

Off	Device switched off
Green on (permanently)	Device operational
Blinking green	Configuration password not set. Without a configuration password, the configuration data in the device is unprotected.

② ETH 1 and ETH 2

Off	No networking device attached
Green on (permanently)	Connection to network device operational, no data traffic
Flickering green	Data traffic

③ WLAN (OAP-321-3G only)

Off	No WLAN network defined or WLAN module deactivated. The WLAN module is not transmitting beacons.
Green	At least one WLAN network is defined and WLAN module activated. The WLAN module is transmitting beacons.
Green inverse flashing	Number of flashes = number of connected WLAN stations and P2P wireless connections, followed by a pause (default). Alternatively the frequency of the flashing can indicate signal strength over the defined P2P link or the signal strength between the access point and the device operating in client mode.
Blinking green	DFS scanning or other scan procedure.

④ 3G interface

Off	3G interface off
Slow blinking in green	Initializing and signing on to the cellular network
Green on (permanently)	Logon to cellular network successful, 3G interface ready
Fast blinking in green	Error

⑤ VPN

Off	VPN connection inactive
Blinking green	Establishing VPN connections
Green on (permanently)	VPN connection active

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Hardware	
Power supply	10-28V DC device operating voltage
Power consumption	OAP-3G: max. 7.5 watts OAP-321-3G: max. 10 watts
Environment	For 10-28 volts: -33°C to +55°C For 24-28 volts: -33°C to +70°C
Housing	Robust metal housing, protection class IP 66 for wall and pole mounting. Note: For installations in salt-water environments, use a suitable protective housing Dimensions 255 mm x 250 mm x 80 mm (length/width/depth)

WLAN (OAP-321-3G only)	
Frequency band	2.4 GHz or 5 GHz, 2400-2483.5 MHz (ISM) or 5150-5825 MHz (restrictions vary between countries)
Transmission rates, 802.11b/g	54 Mbps as per 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
Transmission rates, 802.11a/h	54 Mbps as per IEEE 802.11a/h (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, automatic rate selection), full compatibility with TPC (adjustable power output) and DFS (automatic channel selection, radar detection) as per ETSI EN 301 893 V. 1.5.1., EN 302 502
Transmission rates, 802.11n	300 Mbps as per 802.11n with MCS15 (fallback to 6.5 Mbps with MCS0). Settings for 802.11 a/g/n compatibility mode or pure g, pure a, pure n, 802.11n/g, 802.11n/a
Range (outdoor/P2P)	Several kilometers in the 5-GHz band. The Antenna Distance Calculator is available for free from www.lancom.eu.
Output power at the radio module, 5 GHz	802.11a/h: 17 dBm @ 6 to 24 Mbps, 15 dBm @ 36 Mbps, 13 dBm @ 54 Mbps, 802.11n: 17 dBm @ 6.5/13/30 Mbps (MCS0/8), 13 dBm @ 65/130/300 Mbps (MCS7/15)
Minimum transmission power	Transmission-power reduction in software by 1dB steps to min. 0.5 dBm
Reception sensitivity 2.4 GHz	802.11b: -89 dBm @ 11 Mbps, -94 dBm @ 1 Mbps 802.11g: -93 dBm @ 6 Mbps, -79 dBm @ 54 Mbps 802.11n: -93 dBm @ 6.5 Mbps (MCS0/8), -75 dBm @ 65 Mbps (MCS7/15)
Reception sensitivity 5 GHz	802.11a/h: -93 dBm @ 6 Mbps, -75 dBm @ 54 Mbps 802.11n: -93 dBm @ 6.5 Mbps (MCS0/8), -71 dBm @ 65 Mbps (MCS7/15)
Radio channels 2.4 GHz	Up to 13 channels, max. 3 non-overlapping (2.4-GHz band)
Radio channels 5 GHz	Up to 26 non-overlapping channels (channels available vary according to country regulations; DFS for automatic dynamic channel selection required)

UMTS/3G+ modem	
Supported standards:	UMTS, HSPA+ (HSPA+ with up to 21 Mbps, HSUPA with up to 5.76 Mbps), EDGE and GPRS support
UMTS HSxPA bands	850/900/1900/2100 MHz
EDGE GPRS bands	850/900/1800/1900 MHz (EDGE to max. 236 Kbps)
Diversity	Diversity reception on the AUX antenna

Interfaces	
LAN port	10/100/1000 Mbps, pre-configured LAN port, re-configurable to WAN port
WAN port	10/100 Mbps, pre-configured WAN port, re-configurable to LAN port
External antenna connectors	OAP-3G: two N connectors
SIM card slot	OAP-321-3G: four N connectors For inserting a SIM card

Declaration of conformity	
CE	EN 55022, EN 55024, EN 301489-1, EN 301489-2 (UMTS), EN 301908-1/-2 (UMTS), EN 301511 (GSM) Additionally for OAP-321-3G EN 301489-17 (WLAN), EN 300328 (2.4 GHz), EN 301893 (5GHz), EN 302502 version 1.5.1 (BFWA)
Notifications	Certifications notified in Germany, Belgium, Netherlands, Luxembourg, Austria, Spain, Switzerland, UK, Italy, Portugal, Czech Republic, Denmark, France

Package content	
Cable	Water-resistant, UV-resistant Ethernet cable with screw connector, 15m
Manual	Quick Reference Guide (DE/EN), Installation Guide (DE/EN/FR/ES/IT/PT/NL)
CD/DVD	Data medium with firmware, management software (LANconfig, LANmonitor, WLANmonitor) and documentation
Antennas	Two 3-dBi dipole dual-band WLAN antennas (OAP-321-3G only)
Antennas	Two 2-dBi dipole UMTS/GPRS antennas (850-960 MHz and 1700-2220 MHz)
Adapter	5-pin cable connector for a self-assembled cable
Mounting kit	Equipment for wall and pole mounting, screws included
Covering cap	Ensures that the unit remains sealed in case an Ethernet port is unused
GPS antenna	Passive GPS antennas can be ordered free of charge with the voucher supplied